00-955-CD
IRVONA MUNICIPAL AUTHORITY -vs- ERIKSEN WELL DRILLING etal

IN THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA
CIVIL ACTION - LAW

IRVONA MUNICIPAL AUTHORITY,
Plaintiff

VS.

ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION,
Defendants

No. 00-955 -CD

Type of Pleading: Praecipe for Writ of Summons

Type of Case: Civil

Filed on Behalf of: Plaintiff

Counsel of Record for this Party:

Scott T. Wyland, Esquire
SUPREME COURT ID#: 52660
Malatesta, Hawke, & McKeon, LLP
100 N. Tenth Street
P.O. Box 1778
Harrisburg, Pa 17105
Phone: (717) 236-1300

Other Counsel of Record:

FILED
AUG 10 2000
William A. Shaw
Prothonotary

IN THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA
CIVIL ACTION – LAW

IRVONA MUNICIPAL AUTHORITY, Plaintiff	*	
vs.	*	No. 00- -CD
ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION, Defendants	*	

PRAECIPE FOR WRIT OF SUMMONS

TO: WILLIAM A. SHAW, PROTHONOTARY

Please issue a Writ of Summons to each of the above named Defendants.

Respectfully yours,

Date: August 10, 2000

Scott T. Wyland

Scott T. Wyland, Esquire
SUPREME COURT ID#: 52660
Malatesta, Hawke & McKeon, LLP
100 N. Tenth Street
P.O. Box 1778
Harrisburg, Pa 17105
Phone: (717) 236-1300

FILED
01 2:12 BOI
AUG 10 2000
William A. Shaw
Prothonotary

7cc Atty Kesner
Atty pd. Kesner 80.00
4 Writs issued to Atty Kesner

COPY

IN THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA

CIVIL ACTION

SUMMONS

Irvona Municipal Authority
Plaintiff(s)

Vs.

No: 00-955-CD

Eriksen Well Drilling,
James R. Casselberry,
James R. Casselberry & Associates, Inc., and
The Eades Group t/a Neilan Engineers Division
Defendant(s)

To: The Eads Group t/a Neilan Engineers Division
Defendant(s)

To the above named Defendant(s) you are hereby notified that the above named Plaintiff(s), has/have commenced a Civil Action against you.

Date: August 10, 2000

William A. Shaw
Prothonotary

Issuing Attorney:
Scott T. Wyland, Esq.
100 N. Tenth Street
PO Box 1778
Harrisburg, PA 17105

COPY

IN THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA

CIVIL ACTION

SUMMONS

Irvona Municipal Authority
Plaintiff(s)

Vs.

No: 00-955-CD

Eriksen Well Drilling,
James R. Casselberry,
James R. Casselberry & Associates, Inc., and
The Eades Group t/a Neilan Engineers Division
Defendant(s)

To: James R. Casselberry & Associates, Inc.
Defendant(s)

To the above named Defendant(s) you are hereby notified that the above named Plaintiff(s), has/have commenced a Civil Action against you.

Date: August 10, 2000

William A. Shaw
Prothonotary

Issuing Attorney:
Scott T. Wyland, Esq.
100 N. Tenth Street
PO Box 1778
Harrisburg, PA 17105

COPY

IN THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA

CIVIL ACTION

SUMMONS

Irvona Municipal Authority
Plaintiff(s)

Vs. No: 00-955-CD

Eriksen Well Drilling,
James R. Casselberry,
James R. Casselberry & Associates, Inc., and
The Eades Group t/a Neilan Engineers Division
Defendant(s)

To: James R. Casselberry
Defendant(s)

To the above named Defendant(s) you are hereby notified that the above named Plaintiff(s), has/have commenced a Civil Action against you.

Date: August 10, 2000

William A. Shaw
Prothonotary

Issuing Attorney:
Scott T. Wyland, Esq.
100 N. Tenth Street
PO Box 1778
Harrisburg, PA 17105

COPY

IN THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA

CIVIL ACTION

SUMMONS

Irvona Municipal Authority
Plaintiff(s)

Vs. No: 00-955-CD

Eriksen Well Drilling,
James R. Casselberry,
James R. Casselberry & Associates, Inc., and
The Eades Group t/a Neilan Engineers Division
Defendant(s)

To: Eriksen Well Drilling
Defendant(s)

To the above named Defendant(s) you are hereby notified that the above named Plaintiff(s), has/have commenced a Civil Action against you.

Date: August 10, 2000

William A. Shaw
Prothonotary

Issuing Attorney:
Scott T. Wyland, Esq.
100 N. Tenth Street
PO Box 1778
Harrisburg, PA 17105

STEVEN K. HAAS

IN THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA

IRVONA MUNICIPAL AUTHORITY 00-955-CD
VS
ERIKSEN WELL DRILLING

SUMMONS

SHERIFF RETURNS

NOW AUGUST 28, 2000 CARL BROWN, SHERIFF OF SOMERSET COUNTY WAS DEPUTIZED BY CHESTER A. HAWKINS, SHERIFF OF CLEARFIELD COUNTY TO SERVE THE WITHIN SUMMONS ON THE EADES GROUP T/A NEILAN ENGINEERING DIVISION, DEFENDANT.

NOW AUGUST 31, 2000 SERVED THE WITHIN SUMMONS ON THE EADES GROUP T/A NEILAN ENGINEERING DIVISION, DEFENDANT BY DEPUTIZING THE SHERIFF OF SOMERSET COUNTY. THE RETURN OF SHERIFF BROWN IS HERETO ATTACHED AND MADE A PART OF THIS RETURN STATING THAT HE SERVED CHRISTINE PRITTS, SECRETARY.

NOW AUGUST 28, 2000, DENNY NAU, SHERIFF OF CENTRE COUNTY WAS DEPUTIZED BY CHESTER A. HAWKINS, SHERIFF OF CLEARFIELD COUNTY TO SERVE THE WITHIN SUMMONS ON JAMES R. CASSELBERRY AND JAMES R. CASSELBERRY & ASSOCIATES INC., DEFENDANTS.

NOW SEPTEMBER 6, 2000 SERVED THE WITHIN SUMMONS ON JAMES R. CASSELBERRY, DEFENDANT BY DEPUTIZING THE SHERIFF OF CENTRE COUNTY. THE RETURN OF SHERIFF NAU IS HERETO ATTACHED AND MADE A PART OF THIS RETURN STATING THAT HE SERVED JAMES R. CASSELBERRY.

NOW SEPTEMBER 8, 2000 SERVED THE WITHIN SUMMONS ON JAMES R. CASSELBERRY & ASSOCIATES INC., DEFENDANT BY DEPUTIZING THE SHERIFF OF CENTRE COUNTY. THE RETURN OF SHERIFF NAU IS HERETO ATTACHED AND MADE A PART OF THIS RETURN STATING THAT HE SERVED TAMMY MCLAUGHLIN, ADULT AT RESIDENCE.

STEVEN K. HAAS

IN THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA

IRVONA MUNICIPAL AUTHORITY 00-955-CD
VS
ERIKSEN WELL DRILLING

SUMMONS

SHERIFF RETURNS

NOW AUGUST 28, 2000, DAVID HARKER, SHERIFF OF HUNTINGDON COUNTY WAS DEPUTIZED BY CHESTER A. HAWKINS, SHERIFF OF CLEARFIELD COUNTY TO SERVE THE WITHIN SUMMONS ON ERIKSON WELL DRILLING, DEFENDANT.

NOW SEPTEMBER 8, 2000 SERVED THE WITHIN SUMMONS ON ERIKSON WELL DRILLING, DEFENDANT BY DEPUTIZING THE SEHRIFF OF HUNTINGDON COUNTY. THE RETURN OF SHERIFF HARKER IS HERETO ATTACHED AND MADE A PART OF THIS RETURN STATING THAT HE SERVED DAVID R. ERIKSEN.

STEVEN K. HAAS

IRVONA MUNICIPAL AUTHORITY
VS
ERIKSEN WELL DRILLING

00-955-CD

CHARGES

SUMMONS

64.32 SHFF. HAWKINS PAID BY: ATTY.
22.64 SHFF. HARKER PAID BY: ATTY.
24.26 SHFF. BROWN PAID BY: ATTY.
44.50 SHFF. NAU PAID BY: ATTY.
40.00 SURCHARGE PAID BY: ATTY.

SWORN TO BEFORE ME THIS

25th DAY OF September 2000

WILLIAM A. SHAW
Prothonotary
My Commission Expires
1st Monday in Jan. 2002
Clearfield Co., Clearfield, PA.

SO ANSWERS,
Chester A. Hawkins
by Marilyn Harr
CHESTER A. HAWKINS
SHERIFF

FILED
SEP 25 2000
William A. Shaw
Prothonotary

The Eades Group T/A Neilan Engineers D.V.
C. 10125

Docket Number 00-955-CD

SHERIFF'S RETURN

Personally appeared before me David L York a deputy for **CARL W. BROWN**, Sheriff of Somerset County, Pennsylvania, who being duly sworn according to law, deposes and says that on the 31st day of August 2000 at 11:05 AM/PM he served the above named person as follows:

- [ ] Personal Service on person
- [ ] Mailing to person at above address; evidence of mailing attached
- [ ] Adult member of the person's household
  Name _____ Relationship _____
- [ ] Adult in charge of person's residence
  Name _____ Relationship _____
- [x] Agent or person at the time and place in charge of the person's office or usual place of business
  Name Christine Pritts Relationship Secretary
- [ ] Manager/Clerk at the place of lodging in which person resides - Name _____
- [ ] Other Name _____ Title _____ of corporation
- [ ] Posted most public part of premise situate
  at [ ] Residence, [x] Business, [ ] Employment, [ ] Other,
  of person to be served, at 450 Aberdeen Dr
  Somerset PA 15501
  IN Somerset TWP/BORO and making known to such person the contents thereof.

PERSON NOT FOUND BECAUSE:

- [ ] Whereabouts Unknown, [ ] No Answer, [ ] Vacant, [ ] Moved left no forwarding address, [ ] Moved - New address
- [ ] Other _____

Sworn and subscribed before me this
1st day of September 2000

David L. York
DEPUTY SHERIFF SOMERSET COUNTY, PA

Melissa A. Truscott

Notarial Seal
Melissa A. Truscott, Notary Public
Somerset Boro, Somerset County
My Commission Expires February 24, 2003
Member, Pennsylvania Association of Notaries

Costs
Pd 9-1-00 Sher. FF Brown $24.26

C-10125

SHERIFF'S OFFICE
CENTRE COUNTY
Rm 101 Court House, Bellefonte, Pennsylvania, 16823 (814) 355-6803

SHERIFF SERVICE
PROCESS RECEIPT, AND AFFIDAVIT OF RETURN

INSTRUCTIONS FOR SERVICE OF PROCESS: You must file one instruction sheet for each defendant. please type or print legibly. Do Not detach any copies.

1. Plaintiff(s): IRVONA MUNICIPAL AUTHORITY

2. Case Number: 00-955-CD

3. Defendant(s): JAMES R. CASSELBERRY

4. Type of Writ or Complaint: WRIT OF SUMMONS

SERVE → AT

5. Name of Individual, Company, Corporation, Etc., to Serve or Description of Property to be Levied, Attached or Sold.: James R. Casselberry

6. Address (Street or RFD, Apartment No., City, Boro, Twp., State and Zip Code): 718 W. Nittany Ave. State College, PA

7. Indicate unusual service: ☐ Reg Mail ☐ Certified Mail ☐ Deputize ☐ Post ☐ Other

Now, _____ 20____. I SHERIFF OF CENTRE COUNTY, PA., do hereby deputize the Sheriff of _____ County to execute this Writ and make return thereof according to law. This deputation being made at the request and risk of the plaintiff. _____
Sheriff of Centre County

8. SPECIAL INSTRUCTIONS OR OTHER INFORMATION THAT WILL ASSIST IN EXPEDITING SERVICE

NOTE ONLY APPLICABLE ON WRIT OF EXECUTION: N.B. WAIVER OF WATCHMAN – Any deputy sheriff levying upon or attaching any property under within writ may leave same without a watchman, in custody of whomever is found in possession, after notifying person of levy or attachment, without liability on the part of such deputy or the sheriff to any plaintiff herein for any loss, destruction or removal of any such property before sheriff's sale thereof.

9. Print/Type Name and Address of Attorney/Originator

10. Telephone Number

11. Date

12. Signature

SPACE BELOW FOR USE OF SHERIFF ONLY - DO NOT WRITE BELOW THIS LINE

13. I acknowledge receipt of the writ or complaint as indicated above. SIGNATURE of Authorized CCSD Deputy of Clerk and Title

14. Date Filed

15. Expiration/Hearing Date

TO BE COMPLETED BY SHERIFF

16. Served and made known to JAMES R. CASSELBERRY, on the 6TH day of SEPTEMBER 20 00, at 10:10 o'clock, A m., at 718 W. NITTANY AVE. STATE COLLEGE, County of Centre Commonwealth of Pennsylvania, in the manner described below:

- ☒ Defendant(s) personally served.
- ☐ Adult family member with whom said Defendant(s) resides(s). Relationship is _____
- ☐ Adult in charge of Defendant's residence.
- ☐ Manager/Clerk of place of lodging in which Defendant(s) resides(s).
- ☐ Agent or person in charge of Defendant's office or usual place of business.
- ☐ _____ and officer of said Defendant company.
- ☐ Other _____

On the _____ day of _____, 20____, at _____ o'clock, _____ M.

Defendant not found because:

☐ Moved ☐ Unknown ☐ No Answer ☐ Vacant ☐ Other _____

Remarks:

Advance Costs	Docket	Service	Sur Charge	Affidavit	Mileage	Postage	Misc.	Total Costs	Costs Due or Refund
75.00	9.00	15.00	—	3.50	15.00	1.00	1.00	44.50	30.50

17. AFFIRMED and subscribed to before me this 11 day of September 2000

23. Corinne Peters
Notary Public

Notarial Seal
Corinne Peters, Notary Public
Bellefonte Boro, Centre County
My Commission Expires Aug. 28, 2001
Member, Pennsylvania Association of Notaries

My Commission Expires:

So Answer: Eric A Egli

18. Signature of Dep. Sheriff: Eric A Egli

19. Date: 9/8/00

21. Signature of Sheriff

22. Date: 9/8/00

SHERIFF OF CENTRE COUNTY

Amount Pd. Page

24. I ACKNOWLEDGE RECEIPT OF THE SHERIFF'S RETURN SIGNATURE OF AUTHORIZED ADMINISTRATOR OR NOTARY

25. Date Received

White - Prothonotary Canary - Attorney

SHERIFF'S OFFICE
CENTRE COUNTY
Rm 101 Court House, Bellefonte, Pennsylvania, 16823 (814) 355-6803

SHERIFF SERVICE
PROCESS RECEIPT, AND AFFIDAVIT OF RETURN

INSTRUCTIONS FOR SERVICE OF PROCESS: You must file one instruction sheet for each defendant. please type or print legibly. Do Not detach any copies.

1. Plaintiff(s)
Ervona Municipal Authority

2. Case Number
00-955-CD

3. Defendant(s)
Erikson Well Drilling, et al

4. Type of Writ or Complaint:
Writ of Summons

SERVE → AT

5. Name of Individual, Company, Corporation, Etc., to Serve or Description of Property to be Levied, Attached or Sold.
James R. Casselberry & Associates, Inc.

6. Address (Street or RFD, Apartment No., City, Boro, Twp., State and Zip Code)
718 W. Nittany Ave., State College, PA

7. Indicate unusual service: ☐ Reg Mail ☐ Certified Mail ☐ Deputize ☐ Post ☐ Other

Now, _____ 20____. I SHERIFF OF CENTRE COUNTY, PA., do hereby deputize the Sheriff of _____ County to execute this Writ and make return thereof according to law. This deputation being made at the request and risk of the plaintiff. _____
Sheriff of Centre County

8. SPECIAL INSTRUCTIONS OR OTHER INFORMATION THAT WILL ASSIST IN EXPEDITING SERVICE

NOTE ONLY APPLICABLE ON WRIT OF EXECUTION: N.B. WAIVER OF WATCHMAN – Any deputy sheriff levying upon or attaching any property under within writ may leave same without a watchman, in custody of whomever is found in possession, after notifying person of levy or attachment, without liability on the part of such deputy or the sheriff to any plaintiff herein for any loss, destruction or removal of any such property before sheriff's sale thereof.

9. Print/Type Name and Address of Attorney/Originator

10. Telephone Number

11. Date

12. Signature

SPACE BELOW FOR USE OF SHERIFF ONLY - DO NOT WRITE BELOW THIS LINE

13. I acknowledge receipt of the writ or complaint as indicated above. SIGNATURE of Authorized CCSD Deputy of Clerk and Title	14. Date Filed	15. Expiration/Hearing Date

TO BE COMPLETED BY SHERIFF

16. Served and made known to Tammy McLaughlin, on the 8th day of September, 20 00, at 2:30 o'clock, _____ P m., at 718 W. Nittany Ave., State College County of Centre Commonwealth of Pennsylvania, in the manner described below:

- ☐ Defendant(s) personally served.
- ☐ Adult family member with whom said Defendant(s) resides(s). Relationship is _____
- ☑ Adult in charge of Defendant's residence.
- ☐ Manager/Clerk of place of lodging in which Defendant(s) resides(s).
- ☐ Agent or person in charge of Defendant's office or usual place of business.
- ☐ _____ and officer of said Defendant company.
- ☐ Other _____

On the _____ day of _____, 20____, at _____ o'clock, _____ M.
Defendant not found because:
☐ Moved ☐ Unknown ☐ No Answer ☐ Vacant ☐ Other _____
Remarks:

Advance Costs	Docket	Service	Sur Charge	Affidavit	Mileage	Postage	Misc.	Total Costs	Costs Due or Refund
—	—	—	—	—	—	—	—	—	—

17. AFFIRMED and subscribed to before me this 11 day of Sept. 20 00

23. Corinne Peters
Notary Public

Notarial Seal
Corinne Peters, Notary Public
Bellefonte Boro, Centre County
My Commission Expires Aug. 25, 2003
Member, Pennsylvania Association of Notaries

My Commission Expires

So Answers Eric J. Egli

18. Signature of Dep. Sheriff: Eric J. Egli — 19. Date 9/8/00

21. Signature of Sheriff — 22. Date 9/8/00

SHERIFF OF CENTRE COUNTY

Amount Pd. _____ Page _____

24. I ACKNOWLEDGE RECEIPT OF THE SHERIFF'S RETURN SIGNATURE OF AUTHORIZED AUTHORITY AND TITLE.

25. Date Received

White - Prothonotary Canary - Attorney

CHESTER A. HAWKINS
SHERIFF

Sheriff's Office
Clearfield County

SUITE 116
1 NORTH SECOND STREET - COURTHOUSE
CLEARFIELD, PENNSYLVANIA 16830

OFFICE (814) 765-2641
AFTER 4:00 P.M. (814) 765-1533
CLEARFIELD COUNTY FAX
(814) 765-6089

DARLENE SHULTZ
CHIEF DEPUTY

MARGARET PUTT
OFFICE MANAGER

MARILYN HAMM
DEPT. CLERK

PETER F. SMITH
SOLICITOR

DEPUTATION

IN THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA

IRVONA MUNICIPAL AUTHORITY

VS

ERIKSEN WELL DRILLING al

NO. 00-955-CD

ACTION: SUMMONS

SERVE BY: 9/9/00

or

HEARING DATE:

****

SERVE: JAMES R. CASSELBERRY and JAMES R. CASSELBERRY & ASSOCIATES, INC.
436 718 W. NITTANY

ADDRESS: 108 E. Main St., PO Box 616, Boalsburg, Pa. 16827

****

Know all men by these presents, that I, CHESTER A. HAWKINS, HIGH SHERIFF of CLEARFIELD COUNTY, State of Pennsylvania, do hereby deputize the SHERIFF of CENTRE County to execute this writ.

This deputation being made at the request and risk of the plaintiff this 28th day of AUGUST 2000.

Respectfully,

CHESTER A. HAWKINS,
SHERIFF OF CLEARFIELD COUNTY

MAKE REFUND PAYABLE TO: MALATESTA, HAWKE & McKEON, Attoneys

8-29 1372-AA 75.00

SHERIFF'S OFFICE
HUNTINGDON COUNTY, PENNSYLVANIA

241 Mifflin Street
Huntingdon, PA 16652
Telephone: 814-643-0880
David L. Harker, Sheriff

IRVONA MUNICIPAL AUTHORITY

NO. 955 TERM 00

VS:

ERIKSON WELL DRILLING ET AL

DAVID R. ERIKSON WELL & PUMP SERVICE, RD#1 BOX 72

HESSTON, PA 16647

NOW, SEPTEMBER 8 ,2000 ,AT 1525 A.M./P.M. I SERVED THE WITHIN

SUMMONS UPON

ERIKSON WELL DRILLING AT

DAVID R. ERIKSEN WELL & PUMP SERVICE, RD#1 BOX 72, HESSTON, PA 16647

BY HANDING TO DAVID R. ERIKSEN, PERSONALLY

ONE TRUE AND CORRECT COPY/COPIES OF THE WITHIN SUMMONS

AND MADE KNOWN TO DAVID

THE CONTENTS THEREOF.

SWORN AND SUBSCRIBED TO
BEFORE ME THIS 11th
DAY OF Sept
2000 , A.D.

Kay Coons
PROTHONOTARY/NOTARY PUBLIC

KAY COONS
PROTHONOTARY
HUNTINGDON COUNTY, PENNSYLVANIA
MY COMMISSION EXPIRES JANUARY 7, 2002

SO ANSWERS,

David L. Harker, Sheriff

ANDREW SENTMAN
CHIEF DEPUTY/DEPUTY

COSTS:

REC & DOC	9.00
SERVICE	9.00
MILEAGE/POSTAGE	4.64
SURCHARGE	----
AFFIDAVIT	N/C
MISCELLANEOUS	----
TOTAL COSTS	22.64 PAID

Sheriff's Office
Clearfield County

SUITE 116
1 NORTH SECOND STREET - COURTHOUSE
CLEARFIELD, PENNSYLVANIA 16830

OFFICE (814) 765-2641
AFTER 4:00 P.M. (814) 765-1533
CLEARFIELD COUNTY FAX
(814) 765-6089

CHESTER A. HAWKINS
SHERIFF

DARLENE SHULTZ
CHIEF DEPUTY

MARGARET PUTT
OFFICE MANAGER

MARILYN HAMM
DEPT. CLERK

PETER F. SMITH
SOLICITOR

DEPUTATION

IN THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA

IRVONA MUNICIPAL AUTHORITY

VS

ERIKSEN WELL DRILLING al

NO. 00-955-CD

ACTION: SUMMONS

SERVE BY: 9/9/00

or

HEARING DATE:

****

SERVE: ERIKSEN WILL DRILLING

ADDRESS: David R. Eriksen, Well & Pump Service, RD#1 Box 72, Hesston, Pa. 16647

****

Know all men by these presents, that I, CHESTER A. HAWKINS, HIGH SHERIFF of CLEARFIELD COUNTY, State of Pennsylvania, do hereby deputize the SHERIFF of HUNTINGDON County to execute this writ.

This deputation being made at the request and risk of the plaintiff this 28th day of AUGUST 2000.

Respectfully,

CHESTER A. HAWKINS,
SHERIFF OF CLEARFIELD COUNTY

MAKE REFUND PAYABLE TO: MALATESTA, HAWKE & McKEON, Attorneys

THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA

IRVONA MUNICIPAL AUTHORITY,

Plaintiff,

v.

ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP t/a NEILAN ENGINEERS DIVISION,

Defendants.

CIVIL DIVISION

NO. 00-955- CD

PRAECIPE FOR APPEARANCE

Filed on behalf of Defendant EADS Group t/a Neilan Engineers Division

Counsel of Record for this Party:

Robert J. Ray, Esquire
Pa. I.D. #57806

BURNS, WHITE & HICKTON, LLC
120 Fifth Avenue
Suite 2400
Pittsburgh, PA 15222
(412) 394-2500

Firm I.D. #828

FILED

OCT 18 2000

William A. Shaw
Prothonotary

THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA

IRVONA MUNICIPAL AUTHORITY, Plaintiff, v. ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP t/a NEILAN ENGINEERS DIVISION, Defendants.	CIVIL DIVISION NO. 00-955- CD PRAECIPE FOR APPEARANCE

PRAECIPE FOR APPEARANCE

Kindly enter the appearance of Robert J. Ray, Esquire and Burns, White & Hickton, LLC on behalf of Defendant the EADS Group t/a Neilan Engineers Division in the above-referenced matter.

Respectfully submitted,

BURNS, WHITE & HICKTON, LLC

Robert J. Ray, Esquire
Attorneys for Defendant The EADS Group
t/a Neilan Engineers Division

CERTIFICATE OF SERVICE

I, Robert J. Ray, Esquire, hereby certify that a true and correct copy of the within **PRAECIPE FOR APPEARANCE** was served on counsel listed below by U.S. First Class Mail this 16th day of October, 1999.

Scott T. Wyland, Esquire
100 N. Tenth Street
P.O. Box 1778
Harrisburg, PA 17105

BURNS, WHITE & HICKTON

By: _____
Robert J. Ray, Esquire

IN THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA
CIVIL ACTION

IRVONA MUNICIPAL AUTHORITY, Plaintiff	:	
vs.	:	No. 00 - 955 - CD
ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION Defendants	:	JURY TRIAL DEMANDED

PRAECIPE FOR ENTRY OF APPEARANCE

Filed on behalf of

Defendant, Eriksen Well Drilling

Counsel of Record for this Party:

James N. Bryant, Esq.
Attorney-At-Law
PA I.D. 14084

BRYANT & ASSOCIATES, P.C.
107 East Main Street
Millheim, PA 16854

(814) 349-5666

FILED
DEC 2 1 2000
William A. Shaw
Prothonotary

IN THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA
CIVIL ACTION

IRVONA MUNICIPAL AUTHORITY, Plaintiff	:	
vs.	:	No. 00 - 955 - CD
ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION Defendants	:	JURY TRIAL DEMANDED

PRAECIPE FOR ENTRY OF APPEARANCE

TO THE PROTHONOTARY OF SAID COURT:

Kindly enter my appearance on behalf of the Defendant, ERIKSEN WELL DRILLING, to the above captioned matter. All papers may be served upon the Defendant at my law offices located at 107 East Main Street, Millheim, PA 16854.

BRYANT & ASSOCIATES, P.C.

By: _____

James N. Bryant, Esq.
Attorney for Eriksen Well Drilling
Attorney ID No. 14084
107 East Main Street
Millheim, PA 16854

DATED: December 20, 2000

IN THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA
CIVIL ACTION

IRVONA MUNICIPAL AUTHORITY, Plaintiff	:	
vs.	:	No. 00 - 955 - CD
ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION Defendants	:	JURY TRIAL DEMANDED

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the within **PRAECIPE FOR ENTRY OF APPEARANCE** was served by depositing the same with the United States Postal Service, postage prepaid, addressed to the following:

Scott T. Wyland, Esq.
Malatesta Hawke & McKeon LLP
Harrisburg Energy Center
100 North Tenth Street
P. O. Box 1778
Harrisburg, PA 17105

Kelly B. Bakayza, Esq.
Burns, White & Hickton
120 Fifth Avenue, Suite 2400
Pittsburgh, PA 15222-3001

James R. Casselberry
108 East Main Street
P. O. Box 616
Boalsburg, PA 16827

By: _____
James N. Bryant, Esq.
Attorney for Eriksen Well Drilling

DATED: December 20, 2000

IRVONA MUNICIPAL AUTHORITY, Plaintiff	:	IN THE COURT OF COMMON PLEAS CLEARFIELD COUNTY, PENNSYLVANIA
v.	:	
	:	CIVIL ACTION - LAW
DAVID ERIKSEN, t/a ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION,	:	NO. 00-955-CD
Defendants	:	JURY TRIAL DEMANDED

NOTICE

You have been sued in court. If you wish to defend against the claims set forth in the following pages, you must take action within twenty (20) days after this Petition and Notice are served, by entering a written appearance personally or by an attorney and filing in writing with the court your defenses or objections to the claims set forth against you. You are warned that if you fail to do so the case may proceed without you and a judgment may be entered against you by the court without further notice for any money claimed in the foregoing Petition or for any other claim or relief requested by the Petitioner. You may lose money, property or other rights important to you.

YOU SHOULD TAKE THIS PAPER TO YOUR LAWYER AT ONCE. IF YOU DO NOT HAVE A LAWYER OR CANNOT AFFORD ONE, GO TO OR TELEPHONE THE OFFICE SET FORTH BELOW TO FIND OUT WHERE YOU CAN GET LEGAL HELP.

David Meholick, Court Administrator
Clearfield County Courthouse
230 East Market Street
Clearfield, PA 16830
(814) 765-2641

FILED

MAY 29 2001
m/a 3:41 noc
William A. Shaw
Prothonotary

IRVONA MUNICIPAL AUTHORITY, Plaintiff	:	IN THE COURT OF COMMON PLEAS CLEARFIELD COUNTY, PENNSYLVANIA
v.	:	
	:	CIVIL ACTION - LAW
DAVID ERIKSEN, t/a ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION,	:	NO. 00-955-CD
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NOTICIA

Le han demandado a usted en la corte. Si usted quiere defenderse de estas demandas expuestas en las paginas siguientes, usted tiene viente (20) dias de plazo al partir de la fecha de la demanda y la notificacion. Usted debe presentar una apariencia escrita o en persona o por abogado y archivar en la corte en forma escrita sus defensas o sus objeciones a las demandas en contra de su persona. Sea avisado que si usted no se defiende, la corte tomara medidas y puede entrar una orden contra usted sin previo aviso o notificacion y por cualguier queja o alivio que es pedido en la peticion de demanda. Usted puede perder dinero o sus propiedades o otros derechos importantes para usted.

LLEVE ESTA DEMANDA A UN ABODAGO IMMEDIATAMENTE. SI NO TIENE ABOGADO O SI NO TIENE EL DINERO SUFICIENTE DE PAGAR TAL SERVICIO, VAYA EN PERSONA O LLAME POR TELEFONO A LA OFICINA CUYA DIRECCION SE ENCUENTRA ESCRITA ABAJO PARA AVERIGUAR DONDE SE PUEDE CONSEGUIR ASISTENCIA LEGAL.

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COMPLAINT

I. THE PARTIES

1. Plaintiff Irvona Municipal Authority ("Irvona") is a municipal authority organized under the laws of the Commonwealth of Pennsylvania, with its principal place of business at P.O. Box 247, Berwind Street, Irvona, Clearfield County, Pennsylvania 16656.

2. Defendant David Eriksen t/a Eriksen Well Drilling ("Eriksen") is a well drilling and well pump proprietor with a principal place of business at R.D. 1, Box 72, Hesston, Huntingdon County, Pennsylvania 16647.

3. Defendant James R. Casselberry ("Casselberry") is a hydrogeologist with his principal place of business at 108 E. Main Street, P.O. Box 616, Boalsburg, Centre County, Pennsylvania 16827.

4. Defendant James R. Casselberry & Associates, Inc. ("Casselberry") provides ground-water geology services and has a principal place of business at 108 E. Main Street, P.O. Box 616, Boalsburg, Centre County, Pennsylvania 16827.

5. Defendant The EADS Group, t/a Neilan Engineers Division ("Neilan"), is an engineering, architectural and surveying firm with its principal place of business at 1065 Tayman Avenue, P.O. Box 837, Somerset, Somerset County, Pennsylvania 15501-0837.

II. BACKGROUND

6. Irvona provides water service to approximately 2500 customers in the Borough of Irvona and in portions of Beccaria Township, Clearfield County, Pennsylvania.

7. The water provided by Irvona to its customers is used by them for domestic purposes such as drinking, bathing, washing dishes and clothes, and cooking.

8. The two Irvona wells at issue in this proceeding were permitted by the Pennsylvania Department of Environmental Resources ("DER"), (currently, the Pennsylvania Department of Environmental Protection ("DEP")), as public water supply wells. Hereinafter, this agency will be referred to as DEP.

9. Irvona's customers expect to receive, and Irvona is required to provide, safe, potable water that is suitable to use for the domestic purposes described above in paragraph 7.

10. The consumption of unsafe or contaminated water may cause negative health effects and/or serious illness to users, especially highly susceptible individuals such as young children, the elderly, and persons with immune system deficiencies.

11. The DEP has comprehensive regulations and standards that govern and control various aspects of the provision of water to the public including, but not limited to, design and construction specifications of water system facilities, and maximum allowable contaminant levels for water. These standards are intended to insure that safe, potable water is provided to the public.

12. DEP's Public Water Supply Manual contains required specifications for well casing material used in well construction. These specifications require, inter alia, that six-inch outside diameter steel casing be a minimum thickness of .28 inches.

13. Prior to 1991, Irvona's primary source of water supply was the Hockenberry Run Reservoir, located at the headwaters of Hockenberry Run in Clearfield County, Pennsylvania.

14. Beginning in the late 1980s, Irvona began a groundwater exploration program for the purpose of investigating and evaluating additional sources of water supply to supplement the water from its reservoir during times of drought and low flows.

15. To this end, Irvona engaged the services of the defendants in various capacities related to the identification and development of this supplemental source including, but not limited to, investigating and evaluating potential sites, and developing, constructing, testing and securing permits for the new source.

16. At the recommendation of the defendants, a new groundwater source (a well) was chosen as the means to address Irvona's additional water supply needs. Accordingly, the activities of the defendants were directed toward the design, development and construction of a new well ("Well No. 1") to supplement Irvona's reservoir as its source of supply.

17. Defendant Eriksen drilled Well No. 1 in the spring of 1990.

18. Defendant Casselberry performed pumping tests and water quality analyses on Well No. 1 during the spring of 1990.

19. Subsequently, during 1991, Irvona, in consultation with the defendants, made the decision to abandon its reservoir and develop wells as Irvona's exclusive sources of water supply.

20. At the recommendation of the defendants, the decision was ultimately made to develop two wells to serve as Irvona's sources of water supply. Well No. 1 was already located near the Hockenberry Run Reservoir. A second well ("Well No. 2") was to be located approximately 2½ miles downstream from the reservoir and from Well No. 1.

21. Defendant Neilan was hired by Irvona as the project engineer to oversee the design, development, construction and permitting of both of the new wells.

22. Defendant Casselberry was hired to provide hydrogeologic services related to the development and construction of the new wells. These services included, but were not limited to, determining suitable sites for the new wells, evaluating and analyzing the water quality and quantity of the wells, and supervising the development and construction of the new wells.

23. Defendant Eriksen was hired to drill and construct the wells. Eriksen also installed the well pumps, as well as electric service, in the new wells.

III. THE IRVONA AREA AQUIFERS

24. The geologic formations underlying the area in and around Irvona, Pennsylvania are known as the Glenshaw, Allegheny, Pottsville and Mauch Chunk formations.

25. Generally, the hillslopes and ridges in the Irvona area are capped by the Glenshaw and Allegheny formations. Lower elevations in the Irvona region are underlain by the Pottsville formation. The Mauch Chunk formation lies beneath the Pottsville formation.

26. During early 1990, defendant Eriksen drilled Well No. 1 at a location near Irvona's Hockenberry Run Reservoir. The well was ultimately drilled through the Allegheny and Pottsville formations, into the Mauch Chunk formation, to a depth in excess of 400 feet.

27. Test results of water taken from Well No. 1 showed that the Allegheny and Pottsville formations produced highly corrosive water with concentrations of iron and manganese at levels that would require treatment for use as a public supply.

28. Test results of water taken from the Mauch Chunk formation in the Irvona area during early 1990 showed that the water was of excellent quality and contained low levels of iron and manganese. The test results indicated that this water did not have the corrosive properties of the water from the Allegheny and Pottsville formations and would require only disinfection to make it suitable for consumption.

29. By early 1990, the poor quality and corrosiveness of water from the Allegheny and Pottsville aquifers, as well as the need for special consideration in the construction of the wells' casings to protect against the infiltration of water from these upper aquifers into the good water taken from the lower Mauch Chunk aquifer, was known or should have been known by the defendants.

30. The high concentrations of iron and manganese from the Allegheny and Pottsville formations were discussed expressly in the report titled "Irvona Municipal Authority Groundwater Exploration Report Drilling and Testing of Test Well No. 1," which was prepared by defendant Casselberry and dated June 19, 1990. A copy of this report is attached to this Complaint as **Appendix "A."**

31. The special casing requirements of the wells was further highlighted by defendant Casselberry in a letter to defendant Neilan, dated August 29, 1991, that addressed various considerations related to the development of the wells. Defendant Casselberry stated in this letter, in relevant part, as follows:

> The largest potential complication in the development of the Mauch Chunk aquifer is maintaining hydraulic isolation between the good quality Mauch Chunk aquifer and the poor quality waters of the overlying Pottsville and Allegheny Formations. Some of the Pottsville and Allegheny waters are extremely aggressive and could potentially "eat through" steel water well casings. Therefore, the use of noncorrosive casing materials should be considered in any wells having a significant thickness of Pottsville and/or Allegheny overlying the Mauch Chunk.

A copy of this letter is attached to this Complaint as **Appendix "B"** (emphasis added).

IV. THE WELLS

32. Defendant Casselberry prepared a Groundwater Exploration Report for each of the two well sites being considered for development by Irvona. The first report, for Well No. 1, is dated June 19, 1990 (**Appendix "A"**). The second report, for Well No. 2, is dated November 2, 1992. A copy of the second report is attached to this Complaint as **Appendix "C."**

33. Both of the Groundwater Exploration Reports recognize the poor quality and corrosive properties of the aquifers that overlie the Mauch Chunk formation and the need to adequately case-off the wells through these formations to protect the quality of water drawn from Mauch Chunk.

34. On page 4 of **Appendix "A,"** defendant Casselberry stated, in describing his testing protocol, "I decided to case the poor quality Allegheny strata and also the "uncertain" Pottsville water-bearing zone to allow accurate definition of the yield and water chemistry of the underlying Mauch Chunk."

35. On page 3 of **Appendix "C,"** defendant Casselberry stated, "[t]he Pottsville Gp strata typically produce extremely poor quality acidic water having elevated iron and manganese concentrations. Therefore, we anticipated casing off all of the strata overlying the Mauch Chunk Fm in order to maximize water quality."

36. Defendant Neilan, as the project engineers, prepared the Water Well Development contract documents for each of the two well projects. The contract documents for Well No. 1 (dated November 1989) were prepared in 1989 when the decision was made to develop a groundwater source to supplement the reservoir. A copy of this document set is attached to this Complaint as **Appendix "D."**

37. All of the defendants had actual knowledge of the corrosive and generally poor quality of the water in the overlying aquifers and of the need for special, non-corrosive casing to withstand the corrosive quality of this water.

V. PROJECT SPECIFICATIONS AND REQUIREMENTS

38. As described above, Irvona hired the defendants to perform the various tasks necessary to the proper design, development and construction of the wells.

39. Defendant Eriksen was hired to drill and construct the wells in compliance with the specifications set forth in the contract documents.

40. In the section titled "Instruction to Bidders" on page B-1 of **Appendix "D,"** bidders were required to:

> . . . visit the site of the proposed work and fully acquaint himself with the existing conditions there relating to construction and labor, and should fully inform himself as to the facilities involved, the difficulties and restrictions attending the performance of the contract. The Bidder should thoroughly examine and familiarize himself with the Drawings, Technical Specifications, and all other contract documents. The Contractor by the execution of the Contract shall in no way be relieved of any obligation under it due to failure to receive or examine any form or legal instrument or to visit the site and acquaint himself with the conditions there existing.

41. Section 15E of the contract document set for Well No. 1 is titled "Development of Public Water Supply Wells at the Hockenberry Run Reservoir." Section 15E.3E of this

document discusses well construction specifications and requires that "[a]ll materials used in the construction of the production well shall conform to the specifications outlined in the PA DEP 'Public Water Supply Manual.'"

42. The PA DEP Water Supply Manual sets forth, among other things, specifications and minimum requirements for public water supply well construction. With respect to well casing, the Water Supply Manual requires a minimum thickness of 0.28 inches for six-inch outside diameter steel well casing. Copies of the relevant pages from the PA DEP Public Water Supply Manual are attached to this Complaint as **Appendix "E."**

43. In a letter dated November 8, 1991 and addressed to Scott Rugh of defendant Neilan, defendant Casselberry described and confirmed his role in the well development project as including "[c]oordinating the drilling contractor's activities and supervising the work in the field as necessary, acting as the Authority's representative." A copy of this letter is attached to this Complaint as **Appendix "F."**

44. As project engineer for the well projects, defendant Neilan's responsibilities included preparing a preliminary design, preparing a final design, providing assistance during bidding or negotiating, and providing construction administration including resident project services during critical parts of construction.

45. Defendant Neilan's responsibilities as a Resident Project Representative included conducting on-site observations of the work in progress to determine if the work is proceeding in accordance with the contract documents and to report any faulty or defective work.

46. The defendants were required to fully acquaint themselves with any and all restrictions, difficulties and existing or special conditions at the well sites that would affect the

design and construction of the wells, such as the highly-corrosive water in the overlying aquifers and the need for adequate well casing to protect the water drawn from the Mauch Chunk aquifer.

47. Defendants Neilan and Casselberry both had supervisory and oversight responsibilities related to the design and construction of the two wells to help insure that all design and construction requirements were addressed in a safe and proper manner.

48. Given the known condition of the water in the overlying aquifers, defendants should have taken extraordinary care in the design and construction of the casing used in the two wells to protect the water drawn from the Mauch Chunk aquifer from contamination by water from the upper aquifers.

49. At a bare minimum, defendants Neilan and Casselberry were required to oversee and properly supervise the construction of the wells to insure that adequate casing with the minimum thickness required by DEP was installed.

50. Both Neilan and Casselberry were well aware, however, of the highly corrosive quality of the water from the overlying aquifers, and of the need for special, non-corrosive casing to protect the water drawn from the Mauch Chunk aquifer. (See Appendix "B").

51. Defendant Neilan prepared the Water Supply Permit Applications to the DEP for the Irvona wells. At section B(1) on page 3-1 of each application, defendant Neilan falsely certified to the DEP that each well's protective casing had the minimum thickness specified in DEP's Public Water Supply Manual (0.28 inches). Copies of the relevant pages from each application are attached to this Complaint as **Appendix "G."**

VI. WELL CONTAMINATION

52. The two wells were designed, developed, tested and constructed by the defendants and were placed in service as public water supplies for Irvona.

53. During the mid-1990s the quality of the water produced by Well No. 1 deteriorated severely. High levels of iron and manganese requiring additional and constant treatment were found in the water.

54. The quality of water produced by Well No. 2 also deteriorated severely, containing contaminants similar to those found in the water from Well No. 1.

55. In response to the deterioration of water quality from the wells, Irvona immediately began the process of investigating and analyzing potential causes and sources of the contamination.

56. Defendant Casselberry conducted an investigation, including a "down-the-borehole" video survey and analysis of Well No. 2, in an attempt to find the source of the contamination.

57. In a letter dated November 25, 1997 and addressed to Scott Rugh of defendant Neilan, defendant Casselberry indicated that the Well No. 2 casing appeared to be clean and structurally sound. In fact, by late 1997, despite Irvona's diligent efforts, the source of the contamination in the wells remained unknown.

58. In early 1998, PA DEP personnel conducted an investigation for purposes of assisting Irvona to determine the cause of the contamination of the water produced by the wells.

59. By letter dated July 28, 1998, Mr. David Bisko, a hydrogeologist with DEP, stated the results of his investigation into the cause of the well contamination. In this letter, Mr. Bisko stated, "[o]ne can only conclude that the iron concentration problem of Well No. 1 can be

attributed to a leakage problem of the surface casing. Water from the Lower Allegheny formation laden with particulate iron is flowing into Well No. 1 at the leakage points." A copy of this letter is attached to this Complaint as **Appendix "H."**

60. Accordingly, by late 1998, the source of the contamination in Well No. 1 was determined to be leaks in the well casing that was installed by the defendants to protect the well from the poor-quality, corrosive waters of the aquifers that overlie the Mauch Chunk formation, although at that time Irvona did not know why the casings were leaking.

61. Subsequently, upon further investigation by plaintiff Irvona in an attempt to conclusively determine the cause of the contamination, a portion of the casing in Well No. 1, which was installed and approved by the defendants to protect the Mauch Chunk water from the poor quality Allegheny and Pottsville aquifers, was cut away and removed for analysis.

62. The well casing used by the defendants was steel of a thickness less than .28 inches and was not in compliance with the specifications that were required for the Irvona well construction project. Further, the well casing was grossly inadequate given the well-known and documented problems of high iron and manganese content and aggressive corrosiveness of the water produced by the overlying aquifers.

63. The casing used in Irvona Well No. 1 is a thickness of approximately 0.165 inches.

64. The highly corrosive waters of the aquifers overlying Mauch Chunk corroded and perforated the casing used in Well No. 1. This resulted in the contamination of the good quality Mauch Chunk water due to the infiltration of the poor quality Allegheny and Pottsville formation water into the wells.

65. As a result of the contamination of the well, the DEP required that Well No. 1 be taken out of service at great expense to Irvona. Well No. 1 is no longer being used as a source of supply.

66. As noted above, the quality of the water produced by Well No. 2 also deteriorated severely from its initial high quality output and contains similar contaminants as those found in Well No. 1 prior to its being removed from service.

67. Plaintiff Irvona sampled the well casing used in Well No. 2 in an attempt to determine the cause of the contamination. Analysis and measurement of this casing sample showed that it, like the casing used in Well No. 1, was made of steel and was too thin, measuring approximately 0.19 inches thick. The well casing is grossly inadequate given the poor quality and corrosiveness of the water overlying the Mauch Chunk formation, which conditions were well known to all of the defendants in early 1990.

68. The improper casing used by the defendants in the construction of Well No. 1 and Well No. 2 resulted in the contamination of Irvona's primary public drinking water sources.

69. With respect to Well No. 2, Irvona is currently spending substantial amounts of money and manpower to constantly treat the water to eliminate or reduce the contaminants in order to provide potable water to the public.

70. The defendants breached their contractual obligations to Irvona by using casing in the wells that was inadequate for the surrounding conditions and that did not meet the specifications required in the contract documents and the DEP Public Water Supply Manual.

71. The defendants were negligent and reckless in the design and construction of the wells because they either installed, or supervised and approved the installation of, thin steel

casing that was known to be inadequate and improper for the conditions known to exist at both well sites.

72. Defendant Neilan acted knowingly and fraudulently in misrepresenting to both Irvona and DEP that the casing used in the construction of both wells met the requirements set forth in the DEP Public Water Supply Manual. Despite Neilan's false certification to DEP, the casing used in both wells was grossly inadequate and was much thinner than the required .28 inch thickness.

VII. IRVONA'S DAMAGES

73. As a result of the defendants' conduct, Irvona has incurred substantial damages to date and expects to spend significant additional sums in the future in order to correct the problems with the wells caused by the defendants. Irvona's total damages are expected to exceed $500,000.

74. To date, Irvona has incurred over $200,000 in damages directly associated with investigating and remedying the problems with the wells caused by the defendants, including, but not limited to, the following:

(a) laboratory tests to determine the quality problems of the well water;

(b) consultations with professionals concerning water quality and related issues;

(c) disinfection of the wells that would be otherwise unnecessary absent the defendants' wrongful conduct;

(d) installation of blow-off valves for the two wells;

(e) excess energy costs;

(f) excess wear and tear on equipment and storage facilities;

(g) water loss;

(h) draining, cleaning and disinfection of storage facilities that would otherwise be unnecessary in the absence of the defendants' wrongful conduct;

(i) additional costs associated with disinfection and treatment of water supply;

(j) engineering, video and investigative costs;

(k) costs of packer placement and related efforts to segregate aquifers;

(l) costs associated with the abandonment of Well No. 1, including control of artesian discharges and control of artesian flows;

(m) loss of revenue associated with decreased consumption of poor quality water by customer base;

(n) excess labor costs; and

(o) rehabilitation of Well No. 2 that would be otherwise unnecessary in the absence of defendants' wrongful conduct;

all of which total more than $200,000 to date.

75. The damages and costs enumerated above are solely the result of the wrongful conduct of the defendants. Irvona expects to spend significant additional sums in the future to replace the water sources rendered unusable and unsafe by the defendants, including, but not limited to, the following:

(a) hydrogeologists fees;

(b) engineering fees;

(c) land acquisition costs and related surveying costs, attorneys fees and closing costs;

(d) permitting of new water sources;

(e) line installation and hook-up of new water sources;

(f) additional treatment costs and associated engineering, design, construction, permitting, legal, debt service and operational costs;

(g) well location and construction costs;

(h) access road construction costs;

(i) water testing and treatment costs;

(j) excess energy costs and fencing costs;

(k) costs associated with Well No. 2 abandonment; and

(l) other related necessary and reasonable costs associated with providing reliable potable water sources for the customers of Irvona Municipal public water supply, production, treatment and conveyance systems.

76. In addition to the costs set forth above, Irvona may be forced to incur other reasonable and necessary costs as a result of the defendants' wrongful conduct as set forth in this Complaint.

VIII. PUNITIVE DAMAGES

77. The conduct of each of the defendants warrants an award of punitive damages. Specifically, and in addition to the conduct described hereinabove, the defendants' conduct was willful, reckless and amounted to a wholly wanton disregard of the rights of Irvona and its customers, in that the defendants:

(a) failed to construct the public water well in accordance with sound engineering principles;

(b) constructed the well in blatant and outrageous disregard for clearly published standards concerning the thickness of the casing, even though each of the defendants was fully aware of the corrosive, contaminated and aggressive properties of the upper aquifers and the need to keep those aquifers segregated from the public water supply they were creating;

(c) caused Irvona to abandon its otherwise reliable surface water supply in favor of two wells, which defendants constructed in violation of engineering and DEP published standards;

(d) risked complete and total failure of Irvona's entire municipal water supply system, a result that would leave all residents completely without potable drinking water;

(e) constructed the wells in a manner that risked contamination of the Mauch Chunk formation with low-quality waters of the upper aquifers, which naturally are segregated from the deeper Mauch Chunk formation, a result which could contaminate the entire lower aquifer for all present and potential future users of said aquifer;

(f) caused the forced abandonment of Well No. 1 which in turn (i) caused the poor-quality upper aquifers to exit the ground in an "artesian well" fashion and jeopardized serious contamination and harm to the nearby stream, and (ii) left Irvona with only one operating well to serve its entire customer base,

which well is inadequately cased and currently is in violation of published DEP standards and is otherwise inadequate as described hereinabove;

(g) risked contamination of the public water supply with levels of iron, manganese and other contaminants that were beyond the designed capacity of Irvona's treatment system, the failure of which could leave all of Irvona's water customers without potable water;

78. The conduct of the defendants has left Irvona in the present situation of having a single well to serve all of its municipal residents. That well is inadequately cased and at great current risk of failure.

79. The defendants accepted payment from Irvona for the construction of wells that met published DEP standards, which standards were known to the defendants and which called for a minimum thickness of 0.284, the six inch size of both of Irvona's wells. However, the defendants did not provide Irvona with wells that Irvona contracted for and paid for.

80. Defendant Neilan falsely certified to DEP that the wells met published standards. Said false certification arguably exposes defendant Neilan and its individual signing engineer to potential criminal liability for false certification to authorities in violation of 18 Pa. C.S. § 4904.

81. Defendant Casselberry expressly recognized the dangers of the Irvona aquifers and the need to adequately case them for the safety of the users of the water system. Despite this specific knowledge on the part of Casselberry, he failed completely to insure that the wells were constructed in a manner consistent with sound engineering principles and published DEP standards.

82. Defendant Eriksen drilled the wells and selected and used casing that was thinner and cheaper than that Irvona contracted and paid for. In addition, Eriksen used casing that clearly violated published DEP standards, which standards were known or should have been known to defendant Eriksen at the time he constructed the wells. The conduct of Eriksen in constructing public water supply wells with such clearly inadequate casing amounted to a wholly wanton disregard for the safety of Irvona and its customers and amounted to either intentional or reckless conduct on his part that placed the community's entire water system at great risk of failure, as evidenced by the failure of Well No. 1.

83. Irvona contracted with and paid the defendants for two public water supply wells to serve as the sole sources of potable water for its community of customers. The defendants have left Irvona with a failed well and a single operating well that is at great current risk of failure.

COUNT I

Irvona v. Eriksen – Breach of Contract (Well No. 1)

84. The allegations set forth in paragraphs 1-83 above are incorporated herein by reference.

85. Defendant Eriksen breached his contractual obligations to plaintiff Irvona by failing to use the proper casing that was required by the contracting documents for use in the construction of Well No. 1. The specifications required the use of materials suitable for the conditions present at the well site. The specifications also required that the well casing meet the standards set forth in the DER Public Water Supply Manual.

86. Defendant Eriksen knew or should have known of the contaminated, highly corrosive water in the overlying aquifers and of the need to protect the water to be drawn from the Mauch Chunk aquifer with adequate casing, at least as thick as that required by DEP.

87. Defendant Eriksen acted with reckless indifference in using improper casing that was neither suitable nor adequate to withstand the highly corrosive waters of the aquifers that overlay the Mauch Chunk formation.

88. Defendant Eriksen used improper casing that did not conform to the standards set forth in the DER Water Supply Manual. The Manual specified the use of casing of at least 0.28-inch thickness. The casing used by defendant Eriksen was approximately only 0.165 inches thick.

89. As a result of defendant Eriksen's willful or reckless failure to use materials meeting the required specifications, Irvona's public water supply Well No. 1 has become contaminated through the infiltration of water from the aquifers that overlay Mauch Chunk.

90. As a further result of Defendant Eriksen's breach of his contractual obligations and of his reckless indifference to the health and safety of all users of water provided by Irvona, Well No. 1 has become contaminated, is no longer used as a public water supply, and must be replaced with a new well at great expense to Irvona.

91. As a result of defendant Eriksen's breach of his contractual obligations, Irvona has been forced to spend substantial sums of money, to date, in taking appropriate remedial measures to properly seal and isolate Well No. 1 to prevent further contamination of the Mauch Chunk aquifer from the overlying aquifers. Irvona will continue to spend substantial sums to correct the problems caused by defendant Eriksen's breach.

WHEREFORE, plaintiff Irvona demands judgment against defendant Eriksen for (1) compensatory damages for both past and future harm in an amount in excess of $500,000, (2) punitive damages in an amount deemed appropriate by the Court upon consideration of the defendant's intentional or reckless indifference to the health and safety risks to users of water provided by Irvona created by his failure to use adequate well casing, and (3) interest, costs and other such relief as the Court deems just.

COUNT II

Irvona v. James R. Casselberry – Breach of Contract (Well No. 1)

92. The allegations set forth in paragraphs 1-91 above are incorporated herein by reference.

93. Defendant Casselberry knew of the contamination and highly corrosive quality of the water in the overlying aquifers. Defendant Casselberry warned defendant Neilan of the need for special, corrosion-resistant casing. Defendant Casselberry beached his contractual obligations to plaintiff Irvona by knowingly and recklessly failing to properly monitor and supervise the construction of Well No. 1 to insure that adequate well casing was used.

94. As a result of defendant Casselberry's breach of his contractual obligations, improper and inadequate casing was used in Well No. 1. Despite his recognition of the poor quality and corrosiveness of the waters contained in the aquifers above the Mauch Chunk formation, and of the need for special casing, defendant Casselberry failed to properly inspect and supervise the materials and procedures used in the construction of Well No. 1.

95. As a result of defendant Casselberry's breach of his contractual obligations, a non-corrosion resistant casing that was too thin and unable to withstand the corrosive properties

of the overlying water was used in the well construction. Consequently, Irvona's public water supply Well No. 1 became contaminated through the infiltration of water from the aquifers that overlay the Mauch Chunk formation.

96. As a result of defendant Casselberry's breach of his contractual obligations, Well No. 1 became contaminated, is no longer suitable for use as a public water supply, and must be replaced with a new well at great expense to Irvona.

97. As a result of defendant Casselberry's breach of his contractual obligations, Irvona has been forced to spend substantial sums of money in taking appropriate remedial measures to properly seal and isolate Well No. 1 to prevent further contamination of the Mauch Chunk aquifer. Irvona will be forced to continue to spend substantial sums to correct the problems caused by defendant Casselberry's breach.

WHEREFORE, plaintiff Irvona demands judgment against defendant Casselberry for (1) compensatory damages for both past and future harm in an amount in excess of $500,000, (2) punitive damages in an amount deemed appropriate by the Court upon consideration of the defendant's intentional or reckless indifference to the health and safety risks to users of water provided by Irvona created by his failure to insure the use of adequate well casing, and (3) interest, costs and other such relief as the Court deems just.

COUNT III

Irvona v. Neilan – Breach of Contract (Well No. 1)

98. The allegations set forth in paragraphs 1-97 above are incorporated herein by reference.

99. Defendant Neilan knew of the contamination and highly corrosive quality of the water in the overlying aquifers. Defendant Neilan knew that corrosion-resistant casing was recommended. Defendant Neilan beached its contractual obligations to plaintiff Irvona by knowingly and recklessly failing to properly monitor and supervise the construction of Well No. 1 to insure that adequate well casing was used.

100. As a result of defendant Neilan's breach of its contractual obligations, improper and inadequate casing was used in Well No. 1. Despite having knowledge of the poor quality and corrosiveness of the waters contained in the aquifers above the Mauch Chunk formation, defendant Neilan failed to properly inspect and supervise the materials and procedures used in the construction of Well No. 1.

101. As a result of defendant Neilan's breach of its contractual obligations, a non-corrosion resistant casing that was too thin and unable to withstand the corrosive properties of the overlying water was used in the well construction. Consequently, Irvona's public water supply Well No. 1 became contaminated through the infiltration of water from the aquifers that overlay the Mauch Chunk formation.

102. As a result of defendant Neilan's breach of its contractual obligations, Well No. 1 became contaminated, is no longer suitable for use as a public water supply, and must be replaced with a new well at great expense to Irvona.

103. As a result of defendant Neilan's breach of its contractual obligations, Irvona has been forced to spend substantial sums of money in taking appropriate remedial measures to properly seal and isolate Well No. 1 to prevent further contamination of the Mauch Chunk aquifer. Irvona will be forced to continue to spend substantial sums to correct the problems caused by defendant Neilan's breach.

WHEREFORE, plaintiff Irvona demands judgment against defendant Neilan for (1) compensatory damages for both past and future harm in an amount in excess of $500,000, (2) punitive damages in an amount deemed appropriate by the Court upon consideration of the defendant's intentional or reckless indifference to the health and safety risks to users of water provided by Irvona created by his failure to insure the use of adequate well casing, and (3) interest, costs and other such relief as the Court deems just.

COUNT IV

Irvona v. Eriksen – Breach of Contract (Well No. 2)

104. The allegations set forth in paragraphs 1-103 above are incorporated herein by reference.

105. Defendant Eriksen breached his contractual obligations to plaintiff Irvona by failing to use the proper casing in the construction of Well No. 2. The specifications required the use of materials suitable for the conditions present at the well site. The specifications also required that the well casing meet the standards set forth in the DER Public Water Supply Manual.

106. Defendant Eriksen knew or should have known of the contaminated, highly corrosive water in the overlying aquifers and of the need to protect the water to be drawn from the Mauch Chunk aquifer with adequate casing.

107. Defendant Eriksen used improper casing that is not suitable and adequate to withstand the highly corrosive waters of the aquifers that overlay the Mauch Chunk formation.

108. Defendant Eriksen used improper casing that did not conform to the standards set forth in the DER Water Supply Manual. The Manual specified the use of casing of at least 0.28-inch thickness. The casing used by defendant Eriksen was approximately only 0.19 inches thick.

109. As a result of defendant Eriksen's failure to use materials meeting required specifications, Irvona's public water supply Well No. 2 has become contaminated, or is at great risk of becoming contaminated, through the infiltration of water from the aquifers that overlay Mauch Chunk.

110. As a further result of defendant Eriksen's breach of his contractual obligations, the water from Well No. 2 has become contaminated, or is at great risk of becoming contaminated, and requires constant and substantial treatment by plaintiff Irvona. Well No. 2 must ultimately be replaced with a new well at great expense to Irvona.

111. As a result of defendant Eriksen's breach of his contractual obligations, Irvona has been forced to spend substantial sums of money in taking appropriate remedial measures to treat the water from Well No. 2 to reduce the contamination from the overlying aquifers and render the water potable.

WHEREFORE, plaintiff Irvona demands judgment against defendant Eriksen for (1) compensatory damages for both past and future harm in an amount in excess of $500,000, (2) punitive damages in an amount deemed appropriate by the Court upon consideration of the defendant's intentional or reckless indifference to the health and safety risks to users of water provided by Irvona created by his failure to use adequate well casing, and (3) interest, costs and other such relief as the Court deems just.

COUNT V

Irvona v. Casselberry – Breach of Contract (Well No. 2)

112. The allegations set forth in paragraphs 1-111 above are incorporated herein by reference.

113. Defendant Casselberry knew of the contamination and highly corrosive quality of the water in the overlying aquifers. Defendant Casselberry warned defendant Neilan of the need for special, corrosion-resistant casing. Defendant Casselberry beached his contractual obligations to plaintiff Irvona by failing to properly monitor and supervise the construction of Well No. 2 to insure that adequate casing was used.

114. As a result of defendant Casselberry's breach of his contractual obligations, improper and inadequate casing was used in Well No. 2. Despite his recognition of the poor quality and corrosiveness of the waters contained in the aquifers above the Mauch Chunk formation, defendant Casselberry failed to properly inspect and supervise the materials and procedures used in the construction of Well No. 2.

115. As a result of defendant Casselberry's breach of his contractual obligations, a non-corrosion resistant casing that was too thin and unable to withstand the corrosive properties of the overlying water was used in the well construction. Consequently, Irvona's public water supply Well No. 2 has become contaminated, or is at great risk of becoming contaminated, through the infiltration of water from the aquifers above the Mauch Chunk formation.

116. As a result of defendant Casselberry's breach of his contractual obligations, Well No. 2 has become contaminated, or is at great risk of becoming contaminated, and requires constant and substantial treatment by plaintiff Irvona. Well No. 2 must ultimately be replaced with a new well at great expense to Irvona.

117. As a result of defendant Casselberry's breach of his contractual obligations, Irvona has been forced to spend substantial sums of money in taking appropriate remedial measures to treat the water from Well No. 2 to reduce the contamination from the overlying aquifers and render the water potable.

WHEREFORE, plaintiff Irvona demands judgment against defendant Casselberry for (1) compensatory damages for both past and future harm in an amount in excess of $500,000, (2) punitive damages in an amount deemed appropriate by the Court upon consideration of the defendant's intentional or reckless indifference to the health and safety risks to users of water provided by Irvona created by his failure to insure the use of adequate well casing, and (3) interest, costs and other such relief as the Court deems just.

COUNT VI

Irvona v. Neilan – Breach of Contract (Well No. 2)

118. The allegations set forth in paragraphs 1-117 above are incorporated herein by reference.

119. Defendant Neilan knew of the contamination and highly corrosive quality of the water in the overlying aquifers. Defendant Neilan knew of the need for special, corrosion-resistant casing. Defendant Neilan beached its contractual obligations to plaintiff Irvona by knowingly and recklessly failing to properly monitor and supervise the construction of Well No. 2 to insure that adequate well casing was used.

120. As a result of defendant Neilan's breach of its contractual obligations, improper and inadequate casing was used in Well No. 2. Despite having knowledge of the poor quality and corrosiveness of the waters contained in the aquifers above the Mauch Chunk formation, and

of the need for special casing, defendant Neilan failed to properly inspect and supervise the materials and procedures used in the construction of Well No. 2.

121. As a result of defendant Neilan's breach of its contractual obligations, a non-corrosion resistant casing that was too thin and unable to withstand the corrosive properties of the overlying water was used in the well construction. Consequently, Irvona's public water supply Well No. 2 has become contaminated, or is at great risk of becoming contaminated, through the infiltration of water from the aquifers that overlay the Mauch Chunk formation.

122. As a result of defendant Neilan's breach of its contractual obligations, Well No. 2 has become contaminated, or is at great risk of becoming contaminated, and requires constant and substantial treatment by plaintiff Irvona. Well No. 2 must ultimately be replaced with a new well at great expense to Irvona.

123. As a result of defendant Neilan's breach of its contractual obligations, Irvona has been forced to spend substantial sums of money in taking appropriate remedial measures to treat the water from Well No. 2 to reduce the contamination from the overlying aquifers and render the water potable.

WHEREFORE, plaintiff Irvona demands judgment against defendant Neilan for (1) compensatory damages for both past and future harm in an amount in excess of $500,000, (2) punitive damages in an amount deemed appropriate by the Court upon consideration of the defendant's intentional or reckless indifference to the health and safety risks to users of water provided by Irvona created by his failure to insure the use of adequate well casing, and (3) interest, costs and other such relief as the Court deems just.

COUNT VII

Irvona v. Eriksen – Negligence (Well No. 1)

124. The allegations set forth in paragraphs 1-123 above are incorporated herein by reference.

125. Defendant Eriksen was negligent in that he failed to exercise ordinary care, skill and diligence in performing his duties related to the drilling and construction of Irvona's public water supply Well No. 1.

126. Defendant Eriksen knew or should have known of the highly corrosive quality of the water from the overlying aquifers, as well as the need for adequate casing to protect the good quality water taken from the underlying Mauch Chunk formation.

127. As a result of defendant Eriksen's negligence, an improper casing was used in the construction of Well No. 1. This casing was too thin and was inadequate to withstand the corrosive properties of the water from the overlying aquifers. The corrosive waters from the overlying aquifers "ate through" the casing and contaminated the water from the Mauch Chunk formation.

128. As a result of defendant Eriksen's negligence, Well No. 1 became contaminated and may no longer be used as a public water supply. Well No. 1 must be replaced at great expense to Irvona.

129. As a result of defendant Eriksen's negligence, Irvona has been forced to spend substantial sums of money in taking appropriate remedial measures to properly seal and isolate Well No. 1 to prevent further contamination of the Mauch Chunk aquifer.

130. Defendant Eriksen otherwise failed to use due care and caution under the circumstances.

WHEREFORE, plaintiff Irvona demands judgment against defendant Eriksen for (1) compensatory damages for both past and future harm in an amount in excess of $500,000, (2) punitive damages in an amount deemed appropriate by the Court upon consideration of the defendant's intentional or reckless indifference to the health and safety risks to users of water provided by Irvona created by his failure to insure the use of adequate well casing, and (3) interest, costs and other such relief as the Court deems just.

COUNT VIII

Irvona v. Casselberry – Negligence (Well No. 1)

131. The allegations set forth in paragraphs 1-130 above are incorporated herein by reference.

132. Defendant Casselberry was negligent in that he failed to exercise ordinary care, skill and diligence in performing his duties related to the planning and supervision of the drilling and construction of Irvona's public water supply Well No. 1.

133. Defendant Casselberry knew of the highly corrosive quality of the water from the overlying aquifers, as well as the need for adequate, corrosion-resistant casing to protect the good quality water taken from the underlying Mauch Chunk formation.

134. Defendant Casselberry was negligent and reckless in that he failed to properly supervise and monitor the quality and adequacy of the construction and materials used in Well No. 1.

135. As a result of defendant Casselberry's negligence, an improper casing was used in the construction of Well No. 1. This casing was too thin and was inadequate to withstand the corrosive properties of the water from the overlying aquifers. The corrosive waters from the

overlying aquifers "ate through" the casing and contaminated the water drawn from the Mauch Chunk formation.

136. As a result of defendant Casselberry's negligence, Well No. 1 became contaminated and may no longer be used as a public water supply. Well No. 1 must be replaced at great expense to Irvona.

137. As a result of defendant Casselberry's negligence, Irvona has been forced to spend substantial sums of money in taking appropriate remedial measures to properly seal and isolate Well No. 1 to prevent further contamination of the Mauch Chunk aquifer.

138. Defendant Casselberry otherwise failed to use due care and caution under the circumstances.

WHEREFORE, plaintiff Irvona demands judgment against defendant Casselberry for (1) compensatory damages for both past and future harm in an amount in excess of $500,000, (2) punitive damages in an amount deemed appropriate by the Court upon consideration of the defendant's intentional or reckless indifference to the health and safety risks to users of water provided by Irvona created by his failure to insure the use of adequate well casing, and (3) interest, costs and other such relief as the Court deems just.

COUNT IX

Irvona v. Neilan – Negligence (Well No. 1)

139. The allegations set forth in paragraphs 1-138 above are incorporated herein by reference.

140. Defendant Neilan was negligent in that it failed to exercise ordinary care, skill and diligence in performing its duties related to the planning and supervision of the drilling and construction of Irvona's public water supply Well No. 1.

141. Defendant Neilan knew of the highly corrosive quality of the water from the overlying aquifers, as well as the need for adequate, corrosion-resistant casing to protect the good quality water taken from the underlying Mauch Chunk formation.

142. As a result of defendant Neilan's negligence, an improper casing was used in the construction of Well No. 1. This casing was too thin and was inadequate to withstand the corrosive properties of the water from the overlying aquifers. The corrosive waters from the overlying aquifers "ate through" the casing and contaminated the water from the Mauch Chunk formation.

143. As a result of defendant Neilan's negligence, Well No. 1 became contaminated and may no longer be used as a public water supply. Well No. 1 must be replaced at great expense to Irvona.

144. As a result of defendant Neilan's negligence, Irvona has been forced to spend substantial sums of money in taking appropriate remedial measures to properly seal and isolate Well No. 1 to prevent further contamination of the Mauch Chunk aquifer.

145. Defendant Neilan otherwise failed to use due care and caution under the circumstances.

WHEREFORE, plaintiff Irvona demands judgment against defendant Neilan for (1) compensatory damages for both past and future harm in an amount in excess of $500,000, (2) punitive damages in an amount deemed appropriate by the Court upon consideration of the defendant's intentional or reckless indifference to the health and safety risks to users of water

provided by Irvona created by his failure to insure the use of adequate well casing, and (3) interest, costs and other such relief as the Court deems just.

COUNT X

Irvona v. Eriksen – Negligence (Well No. 2)

146. The allegations set forth in paragraphs 1-145 above are incorporated herein by reference.

147. Defendant Eriksen was negligent in that he failed to exercise ordinary care, skill and diligence in performing his duties related to the drilling and construction of Irvona's public water supply Well No. 2.

148. Defendant Eriksen knew or should have known of the highly corrosive quality of the water from the overlying aquifers, as well as the need for adequate, corrosion-resistant casing to protect the good-quality water taken from the underlying Mauch Chunk formation.

149. As a result of defendant Eriksen's negligence, an improper casing was used in the construction of Well No. 2. This casing was too thin and is inadequate to withstand the corrosive properties of the water from the overlying aquifers.

150. As a result of defendant Eriksen's negligence, Well No. 2 is contaminated, or is at great risk of becoming contaminated, and requires constant and substantial treatment by plaintiff Irvona. Well No. 2 must ultimately be replaced as a public water supply at great expense to Irvona.

151. As a result of defendant Eriksen's negligence, Irvona has been forced to spend substantial sums of money in taking appropriate remedial measures to properly treat the water to reduce the contaminants from the overlying aquifers and render the water potable.

152. Defendant Eriksen otherwise failed to use due care and caution under the circumstances.

WHEREFORE, plaintiff Irvona demands judgment against defendant Eriksen for (1) compensatory damages for both past and future harm in an amount in excess of $500,000, (2) punitive damages in an amount deemed appropriate by the Court upon consideration of the defendant's intentional or reckless indifference to the health and safety risks to users of water provided by Irvona created by his failure to insure the use of adequate well casing, and (3) interest, costs and other such relief as the Court deems just.

COUNT XI

Irvona v. Casselberry – Negligence (Well No. 2)

153. The allegations set forth in paragraphs 1-152 above are incorporated herein by reference.

154. Defendant Casselberry was negligent in that he failed to exercise ordinary care, skill and diligence in performing his duties related to the planning and supervision of the drilling and construction of Irvona's public water supply Well No. 2.

155. Defendant Casselberry knew of the highly corrosive quality of the water from the overlying aquifers, as well as the need for adequate, corrosion-resistant casing to protect the good quality water taken from the underlying Mauch Chunk formation.

156. Defendant Casselberry was negligent in that he failed to properly supervise and monitor the quality and adequacy of the construction and materials used in Well No. 2.

157. As a result of defendant Casselberry's negligence, an improper casing was used in the construction of Well No. 2. This casing was too thin and is inadequate to withstand the corrosive properties of the water from the overlying aquifers.

158. As a result of defendant Casselberry's negligence, the water from Well No. 2 is contaminated, or is at great risk of becoming contaminated, and requires constant and substantial treatment by Irvona. Well No. 2 must ultimately be replaced at great expense to Irvona.

159. As a result of defendant Casselberry's negligence, Irvona has been forced to spend substantial sums of money in taking appropriate remedial measures to properly treat the water from Well No. 2 to reduce the contamination from the overlying aquifers and render the water potable.

160. Defendant Casselberry otherwise failed to use due care and caution under the circumstances.

WHEREFORE, plaintiff Irvona demands judgment against defendant Casselberry for (1) compensatory damages for both past and future harm in an amount in excess of $500,000, (2) punitive damages in an amount deemed appropriate by the Court upon consideration of the defendant's intentional or reckless indifference to the health and safety risks to users of water provided by Irvona created by his failure to insure the use of adequate well casing, and (3) interest, costs and other such relief as the Court deems just.

COUNT XII

Irvona v. Neilan – Negligence (Well No. 2)

161. The allegations set forth in paragraphs 1-160 above are incorporated herein by reference.

162. Defendant Neilan was negligent in that it failed to exercise ordinary care, skill and diligence in performing its duties related to the planning and supervision of the drilling and construction of Irvona's public water supply Well No 2.

163. Defendant Neilan knew of the highly corrosive quality of the water from the overlying aquifers, as well as the need for adequate, corrosion-resistant casing to protect the good-quality water taken from the underlying Mauch Chunk formation.

164. As a result of defendant Neilan's negligence, an improper casing was used in the construction of Well No. 2. This casing is inadequate to withstand the corrosive properties of the water from the overlying aquifers.

165. As a result of defendant Neilan's negligence, Well No. 2 is contaminated, or is at great risk of becoming contaminated, and requires constant and substantial treatment by Irvona. Well No. 2 must ultimately be replaced at great expense to Irvona.

166. As a result of defendant Neilan's negligence, Irvona has been forced to spend substantial sums of money in taking appropriate remedial measures to properly treat the water from Well No. 2 to reduce the contamination from the overlying aquifers and render the water potable.

167. Defendant Neilan otherwise failed to use due care and caution under the circumstances.

WHEREFORE, plaintiff Irvona demands judgment against defendant Neilan for (1) compensatory damages for both past and future harm in an amount in excess of $500,000, (2) punitive damages in an amount deemed appropriate by the Court upon consideration of the defendant's intentional or reckless indifference to the health and safety risks to users of water

provided by Irvona created by his failure to insure the use of adequate well casing, and (3) interest, costs and other such relief as the Court deems just.

COUNT XIII

Irvona v. Neilan – Fraud (Well No. 1)

168. The allegations set forth in paragraphs 1-167 above are incorporated herein by reference.

169. Defendant Neilan knew of the contaminated, highly corrosive quality of the water in the aquifers above the Mauch Chunk aquifer and of the need for special, corrosion-resistant casing.

170. Defendant Neilan knew or should have known that the DEP Public Water Supply Manual specified a thickness of at least .28 inches for the well casing used in the construction of Well No. 1.

171. Defendant Neilan fraudulently certified to DEP that the casing used in the construction of Well No. 1 met the specifications set forth in the DEP Public Water Supply Manual. (See Appendix "E").

172. Defendant Neilan fraudulently misrepresented to both Irvona and DEP the thickness of the casing used in the construction of Well No. 1.

WHEREFORE, plaintiff Irvona demands judgment against defendant Neilan for (1) compensatory damages for both past and future harm in an amount in excess of $500,000, (2) punitive damages in an amount deemed appropriate by the Court upon consideration of the defendant's intentional or reckless indifference to the health and safety risks to users of water

provided by Irvona created by his failure to insure the use of adequate well casing, and (3) interest, costs and other such relief as the Court deems just.

COUNT XIV

Irvona v. Neilan – Fraud (Well No. 2)

173. The allegations set forth in paragraphs 1-172 above are incorporated herein by reference.

174. Defendant Neilan knew of the contaminated, highly corrosive quality of the water in the aquifers above the Mauch Chunk aquifer and of the need for special, corrosion-resistant casing.

175. Defendant Neilan knew or should have known that the DEP Public Water Supply Manual specified a thickness of at least .28 inches for the well casing used in the construction of Well No. 2.

176. Defendant Neilan fraudulently certified to DEP that the casing used in the construction of Well No. 2 met the specifications set forth in the DEP Public Water Supply Manual.

177. Defendant Neilan fraudulently misrepresented to both Irvona and DEP the thickness of the casing used in the construction of Well No. 2.

WHEREFORE, plaintiff Irvona demands judgment against defendant Neilan for (1) compensatory damages for both past and future harm in an amount in excess of $500,000, (2) punitive damages in an amount deemed appropriate by the Court upon consideration of the defendant's intentional or reckless indifference to the health and safety risks to users of water

provided by Irvona created by his failure to insure the use of adequate well casing, and (3) interest, costs and other such relief as the Court deems just.

Scott T. Wyland, Esquire, I.D. No. 52660
Steven K. Haas, Esquire, I.D. No. 73312
MALATESTA HAWKE & MCKEON LLP
Harrisburg Energy Center
100 North Tenth Street
Harrisburg, PA 17105
(717) 236-1300
Counsel for Irvona Municipal Authority

DATE: May 25, 2001

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JAMES R. CASSELBERRY
Ground-Water Geologist

108 E. Main Street / P.O. Box 616
Boalsburg, Pennsylvania 16827
(814) 466-7128

Irvona Municipal Authority
Groundwater Exploration Report
Drilling and Testing of Test Well No. 1

Clearfield County, Pennsylvania

June 19, 1990

Ground-Water Resource Evaluation, Development and Protection

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PURPOSE AND SCOPE

I have written this report to summarize the results of the groundwater exploration program I carried out for the Irvona Municipal Authority in the spring of 1990. This exploration program consisted of the location, test drilling, and test pumping of a single fracture zone well site (Test Well No.1). The intent of this report is to develop recommendations regarding both the use of Test Well No.1 as a source of water supply and the feasibility of developing additional groundwater supplies for the Authority. The information covered in this report addresses all of the hydrogeologic input required for Pa DER permitting of Test Well No.1 as a source of public water supply.

HYDROGEOLOGIC SETTING

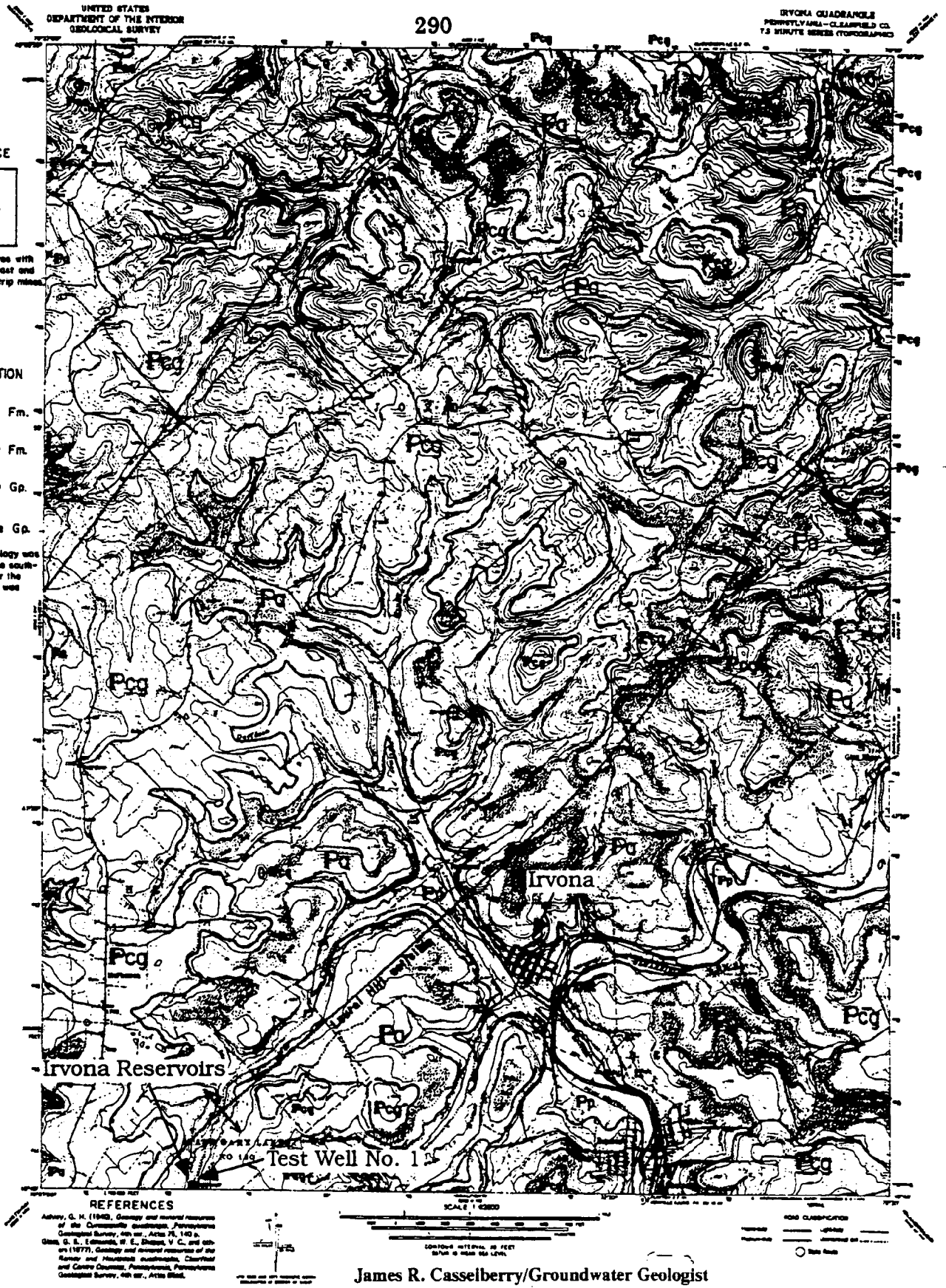
The Irvona Municipal Authority currently utilizes a reservoir system constructed in the forested headwaters of Hockenberry Run as their source of water supply (see Figure 1, Geologic Map for location). As this surface water source has been prone to depletion during drought conditions, the Authority undertook the spring of 1990 groundwater exploration program to assess the feasibility of developing a groundwater supply to supplement their surface water source.

The area surrounding Irvona is underlain by the gently folded, coal-bearing rocks of the Glenshaw, Allegheny and Pottsville Formations. In general, the hillslopes and ridges are capped by the Glenshaw and Allegheny strata and the regional valley bottoms (lower reaches of Witmer and Hockenberry Runs and Clearfield Creek) are underlain by the Pottsville Formation.

Review of well records indicate that all of these formations have the potential to produce relatively large yields in valley-bottom, fracture-zone settings. However, each of these formations also typically produce water with iron and manganese concentrations large enough to require some form of treatment for use as public water supply sources. The iron and manganese concentrations recorded for these formations range widely and appear to be related to site specific criteria such as the influence of surface mining and the pyrite content of the predominant water-bearing strata encountered at each well site, However, in general, iron and manganese concentrations appear to be highest in wells tapping the Pottsville and the lower third of the Allegheny Formation.

The only non-coal-bearing formation in the area having potential for use as an aquifer unit is the Mississipian-aged Mauch Chunk Formation. The Mauch Chunk Formation underlies the Pottsville, and, in this locale, is composed largely of calcareous sandstone. Review of well records reveal that the Mauch Chunk is capable of producing extremely large yields of excellent quality water where it lies close to the surface. Unfortunately, little testing of the Mauch Chunk has been performed in areas similar to the deeply-buried "Irvona setting".

FIGURE 1 - Geologic Map of the Irvona Area



James R. Casselberry/Groundwater Geologist
108 E. Main Street, P.O. Box 616
Boalsburg, PA 16827 814-466-7128

IRVONA

The limited amount of well data available suggest that the Mauch Chunk can produced moderately large yields in this deeply-buried setting as long as fracturing is pervasive at depth. However, in locales where the Mauch Chunk is tapped far from its recharge area, it has the potential to produce saline water. As the nearest Mauch Chunk outcrop lies some 6 miles southwest of the Irvona Reservoir (Chest Creek valley at Thomas Mills), saline water is an obvious concern in the Irvona setting. However, at least one neighboring community (Hastings) has successfully developed a deeply cased, high-yield supply well in the Mauch Chunk which produces excellent quality water.

Since the scope of this project was to investigate the feasibility of developing groundwater sources to supplement the Authority's Hockenberry Run Reservoirs, our exploration activities were focused upon the small amount of property the Authority owns adjacent to the reservoirs. Based upon the previously described aquifer conditions, the test drilling program was structured to create a profile of water chemistry and yield as a test well was advanced through the Allegheny, Pottsville and Mauch Chunk strata. After developing this test drilling profile, we hoped to design and construct a production well which would maximize both well yield and water quality.

TEST WELL SITE LOCATION

I analyzed several flights of both high and low altitude aerial photographs for fracture traces and lineaments in the area surrounding the Hockenberry Run Reservoirs. Based upon this mapping, I located three, potential, test well sites, each lying at fracture trace intersections. Two of these test well sites were located on the eastern side of the upstream reservoir and the remaining site was located some 100 feet downstream of the breast of the lower reservoir. After inspecting these test well sites, Pa DER denied permission to drill the two upstream sites because of concerns for destruction of potential wetlands habitat. However, Pa DER did grant approval of the test well site located below the downstream reservoir. This test well site has been designated as Test Well No. 1 (TW1).

TEST WELL DRILLING

Test well drilling was conducted at TW1 by Eriksen Well Drilling from March 28 - 30, 1990. Thirty-six feet of 10-inch casing was set through colluvium and weathered bedrock to advance the well into competent bedrock (see Figure 2, Well Log). After the 10-inch casing was set, a 6-inch exploratory hole was drilled through the Allegheny and Pottsville formations to evaluate aquifer conditions. Numerous, water-bearing fracture-zones were encountered in sandstone, shale and clay strata of the Allegheny Formation from a depth of 45 to 102 feet. The aggregate yield of these Allegheny water-bearing zones was exceptionally large (in excess of some 500 gpm). However, analyses of water samples taken during test drilling indicate that these Allegheny water-bearing zones produced water with extremely high iron concentrations (4 to 5 mg/l). The Allegheny strata penetrated from 103

feet to the base of the formation at 204 feet appeared to be unfractured and contained no significant water-bearing zones.

From the base of the Allegheny Formation at some 204 feet to a depth of some 300 feet, the Pottsville Formation was encountered. The Pottsville strata were dominated by massive, hard, siliceous sandstone strata. A large, water-bearing fracture zone was penetrated near the base of the Pottsville from 280 - 283 feet. Due to poor return of drill cuttings and water during drilling of this zone (primarily caused by loss of circulation to the shallower Allegheny water-bearing zones) it was impossible to measure the yield or water quality of this basal, Pottsville, water-bearing zone.

Based upon the large size of the cuttings from this Pottsville fracture zone (fist-sized), I believe it has a large water bearing capacity. However, the water quality of this fracture zone remains a guess. Though there was no evidence of pyrite in the drill cuttings from this zone, the Pottsville typically produces water with elevated iron concentrations. With this in mind, I decided to case-off the poor quality Allegheny strata and also the "uncertain" Pottsville water-bearing zone to allow accurate definition of the yield and water chemistry of the underlying Mauch Chunk.

To case-off the Allegheny and Pottsville, the existing 6-inch test hole was reamed to 9-7/8-inch diameter to a depth of 303 feet in order to accept 6-inch casing. After the 6-inch casing was installed and seated, a 6-inch diameter hole was drilled to a depth of 495 feet to explore the Mauch Chunk Formation. The Mauch Chunk strata penetrated consisted of interbedded calcareous and non-calcareous, argillaceous sandstones. Eight discrete water-bearing zones were encountered in the Mauch Chunk. The aggregate yield of the water-bearing zones was some 85 gpm and the two largest water-bearing zones were logged at depths of 405 (22 gpm) and 415 feet (35 gpm).

Review of the analyses of the water samples taken during test drilling show that these Mauch Chunk water-bearing zones produce excellent quality, alkaline, sodium bicarbonate waters with extremely low iron (0.04 mg/l) and manganese (0.03 mg/l) concentrations (see Tables 1). The only potential water quality problem discerned by the test drilling data was the relatively large increase in sodium and chloride values noted between the samples taken at 425 feet and the bottom of the test well at 495 feet. Though there were no recorded, significant, water-bearing zones in this interval, the sodium concentrations rose from 72 to 92 mg/l and the chloride concentrations rose from 9 to 26 mg/l. The rise in both of these parameters appears to signal the encounter of a small volume, "near-brine", water-bearing zone in the bottom of the well.

Based upon the well log, the most obvious location for this "near brine" zone is the soft sandstone strata logged from 451-458 feet. In an attempt to preclude this zone from "contaminating" the well, the lower 50 feet of the well bore was plugged by injecting concrete grout with a

GEOCHEMICAL TESTING
ENERGY AND ENVIRONMENTAL ANALYSIS

R.D. 2, BOX 124
Somerset, Pennsylvania 15501
Phone: (814) 445-6666 or 443-1671

REPORT OF ANALYSIS

Client: Jim Casselberry Lab # 90-E13910

Sampled by: Client

Sampling date: 03/30/1990

Analysis completed: 04/10/1990

Description : Irvona #1-345'

Analyte	Result	Units	Test Method
pH	8.4	su	EPA 150.1
Total susp. solids	1880	mg/l	EPA 160.2
Alkalinity	147	mg/l as CaCO3	EPA 310.1
Acidity	Negative	mg/l as CaCO3	EPA 305.1
Sulfate	< 5	mg/l	EPA 375.4
Specific conductance	295	micromhos/cm	EPA 120.1
Iron, dissolved	0.04	mg/l	EPA 200.7
Manganese, dissolved	0.03	mg/l	EPA 200.7
Sodium, dissolved	60.4	mg/l	EPA 200.7

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Director of Technical Servi

Table 1 (continued)

GEOCHEMICAL TESTING
ENERGY AND ENVIRONMENTAL ANALYSIS

R.D. 2, BOX 124
Somerset, Pennsylvania 15501
Phone: (814) 445-6666 or 443-1671

REPORT OF ANALYSIS

Client: Jim Casselberry

Lab # 90-E13912

Sampled by: Client

Sampling date: 03/30/1990

Analysis completed: 04/10/1990

Description : Irvona #1-425'

Analyte	Result	Units	Test Method
pH	8.5	su	EPA 150.1
Total susp. solids	552	mg/l	EPA 160.2
Alkalinity	154	mg/l as CaCO3	EPA 310.1
Acidity	Negative	mg/l as CaCO3	EPA 305.1
Sulfate	< 5	mg/l	EPA 375.4
Specific conductance	305	micromhos/cm	EPA 120.1
Calcium	1.24	mg/l	EPA 200.7
Magnesium	0.28	mg/l	EPA 200.7
Hardness	4.25	mg/l as CaCO3	SM16 314A
Iron, dissolved	0.08	mg/l	EPA 200.7
Total dissolv. solid	148	mg/l	EPA 160.1
Aluminum, dissolved	0.33	mg/l	EPA 200.7
Barium, dissolved	0.32	mg/l	EPA 200.7
Calcium, dissolved	1.24	mg/l	EPA 200.7
Chloride	9.3	mg/l	EPA 325.2
Magnesium, dissolved	0.28	mg/l	EPA 200.7
Manganese, dissolved	0.03	mg/l	EPA 200.7
Sodium, dissolved	71.7	mg/l	EPA 200.7

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Director of Technical Service

Table 1 (continued)

GEOCHEMICAL TESTING
ENERGY AND ENVIRONMENTAL ANALYSIS

R.D. 2, BOX 124
Somerset, Pennsylvania 15501
Phone: (814) 445-6666 or 443-1671

REPORT OF ANALYSIS

Client: Jim Casselberry Lab # 90-E13913

Sampled by: Client

Sampling date: 03/30/1990

Analysis completed: 04/10/1990

Description : Irvona #1-495'

Analyte	Result	Units	Test Method
pH	8.5	su	EPA 150.1
Total susp. solids	80	mg/l	EPA 160.2
Alkalinity	167	mg/l as CaCO3	EPA 310.1
Acidity	Negative	mg/l as CaCO3	EPA 305.1
Sulfate	< 5	mg/l	EPA 375.4
Specific conductance	392	micromhos/cm	EPA 120.1
Calcium	1.42	mg/l	EPA 200.7
Magnesium	0.29	mg/l	EPA 200.7
Hardness	4.74	mg/l as CaCO3	SM16 314A
Iron, dissolved	0.02	mg/l	EPA 200.7
Total dissolv. solid	238	mg/l	EPA 160.1
Aluminum, dissolved	0.17	mg/l	EPA 200.7
Barium, dissolved	0.18	mg/l	EPA 200.7
Calcium, dissolved	1.42	mg/l	EPA 200.7
Chloride	26	mg/l	EPA 325.2
Magnesium, dissolved	0.29	mg/l	EPA 200.7
Manganese, dissolved	< 0.01	mg/l	EPA 200.7
Sodium, dissolved	91.9	mg/l	EPA 200.7

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Director of Technical Servi

grout pump and tremie pipe system. After this grouting operation, the depth of TW1 was plumbed at 445 feet.

Since both the yield and water chemistry of the test well appeared to be promising, the 6-inch test well was taken to production well status by bottom grouting both the 6-inch and 10-inch casings in place with a grout pump and tremie pipe system. All materials and construction techniques used in drilling the well conform to the specifications set forth in Pa DER's Public Water Supply Manual.

PUMPING TEST METHODOLOGY

A six-inch diameter, 5-stage, 10 hp submersible pump was set in TW1 at a depth of 278 feet. At the well head, a gate valve/electronic flow meter assembly was attached to the pump lift pipe to both measure and control the flow of water from the well. A pressure transducer/datalogger assembly was installed at the well to provide continuous monitoring of TW1's water level during all pumping test activities. All water pumped from the well was discharged directly to Hockenberry Run.

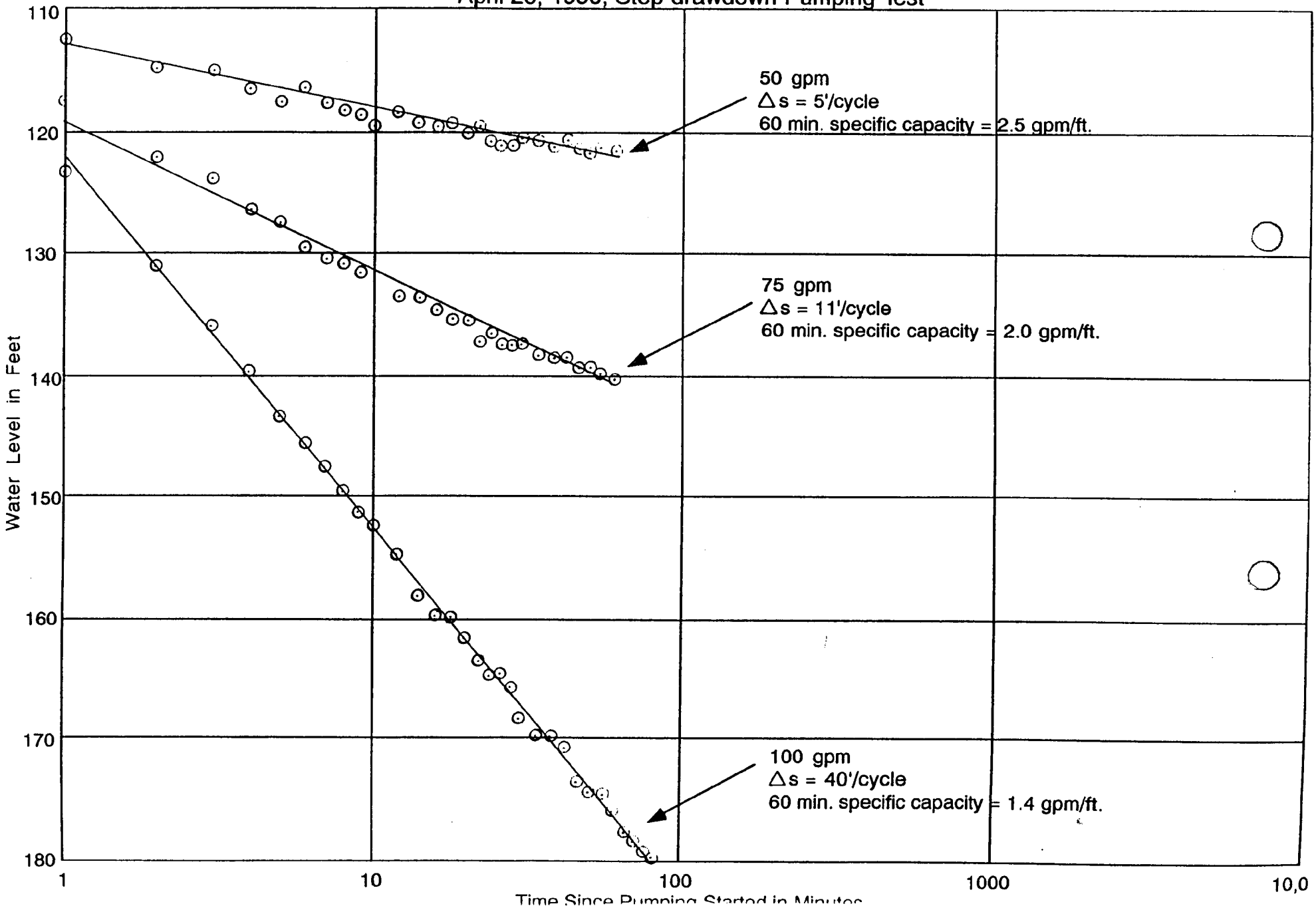
On April 20, 1989, a day-long, step-drawdown pumping test was conducted. The purpose of this step-drawdown test was to develop specific capacity data for use in selecting an appropriate pumping rate for the ensuing, 72-hour, constant-rate pumping test. Three, 60-minute "pumping steps" were conducted at rates of 50, 75 and 100 gpm. The well was allowed to recover to at least 90% of its original, pre-pumping static level in between each rate change in the step test.

The long-term, constant-rate pumping test was conducted from April 23 - 26, 1990. No significant rainfall fell immediately prior to or during the pumping test. Water levels were observed in stream bed piezometers and in two old shallow wells adjacent to the reservoirs during the long-term test to check for communication with surface water and/or the poor-quality, shallow, Allegheny aquifer. Water samples were taken at 24-hour intervals during the test to assess the potential for changing trends in water chemistry with increased duration of pumping. Following the conclusion of the long-term pumping test, water level recovery was monitored in TW1 for a 4-day period.

PUMPING TEST RESULTS

The data generated in the step-drawdown test is presented in Figure 3 as a log of time versus water level plot. Review of this figure shows fairly large decreases in specific capacity with increasing pumping rates. Decreases in specific capacity of this magnitude usually reflect large amounts of turbulent flow in the well bore caused by over-pumping. However, in this case, a large part of the turbulence in the well bore was undoubtedly being caused by the installation of a 6-inch nominal diameter pump inside of the 6-inch diameter well casing, i.e. the water pumped from the well had to be "jammed" through the 3/16-inch

FIGURE 3 Log of Time Versus Water Level Plot
Irvona Municipal Authority Test Well No. 1
April 20, 1990, Step-drawdown Pumping Test



annulus between the 5-foot long pump motor and well casing before reaching the pump intake.

Therefore, it is likely that a fairly large component of the 20% decrease in specific capacity noted between the 50 gpm and 75 gpm step is due to the set-up of the pumping system. However, the large 44% decrease in specific capacity between the 50 gpm and 100 gpm step can not be solely attributed to turbulence caused by the pump/hole restriction. Therefore, based upon the poor apparent performance of the well at 100 gpm, a pumping rate of 80 gpm was selected for the long-term pumping test.

The drawdown data collected at TW1 during the long-term (76-hour) pumping test has been presented as a log of time versus water level plot in Figure 4. Review of this graph shows that TW1 developed a consistent trend of drawdown of 11.5 feet per log cycle of time from 10 minutes since the onset of pumping to some 1200 minutes into the test. At the 1200-minute mark, the trend of drawdown accelerated and then assumed a consistent 22.5 foot per log cycle rate of decline to the end of the test at 4600 minutes. The steepening of the drawdown curve after the 1200 minute-mark reflects the encounter of a "barrier boundary" in the aquifer system. Considering the geologic setting of the well, it is likely that this barrier boundary reflects a decrease in fracture permeability as the cone of depression expands away from the well site.

Water level observation at the stream bed piezometers showed that Hockenberry Run adjacent to TW1 remained a gaining stream throughout the pumping test. Water level monitoring of the old, shallow wells tapping the Allegheny Formation adjacent to the reservoir showed a slight rise (0.4 to 0.5 feet) during the pumping test. This information suggests that the aquifer tapped by TW1 has no connection with the Hockenberry Run surface water system or the shallow, poor quality groundwaters of the Allegheny Formation. Considering the extremely deep length of grouted casing in TW1, these conclusions come as no surprise.

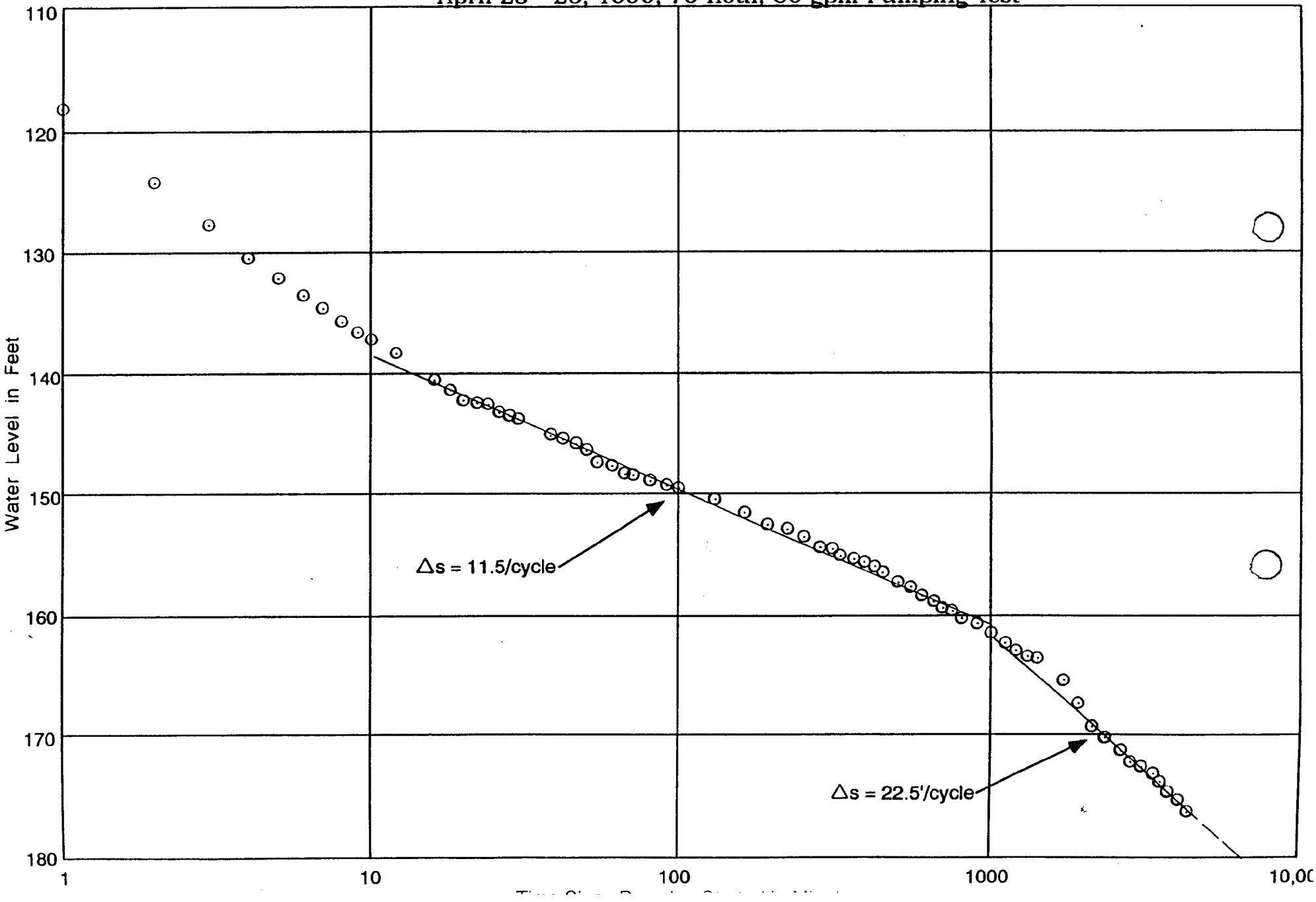
Water level recovery at TW1 was monitored for four days following the end of the 76-hour pumping test. This water level recovery monitoring showed that in the same duration of time as the pumping cycle (76 hours) TW1 recovered to 95% of its original, pre-pumping static level. This near complete recovery of TW1 indicates that little water was mined from the aquifer system during pumping and suggests that the aquifer tapped by TW1 is not of limited areal extent.

SUSTAINED YIELD RATING OF TW1

Normally, a fairly accurate estimation of the sustained yield of a supply well can be made by extrapolating the trend of water level decline developed in the latter stages of a long-term, constant-rate pumping test into time. This extrapolation allows the development of long-term projections of pumping levels caused by continuous withdrawal at a given pumping rate in an extended period of no

FIGURE 4

Log of Time Versus Water Level Plot
Irvona Muncipal Authority Test Well No. 1
April 23 - 26, 1990, 76-hour, 80 gpm Pumping Test



recharge (simulated drought conditions). Usually, these projections are used to identify the maximum, sustained pumping rate which will keep the pumping level in the well safely above the elevation of the well's major water-bearing zones during severe drought conditions. These projections assume that the recharge area "feeding" the well is large enough to sustain the continuous withdrawal rate and that the trend developed at the end of the test is representative of long-term aquifer performance.

Extrapolation of the "straight line", 22.5 foot per cycle trend of water level decline established in the last two days of the 76-hour pumping test yields the following pumping level projections:

Pumping Levels Resulting from Continuous 80 gpm Pumping in a Period of No Recharge

Time	Pumping Level
6.9 Days	184.5 feet
1.9 Years	207 feet
19 Years	229.5 feet

Review of the pumping level projections presented in the table above show that after 19 years of continuous, 80 gpm pumping, the water level in TW1 would be some 130 feet above the well's uppermost water-bearing zone (230 foot pumping level versus 345 foot depth of upper-most water-bearing zone). This extrapolation obviously suggests that the sustained yield of TW1 is at least 80 gpm.

However, due to the poor performance of the well at 100 gpm during the step-drawdown testing, I believe that the sustained yield of TW1 is not much in excess of 80 gpm. The extremely long distance between the well site and the recharge area of the aquifer tapped by the well (6 miles to Mauch Chunk outcrop at Thomas Mills) suggest that the well may be slow to respond to recharge events. This potential for slow recharge also lends support to limiting the sustained yield rating of TW1 to some 80 gpm.

WATER QUALITY OF TW1

Review of the analyses of water samples taken at the conclusion of the 76-hour pumping test (see Table 2) indicate that TW1 produces an extremely alkaline, sodium bicarbonate water of excellent quality. This water meets all of the primary and secondary public drinking water MCLs with the exception of the turbidity standard. The turbidity level recorded at the end of the pumping test was 1.2 NTU, which is marginally higher than the MCL of 1.0 NTU.

Tables 3 shows the chemical analyses of water samples taken at the 24-hour and 48-hour marks of the pumping test. Comparison of

TABLE 2 - New Source Sampling of TW1 at the Conclusion of 76-hour Pumping Test

GEOCHEMICAL TESTING

ENERGY AND ENVIRONMENTAL ANALYSIS

R.D. 2, BOX 124
Somerset, Pennsylvania 15501
Phone: (814) 445-6666 or 443-1671

REPORT OF ANALYSIS

Client: Jim Casselberry Lab # 90-E14178

Sampled By: Client

Sampling Date: 04/26/90

Report Printed: 05/30/90

Description: Irvona TH1 72Hour 4/26/90

Inorganic Metals

Analyte	Result	Units	Test
Arsenic	< 0.01	mg/l	EPA 200.7
Barium	0.12	mg/l	EPA 200.7
Cadmium	< 0.001	mg/l	EPA 200.7
Calcium	3.07	mg/l	EPA 200.7
Chromium	< 0.01	mg/l	EPA 200.7
Copper	< 0.01	mg/l	EPA 200.7
Iron	0.05	mg/l	EPA 200.7
Lead	< 0.01	mg/l	EPA 200.7
Manganese	0.01	mg/l	EPA 200.7
Mercury	<0.0002	mg/l	EPA 245.1
Selenium	<0.002	mg/l	EPA 200.7
Silver	< 0.01	mg/l	EPA 200.7
Sodium	72.0	mg/l	EPA 200.7
Zinc	0.01	mg/l	EPA 200.7

Inorganic Non-Metals

Analyte	Result	Units	Test
Alkalinity	135	mg/l as CaCO3	EPA 310.1
Chloride	11	mg/l	EPA 325.2
Fluoride	< 0.20	mg/l	SM 16TH 413B
Nitrate	< 0.05	mg/l as N	EPA 353.1
Sulfate	6	mg/l	EPA 375.4
pH	8.7	su	EPA 150.1

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Director of Technical Services

Table 2 (continued)

GEOCHEMICAL TESTING
ENERGY AND ENVIRONMENTAL ANALYSIS

R.D. 2, BOX 124
Somerset, Pennsylvania 15501
Phone: (814) 445-6666 or 443-1671

REPORT OF ANALYSIS

Client: Jim Casselberry
Lab # 90-E14178

Description: Irvona TH1 72Hour 4/26/90

Physical Tests

Analyte	Result	Units	Test
Color	< 10	Color units	EPA 110.3
Langelier saturation	-0.31		SM 16TH 203
Total dissolved solids	178	mg/l	EPA 160.1
Turbidity	1.2	NTU	EPA 180.1

Indicator Organic Parameters

Analyte	Result	Units	Test
Surfactants	< 0.1	mg/l	EPA 425.1

Volatile Organic Compounds

Analyte	Result	Units	Test
* 1,1,1,2-Tetrachloroethane	<1.0	ug/l	EPA 502.2
* 1,1,1-Trichloroethane	<0.5	ug/l	EPA 502.2
* 1,1,2,2-Tetrachloroethane	<1.0	ug/l	EPA 502.2
* 1,1,2-Trichloroethane	<1.0	ug/l	EPA 502.2
* 1,1-Dichloroethane	<1.0	ug/l	EPA 502.2
* 1,1-Dichloroethene	<0.5	ug/l	EPA 502.2
* 1,1-Dichloropropene	<1.0	ug/l	EPA 502.2
* 1,2,3-Trichloropropane	<1.0	ug/l	EPA 502.2
* 1,2-Dibromoethane	<0.02	ug/l	EPA 502.2
* 1,2-Dichlorobenzene	<1.0	ug/l	EPA 502.2
* 1,2-Dichloroethane	<0.5	ug/l	EPA 502.2
* 1,2-Dichloropropane	<1.0	ug/l	EPA 502.2
* 1,2-Dibromo-3-Chloropropane	<0.02	ug/l	EPA 502.2

Forrest E. Walker
Director of Technical Services

Table 2 (continued)

GEOCHEMICAL TESTING
ENERGY AND ENVIRONMENTAL ANALYSIS

R.D. 2, BOX 124
Somerset, Pennsylvania 15501
Phone: (814) 445-6666 or 443-1671

REPORT OF ANALYSIS

Client: Jim Casselberry
Lab # 90-E14178

Description: Irvona TH1 72Hour 4/26/90

Volatile Organic Compounds

Analyte	Result	Units	Test
* 1,3-Dichlorobenzene	<1.0	ug/l	EPA 502.2
* 1,3-Dichloropropane	<1.0	ug/l	EPA 502.2
* 1,3-Dichloropropene	<1.0	ug/l	EPA 502.2
* 1,4-Dichlorobenzene	<0.5	ug/l	EPA 502.2
* 2,2-Dichloropropane	<1.0	ug/l	EPA 502.2
* Benzene	<0.5	ug/l	EPA 502.2
* Bromobenzene	<1.0	ug/l	EPA 502.2
* Bromomethane	<1.0	ug/l	EPA 502.2
* Carbon Tetrachloride	<0.5	ug/l	EPA 502.2
* Chlorobenzene	<1.0	ug/l	EPA 502.2
* Chlorodibromomethane	<1.0	ug/l	EPA 502.2
* Chloroethane	<1.0	ug/l	EPA 502.2
* Chloromethane	<1.0	ug/l	EPA 502.2
* Dibromomethane	<1.0	ug/l	EPA 502.2
* Dichlorobromomethane	<1.0	ug/l	EPA 502.2
* Ethylbenzene	<1.0	ug/l	EPA 502.2
* M-Xylene	<1.0	ug/l	EPA 502.2
* Methylene Chloride	<1.0	ug/l	EPA 502.2
* O-Chlorotoluene	<1.0	ug/l	EPA 502.2
* O-Xylene	<1.0	ug/l	EPA 502.2
* P-Chlorotoluene	<1.0	ug/l	EPA 502.2
* P-Xylene	<1.0	ug/l	EPA 502.2
* Styrene	<1.0	ug/l	EPA 502.2
* Tetrachloroethene	<1.0	ug/l	EPA 502.2
* Toluene	<1.0	ug/l	EPA 502.2
* Tribromomethane	<1.0	ug/l	EPA 502.2
* Trichloroethene	<0.5	ug/l	EPA 502.2
* Trichloromethane	<1.0	ug/l	EPA 502.2
* Vinyl Chloride	<0.5	ug/l	EPA 502.2
* cis 1,2-Dichloroethene	<1.0	ug/l	EPA 502.2
* trans 1,2-Dichloroethene	<1.0	ug/l	EPA 502.2

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Director of Technical Services

GEOCHEMICAL TESTING

ENERGY AND ENVIRONMENTAL ANALYSIS

R.D. 2, BOX 124
Somerset, Pennsylvania 15501
Phone: (814) 445-6666 or 443-1671

REPORT OF ANALYSIS

Client: Jim Casselberry

Lab # 90-E14178

Description: Irvona TH1 72Hour 4/26/90

Herbicides/Pesticides & PCB's

Analyte	Result	Units	Test
2,4-D	< 0.005	mg/l	SM 16TH 509B
Endrin	< 0.00005	mg/l	SM 16TH 509A
Lindane	< 0.0004	mg/l	SM 16TH 509A
Methoxychlor	< 0.01	mg/l	SM 16TH 509A
Silvex	< 0.0005	mg/l	SM 16TH 509B
Toxaphene.	< 0.001	mg/l	SM 16TH 509A

Radiological

Analyte	Result	Units	Test
Gross Alpha	< 1	pCi/liter	EPA 600

Bacteriological Testing

Analyte	Result	Units	Test
Total coliform (rep 1)	<1	#/100 ml	SM 16TH 909A
Total coliform (rep 2)	<1	#/100 ml	SM 16TH 909A
Total coliform (rep 3)	<1	#/100 ml	SM 16TH 909A

* NOTE: Analyzed by Lancaster Laboratories Inc.

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GEOCHEMICAL TESTING
ENERGY AND ENVIRONMENTAL ANALYSIS

R.D. 2, BOX 124
Somerset, Pennsylvania 15501
Phone: (814) 445-6666 or 443-1671

REPORT OF ANALYSIS

Client: Jim Casselberry Lab # 90-E14176

Sampled by: Client

Sampling date: 04/24/1990

Analysis completed: 05/04/1990

Description : Irvona TH1 24Hour 4/24/90

Analyte	Result	Units	Test Method
pH	8.7	su	EPA 150.1
Total susp. solids	< 5	mg/l	EPA 160.2
Iron	0.09	mg/l	EPA 200.7
Manganese	0.01	mg/l	EPA 200.7
Alkalinity	134	mg/l as CaCO3	EPA 310.1
Acidity	Negative	mg/l as CaCO3	EPA 305.1
Sulfate	6	mg/l	EPA 375.4
Specific conductance	303	micromhos/cm	EPA 120.1
Sodium	67.2	mg/l	EPA 200.7
Turbidity	3.5	NTU	EPA 180.1

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Table 3 (continued)

GEOCHEMICAL TESTING

ENERGY AND ENVIRONMENTAL ANALYSIS

R.D. 2, BOX 124
Somerset, Pennsylvania 15501
Phone: (814) 445-6666 or 443-1671

REPORT OF ANALYSIS

Client: Jim Casselberry Lab # 90-E14177

Sampled by: Client

Sampling date: 04/25/1990

Analysis completed: 05/04/1990

Description : Irvona TH1 48Hour 4/25/90

Analyte	Result	Units	Test Method
pH	8.7	su	EPA 150.1
Total susp. solids	< 5	mg/l	EPA 160.2
Iron	0.08	mg/l	EPA 200.7
Manganese	0.01	mg/l	EPA 200.7
Alkalinity	134	mg/l as CaCO3	EPA 310.1
Acidity	Negative	mg/l as CaCO3	EPA 305.1
Sulfate	6	mg/l	EPA 375.4
Specific conductance	323	micromhos/cm	EPA 120.1
Sodium	71.9	mg/l	EPA 200.7
Turbidity	2.0	NTU	EPA 180.1

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Director of Technical Servi

these analyses with those from the end of the pumping test show no significant increases in concentration of any chemical parameters with increased duration of pumping. However, these samples do show a sharp decrease in the turbidity of the well with increased pumping (24 hrs. - 3.5 NTU, 48 hrs. - 2.0 NTU, 76 hrs. - 1.2 NTU). Based upon the observed large decrease in turbidity during the course of the test, it is likely that the turbidity of the well will fall below the 1.0 NTU MCL with prolonged pumping.

RECOMMENDATIONS FOR FUTURE WELL DEVELOPMENT

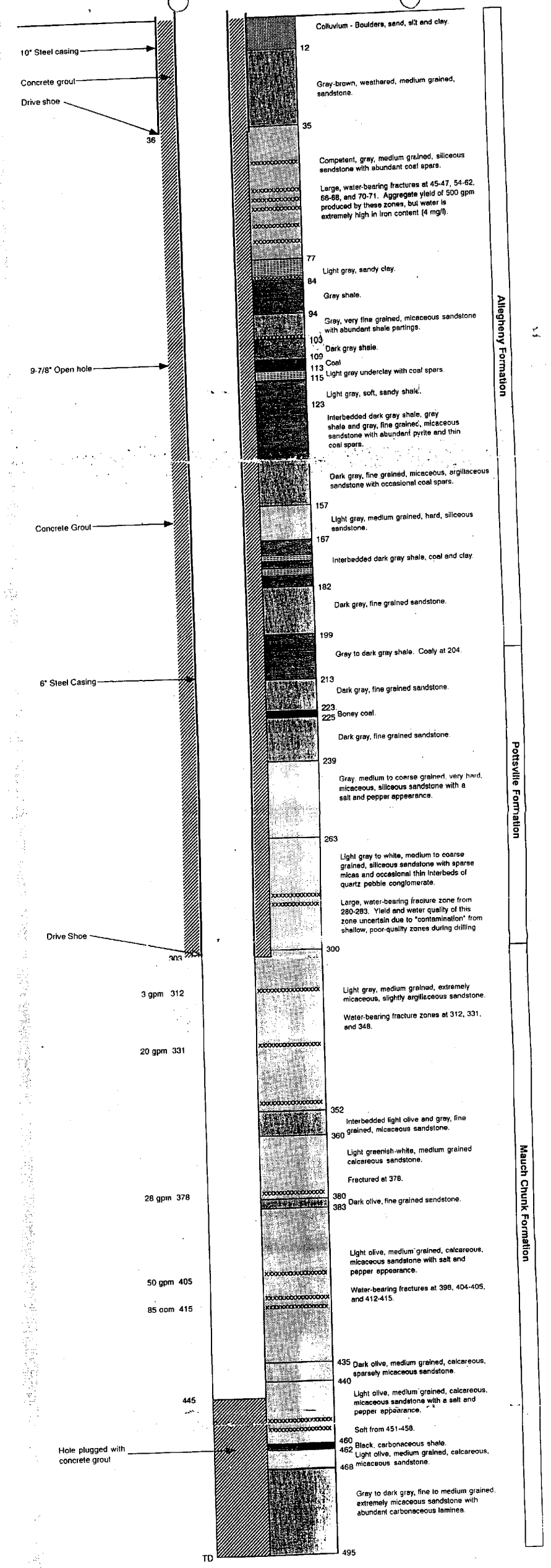
The drilling and testing program conducted at TW1 proved that moderately large yields of excellent quality water can be developed from properly cased wells tapping the deeply-buried Mauch Chunk aquifer in the Irvona area. Based upon this information, it is likely that the development of a small well field tapping the Mauch Chunk could supply all of the Authority's 120,000 gpd demand. The development of TW1 as an 80 gpm source of supply would provide a daily yield of some 115,000 gpd. Therefore, it is likely that only one or two additional wells tapping the Mauch Chunk would have to be constructed to safely provide all of the Authority's water demands.

Well separations as large as some 1500 - 3500 feet would most likely be necessary to avoid problems with excessive well interference in the Mauch Chunk aquifer. Therefore, it makes little sense to develop any additional, primary, pumping wells on the small property owned by the Authority surrounding the Hockenberry Run Reservoirs.

Any future exploration for additional Mauch Chunk supplies should be carried out in the Hockenberry Run or Witmer Run valley-bottoms. Analysis of geologic mapping suggests that the Mauch Chunk lies some 180 to 250 feet closer to the surface in the lower reaches of Hockenberry Run and Witmer Run than it does at the TW1 site. It is quite possible that the Mauch Chunk possesses a larger yield potential in these regional valley-bottoms due to its shallower depth of burial in this setting. The ultimate selection of any test well sites in this area should stem from consideration of both fracture trace mapping and water system design criteria.

The only possibility for developing additional yields of good quality water at the Hockenberry Run Reservoir site would be the investigation of the large water-bearing zone encountered near the base of the Pottsville Formation at the TW1 location. As previously described, it is likely that this water-bearing zone has a large yield potential, but its water chemistry is uncertain. The only way to positively define the yield and chemistry of this basal Pottsville water-bearing zone would be to construct another deeply cased test well at the TW1 location. As review of well records show that the Pottsville commonly produces water with elevated iron concentrations, the chances of obtaining excellent quality water from this strata are most likely "bucking the odds".

Irvona Municipal Authority Test Well No. 1
Geologic Log and Construction Details



NOTE All depths are in feet below ground level.
Vertical scale is 1" = 20'.
X = Water-bearing fracture zone.
Test drilling completed from 3/28-30/90.

James R. Casselberry/Ground-water Geologist
108, East Main Street, P.O. Box 616
Boalsburg, PA 16827 (814) 466-7128

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JAMES R. CASSELBERRY
Ground-Water Geologist

108 E. Main Street / P.O. Box 616
Boalsburg, Pennsylvania 16827
(814) 466-7128

RECEIVED
SEP - 5 91
The Neilan Engineers
Somerset, Pa.

August 29, 1991

Scott Rugh
Neilan Engineers
1065 Tayman Avenue/P.O. Box 837
Somerset, PA 16827

Re: Potential for Groundwater Development at Irvona Municipal Authority

Dear Scott:

At your request, I have written this letter report to assess the potential for developing additional groundwater supplies to serve the Irvona Municipal Authority. This topic was covered in my "Groundwater Exploration Report" of June 19, 1990. The exploration report describes in detail the drilling and testing program we conducted at single test well (TW1) site located just downstream of the Authority's Hockenberry Run Reservoir. Based upon the data presented in this June 19, 1991 report, I have come to the following conclusions regarding the feasibility of developing additional groundwater supplies to serve the Authority.

1) The area served by the Authority is underlain by the coal-bearing rocks of the Allegheny, Glenshaw and Pottsville Formations. The Allegheny and Glenshaw have little potential for development of secure water supply wells due to impact from extensive coal mining operations. The Pottsville Formation contains no mineable coals in the Irvona setting and has the potential to produce large yields of water in valley-bottom, fracture-zone settings. However, due to the natural decomposition of the large concentration of pyrite in the Pottsville, this formation almost always produces water with elevated iron and manganese concentrations. Therefore, the Pottsville also presents little opportunity for the development of high-quality water supply wells.

2) I believe Irvona's best option for developing high-quality groundwater supplies lies in tapping the "deeply-buried", Mauch Chunk aquifer. The Mauch Chunk contains no coal strata and normally produces excellent-quality alkaline waters where it lies in the active zone of groundwater circulation.

3) TW1 taps the deeply-buried Mauch Chunk aquifer just downstream of the Hockenberry Run reservoir. Analysis of the drawdown data from a 76-hour, 80 gpm, constant rate pumping test run on TW1 suggest that this well has a sustained yield potential of at least 80 gpm. Chemical analyses of the water samples collected at the end of this pumping test suggest that the Mauch Chunk produces excellent quality water needing no treatment for use as a source of potable water. This Mauch

Chunk water is an alkaline, sodium bicarbonate water with extremely low iron and manganese concentrations (0.06 mg/l iron and 0.01 mg/l manganese).

4) The data from the drilling and testing of TW1 suggest that the Mauch Chunk aquifer could potentially be utilized to provide all of the Authority's potable water supply. Based upon our testing, TW1 appears to be able to produce a sustained yield of 80 gpm (115,000 gpd). According to the Neilan Engineer's, the Authority's current water consumption is some 120,000 gpd. Therefore, it is likely that the successful development of one additional well could create a Mauch Chunk well field capable of supplying the Authority's entire water demand.

5) Well separations as large as 2500 to 4500 feet will most likely be necessary to avoid problems with excessive well interference in the confined, Mauch Chunk aquifer system. Therefore, it makes little sense to develop any additional, primary, pumping wells on the small amount of property the Authority owns surrounding the Hockenberry Run Reservoir.

6) Any future exploration for additional Mauch Chunk supplies should be carried out in the lower reaches of the Hockenberry Run valley or in the Witmer Run valley-bottom (see attached map). Analysis of geologic mapping suggests that the Mauch Chunk lies some 180 to 250 feet closer to the surface in the lower reaches of Hockenberry Run and Witmer Run than it does at the TW1 site. This shallower depth of burial should result in much less complicated and expensive well designs and should also maximize the yield potential of the Mauch Chunk.

7) The largest potential complication in the development of the Mauch Chunk aquifer is maintaining hydraulic isolation between the good quality Mauch Chunk aquifer and the poor quality waters of the overlying Pottsville and Allegheny Formations. Some of the Pottsville and Allegheny waters are extremely aggressive and could potentially "eat through" steel water well casings. Therefore, the use of noncorrosive casing materials should be considered in any wells having a significant thickness of Pottsville and/or Allegheny overlying the Mauch Chunk. The cheapest, non-corrosive application is most likely the use of a PVC well liner and packer assembly installed and grouted inside of the steel water well casing.

8) As previously mentioned, TW1 appears to produce excellent quality water needing no treatment for use as a source of potable water. However, based upon other well development projects I have recently completed tapping the deeply-buried Mauch Chunk aquifer, there are three, potential, water quality problems that can be associated with the development of the Mauch Chunk aquifer. These potential water quality problems are sporadically elevated levels of sodium, radon, and hydrogen sulfide. Special attention should be paid to defining these water quality parameters in any new wells drilled in the Mauch Chunk.

JAMES R. CASSELBERRY
Ground-Water Geologist

108 E. Main Street / P.O. Box 616
Boalsburg, Pennsylvania 16827
(814) 466-7128

9) If the Authority is interested in further pursuing groundwater development, the next step should be to conduct a fracture trace and lineament analysis of the lower Hockenberry Run and Witmer Run valley-bottoms to identify potenial, fracture zone test well sites. The ultimate selection of any test well sites for drilling in this area should stem from consideration of both fracture trace mapping and water system design criteria.

If you have any questions regarding the information presented in this letter, please give me a call.

Regards,

James R. Casselberry

JRC/jc
Enclosure

JAMES R. CASSELBERRY
Ground-Water Geologist

108 E. Main Street / P.O. Box 616
Boalsburg, Pennsylvania 16827
(814) 466-7128

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Irvona Borough
Groundwater Exploration Report

Yield and Water Quality Characteristics of Test Well #2

Mauch Chunk/Burgoon Aquifer System
Hockenberry Run Watershed,
Clearfield Co., PA

November 2, 1992

CASSELBERRY & ASSOCIATES / GROUND-WATER GEOLOGISTS

LIST OF FIGURES, TABLES, AND APPENDIX

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BACKGROUND, SCOPE AND PURPOSE OF THE GROUNDWATER EXPLORATION PROGRAM

At the request of Neilan Engineers, consulting engineer for Irvona Borough, I have written this report to present the results of the groundwater exploration program our firm carried out for the Borough in the spring and early summer of 1992. This groundwater exploration program culminated in the construction and test pumping of a single well site located in the lower reaches of Hockenberry Run. In the following sections of this report, this well site is referred to as Well #2 (TW2).

In the past, the Borough has relied on an unfiltered surface water reservoir in the headwaters of Hockenberry Run as a potable water source. In 1990, our firm developed a high-yield/excellent-quality water well at the Hockenberry Run reservoir to supplement the Borough's surface water source.

The goal of the 1992 groundwater exploration program was to assess the feasibility of developing another production well to increase the volume of the Borough's groundwater supply. The work we conducted as part of the groundwater exploration project included:

1) Review and analysis of the geologic mapping to identify areas in the Borough's distribution system having the best potential for well development.

2) Location of two test well sites at the intersection of fracture-trace features.

3) Supervision of the drilling and construction of TW2.

4) Performance of an 8-hour step-drawdown pumping test, 48-hour constant-rate pumping test, and a water-level recovery test at TW2.

5) Analysis of the pumping test data to define the sustained yield potential and water quality of TW2.

In the following sections of this report, I have presented a comprehensive summary of the work we have completed as part of the exploration program. At the end of this document, I have set forth recommendations concerning the use of TW2. The information contained in this report includes all of the hydrogeologic data necessary to initiate the permitting of TW2 as a public water supply with the Pennsylvania Department of Environmental Resources (PA DER).

CHARACTERISTICS OF THE TARGET AQUIFERS SELECTED FOR EXPLORATION

The area surrounding Irvona is underlain by the relatively flat-lying, coal-bearing rocks of the Glenshaw Formation (Fm), and the Allegheny and Pottsville Groups (Gps). In general, the hillslopes and ridges are capped by the Allegheny Fm and Glenshaw Gp, and the regional valley bottoms (lower reaches of Witmer Run, Hockenberry Run, and Clearfield Creek) are underlain by the Pennsylvanian Pottsville Gp (see Figure 1).

All of the coal-bearing formations typically produce poor-quality water having elevated iron and manganese concentrations. Therefore, the coal-bearing rock strata which directly underlie the entire Irvona area have little potential for the development of high-quality groundwater supplies.

The Mauch Chunk and Burgoon Fms directly underlie the coal measures. These geologic units contain no coal seams and have completely different hydrogeologic characteristics than the overlying coal-bearing strata.

In many areas of central Pennsylvania, the Mauch Chunk and Burgoon Fms are excellent sources of high-yield/excellent-quality groundwater supplies. Therefore, we selected the Mauch Chunk/Burgoon aquifer system as our target aquifer for this project.

The Mauch Chunk/Burgoon aquifer system has the potential to produce large yields of water in locales where it has a large recharge area and lies close to the surface. In the Irvona area, the Mauch Chunk and Burgoon Fms are deeply buried. The large depth of burial of the aquifer system most likely restricts its yield potential. However, based upon records of wells we have developed in similar geologic settings, I believe sustained yields approaching 100 gallons per minute (gpm) could be developed from the Mauch Chunk/Burgoon aquifer in the Irvona area.

Due to its large depth of burial, groundwater circulation in the Mauch Chunk/Burgoon aquifer system in the Irvona area may be extremely limited. The limited circulation of groundwater may cause the aquifer to contain highly-mineralized water.

In 1990, we explored the Mauch Chunk/Burgoon aquifer at a site just downstream of the Borough's reservoir. This exploration program proved that large yields of excellent quality water could be developed from the upper portion of the Mauch Chunk/Burgoon aquifer system in the Irvona setting. The well drilled as part of our 1990 project

(Well No. 1) has a sustained yield rating of 80 gpm and currently requires no treatment other than disinfection for use as a potable water resource. However, information collected during the drilling of this well suggest that fresh water circulation is limited to the upper 100 to 150 feet of the aquifer in the Irvona setting.

LOCATION AND GEOLOGIC SETTING OF POTENTIAL TEST WELL SITES

The yield potential of the Mauch Chunk/Burgoon aquifer sequence is largest in areas where it lies close to the surface. In the area traversed by the Borough's water lines, the Mauch Chunk and Burgoon Formations (Fms) lie closest to the surface in the lower reaches of the Hockenberry Run valley. Therefore, we concentrated our search for potential well sites in this area.

In order to locate potential well sites in the lower portion of Hockenberry Run, we mapped fracture traces and lineaments on several flights of both high and low altitude aerial photographs. Based upon this mapping, we located two potential test well sites at fracture-trace intersections on the south flank of the Hockenberry Run valley, approximately 2 miles downstream of Well No. 1. These sites are separated by a small distance (105 feet). The upstream location was designated as Site 1, and the downstream location was designated as Site 2. TW2 was constructed at the Site 1 location.

Based upon the geologic mapping of the area, the top of the Mauch Chunk Fm was estimated to be overlain by 120 to 150 feet of Pottsville Gp strata. The Pottsville Gp strata typically produce extremely poor quality acidic water having elevated iron and manganese concentrations. Therefore, we anticipated casing off all of the strata overlying the Mauch Chunk Fm in order to maximize water quality.

TEST WELL CONSTRUCTION AND DEFINITION OF WATER-BEARING ZONES

Test drilling at the TW2 site was performed from August 25-27, 1992 by Eriksen Well Drilling. TW2 was constructed as a double-cased, 6-inch final diameter well meeting all PA DER design specifications for public water supply wells. The geologic log and construction details of TW2 are shown on the attached graphic log (Figure 2) and detailed written log (Table 1).

Review of the geologic log shows that 34 discrete water-bearing fracture zones were encountered at TW2. The large number of fractures at TW2 indicates a successful fracture-zone location.

The bedrock encountered to a depth of 257 feet consisted of light to dark gray siltstone and shale with tan to light gray sandstone and occasional coal and coaly horizons. This lithology is generally typical of the Pottsville Gp. The light gray to green to white sandstone bedrock encountered from 257 feet to the bottom of the well at 430 feet is similar to Mauch Chunk strata encountered in Well No. 1. The gray, green, and white sandstone encountered below the Pottsville Gp at Well No. 1 contained abundant calcareous interbeds. However, the sandstone penetrated below the Pottsville Gp at TW2 contained no calcareous material. The lack of calcareous strata at TW2 may suggest that the Pottsville Gp has eroded the entire Mauch Chunk sequence and rests unconformably on the Burgoon Fm at the TW2 location. This thesis appears to be supported by the unusually large apparent thickness of the Pottsville strata at the TW2 location.

The Pottsville Fm strata had 16 water-bearing fracture zones that produced an aggregate blown yield of greater than 500 gpm during test drilling. Due to the poor-quality acidic nature of groundwater obtained from this strata, we decided to set casing through the "Pottsville Fm" and into the top of the "Mauch Chunk Fm". Six-inch diameter casing was set to a depth of 273 feet, which is 16 feet below what we have tentatively identified as the Pottsville/Mauch Chunk Fm contact.

Eighteen water-bearing fracture zones were encountered in the Mauch Chunk/Burgoon Fm. The shallowest significant water bearing zone in the Mauch Chunk/Burgoon strata was located at a depth of 322 feet and the deepest water bearing zone was located at a depth of 426 feet.

These Mauch Chunk/Burgoon Fm water-bearing zones produced an aggregate blown yield of 180 gpm during test drilling. Though the wellbore was intensely fractured in many intervals, the borehole appeared to be stable at the conclusion of the test drilling process.

PUMPING TEST PROGRAM METHODOLOGY AND BACKGROUND CONDITIONS

The pumping test program at TW2 consisted of:

1) Performance of a day-long step-drawdown pumping test to evaluate TW2's efficiency over a wide range of pumping rates. The data from this step-drawdown pumping test was evaluated to pick a realistic pumping rate for the ensuing 48-hour, constant-rate pumping test.

2) Performance of a 48-hour, constant-rate pumping test followed by a water-level recovery test. TW2 was sampled for PA DER's "New

Source Sampling Matrix" at the conclusion of the 48-hour pumping test. Water samples were also collected after 24 hours during the 48-hour pumping test to determine if TW2's water chemistry changed with increasing duration of pumping.

3) Regular observation of the water levels in Well No. 1, and the old, shallow reservoir well. The response in Well No. 1 to pumping at TW2 was evaluated to provide an indication of communication between Well No. 1 and Well No. 2. The response in the old well was evaluated for an indication of vertical leakage from the coal measures into the Mauch Chunk/Burgoon aquifer.

All water pumped from TW2 during the pumping test activities was discharged via a pipeline into a trench lined with a series of hay bales, and into Hockenberry Run downstream of the well. A datalogger coupled to a down-the-hole electronic pressure transducer was used to measure water levels in TW2. An electronic flow meter installed downstream of a gate valve assembly was used to measure and control the flow of water from TW2 during the pumping tests. A small diameter electronic water level probe was used to measure the water levels in Well No. 1, and in the old, shallow reservoir well.

No significant amount of precipitation occurred immediately prior to or during our pumping test program. The water table conditions during the pumping test program were typical of normal late-summer conditions.

PUMPING TEST RESULTS AND ANALYSIS

Step-drawdown Pumping Test

The step-drawdown pumping test was conducted on September 10, 1992. During the step-drawdown pumping test, TW2 was pumped for three, 60-minute-long steps at pumping rates of 60, 100, and 140 gpm. The highest pumping rate available for testing (140 gpm) was essentially the maximum capacity of the well pump operating at open discharge. The well was allowed to recover between each rate change in the step-test, to within 80 percent of total drawdown in a given step.

At pumping rates of 60,100, and 140 gpm, the rate of drawdown at TW2 was slight and the well appeared to suffer no significant well loss due to turbulent flow. Therefore, based upon the step-test data, we selected a pumping rate of 120 gpm for the ensuing, 48-hour, pumping test. This 120 gpm pumping rate allowed enough "valve-play" to maintain a constant discharge as water levels declined with long-term pumping.

48-hour, Constant-rate, Pumping Test

Drawdown Data

The 48-hour pumping test was conducted from September 28-October 1, 1992. The drawdown data from this pumping test are shown as a log of time versus water level plot on the attached Figure 3. Review of this graph shows that from 20 minutes since the onset of pumping to 300 minutes, the well established a consistent 2 foot per log cycle trend of water-level decline. At 300 minutes into the test, the trend of water-level decline increased to 8 feet per log cycle. The steepening of the drawdown curve after 300 minutes of pumping indicates the existence of a barrier boundary in the portion of the aquifer tapped by TW2. Considering the geologic setting of the well, I believe this barrier boundary is due to a decrease in fracture permeability as the cone of depression spreads away from the well.

Water-Level Recovery Data

Immediately following the 48-hour drawdown test, a water-level recovery test was conducted. Water-level recovery was monitored for one day after pumping had ceased. The recovery data is presented as a log of time versus water-level plot in Figure 4. The data showed that in one day, TW2 had recovered to within 75% of its original, pre-pumping static level. A projection of the 6 feet per log cycle trend in recovery indicates that the well should be fully recovered at 2.5 days after pumping stopped, i.e. slightly longer than the duration of the 48-hour drawdown test. This projection, coupled with the slight discrepancy between the rate of drawdown (8 feet/cycle) and the rate of recovery (6 feet/cycle), may indicate that a small amount of water was "mined" from the aquifer system during pumping.

Observation Well Data

The data collected at Well No. 1 (located approximately 2 miles upstream of TW2) showed very little water level change during the course of the 48-hour pumping test. The levels at Well No. 1 fluctuated in a narrow range of 0.16 feet and showed no systematic trend of increase or decrease. Therefore, even though TW2 and Well No. 1 tap the same aquifer. They do not appear to communicate significantly. Considering their large 2 mile separation, the lack of communication is not surprising.

The old, shallow well located near the Borough reservoir taps water-bearing zones in the Allegheny Fm which were cased-off in the construction of TW1 and TW2. This shallow, old well also showed no significant amount of water-level change. The lack of response of this shallow well to pumping at TW2 suggests that there is no significant

leakage of water from the Allegheny Fm strata into the Mauch Chunk/Burgoon Fms water-bearing zones tapped by TW1 and TW2.

TW2 Water Quality

The analyses of the water samples collected during the pumping test program are shown on the attached Tables 2, 3, and 4. Review of these tables show that TW2 produces alkaline, moderately-soft water of excellent quality. Based upon samples collected at the conclusion of the pumping test, TW2 appears to produce water meeting all of the primary and secondary drinking water standards. However, the iron and manganese concentrations recorded during the testing are quite close to the maximum concentration limits set for these parameters.

To assess the stability of TW2's water chemistry, I have tabulated the key water quality parameters which we tracked during the pumping test in the table below. All values listed in the table are in mg/l.

	Iron	*Manganese*	*TDS*	*Alkalinity*	*Sodium*
Step Test	*0.27*	*0.06*	*132*	*150*	*32.1*
24 hours	*0.33*	*0.06*	*180*	*160*	*34.8*
48 hours	*0.22*	*0.05*	*181*	*100*	*33.4*

Review of the water sample data above shows that the chemistry of the water produced by the well was stable during the pumping test. This suggests that the chemical characteristics of TW2 will not change dramatically with long-term use.

Based upon the water sampling performed at TW2, this supply requires no treatment other than disinfection for use as a potable water supply. However, I recommend that the Borough consider using a sequestering agent to control the slightly elevated iron and manganese concentrations at the well.

Sustained Yield Rating of TW2

Normally, a fairly accurate estimation of the sustained yield of a supply well can be made by extrapolating the trend of water-level decline developed in the latter stages of a long-term, constant-rate pumping test into time. This extrapolation allows the development of long-term projections of pumping levels caused by continuous withdrawal at a given pumping rate in an extended period of no

recharge (simulated drought conditions). Usually, these projections are used to identify the maximum, sustained pumping rate which will keep the pumping level in the well safely above the elevation of the well's major water-bearing zones during severe drought conditions.

This method of analysis by projection of a drawdown trend from a semi-log plot (Jacob Straight-line Method) assumes that the recharge area "feeding" the well is large enough to sustain the continuous withdrawal rate and that the trend developed at the end of the test is representative of long-term aquifer performance. For my analysis I use a 1.9-year (sixth log cycle), zero recharge, pumping level projection as a benchmark for acceptability. If the 1.9-year pumping level is above the well's drawdown limit, I believe a sustained yield rating as large as the testing rate is justified. The use of this 1.9-year pumping level projection as a benchmark for acceptability is based upon my belief that the effect of 1.9 years of continuous pumping in a period of no recharge is large enough to emulate a severe drought event (or cumulative effects of several drought cycles) in central Pennsylvania.

The following drawdown projections have been developed for 120 gpm continuous pumping at TW2 by extrapolation of the 8 foot per cycle trend of water level decline established during the long-term pumping test:

Pumping Levels Resulting from Continuous 120 gpm Pumping in a Period of Zero Recharge

Time	*Pumping Level*
6.9 days	*74 feet*
69 days	*82 feet*
1.9 years	*90 feet*

Based upon my analysis of the geologic log, TW2's upper-most, major, water-bearing zone lies at a depth of 322 feet. The 1.9 year, 120 gpm pumping level projection of 90 feet is 234 feet above the elevation of TW2's upper-most, major, water-bearing zone. Therefore, extrapolation of the drawdown data suggest that TW2 should easily be capable of supporting a continuous 120 gpm withdrawal.

It is possible that the performance of TW2 could worsen radically if the pumping level is drawn down below the level of the confining bed for the well's major water-bearing zone. Based upon the geologic log of the well, the most conservative placement of the confining bed for TW2's major water-bearing zones would be at a depth of 152 feet.

The 120 gpm pumping level projection of 88 feet is comfortably higher than the shallowest possible position of the confining bed at TW2. Therefore, even adopting a worst-case viewpoint, the pumping test data still support a sustained yield rating in excess of the 120 gpm testing rate.

POTENTIAL FOR SURFACE WATER INFLUENCE AT TW2

PA DER recently enacted a new program titled "Surface Water Identification Protocol" (SWIP). The goal of this program is to identify any "groundwater sources" that are unduly influenced by surface water. Well or spring sources that show large fluctuations in water chemistry related to surface water events will be classified as "groundwater under the influence of surface water". Water sources classified as "surface water influenced" will require treatment via filtration.

Based upon PA DER's current evaluation criteria, TW2 is not a candidate for inclusion in the SWIP program (see PA DER Appendix B form attached as Appendix 1). The deep confined nature of the aquifer tapped by TW2 give this well a minimal chance of being directly influenced by surface water.

SUMMARY AND RECOMMENDATIONS FOR WELL FIELD DEVELOPMENT

1) Based upon the results of our pumping test program, TW2 appears to be capable of producing a sustained yield at least as large as the September 1992 testing rate of 120 gpm. Therefore, if pumped continuously at 120 gpm, this well could sustain a withdrawal of 172,800 gpd.

2) The 120 gpm drawdown projections from our September 1992 pumping test are extremely favorable and suggest that the sustained yield of TW2 could be significantly larger than 120 gpm. Unfortunately, testing the aquifer at a rate higher than 120 gpm would require construction of an 8-inch diameter well.

3) The water quality of TW2 is excellent. Based upon the results of the samples collected during our pumping test program, this well should require no treatment other than disinfection and sequestering for use as a potable water supply.

4) If TW2 is developed as a 120 gpm supply well, it should be equipped with a submersible pumping system capable of producing 120 gpm from a pumping level of 160 feet. The pump intake should be set at a depth of 200 feet.

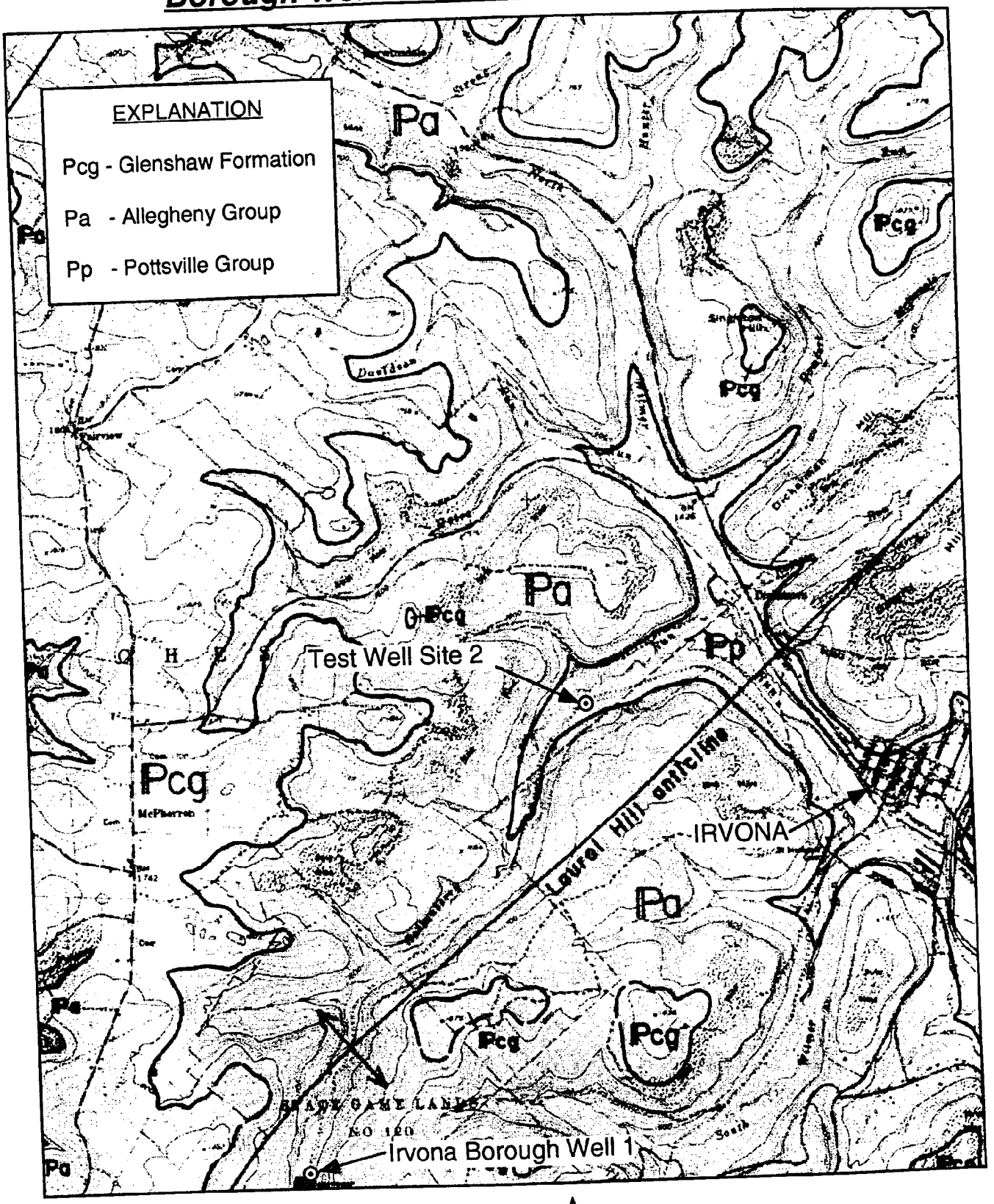
5) Based upon our analysis of the drilling and testing data, it appears that Well No. 1 and TW2 could be developed into a well field having a sustained yield potential far in excess of the Borough's 120,000 gallons per day (gpd) demand. If TW2 and Well No. 1 are pumped simultaneously at their full sustained yield ratings, they would produce approximately 290,000 gpd. Therefore, the development of these two wells could potentially allow the Borough to abandon their unfiltered surface water supply.

6) The Mauch Chunk/Burgoon aquifer has no long-term production record in the deeply-buried, southwestern Clearfield County setting. Therefore, I urge the Borough to put these wells into production so that their apparent high yield and excellent water quality can be substantiated. Accurate data collection for a full-year period should allow a final determination of the aquifer's yield and water-quality characteristics. This data collection should include:

- daily flow
- daily pumping level
- monthly water samples analyzed for pH, total dissolved solids, iron, manganese, alkalinity, sodium, chloride, and barium.

7) The geologic conditions in the lower Hockenberry Run valley appear to be quite favorable for the development of additional high-capacity wells. Therefore, this area may present an opportunity for the development of a large regional water supply source.

Figure 1 - Geologic Map Showing the Location of Irvona Borough Well No. 1 and Test Well No. 2



Base Map Adapted From Glover, 1977

Scale: 1" = 3000'

N

Casselberry & Assoc./Ground-Water Geologists
108 East Main Street, P.O. Box 616
Boalsburg, PA 16827 814-466-7128

Figure 2 - Irvona Municipal Authority Test Well #2
Geologic Log and Construction Details

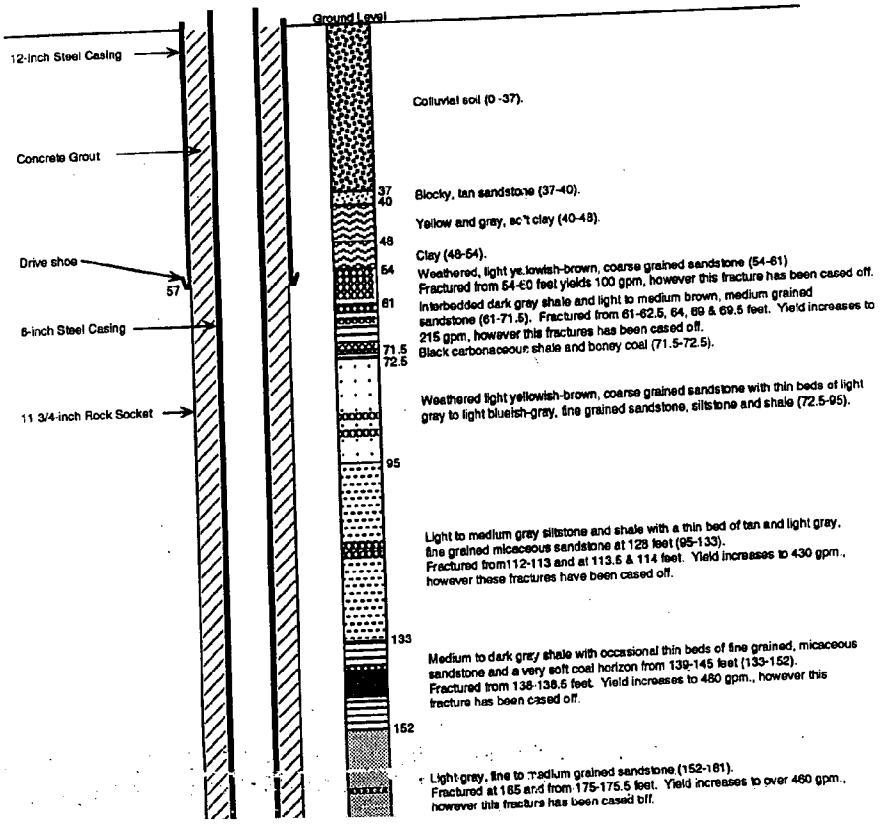


Figure 3 - Irvona Borough Municipal Authority TW # 2, September 28-30, 1992, 48 hour, 120 gpm Pumping Test
Log of Time Versus Water Level Plot

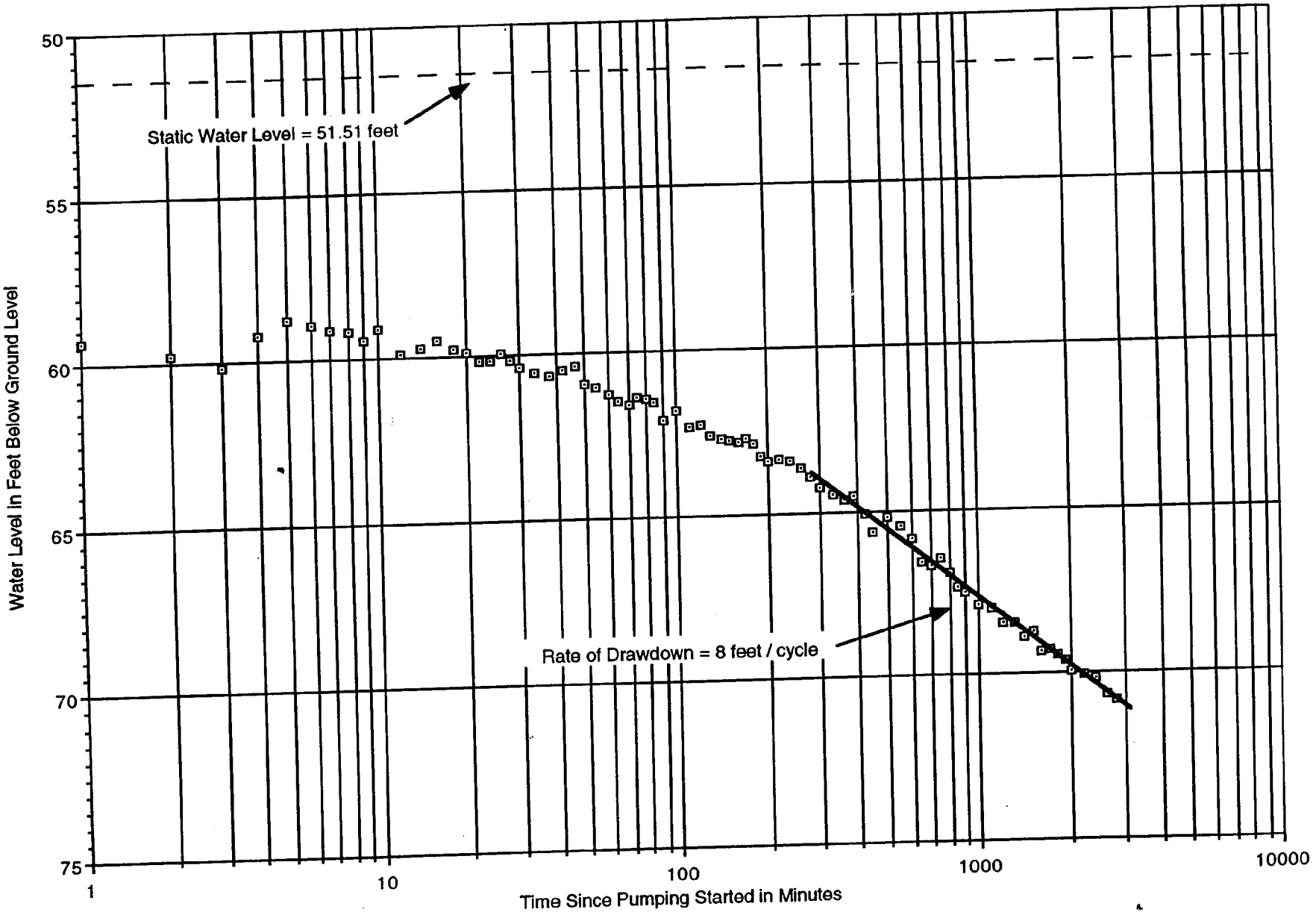


Figure 4 - Irvona Borough Municipal Authority TW #2, September 30 - October 1, 1992
24 hour Water Level Recovery Test
Log of Time Versus Water Level Plot

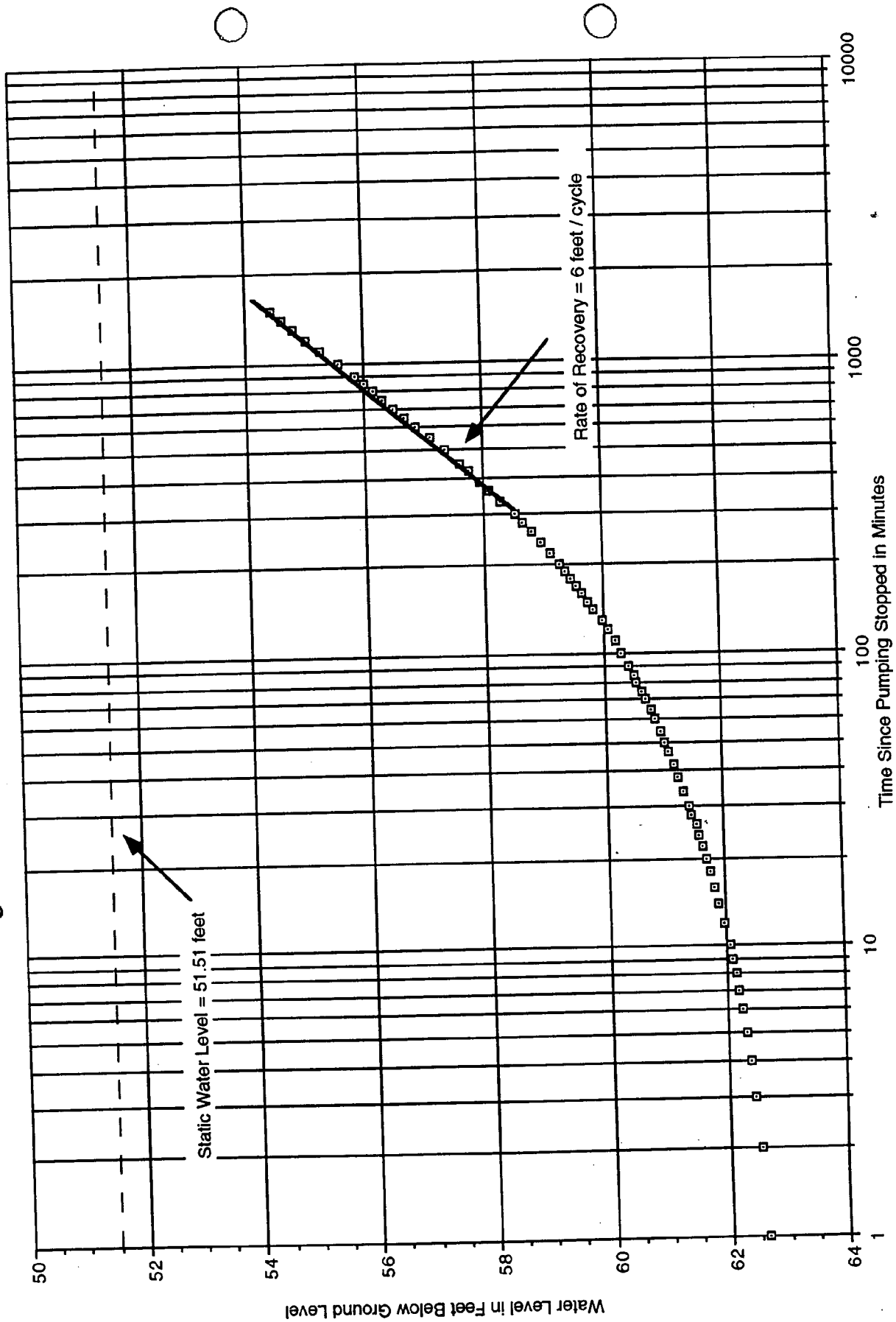


Table 1 - Irvona Municipal Authority
Geologic Log of Test Well #2

Drilled August 27, 1992

Interval (feet below ground surface)	Lithologic Description
0-37	Colluvial soil.
37-40	Blocky, tan sandstone.
40-48	Yellow and gray, soft clay.
48-54	Clay.
54-61	Weathered, light yellowish-brown, coarse grained sandstone, and light gray to light blueish-gray, fine grained sandstone, siltstone, and shale. 12-inch casing set at 57 feet. Fractured from 54-60 feet yields 100 gpm, however this fracture has been cased off.
61-70.5	Interbeddded dark gray shale and light to medium brown and yellowish-brown, medium grained sandstone. Fractured zone from 61-62.5, and at 64, 69 and 69.5 feet. Yield increases to 215 gpm, however these fractures have been cased off.
70.5-72.5	Black carbonaceous shale and "boney coal". Lost some return in coal horizon.
72.5-95	Weathered light yellowish-brown, coarse grained sandstone, with thin beds of light gray to light blueish-gray, fine grained sandstone, siltstone, and shale. Fractured zones from 84 and 88-89 feet with no increases in yield.
95-133	Light to medium gray siltstone and shale with a thin bed of tan and light gray, fine grained, micaceous sandstone at 128 feet.

	Fractured from 112-113, 113.5, and 114 feet. Yield increases to 430 gpm, however these fractures have been cased off.
133-152	Medium to dark gray shale with occasional thin beds of fine grained micaceous sandstone and a very soft, coal horizon from 139-145 feet.
	Fractured from 138-138.5 feet. Yield increases to 460 gpm, however these fractures have been cased off.
152-181	Light gray, fine to medium grained sandstone.
	Fractured from 165, and 175-175.5 feet. Yields increases to over 460 gpm, however these fractures have been cased off.
181-198	Dark gray to black shale and some weathered light yellowish-brown, fine grained sandstone and a coal horizon from 190-192 feet.
	Fractured at 185 and 188 feet, but with no increase in yield, however these fractures have been cased off.
198-210	Light to medium gray, fine grained sandstone and siltstone.
210-221	Dark gray to black carbonaceous shale with a soft, coal horizon from 210-213 feet.
221-257	Light gray, medium grained sandstone having a salt and pepper appearance with black carbonaceous shale interbeds from 235-240 feet.
257-307	Light gray to white, medium to coarse grained sandstone. 6-inch casing set at 273 feet.
	Fractured at 281, 287, 297, and 300-301 feet yields 3 gpm.
307-325	Light gray to green to olive and white, medium to coarse grained micaceous sandstone.
	Fractured at 318-319, and 321.5-322 feet. Yield increases to 76 gpm.
325-335	White, coarse grained, micaceous sandstone.

335-348	Light gray to green to olive and white, medium to coarse grained micaceous sandstone. Fractured at 337 and 342 feet. Yield increases to 92 gpm.
348-354	Light green to olive, fine grained, micaceous sandstone.
354-369	Light gray to green to olive, medium to coarse grained, micaceous sandstone having a salt and pepper appearance. Fractured at 363 feet, but with no increase in yield.
369-375	White and light gray to green to olive, medium to coarse grained, micaceous sandstone having a salt and pepper appearance.
375-401	Light gray to green to olive, medium to coarse grained, micaceous sandstone having a salt and pepper appearance. Fractured at 388 feet and 398-399 feet. Yield increases to 128 gpm.
401-415	Olive to light gray to green and white, medium to coarse grained, micaceous sandstone. Fractured at 408.5 feet and 415 feet, but with no increases in yield.
415-420	White, coarse-grained, slightly micaceous sandstone with light green to olive siltstone.
420-425	Light green to olive siltstone with white, coarse grained, slightly micaceous sandstone. Fractured at 421.5 feet. Yield increases to 150 gpm.
425-430	Light green, medium grained, slightly micaceous sandstone with occasional light green to olive siltstone interbeds. Fractured at 426.5 feet. Yield increases to 180 gpm. Well was completed at a depth of 430 feet with a total blown yield of 180 gpm.

TABLE 2

Analysis of Water Samples Collected at the End of the TW2 Step-drawdown Pumping Test

Centre Analytical Laboratories, Inc.
3048 Research Drive
Phone: (814) 231-8032
State College, PA 16801
Facsimile: (814) 231-1253

ANALYSIS REPORT

Client: Casselberry & Associates
108 E. Main Street
Boalsburg, PA 16827

RECEIVED: 09/10/92

REPORTED: 09/17/92

Contact: J. Casselberry

Sample Matrix: Water

Sample No.: TW1

Lab Id No.: 929991

PARAMETER	RESULT	DETECTION LIMIT	METHOD
Chloride	12.4 mg/L	0.5 mg/L	EPA 300
Iron	0.27 mg/L	0.03 mg/L	EPA 200.7
Sodium	32.1 mg/L	0.7 mg/L	EPA 200.7
pH	8.04	N/A	EPA 9045
Total Dissolved Solids	132 mg/L	1.0 mg/L	SM 209B
Alkalinity	150 mg/L	1.0 mg/L	EPA 310.3
Manganese	0.06 mg/L	0.01 mg/L	EPA 200.7
Magnesium	4.98 mg/L	0.05 mg/L	EPA 200.7
Barium	0.72 mg/L	0.01 mg/L	EPA 200.7

Centre Analytical Labs, Inc.
Reviewed and Approved by:

Kevin J. Lloyd
Laboratory Supervisor

TABLE 3

Analysis of Water Samples Collected at the 24-hour Point of the TW2, 48-Hour Pumping Test

Centre Analytical Laboratories, Inc.
3048 Research Drive
Phone: (814) 231-8032
State College, PA 16801
Facsimile: (814) 231-1253

ANALYSIS REPORT

Client: Casselberry & Associates
108 E. Main Street
Boalsburg, PA 16827

RECEIVED: 09/30/92
REPORTED: 10/16/92

Contact: J. Casselberry

Sample Matrix: Water

Sample No.: IRV TW 1

Lab Id No.: 9210610

PARAMETER	RESULT	DETECTION LIMIT	METHOD
pH	7.74	N/A	EPA 9040
Manganese	0.07 mg/L	0.01 mg/L	EPA 200.7
Total Dissolved Solids	180 mg/L	1.0 mg/L	SM 209B
Sodium	34.8 mg/L	0.7 mg/L	EPA 200.7
Chloride	22 mg/L	0.5 mg/L	EPA 300.0
Iron	0.33 mg/L	0.03 mg/L	EPA 200.7
Alkalinity	160 mg/L	1.0 mg/L	EPA 310.3
Turbidity	1.20 NTU	0.1 NTU	EPA 180.1

Centre Analytical Labs, Inc.
Reviewed and Approved by:

Kevin J. Lloyd
Laboratory Supervisor

TABLE 4

Analysis of Water Samples Collected at the End of the TW2, 48-hour Pumping Test

Centre Analytical Laboratories, Inc.
3048 Research Drive
State College, PA 16801
Phone: (814) 231-8032
Facsimile: (814) 231-1253

ANALYSIS REPORT

Client: Casselberry & Associates
108 E. Main St.
PO Box 616
Boalsburg, PA 16827

RECEIVED: 09/30/92
REPORTED: 10/16/92

Contact: Jim Casselberry

Sample No.: IRV TW 1 Lab Id No.: 9210609

PARAMETER	RESULT (mg/L)	DETECTION LIMIT (mg/L)	METHOD
Arsenic	< 0.05	0.05	EPA 206.2
Barium	0.64	0.01	EPA 200.7
Cadmium	< 0.01	0.01	EPA 213.2
Chromium	< 0.005	0.005	EPA 218.2
Fluoride	< 0.4	0.4	EPA 340.2
Lead	< 0.005	0.005	EPA 239.2
Mercury	< 0.0002	0.0002	EPA 245.1
Nitrate-N	< 0.1	0.1	EPA 300.0
Selenium	< 0.005	0.005	EPA 270.2
Silver	< 0.003	0.003	EPA 272.2
Sodium	33.4	0.7	EPA 200.7
Turbidity, N.T.U.	2.40	0.00	EPA 180.1
Alkalinity,mg/L CaCO3	100	1.00	EPA 310.1
Calcium	19.0	0.06	EPA 200.7
Chloride	22.0	0.5	EPA 300.0
Color, C.U.	5.0	2.5	EPA 110.2
Copper	< 0.01	0.01	EPA 200.7
Corrosivity	- 0.6	± 0.1	SM 16-203
Foaming Agents, MBAS	< 0.01	0.01	SM 512B

Sample ID: IRV TW 1

Lab ID: 9210609

PARAMETER	RESULT (mg/L)	DETECTION LIMIT (mg/L)	METHOD
Iron	0.22	0.03	EPA 200.7
Manganese	0.05	0.01	EPA 200.7
pH	7.52	N/A	EPA 150.1
Sulfate	3.0	1.00	EPA 300.0
Total Diss. Solids	181	1.00	EPA 160.1
Zinc	0.054	0.005	EPA 200.7

D.E.R. Certification # 14-347.

Reviewed and Approved by:

Kevin J. Lloyd
Laboratory Supervisor

Centre Analytical Laboratories, Inc.
3048 Research Drive
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Phone: (814) 231-8032
Facsimile: (814) 231-1253

ANALYSIS REPORT

Client: Casselberry & Associates
108 E. Main St.
PO Box 616
Boalsburg, PA 16827

RECEIVED: 09/30/92
REPORTED: 10/16/92

Contact: Jim Casselberry

Sample No.: IRV TW 1 Lab Id No.: 9210609

TOTAL COLIFORM BACTERIA

Date-Time Sampled	Result
09/30/92 - 1045	< 1 colonies/100 ml
09/30/92 - 1100	< 1 colonies/100 ml
09/30/92 - 1115	< 1 colonies/100 ml

PA D.E.R. Certification # 14-347
Method: membrane filter

Reviewed and Approved by:

Kevin J. Lloyd
Laboratory Supervisor

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Client: Casselberry & Associates
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PO Box 616
Boalsburg, PA 16827

RECIEVED: 09/30/92

REPORTED: 10/16/92

Contact: Jim Casselberry

Sample No.: IRV TW 1 Lab Id No.: 9210609

CAS NO.	Compound	Detection Limit (ug/L)	Result (ug/L)
108-86-1	Bromobenzene	0.5	< 0.5
75-27-4	Bromodichloromethane	0.5	< 0.5
75-25-2	Bromoform	0.5	< 0.5
74-83-9	Bromomethane	0.5	< 0.5
108-90-7	Chlorobenzene	0.5	< 0.5
124-48-1	Chlorodibromomethane	0.5	< 0.5
75-00-3	Chloroethane	0.5	< 0.5
67-66-3	Chloroform	0.5	< 0.5
74-87-35	Chloromethane	0.5	< 0.5
95-49-8	o-Chlorotoluene	0.5	< 0.5
106-43-4	p-Chlorotoluene	0.5	< 0.5
74-95-3	Dibromomethane	0.5	< 0.5
541-73-1	m-Dichlorobenzene	0.5	< 0.5
95-50-1	o-Dichlorobenzene	0.5	< 0.5
156-59-2	cis-1,2-Dichloroethylene	0.5	< 0.5
156-60-5	trans-1,2-Dichloroethylene	0.5	< 0.5
75-09-2	Dichloromethane	0.5	< 0.5
75-34-3	1,1-Dichloroethane	0.5	< 0.5

Sample No.: IRV TW 1 Lab ID No.: 9210609

CAS No.	Compound	Detection Limit (ug/L)	Result (ug/L)
563-58-6	1,1-Dichloropropene	0.5	< 0.5
10061-02-6	1,3-Dichloropropene	0.5	< 0.5
78-87-5	1,2-Dichloropropane	0.5	< 0.5
142-28-9	1,3-Dichloropropane	0.5	< 0.5
594-20-7	2,2-Dichloropropane	0.5	< 0.5
100-41-4	Ethylbenzene	0.5	< 0.5
100-42-5	Styrene	0.5	< 0.5
79-00-5	1,1,2-Trichloroethane	0.5	< 0.5
630-20-6	1,1,1,2-Tetrachloroethane	0.5	< 0.5
79-34-5	1,1,2,2-Tetrachloroethane	0.5	< 0.5
127-18-4	Tetrachloroethylene	0.5	< 0.5
96-18-4	1,2,3-Trichloropropane	0.5	< 0.5
108-88-3	Toluene	0.5	< 0.5
108-38-3	m-Xylene	0.5	< 0.5
95-47-6	o-Xylene	0.5	< 0.5
106-42-3	p-Xylene	0.5	< 0.5

Method = EPA Methods 502.2: Unregulated VOCs.

D.E.R. Certification # 14-347.

Reviewed and Approved by:

Kevin J. Lloyd
Laboratory Supervisor

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108 E. Main St.
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Boalsburg, PA 16827

RECEIVED: 09/30/92
REPORTED: 10/16/92

Contact: Jim Casselberry

Sample No.: IRV TW 1 Lab Id No.: 9210609

CAS NO.	Compound	Detection Limit (ug/L)	Result (ug/L)
71-43-2	Benzene	0.5	< 0.5
56-23-5	Carbon Tetrachloride	0.5	< 0.5
106-46-7	para-Dichlorobenzene	0.5	< 0.5
107-06-2	1,2-Dichloroethane	0.5	< 0.5
75-34-3	1,1-Dichloroethylene	0.5	< 0.5
71-55-6	1,1,1-Trichlroethane	0.5	< 0.5
79-01-6	Trichloroethylene	0.5	< 0.5
75-01-4	Vinyl Chloride	0.5	< 0.5

Method = EPA Method 502.2: Regulated VOCs.

D.E.R. Certification # 14-347.

Reviewed and Approved by:

Kevin J. Lloyd
Laboratory Supervisor

page 1 of 1

Centre Analytical Laboratories, Inc.
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108 E. Main St.
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RECEIVED: 09/30/92
REPORTED: 10/16/92

Contact: Jim Casselberry

Sample No.: IRV TW 1 Lab Id No.: 9210609

CAS NO.	Compound	Detection Limit (ug/L)	Result (ug/L)
94-75-7	2,4-D	10	< 10
93-72-1	2,4,5-TP (Silvex)	1	< 1
58-89-9	gamma-BHC (Lindane)	1	< 1
72-20-8	Endrin	0.2	< 0.2
72-43-5	Methoxychlor	1	< 1
8001-35-2	Toxaphene	5	< 5

D.E.R. Certification # 14-347.

Methods = EPA Method 508.

"Methods for Organochlorine Pesticides and Chlorophenoxy Acid Herbicides in Drinking Water and Raw Source Water." EPA 600/4-81-053.

Reviewed and Approved by:

Kevin J. Lloyd
Laboratory Supervisor

page 1 of 1

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ANALYSIS REPORT

Client: Casselberry & Associates
108 E. Main St.
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Boalsburg, PA 16827

RECEIVED: 09/30/92
REPORTED: 10/16/92

Contact: Jim Casselberry

Sample No.: IRV TW 1 Lab Id No.: 9210609

CAS NO.	Compound	Detection Limit (ug/L)	Result (ug/L)
106-93-4	Ethylene Dibromide (EDB)	0.02	< 0.02
96-12-8	1,2-Dibromo-3-Chloropropane (DBCP)	0.02	< 0.02

Method = EPA Method 504.

D.E.R. Certification # 14-347.

Reviewed and Approved by:

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Laboratory Supervisor

Centre Analytical Laboratories, Inc.
3048 Research Drive
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ANALYSIS REPORT

Client: Casselberry & Associates
108 E. Main St.
PO Box 616
Boalsburg, PA 16827

RECEIVED: 09/30/92
REPORTED: 11/02/92

Contact: Jim Casselberry

Sample No.: IRV TW1 Lab Id No.: 9210609

PARAMETER	RESULT
Gross Alpha, picocuries/L	3.5 ± 0.8
Gross Beta, picocuries/L	3.5 ± 0.7

Method = Interim Radiochemical Methodology for Drinking Water (EPA 600/4-75-008).

Reviewed and Approved by:

Kevin J. Lloyd
Laboratory Supervisor

Centre Analytical Laboratories, Inc.
3048 Research Drive
State College, PA 16801
Phone: (814) 231-8032
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ANALYSIS REPORT

Client: Casselberry & Associates
108 E. Main St.
PO Box 616
Boalsburg, PA 16827

RECEIVED: 09/30/92

REPORTED: 11/02/92

Contact: Jim Casselberry

Sample No.: IRV TW1

Lab Id No.: 9210609

PARAMETER	RESULT (picocuries per liter)
Radon-222, dissolved	250 ± 25

Method = Syringe Method.

Reviewed and Approved by:

Kevin J. Lloyd
Laboratory Supervisor

APPENDIX 1

Surface Water Identification Protocol
for Community Water System Permits
Groundwater Source Applicability
Form Appendix B

BCEC:rev. 8/91 **Appendix B**

SURFACE WATER IDENTIFICATION PROTOCOL FOR COMMUNITY WATER SYSTEM PERMITS -- GROUNDWATER SOURCE APPLICABILITY --

Chapter 109.1 of the Departments Rules and Regulations defines surface water as including groundwater under the direct influence of surface water. The following checklist is to be used to determine the applicability of the groundwater source to further evaluation for the potential of being under the direct influence of surface water. The completed checklist must be submitted with a permit application for a groundwater source with a discussion of the vulnerability of the source to the direct influence of surface water. Upon a full review of the permit information, The department may require, at its' discretion, evaluation of any ground water source for the direct influence of surface water.

IS SOURCE A ....

[ ] YES [✓] NO **Spring ?**
If YES, the source must be monitored before the application is submitted.
see MONITORING ---------->

[ ] YES [✓] NO **Infiltration Gallery, Ranney Well, Crib Intake ?**
If free flowing, the source must be monitored before the application is submitted.
see MONITORING ---------->
If non-flowing, the source must be sampled for microscopic particulate analysis during new source sampling.
see PERMITTING ---------->

FOR A WELL:

IS THE WELL LOCATED....

[ ] YES [✓] NO **< or = 200 feet from a surface water body ?**

[ ] YES [✓] NO **in a carbonate aquifer with static water elevation < or = 100 feet below ground level ?**

[ ] YES [✓] NO **in a unconfined aquifer with static water elevation < or = 50 feet below ground level ?**

[ ] YES [✓] NO **in a confined aquifer which is located < or = 50 feet below ground level ?**

If the answer to any of the above questions on wells is YES, the source must be sampled for microscopic particulate analysis during new source sampling.
see PERMITTING ---------->

If the answer to all of the above questions on wells is NO, further evaluation is normally not necessary.

ALL-STATE® LEGAL 800-222-0510 ED511 RECYCLED

IRVONA MUNICIPAL AUTHORITY
Irvona Municipal Building
Berwind Street
Irvona, Pennsylvania 16656

CONTRACT DOCUMENTS
FOR
CONTRACT 89-01 - WATER WELL DEVELOPMENT
CONTRACT 89-02 - ACCESS ROAD IMPROVEMENTS AND WATERLINE REPLACEMENT

November 1989

Prepared by:

NEILAN ENGINEERS DIVISION
The EADS Group
1065 Tayman Avenue
Somerset, Pennsylvania 15501

IRVONA MUNICIPAL AUTHORITY
Irvona Municipal Building
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1065 Tayman Avenue
Somerset, Pennsylvania 15501

IRVONA MUNICIPAL AUTHORITY
CONTRACT 89-01 - WATER WELL DEVELOPMENT
CONTRACT 89-02 - ACCESS ROAD IMPROVEMENTS AND
WATERLINE REPLACEMENT

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IRVONA MUNICIPAL AUTHORITY
CONTRACT 89-01 - WATER WELL DEVELOPMENT
CONTRACT 89-02 - ACCESS ROAD IMPROVEMENTS AND
WATERLINE REPLACEMENT

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INVITATION FOR BIDS

The Irvona Municipal Authority will receive bids for Contract No. 89-01 and Contract 89-02 until 7:00 P.M., Standard Time on the 18th day of December, 1989 at the Borough Building, Berwind Street, Irvona, PA 16656, at which time and place, all bids will be publicly opened and read aloud.

Bids are invited upon the following:

Contract 89-01 - Water Well Development - consisting of but not limited to mobilization, drilling, casing, grouting, demobilization, pump installation, pump testing and electrical required to provide an operational water well as shown on Contract Documents.

Contract 89-02 - Access Road Improvements and Waterline Replacement- consisting of approximately 450 LF of 6" waterline installation, 380 LF of 2" waterline installation, fittings, valves and appurtenances. Also included is approximately 6,000 LF of access road improvements consisting of drainage, grading and gravel placement.

Copies of the Contract Documents may be obtained at the Authority Office and at the Office of the Neilan Engineers Division, The EADS Group, 1065 Tayman Avenue, P.O. Box 837, Somerset, PA 15501-0837, upon deposit of Twenty-Five Dollars ($25.00), which price includes 6% Pennsylvania Sales Tax for each set. NO REFUND WILL BE MADE. Contract Documents are on file both at the office of The Neilan Engineers Division and the office of the Owner for viewing by interested bidders during normal business hours.

A certified check or bank draft, payable to the Owner, or negotiable U.S. Government Bonds (at par value), or a satisfactory Bid Bond executed by the Bidder and an acceptable surety, in an amount equal to ten percent (10%) of the total of the Bid shall be submitted with each bid.

Attention is called to the fact that not less than the minimum salaries and wages as set forth in the Contract Documents must be paid on this project; that the Contractor must ensure that employees and applicants for employment are not discriminated against because of their race, age, color, religion, sex, national origin, or handicap; that a mandatory ratio of apprentices and trainees to journeymen is required in each craft and the Contractor (and any subcontractors) is obliged to make a "diligent effort" to achieve these ratios; and that to the greatest extent feasible, opportunities for training and employment be given lower income of the project area and must to the greatest extent feasible utilize project area businesses located in or owned in substantial part by project area residents.

In addition to the Equal Employment requirements of Executive Order 11246, the Contractor must also establish a 6.9% goal for female participation and a 3% goal for minority participation in his aggregate on-site construction work force, for contracts in excess of, $10,000 whether or not part of that work force is performing work on a federal or federally assisted construction contract or subcontract.

The Contractor, in accordance with Executive Orders 11625 and 12138, must utilize to the greatest extent feasible minority and/or women owned business concerns which are located within the municipality, county, or the general trade area.

The Owner reserves the right to reject any or all bids or to waive any informalities in the bidding.

Bids may be held by the Owner for a period not to exceed 60 days from the date of opening bids for the purpose of reviewing the bids and investigating the qualifications of bidders, prior to awarding the contract.

IRVONA MUNICIPAL AUTHORITY

Donna Morrison, Secretary-Treasurer

INSTRUCTIONS TO BIDDERS

1. USE OF SEPARATE BID FORMS

These Contract Documents include a complete set of bidding and Contract forms which are for the convenience of Bidders and are not to be detached from the Contract Documents, filled out, or executed. Separate copies of Bid Forms are furnished for that purpose.

2. INTERPRETATIONS OF ADDENDA

No oral interpretation will be made to any Bidder as to the meaning of the Contract Documents or any part thereof. Every request for such an interpretation shall be made in writing to the Local Public Agency. Any inquiry received seven (7) or more days prior to the date fixed for opening of Bids will be given consideration. Every interpretation made to a Bidder will be in the form of an Addendum to the Contract Documents, and when issued, will be on file in the office of the Local Public Agency and the office of the Engineer at least five (5) days before Bids are opened. In addition, all Addenda will be mailed to each person holding Contract Documents, but it shall be the Bidder's responsibility to make inquiry as to the Addenda issued. All such Addenda shall become part of the Contract and all Bidders shall be bound by such Addenda, whether or not received by the Bidders.

3. INSPECTION OF SITE

Each Bidder should visit the site of the proposed work and fully acquaint himself with the existing conditions there relating to construction and labor, and should fully inform himself as to the facilities involved, the difficulties and restrictions attending the performance of the Contract. The Bidder should thoroughly examine and familiarize himself with the Drawings, Technical Specifications, and all other Contract Documents. The Contractor by the execution of the Contract shall in no way be relieved of any obligation under it due to his failure to receive or examine any form or legal instrument or to visit the site and acquaint himself with the conditions there existing and the Local Public Agency will be justified in rejecting any claim based on facts regarding which he should have been on notice as a result thereof.

4. ALTERNATIVE BIDS

No alternative bids will be considered unless alternative bids are specifically requested.

5. BIDS

a. All Bids must be submitted on forms supplied by the Local Public Agency and shall be subject to all requirements of the Contract Documents, including the Drawings, and these INSTRUCTIONS TO BIDDERS. All Bids must be regular in every respect and no interlineations, excisions or special conditions shall be made or included in the Bid Form by the Bidder.

b. Bid Documents including the Bid, the Bid Guaranty, the Non-Collusion Affidavit and the Statement of Bidder's Qualifications (if requested) shall be enclosed in envelopes (outer and inner), both of which shall be sealed and clearly labeled with the words BIDS FOR IRVONA MUNICIPAL AUTHORITY, CONTRACT NUMBER, name of Bidder, and date and time of bid opening in order to guard against premature opening of the bid.

c. The Local Public Agency may consider irregular any Bid on which there is an alteration of or departure from the Bid Form hereto attached and at its option may reject the same.

d. If the Contract is awarded, it will be awarded by the Local Public Agency to a responsible Bidder on the basis of the lowest Bid and the selected Alternative Bid items, if any. The Contract will require the completion of the work according to the Contract Documents.

e. Each Bidder shall include in his Bid the following information:

Principals

Names
Social Security Numbers
Home addresses, including City, State and Zip Code

Firm

Name
Treasury Number
Address
City, State and Zip Code

6. BID GUARANTY

a. The bid must be accompanied by a Bid Guaranty which shall not be less than ten percent (10%) of the amount of the Bid. At the option of the Bidder, the guaranty may be a certified check, bank draft, negotiable U.S. Government Bonds (at par value), or a Bid Bond in the form attached. The Bid Bond shall be secured by a guaranty or a surety company listed in the latest issue of U.S. Treasury Circular 570. The amount of such Bid Bond shall be within the maximum amount specified for such Company in said Circular 570. No Bid will be considered unless it is accompanied by the required guaranty. Certified Check or Bank Draft must be payable to the Owner. Cash deposits will not be accepted. The Bid Guaranty shall insure the execution of the Agreement and the furnishing of the Surety Bond or Bonds by the successful Bidder, all as required by the Contract Documents.

b. Revised Bids submitted before the opening of Bids, whether forwarded by mail or telegram, if representing an increase in excess of two percent (2%) of the original Bid, must have the Bid Guaranty adjusted accordingly; otherwise the Bid will not be considered.

c. Certified Checks or Bank Drafts, or the amount thereof, Bid Bonds, and negotiable U.S. Government Bonds of unsuccessful Bidders will be returned

as soon as practical after the opening of the Bids.

7. COLLUSIVE AGREEMENTS

a. Each Bidder submitting a Bid to the Local Public Agency for any portion of the work contemplated by the documents on which bidding is based shall execute and attach thereto, an affidavit substantially in the form herein provided, to the effect that he has not colluded with any other person, firm, or corporation in regard to any Bid submitted.

b. Before executing any subcontract the successful Bidder shall submit the name of any proposed subcontractor for prior approval and an affidavit substantially in the form provided in Section 103 - Subcontracts.

8. STATEMENT OF BIDDER'S QUALIFICATIONS

Each Bidder shall submit on the form furnished for that purpose (a copy of which is included in the Contract Documents), a statement of the Bidder's qualifications, his experience record in constructing the type of improvements embraced in the Site Preparation, and his organization and equipment available for the work contemplated; and, when specifically requested by the Local Public Agency, a detailed financial statement. The Local Public Agency shall have the right to take such steps as it deems necessary to determine the ability of the Bidder to perform his obligations, under the Contract and the Bidder shall furnish the Local Public Agency all such information and data for this purpose as it may request. The right is reserved to reject any Bid where an investigation of the available evidence or information does not satisfy the Local Public Agency that the Bidder is qualified to carry out properly the terms of the Contract.

9. UNIT PRICES -

The unit price for each of the several items in the proposal of each Bidder shall include its prorata share of overhead so that the sum of the products obtained by multiplying the quality shown for each item by the unit price bid represents the Total Bid. Any Bid not conforming to this requirement may be rejected as informal. The special attention of all Bidders is called to this provision, for should conditions make it necessary to revise the quantities, no limit will be fixed for such increased or decreased quantities no extra compensation allowed, provided the net monetary value of all such additive and subtractive changes in quantities of such items of work (i.e., difference in cost) shall not increase or decrease the original contract price by more than twenty-five percent (25%), except for work not covered in the Drawings and Technical Specifications as provided for in the Section 109 - Changes in the Work.

10. CORRECTIONS

Erasures or other changes in the Bids must be explained or noted over the signature of the Bidder, and initialed.

11. TIME FOR RECEIVING BIDS

a. Bids received prior to the advertised hour of opening will be securely kept, sealed. The officer whose duty it is to open them will decide when the specified time has arrived, and no Bid received thereafter will be considered, except that when a Bid arrives by mail after the time fixed for opening, but before the reading of all other Bids is completed, and it is shown to the satisfaction of the Local Public Agency that the non-arrival on time was due solely to delay in the mails for which the Bidder was not responsible, such Bid will be received and considered.

b. Bidders are cautioned that, while telegraphic modifications of Bids may be received as provided above, such modifications, if not explicit and if in any sense subject to misinterpretation, shall make the Bid so modified or amended, subject to rejection.

12. OPENING OF BIDS

At the time and place fixed for the opening of Bids, the Local Public Agency will cause to be opened and publicly read aloud every Bid received within the time set for receiving Bids, irrespective of any irregularities therein. Bidders and other persons properly interested may be present, in person or by representative.

13. WITHDRAWAL OF BIDS

Bids may be withdrawn on written or telegraphic request dispatched by the Bidder in time for delivery in the normal course of business to the time fixed for opening; provided, that written confirmation of any telegraphic withdrawal over the signature of the Bidder is placed in the mail and postmarked prior to the time set for Bid opening. The Bid guaranty of any Bidder withdrawing his Bid in accordance with the foregoing conditions will be returned promptly.

14. AWARD OF CONTRACT: REJECTION OF BIDS

a. The Contract will be awarded to the responsible Bidder submitting the lowest Bid complying with the conditions of the Invitation for Bids. The Bidder to whom the award is made will be notified at the earliest possible date. The Local Public Agency, however, reserves the right to reject any and all Bids and to waive any informality in Bids received whenever such rejection or waiver is in its interest.

b. The Local Public Agency reserves the right to consider as unqualified to do the work of general construction any Bidder who does not habitually perform with his own forces the major portions of the work involved in construction of the Improvements embraced in this Site Preparation Contract.

15. EXECUTION OF AGREEMENT: PERFORMANCE AND PAYMENT BOND

a. Subsequent to the award and within ten (10) days after the prescribed forms are presented for signature, the successful Bidder shall execute and deliver to the Local Public Agency an Agreement in the form included in the Contract Documents in such number of copies as the Local Public Agency

may require.

b. Having satisfied all conditions of award as set forth elsewhere in these documents, the successful Bidder shall, within the period specified in paragraph "a." above, furnish a surety bond in a penal sum not less than the amount of the Contract as awarded, as security for the faithful performance of the Contract, and for the payment of all persons, firms or corporations to whom the Contractor may become legally indebted for labor, materials, tools, equipment, or services of any nature including utility and transportation services, employed or used by him in performing the work. Such bond shall be in the form as that included in the Contract Documents and shall bear the same date as, or a date subsequent to that of the Agreement. The current power of attorney for the person who signs for any surety company shall be attached to such bond. This bond shall be signed by a guaranty or surety company listed in the latest issue of the U.S. Treasury Circular 570 and the penal sum shall be within the maximum specified for such company in said Circular 570.

c. The failure of the successful Bidder to execute such Agreement and to supply the required bond or bonds within ten (10) days after the prescribed forms are presented for signature, or within such extended period as the Local Public Agency may grant, based upon reasons determined sufficient by the Local Public Agency may either award the Contract to the next lowest responsible Bidder or readvertise for Bids, and may charge against the Bidder the difference between the amount of the Bid and the amount for which a Contract for the work is subsequently executed, irrespective of whether the amount thus done exceeds the amount of the Bid Bond. If a more favorable Bid is received by readvertising the defaulting Bidder shall have no claim against the Local Public Agency for a refund.

16. WAGES AND SALARIES

a. Attention of Bidders is particularly called to the requirement concerning the payment of not less than the prevailing wage and salary rates specified in the Contract Documents and the conditions of employment with respect to certain categories and classifications of employees. See General Conditions Part II .

b. The rates of pay set forth under GENERAL CONDITIONS, PART II are the minimum to be paid during the life of the Contract. It is therefore the responsibility of Bidders to inform themselves as to local labor conditions, such as the length of work day and work week, overtime compensation, health and welfare contributions, labor supply and prospective changes or adjustments of rates.

17. EQUAL EMPLOYMENT OPPORTUNITY

Attention of Bidders is particularly called to the requirement for ensuring that employees and applicants for employment are not discriminated against because of their race, sex, color, national origin, or religion.

(See General Conditions Part II .)
Each bidder must submit a completed Certification of Bidder Regarding Equal Employment Opportunity.

18. EMPLOYMENT OF LOWER INCOME RESIDENTS AND BUSINESS UTILIZATION

Attention of Bidders is particularly called to special requirements regarding employment of lower income residents of, and utilization of businesses in the locality where the work is to be done. (See General Conditions Part II .)

19. COMPLIANCE WITH FEDERAL, STATE AND LOCAL LAWS

Attention of Bidders is particularly called to the necessity of complying with all Federal, State and Local laws and regulations including but not limited to the following: Act 247-1972; Act 287-1974; Federal Occupational Safety and Health Act of 1970.

20. Time of Completion and Liquidated Damages

A. The successful bidder shall commence work under the contract on a date to be specified in a written Notice to Proceed from the Engineer or Owner, and shall complete same within time specified in the Form of Proposal. The successful bidder must agree to pay the liquidated damages in the amount stipulated in the Form of Proposal for each consecutive calendar day thereafter that the work remains incomplete and unaccepted, as provided by the General Conditions.

21. Bidder Qualifications

A. Owner may make such investigations as he deems necessary to determine the ability of the bidder to perform the work, and bidder shall furnish the Owner all such information and data for this purpose as the Owner may request. Owner reserves the right to reject any bid if the evidence submitted by, or investigation of, such bidder fails to satisfy the Owner that such bidder is properly qualified to carry out the obligations of the Agreement, and to complete the work contemplated therein.

B. A conditional or qualified bid will not be accepted. Award will be made as a whole to one bidder.

22. Certificate of Insurance

A. Successful bidder shall submit certificate or other documentary evidence to the Owner for approval covering Workmen's Compensation insurance and public liability and property damage insurance, as well as any other insurance required by the Contract Documents.

23. Limitation of Liability

A. Bidder is skilled and experienced in the use and interpretation of plans and specifications. He has carefully reviewed the plans and specifications for this project and found them free of ambiguities and sufficient for bid purposes. Further, he has carefully examined the site of the work and, from his own observations, has satisfied himself as to the nature and location of the work, the character, quality and quantity of materials, and the difficulties likely to be encountered and other items which may affect the performance of the work. He has based his bid solely on these documents and observations and has not relied in any way on any explanation or interpretation, oral or written, from any other source; therefore, bidder agrees to limit the liability of the Consulting Engineer for his professional negligence, errors or omissions, to a total aggregated liability to him of $50,000. However, Bidder in no way assumes liability for the negligence, errors, or omissions of the Consulting Engineer.

IRVONA MUNICIPAL AUTHORITY
Irvona Municipal Building
Berwind Street
Irvona, Pennsylvania 16656

FORM OF PROPOSAL

CONTRACT 89-01 - WATER WELL DEVELOPMENT

Bid Date: December 18, 1989

Time: 7:00 P.M. (Prevailing Time)

NEILAN ENGINEERS DIVISION
The EADS Group
1065 Tayman Avenue
P.O. Box 837
Somerset, Pennsylvania 15501

BID FOR SITE PREPARATION

To the Irvona Municipal Authority, Municipal Building, Berwind Street, Irvona, PA 1665

Gentlemen:

1. The undersigned, having familiarized (himself) (themselves) with the existing conditions on the project area affecting the cost of the work, and with the Contract Documents (including the Invitation for Bids, Instructions to Bidders, the form of Bid, the form of the Bid Bond, the form of Contract, the form of Non-Collusion Affidavit, the form of Surety Bond or Bonds, the General Conditions, Special Conditions, Technical Specifications, and Addenda, is any thereto, as prepared by Neilan Engineers Division 1065 Taymap Avenue, Somerset, PA 15501, and on file in the office of the Owner, Irvona Irvona, PA 16656 hereby proposes to furnish all supervision, technical personnel, labor, materials, machinery, tools, appurtenances, equipment, and services, including utility and transportation services required to construct and complete Contract 89-01 - Water Well Development all in accordance with the above listed documents for the bid price stated on the Bid Schedule.

2. In submitting this bid, the Bidder understands that the right is reserved by the Owner to reject any and all Bids. If written notice of the acceptance of this Bid is mailed, telegraphed, or delivered to the undersigned within sixty (60) days after the opening thereof, or at any time thereafter before this Bid is withdrawn, the undersigned agrees to execute and deliver an agreement in the prescribed form and furnish the required bond or bonds within ten (10) days after the Agreement is presented to him for signature.

3. Security in the sum of _____ dollars ($_____), in the form of _____, is submitted herewith in accordance with the Instructions to Bidders.

4. Attached hereto is an affidavit in proof that the undersigned has not entered into a collusive agreement with any person in respect to this Bid or any other Bid or the submitting of Bids for the Contract for which this Bid is submitted.

5. The Bidder is prepared to submit a financial and experience statement upon request.

6. The undersigned represents that he is in receipt of the following number of Addenda. (If no Addenda are issued insert the word "none" in the following space.)_____

IRVONA MUNICIPAL AUTHORITY
CONTRACT 89-01 - WATER WELL DEVELOPMENT

BID SCHEDULE

Item	Description	Quantity/ Unit	Unit Price	Total Price
1.	Mob. & Demob.	LS	_____	_____
TEST DRILLING - "MAUCH CHUNK" PRODUCTION WELL - (See Technical Specifications Section 15E)				
2.	Drill. to Set 10-Inch Casing	40 LF	_____	_____
3.	Furnish 10-Inch Drive Shoe	LS	_____	_____
4.	Fur. & Install 10-Inch Cas.	40 LF	_____	_____
5.	Drill 9-7/8" Open Hole to Set 6-Inch Permanent Casing	250 LF	_____	_____
6.	Installing 6-Inch, Permanent Casing, Equipped with Drive Shoe	290 LF	_____	_____
7.	Grout 6-Inch Casing	80 BAGS	_____	_____
8.	Drill 6-Inch Open Bedrock Hole (290 - 400 ft)	110 LF	_____	_____
9.	Development Time to Measure Yield of Water-Bearing Zones	4 HRS	_____	_____
PUMPING TEST - "MAUCH CHUNK" WELL				
10.	Furnish, Install, Wire and Remove Submersible Pump and Power Source Capable of 90 gpm at a Head of 200 Feet	LS	_____	_____
11.	Step-Drawdown and 48-Hour Constant Rate Pumping Test	54 HRS	_____	_____
12.	Well Disinfection	LS	_____	_____

IRVONA MUNICIPAL AUTHORITY
CONTRACT 89-01 - WATER WELL DEVELOPMENT

BID SCHEDULE - Continued

Item	Description	Quantity/ Unit	Unit Price	Total Price
WELL PUMP INSTALLATION				
13.	Furnish and Install Permanent 4-Inch Submersible Pump 95 gpm at 190 ft.	1 EA	_____	_____
14.	Furnish and Install 2-Inch Galvanized Delivery Pipe	250 LF	_____	_____
15.	Furnish and Install Pitless Adapter	1 EA	_____	_____
16.	Develop Production Well	2 HRS	_____	_____
17.	Furnish and Install Locking Well Cap	LS	_____	_____
18.	Furnish and Install Well Pump Electrical Control Panel, Disconnect Switch and Electrodes	LS	_____	_____
TEST DRILLING - "ALLEGHENY PRODUCTION WELL				
19.	Drilling to Set 10-Inch Cas.	40 LF	_____	_____
20.	Furnish 10-Inch Drive Shoe	LS	_____	_____
21.	Fur. and Install 10-Inch Cas.	40 LF	_____	_____
22.	Drill 9-7/8" Open Hole to Set 6-Inch Permanent Casing	5 LF	_____	_____
23.	Install 6-Inch, Permanent Cas., Equipped with Dr. Shoe	45 LF	_____	_____
24.	Drill 6-Inch Open Bedrock Hole (45 - 145 ft.)	100 LF	_____	_____
25.	Development Time to Measure Yield of Water-Bearing Zones	4 HRS	_____	_____

IRVONA MUNICIPAL AUTHORITY
CONTRACT 89-01 - WATER WELL DEVELOPMENT

BID SCHEDULE - Continued

Item	Description	Quantity/ Unit	Unit Price	Total Price
26.	Grout 6-Inch Casing	20 BAGS	_____	_____
27.	Develop Production Well	2 HRS	_____	_____
PUMPING TEST - "ALLEGHENY" WELL				
28.	Furnish, Install, Wire and Remove Submersible Pump and Power Source Capable of 100 gpm at a head of 80 feet	LS	_____	_____
29.	Step-Drawdown and 48-Hour Constant Rate Pumping Test	54 HRS	_____	_____
30.	Well Disinfection	LS	_____	_____
31.	Furnish and Install Locking Well Cap	LS	_____	_____
32.	Utility Electrical Power Service Fee, United Electrical Coop	LS	-----	$18,000
33.	Set 30 Foot Utility Pole	2 EA	_____	_____

TOTAL BID PRICE CONTRACT 89-01 $_____

SIGNATURES

When the bidder is an individual:

_____ _____(SEAL)
Witness Contractor-Individual

- - - - - - - - -

When the bidder is a partnership:

WITNESS: _____(SEAL)
Contractor-Partnership

_____ _____(SEAL)
Partner

_____ _____(SEAL)
Partner

_____ _____(SEAL)
Partner

_____ _____(SEAL)
Partner

- - - - - - - - -

When the bidder is a corporation:

(CORPORATE SEAL) _____(SEAL)
Contractor-Corporation

By _____
President

ATTEST:

_____
Secretary

The _____is a corporation organized and existing under the laws of _____ and has (has not) been granted certificate of authority to do business in Pennsylvania as required by the business corporation law, approved May 5, 1933, PL 364, as amended.

The _____is an individual or partnership trading under a fictitious or assumed name and has (has not) registered under the Fictitious Name Act of Pennsylvania; namely, the Act of May 24, 1945, Pl 967.

CERTIFICATION OF NON SEGREGATED FACILITIES

The Bidder certifies that he does not maintain or provide for his employees any segregated facilities at any of his establishemnts, and that he does not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The Bidder certifies further that he will not maintain or provide for his employees any segregated facilities at any of his establishments, and that he will not permit his employees to perform their services at any location under his control where segregated facilities are maintained. The Bidder agrees that a breach of this certification will be a violation of the Equal Opportunity clause in any contract resulting from acceptance of this bid. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, timeclocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicity directive or are in fact segregated on the basis of race, color, religion, or national origin, becuase of habit, local custom, or otherwise. The Bidder agrees that (except where he has obtained identical certification from proposed subcontractors for specific time periods) he will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity clause, and that he will retain such certifications in his files.

Note: The penalty for making false statements in offers is prescribed in 18 U.S.C. § 1001.

Date_____, 19___ _____
(Name of Bidder)

Official Address (including ZIP CODE): By_____

_____ _____
(Title)

_____

NONCOLLUSION AFFIDAVIT OF PRIME BIDDER

State of _____)
)
County of _____)

_____, being first duly sworn, deposes and says that:

(1) He is _____ (Owner, partner, officer, representative or agent) of _____, the Bidder that has submitted the attached Bid:

(2) He is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid;

(3) Such Bid is genuine and is not a collusive or sham Bid;

(4) Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly with any other Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted or to refrain from bidding in connection with such Contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Bidder, firm or person to fix the price or prices in the attached Bid or of any other Bidder, or to fix any overhead, profit or cost element for the Bid prices or the Bid price of any Bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the _____ or any person interested in the proposed Contract; and

(5) The price or prices quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affiant.

(Signed)_____

_____
(Title)

Subscribed and sworn to before me

this_____ day of _____, 19____

_____

_____
Title

My commission expires_____

PA DEPARTMENT OF COMMUNITY AFFAIRS
BUREAU OF HOUSING AND DEVELOPMENT
SMALL COMMUNITIES PROGRAM DIVISION

CERTIFICATION OF BIDDER REGARDING EQUAL EMPLOYMENT OPPORTUNITY

INSTRUCTIONS

This certification is required pursuant to Executive Order 11246 (30 F.R. 12319-25). The implementing rules and regulations provide that any bidder or prospective contractor, or any of their proposed subcontractors, shall state as an initial part of the bid or negotiations of the contract whether it has participated in any previous contract or subcontract subject to the equal opportunity clause; and, if so, whether it has filed all compliance reports due under applicable instructions.

Where the certification indicates that the bidder has not filed a compliance report due under applicable instructions, such bidder shall be required to submit a compliance report within seven calendar days after bid opening. No contract shall be awarded unless such report is submitted.

CERTIFICATION BY BIDDER

NAME AND ADDRESS OF BIDDER (Include ZIP Code)

1. Bidder has participated in a previous contract or subcontract subject to the Equal Opportunity Clause.

   ☐ Yes ☐ No

2. Compliance reports were required to be filed in connection with such contract or subcontract.

   ☐ Yes ☐ No

3. Bidder has filed all compliance reports due under applicable instructions, including SF-100.

   ☐ Yes ☐ No None Required ☐

4. Have you ever been or are you being considered for sanction due to violation of Executive Order 11246, as amended?

☐ Yes ☐ No

NAME AND TITLE OF SIGNER (Please type)

SIGNATURE	DATE

BID BOND

KNOWN ALL MEN BY THESE PRESENTS, that we the undersigned

(Name of Principal)

as PRINCIPAL, and (Name of Surety),

as SURETY are held and firmly bound unto

(Local Public Agency), hereinafter called the "Local Public Agency", in the penal sum of Dollars ($)

lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severly, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the Principal has submitted the accompany bid, dated , 19 , for .

NOW, THEREFORE, if the Principal shall not withdraw said Bid within the period specified therein after the opening of the same, or, if no period be specified, within thirty (30) days after the said opening, and shall within the period specified therefore, or if no period be specified, with ten (10) days after the prescribed forms are presented to him for signature, enter into a written Contract with the Local Public Agency in accordance with the Bid as accepted, and give bond with good and sufficient surety or sureties, as may be required, for the faithful performance and proper fulfillment of such Contract; or in the event of the withdrawal of said Bid within the period specified, or the failure to enter into such Contract and give such bond within the time specified, if the Principal shall pay the Local Public Agency may procure the required work or supplies or both, if the latter be in excess of the former, then the above obligation shall be void and of no effect, otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above-bounded parties have executed this instrument under their several seals this day of , 19 , the name and corporate seal of each corporate party being hereto affixed and these presents signed by its undersigned representative, pursuant to authority of its governing body.

INDIVIDUAL OR PARTNERSHIP PRINCIPALS

_____(SEAL)

_____(SEAL)

In the presence of: _____(SEAL)

_____ _____(SEAL)

CORPORATE PRINCIPAL

ATTEST: _____

_____ By:_____(SEAL)

SURETY

ATTEST: _____

_____ By:_____(SEAL)

Countersigned:

By:_____

Attorney-in-Fact,
State of_____

CERTIFICATE AS TO CORPORATE PRINCIPAL

I, _____, certify that I am the _____ _____, Secretary of the Corporation named as Principal in the within bond; that_____, who signed the said bond on behalf of the Principal was then _____ _____ of said Corporation; that I know his signature, and his signature thereto is genuine; and that said bond was duly signed, sealed and attested to for and in behalf of said corporation by authority of his governing body.

_____

Title:_____

(CORPORATE SEAL)

STATEMENT OF BIDDER'S QUALIFICATIONS

All questions must be answered and the date given must be clear and comprehensive. This statement must be notarized. If necessary, questions may be answered on separate attached sheets. The Bidder may submit any additional information he desires.

1. Name of Bidder.

2. Permanent main office address.

3. When organized.

4. If a corporation, where incorporated.

5. How many years have you been engaged in the contracting business under your present firm or trade name?

6. Contracts on hand: (Schedule these, showing amount of each contract and the appropriate anticipated dates of completion.)

7. General character of work performed by your company.

8. Have you ever failed to complete any work awarded to you? If so, where and why?

9. Have you ever defaulted on a contract? If so, where and why?

10. List the more important projects recently completed by your company, stating the approximate cost for each, and the month and year completed.

11. List your major equipment available for this contract.

12. Experience in construction work similar in importance to this project.

13. Background and experience of the principal members of your organization, including the officers.

14. Credit Available: $_____

15. Give bank reference: _____

16. Will you, upon request, fill out a detailed financial statement and furnish any other information that may be required by the (Local Public Agency)?

17. The undersigned hereby authorizes and requests any person, firm, or corporation to furnish any information requested by the (Local Public Agency) in verification of the recitals comprising this statement of Bidder's Qualifications.

Dated at_____ this _____ day of _____, 19_____.

(Name of Bidder) _____

By: _____

Title: _____

State of _____)
)
County of _____)

_____ being duly sworn deposes and says that he is _____ of (Name of Organization) and that the answers to the foregoing questions and all statements therein contained are true and correct.

Subscribed and sworn to before me this _____ day of _____, 19_____.

_____ Notary Public

My commission expires _____, 19_____.

IRVONA MUNICIPAL AUTHORITY
Irvona Municipal Building
Berwind Street
Irvona, Pennsylvania 16656

FORM OF PROPOSAL

CONTRACT 89-02 - ACCESS ROAD IMPROVEMENTS AND WATERLINE REPLACEMENT

Bid Date: December 18, 1989

Time: 7:00 P.M. (Prevailing Time)

NEILAN ENGINEERS DIVISION
The EADS Group
1065 Tayman Avenue
P.O. Box 837
Somerset, Pennsylvania 15501

BID FOR SITE PREPARATION

To the Irvona Municipal Authority, Municipal Building, Berwind Street, Irvona, PA 1665

Gentlemen:

1. The undersigned, having familiarized (himself) (themselves) with the existing conditions on the project area affecting the cost of the work, and with the Contract Documents (including the Invitation for Bids, Instructions to Bidders, the form of Bid, the form of the Bid Bond, the form of Contract, the form of Non-Collusion Affidavit, the form of Surety Bond or Bonds, the General Conditions, Special Conditions, Technical Specifications, and Addenda, is any thereto, as prepared by Neilan Engineers Division 1065 Tayman Avenue, and on file in the office of the Owner Somerset, PA 15501 hereby proposes to furnish all supervision, technical personnel, labor, materials, machinery, tools, appurtenances, equipment, and services, including utility and transportation services required to construct and complete Contract 89-02 - Access Road Improvements all in accordance with the above listed documents for the bid price stated on the Bid Schedule.

2. In submitting this bid, the Bidder understands that the right is reserved by the Owner to reject any and all Bids. If written notice of the acceptance of this Bid is mailed, telegraphed, or delivered to the undersigned within sixty (60) days after the opening thereof, or at any time thereafter before this Bid is withdrawn, the undersigned agrees to execute and deliver an agreement in the prescribed form and furnish the required bond or bonds within ten (10) days after the Agreement is presented to him for signature.

3. Security in the sum of _____ dollars ($_____), in the form of _____, is submitted herewith in accordance with the Instructions to Bidders.

4. Attached hereto is an affidavit in proof that the undersigned has not entered into a collusive agreement with any person in respect to this Bid or any other Bid or the submitting of Bids for the Contract for which this Bid is submitted.

5. The Bidder is prepared to submit a financial and experience statement upon request.

6. The undersigned represents that he is in receipt of the following number of Addenda. (If no Addenda are issued insert the word "none" in the following space.)_____

IRVONA MUNICIPAL AUTHORITY
CONTRACT 89-02 - RESERVOIR ACCESS ROAD IMPROVEMENTS

BID SCHEDULE

RESERVOIR ACCESS ROAD IMPROVEMENTS

Item	Description	Quantity/ Unit	Unit Price	Total Price
1.	Aggregate			
	a. No. 4	1,200 TON	_____	_____
	b. No. 2RC	300 TON	_____	_____
2.	Corrugated Drain Pipe, PE			
	a. 12"	240 LF	_____	_____
	b. 15"	80 LF	_____	_____
3.	Geotextile Material	2,000 SY	_____	_____
4.	Construct Ditch Along Roadway	1,000 LF	_____	_____
5.	Grade Roadway	40 HRS	_____	_____

TOTAL BASE BID PRICE $_____

IRVONA MUNICIPAL AUTHORITY
CONTRACT 89-02 - ACCESS ROAD IMPROVEMENTS AND WATERLINE REPLACEMENT

BID SCHEDULE

ADDITIVE ALTERNATE NO. 1 - LYNNWOOD STREET, BLAINE CITY

Item	Description	Quantity/ Unit	Unit Price	Total Price
1.	Water Line Installation Including Excavation and Pipe Bedding, Township Road			
	a. 6"	450 LF	_____	_____
2.	Gate Valve & Box, Complete (Refer Typical Detail)			
	a. 6"	1 EA	_____	_____
3.	Fittings	500 LBS	_____	_____
4.	Blow-Off Installation, Complete (Refer Typical Detail)			
	a. 2"	1 EA	_____	_____
5.	Miscellaneous Concrete	1 CY	_____	_____
6.	Water Service Connections			
	a. Type A	5 EA	_____	_____
	b. Type B	5 EA	_____	_____
7.	Restoration, Including Backfill			
	a. Municipal Highway Pavement (Refer Typ. Detail)	30 LF	_____	_____
	b. Municipal Highway Shoulder, Unpaved (Refer Typ. Detail)	30 LF	_____	_____
	c. Unpaved (Refer Typical Detail)	380 LF	_____	_____
	d. Concrete Driveway	10 LF	_____	_____
8.	Highway Borings, Complete (Includes boring, carrier pipe, casing, installation, excavation, etc.) (Refer Typical Detail)			
	a. Route 53 Boring No. 1	LS	_____	_____
9.	Photographs	8 EA	_____	_____

TOTAL ADDITIVE ALTERNATE NO. 1 $_____

IRVONA MUNICIPAL AUTHORITY
CONTRACT 89-02 - ACCESS ROAD IMPROVEMENTS AND
WATERLINE REPLACEMENT

ADDITIVE ALTERNATE NO. 2 - FIRE HYDRANT REPLACEMENT

Item	Description	Quantity/ Unit	Unit Price	Total Price
1.	Fire Hydrant Replacement	2 EA	_____	_____

TOTAL ADDITIVE ALTERNATE NO. 2 $_____

IRVONA MUNICIPAL AUTHORITY
CONTRACT 89-02 - ACCESS ROAD IMPROVEMENTS AND WATERLINE REPLACEMENT

ADDITIVE ALTERNATE NO. 3 - WASHINGTON STREET, ROSEBUD

Item	Description	Quantity/ Unit	Unit Price	Total Price
1.	Waterline Installation Including Excavation and Pipe Bedding			
	a. 2"	380 LF	_____	_____
2.	Gate Valve and Box, Complete (Refer to Typical Detail)			
	a. 2"	1 EA	_____	_____
3.	Flexible Couplings	1 EA	_____	_____
4.	Restoration, Including Backfill			
	a. Municipal Highway Shoulder, Unpaved (Refer to Typical Detail)	295 LF	_____	_____
	b. Municipal Highway Shoulder, Paved	85 LF	_____	_____
5.	Service Connections			
	a. Type A	6 EA	_____	_____
	b. Type B	1 EA	_____	_____
6.	Photographs	5 EA	_____	_____

TOTAL ADDITIVE ALTERNATE NO. 3 $_____

ADDITIVE ALTERNATE NO. 4 - ALLEY, IRVONA BOROUGH

Item	Description	Quantity/ Unit	Unit Price	Total Price
1.	Waterline Installation Including Excavation and Pipe Bedding			
	a. 2"	280 LF	_____	_____
2.	Flexible Couplings	2 EA	_____	_____
3.	Restoration, Including Backfill			
	a. Municipal Highway Shoulder, Unpaved	280 LF	_____	_____
4.	Service Connections			
	a. Type A	5 EA	_____	_____
5.	Photographs	4 EA	_____	_____

TOTAL ADDITIVE ALTERNATE NO. 4 $_____

IRVONA MUNICIPAL AUTHORITY

CONTRACT 89-02 - ACCESS ROAD IMPROVEMENTS AND WATERLINE REPLACEMENT

BID RECAP

TOTAL BASE BID PRICE	$_____
TOTAL ADDITIVE ALTERNATE NO. 1 LYNNWOOD STREET	$_____
TOTAL ADDITIVE ALTERNATE NO. 2 FIRE HYDRANT REPLACEMENT	$_____
TOTAL ADDITIVE ALTERNATE NO. 3 WASHINGTON STREET	$_____
TOTAL ADDITIVE ALTERNATE NO. 4 ALLEY, IRVONA BOROUGH	$_____

SIGNATURES

When the bidder is an individual:

_____ _____(SEAL)
Witness Contractor-Individual

- - - - - - - - -

When the bidder is a partnership:

WITNESS: _____(SEAL)
Contractor-Partnership

_____ _____(SEAL)
Partner

_____ _____(SEAL)
Partner

_____ _____(SEAL)
Partner

_____ _____(SEAL)
Partner

- - - - - - - - -

When the bidder is a corporation:

(CORPORATE SEAL) _____(SEAL)
Contractor-Corporation

By _____
President

ATTEST:

_____
Secretary

The _____is a corporation organized and existing under the laws of _____ and has (has not) been granted certificate of authority to do business in Pennsylvania as required by the business corporation law, approved May 5, 1933, PL 364, as amended.

The _____is an individual or partnership trading under a fictitious or assumed name and has (has not) registered under the Fictitious Name Act of Pennsylvania; namely, the Act of May 24, 1945, Pl 967.

CERTIFICATION OF NON SEGREGATED FACILITIES

The Bidder certifies that he does not maintain or provide for his employees any segregated facilities at any of his establishemnts, and that he does not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The Bidder certifies further that he will not maintain or provide for his employees any segregated facilities at any of his establishments, and that he will not permit his employees to perform their services at any location under his control where segregated facilities are maintained. The Bidder agrees that a breach of this certification will be a violation of the Equal Opportunity clause in any contract resulting from acceptance of this bid. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, timeclocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicity directive or are in fact segregated on the basis of race, color, religion, or national origin, becuase of habit, local custom, or otherwise. The Bidder agrees that (except where he has obtained identical certification from proposed subcontractors for specific time periods) he will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity clause, and that he will retain such certifications in his files.

Note: The penalty for making false statements in offers is prescribed in 18 U.S.C. § 1001.

Date_____, 19___ _____
(Name of Bidder)

Official Address (including ZIP CODE): By_____

_____ _____
(Title)

_____

NONCOLLUSION AFFIDAVIT OF PRIME BIDDER

State of _____)
)
County of _____)

_____, being first duly sworn, deposes and says that:

(1) He is _____ (Owner, partner, officer, representative or agent) of _____, the Bidder that has submitted the attached Bid:

(2) He is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid;

(3) Such Bid is genuine and is not a collusive or sham Bid;

(4) Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly with any other Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted or to refrain from bidding in connection with such Contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Bidder, firm or person to fix the price or prices in the attached Bid or of any other Bidder, or to fix any overhead, profit or cost element for the Bid prices or the Bid price of any Bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the _____ or any person interested _____ in the proposed Contract; and

(5) The price or prices quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affiant.

(Signed)_____

_____
(Title)

Subscribed and sworn to before me

this_____ day of _____, 19____

_____

_____
Title

My commission expires_____

PA DEPARTMENT OF COMMUNITY AFFAIRS
BUREAU OF HOUSING AND DEVELOPMENT
SMALL COMMUNITIES PROGRAM DIVISION

CERTIFICATION OF BIDDER REGARDING EQUAL EMPLOYMENT OPPORTUNITY

INSTRUCTIONS

This certification is required pursuant to Executive Order 11246 (30 F.R. 12319-25). The implementing rules and regulations provide that any bidder or prospective contractor, or any of their proposed subcontractors, shall state as an initial part of the bid or negotiations of the contract whether it has participated in any previous contract or subcontract subject to the equal opportunity clause; and, if so, whether it has filed all compliance reports due under applicable instructions.

Where the certification indicates that the bidder has not filed a compliance report due under applicable instructions, such bidder shall be required to submit a compliance report within seven calendar days after bid opening. No contract shall be awarded unless such report is submitted.

CERTIFICATION BY BIDDER

NAME AND ADDRESS OF BIDDER (Include ZIP Code)

1. Bidder has participated in a previous contract or subcontract subject to the Equal Opportunity Clause.

   ☐ Yes ☐ No

2. Compliance reports were required to be filed in connection with such contract or subcontract.

   ☐ Yes ☐ No

3. Bidder has filed all compliance reports due under applicable instructions, including SF-100.

   ☐ Yes ☐ No None Required ☐

4. Have you ever been or are you being considered for sanction due to violation of Executive Order 11246, as amended?

☐ Yes ☐ No

NAME AND TITLE OF SIGNER (Please type)

SIGNATURE	DATE

BID BOND

KNOWN ALL MEN BY THESE PRESENTS, that we the undersigned

_____ (Name of Principal) _____

as PRINCIPAL, and _____ (Name of Surety) _____,

as SURETY are held and firmly bound unto _____

_____ (Local Public Agency) _____, hereinafter called the "Local Public Agency", in the penal sum of _____ Dollars ($_____)

lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severly, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the Principal has submitted the accompany bid, dated _____, 19____, for _____ _____ _____.

NOW, THEREFORE, if the Principal shall not withdraw said Bid within the period specified therein after the opening of the same, or, if no period be specified, within thirty (30) days after the said opening, and shall within the period specified therefore, or if no period be specified, with ten (10) days after the prescribed forms are presented to him for signature, enter into a written Contract with the Local Public Agency in accordance with the Bid as accepted, and give bond with good and sufficient surety or sureties, as may be required, for the faithful performance and proper fulfillment of such Contract; or in the event of the withdrawal of said Bid within the period specified, or the failure to enter into such Contract and give such bond within the time specified, if the Principal shall pay the Local Public Agency may procure the required work or supplies or both, if the latter be in excess of the former, then the above obligation shall be void and of no effect, otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above-bounded parties have executed this instrument under their several seals this _____ day of _____, 19____, the name and corporate seal of each corporate party being hereto affixed and these presents signed by its undersigned representative, pursuant to authority of its governing body.

INDIVIDUAL OR PARTNERSHIP PRINCIPALS

_____(SEAL)

_____(SEAL)

In the presence of: _____(SEAL)

_____ _____(SEAL)

CORPORATE PRINCIPAL

ATTEST: _____

_____ By:_____(SEAL)

SURETY

ATTEST: _____

_____ By:_____(SEAL)

Countersigned:

By:_____

Attorney-in-Fact,
State of_____

CERTIFICATE AS TO CORPORATE PRINCIPAL

I, _____, certify that I am the _____ _____, Secretary of the Corporation named as Principal in the within bond; that_____, who signed the said bond on behalf of the Principal was then _____ _____ of said Corporation; that I know his signature, and his signature thereto is genuine; and that said bond was duly signed, sealed and attested to for and in behalf of said corporation by authority of his governing body.

_____

Title:_____

(CORPORATE SEAL)

STATEMENT OF BIDDER'S QUALIFICATIONS

All questions must be answered and the date given must be clear and comprehensive. This statement must be notarized. If necessary, questions may be answered on separate attached sheets. The Bidder may submit any additional information he desires.

1. Name of Bidder.

2. Permanent main office address.

3. When organized.

4. If a corporation, where incorporated.

5. How many years have you been engaged in the contracting business under your present firm or trade name?

6. Contracts on hand: (Schedule these, showing amount of each contract and the appropriate anticipated dates of completion.)

7. General character of work performed by your company.

8. Have you ever failed to complete any work awarded to you? If so, where and why?

9. Have you ever defaulted on a contract? If so, where and why?

10. List the more important projects recently completed by your company, stating the approximate cost for each, and the month and year completed.

11. List your major equipment available for this contract.

12. Experience in construction work similar in importance to this project.

13. Background and experience of the principal members of your organization, including the officers.

14. Credit Available: $_____

15. Give bank reference: _____

16. Will you, upon request, fill out a detailed financial statement and furnish any other information that may be required by the (Local Public Agency)?

17. The undersigned hereby authorizes and requests any person, firm, or corporation to furnish any information requested by the (Local Public Agency) in verification of the recitals comprising this statement of Bidder's Qualifications.

Dated at_____ this _____ day of _____, 19_____.

(Name of Bidder) _____

By:_____

Title:_____

State of_____)
)
County of_____)

_____ being duly sworn deposes and says that he is _____ of (Name of Organization) and that the answers to the foregoing questions and all statements therein contained are true and correct.

Subscribed and sworn to before me this_____ day of _____, 19_____.

_____ Notary Public

My commission expires _____, 19_____.

AGREEMENT FOR SITE PREPARATION

THIS AGREEMENT, made this _____ day of _____, 19____, by and between _____ (a corporation organized and existing under the laws of the State of _____); (a partnership consisting of _____); (an individual trading as _____); hereinafter called the "Contractor", and the (Corporate Name of Owner), hereinafter called the "Local Public Agency".

WITNESSETH, that the Contractor and the Local Public Agency for the considerations stated herein mutually agree as follows:

ARTICLE 1. Statement of Work: The Contractor shall furnish all supervision, technical personnel, labor, materials, machinery, tools, equipment and services, including utility and transportation services, and perform and complete all work required for the construction of the Improvements embraced in the Site Preparation; namely,_____ [2] and other work incidental thereto, all in strict accordance with the Contract Documents for Site Preparation, including all addenda thereto, numbered_____, dated_____ and _____, dated_____, all as prepared by _____, acting and in these Contract Documents for Site Preparation, referred to as the "Engineer".

ARTICLE 2. The Contract Price: The Local Public Agency will pay the Contractor for the performance of the Contract in current funds, for the total quantities of work performed at the unit prices stipulated in the Bid for the several respective items of work completed subject to additions and deductions as provided in Section 109 hereof.[3] The contract price shall be the total bid price of _____ ($_____).

ARTICLE 3. Contract: The executed contract documents shall consist of the following:

a. This Agreement
b. Addenda
c. Invitation for Bids
d. Instructions to Bidders
e. Signed Copy of Bid
f. General Conditions Parts I and II
g. Special Conditions
h. Technical Specifications
i. Drawings (as listed in the Schedule of Drawings)

This Agreement, together with other documents enumerated in this ARTICLE 3, which said other documents are as fully a part of the contract, as if hereto attached or herein repeated, forms the contract between the parties hereto. In the event that any provision in any component part of this contract conflicts with any provision of any other component part, the provision of component part first enumerated in this ARTICLE 3 shall govern, except as otherwise specifically stated.

IN WITNESS WHEREOF, the parties hereto have caused this AGREEMENT

to be executed in _____ original copies on the day and year first above written.

ATTEST:

_____ _____
(Contractor)

_____
(Owner, partnership, or corporation)

By: _____

Title: _____

(Business Address _____

including _____

zip code) _____

_____
(Local Public Agency)

ATTEST:

_____ By: _____

Title: _____

---

1. Strike out the two terms not applicable.

2. Supply principal items of Contract such as Grading, Paving, Sidewalks, Sewers, etc.

3. In the event the statutory provisions require the Contract Price to be a fixed sum, in the absence of a local approved form, the following text should be substituted for Article 2:

> "ARTICLE 2. The Contract Price. The Local Public Agency shall pay the Contractor for the performance of the Contract, in current funds, subject to additions and deductions as provided in Section 109 hereof, the sum of _____ Dollars ($_____)."

4. The number of copies to be executed by the parties must be stated in the Agreement in the space provided. No fewer than two copies are required, to be distributed one each to the Contractor and to the Local Public Agency.

Certifications:

I, _____, certify that I am the _____ of the Corporation named as Contractor herein; that _____ who signed this Agreement on behalf of the Contractor, was the _____ of said Corporation; that said Agreement was duly signed for and in behalf of said Corporation by authority of its governing body, and is within the scope of its corporate powers.

_____

Title: _____

(Corporate Seal)

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS, that we_____

_____

as principal, and_____,

as sureties are held and firmly bound unto _____

(Local Public Agency) _____, its certain attorney, successors,

or assigns (hereinafter called the Obligee), in the full and just sum of

_____

Dollars ($_____) lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents:

WHEREAS, said principal has entered into a certain contract with said

Obligee, dated _____, 19____, (hereinafter called

the Contract) for_____

_____

which Contract and the Specifications for said work shall be deemed a part hereof as fully as if set out herein:

NOW, therefore, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the principal shall faithfully perform the contract on his part as of the time and in the manner therein provided and satisfy all claims and demands incurred in or for the same, or growing out of the same, or for injury or damages to persons or property in the performance thereof, and shall fully indemnify and save harmless the said Obligee from any and all cost and damage which the said Obligee may suffer by reason of the principal's failure to do so, and shall fully reimburse and repay the said Obligee any and all outlay and expense shall be null and void, otherwise it shall remain in full force and virtue.

The said surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to terms of the Contract or to the work to be performed thereunder or the Specifications accompanying the same in any wise affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the work or to the Specifications.

SIGNED, SEALED AND DELIVERED IN _____ ORIGINAL COUNTERPARTS THIS _____, 19____.

(Individual Principals sign here)

_____(SEAL)

In the presence of: _____(SEAL)

_____ _____(SEAL)

_____ _____(SEAL)

(Corporate Principal sign here)

_____

By_____

Attest: (Surety sign here)

_____ _____

_____ _____

The rate of premium charged is $_____ per thousand.

The total amount of premium charged is $_____.

(The above must be filled in by the Corporate Surety.)

It is hereby further stipulated and agreed that if the Principal is a non-Pennsylvania corporation neither Principal nor the Surety shall be discharged from liability on this bond, nor the bond surrendered, until such Principal files with the obligee a certificate from the Pennsylvania Department of Revenue evidencing the payment in full of all taxes, penalties and interest, and a certificate from the Bureau of Employment and Unemployment Compensation of the Pennsylvania Department of Labor and Industry, evidencing the payment of all unemployment compensation contributions, penalties and interest due the Commonwealth of Pennsylvania from the said Principal, or any non-Pennsylvania corporation subcontractor thereunder, or for which liability has accrued, but the time for payment has not arrived as required by the Act of June 10, 1947, P.L. 493, 8 P.S. Sec. 23, amended.

LABOR AND MATERIALMEN'S BOND

KNOWN ALL MEN BY THESE PRESENTS, that we, _____

_____, as principal, and _____

_____,

as surety, are held and firmly bound unto _____

(Local Public Agency) _____, its certain attorney, successors,

or assigns (hereinafter called the Obligee in the sum of _____

_____ Dollars ($_____) lawful money of the United

States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, personal representatives, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, said principal has entered into a certain contract with said Obligee, dated _____, 19____, (hereinafter called the Contract) for _____

_____

_____

which Contract and the Specifications for said work shall be deemed a part thereof as fully as if set out herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH that if said Principal and all subcontractors to whom any portion of the work provided for in said contract is sublet and all assignees of said principal and of such subcontractors shall promptly make payment for all material furnished, labor supplied or performed, rental for equipment employed, and services rendered by public utilities in or in connection with the prosecution of the work, whether or not the said material, labor, equipment or services enter into and become component parts of the work or improvement contemplated in said contract, or in any amendment or extension of or addition to said Contract, then the above obligation shall be void; otherwise to remain in full force and effect. PROVIDED, however, that this bond is subject to the following conditions and limitations.

(a) All persons who have performed labor, rendered services or furnished materials or machinery, shall have a direct right of action against the principal and surety on this bond, which right of action shall be asserted in proceedings instituted in the State in which such labor was performed, services rendered or materials furnished (or where labor has been performed, services rendered or materials furnished under said Contract in more than one state, then in any such state). Insofar as permitted by the laws of such state, such right of action shall be asserted in a proceeding instituted in the name of the Obligee to the use and benefit

of the person instituting such action and any or all other persons having claims hereunder, and any other person having a claim hereunder shall have the right to be made a party to such proceeding (but not later than two years after the complete performance of said Contract and final settlement thereof) and to have such claim adjudicated in such action and judgment rendered thereon.

(b) The surety shall not be liable hereunder for any damages or compensation recoverable under any workmen's compensation or employer's liability statute.

(c) In no event shall the surety be liable for a greater sum than the penalty of this bond, or subject to any suit, action or proceeding thereon that is instituted later than two years after the complete performance of said Contract and final settlement thereof.

(d) As used herein: The term "person" refers to any individual, firm or corporation who have furnished materials or machinery or public utility services to be used on or incorporated in the work or the prosecution thereof provided for in said Contract or in any amendment or extension of or addition to said Contract, and/or to any person engaged in the prosecution of the work provided for in said Contract or in any amendment or extension of or addition to said Contract who is an agent, servant or employee of the principal or of any subcontractor, or of any assignee of said principal or of any subcontractor and also anyone so engaged who performs the work of a laborer or of a mechanic regardless of any contractual relationship between the principal, or any subcontractor, or any assignee of said principal or of said subcontractor, and such laborer or mechanic, but shall not include office employees not regularly stationed at the site of the work.

The said surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract, or to the work to be performed thereunder or the Specifications accompanying the same, shall in any wise affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time alteration or addition to the terms of the Contract or to the work or to the Specifications.

SIGNED, SEALED AND DELIVERED IN _____

ORIGINAL COUNTERPARTS this _____ day of _____, 19_____.

Witness: (Individual Principals sign here)

_____ _____

Title: _____ (SEAL)

_____ _____

Title: _____ (SEAL)

_____ _____

Title: _____ (SEAL)

_____

Title:_____(SEAL)

Attest:

(Corporate Principal sign here)

By_____ _____

Title:_____ By:_____

Title:_____(SEAL)

(Surety sign here)

_____

By:_____

Title:_____(SEAL)

The rate of the premium charged is $_____ per thousand.

The total amount of the premium charged is $_____.

(The above must be filled in by the Corporate Surety.)

It is hereby further stipulated and agreed that if the Principal is a non-Pennsylvania corporation neither Principal nor the Surety shall be discharged from liability on this bond, nor the bond surrendered, until such Principal files with the obligee a certificate from the Pennsylvania Department of Revenue evidencing the payment in full of all taxes, penalties and interest, and a certificate from the Bureau of Employment and Unemployment Compensation of the Pennsylvania Department of Labor and Industry, evidencing the payment of all unemployment compensation contributions, penalties and interest due the Commonwealth of Pennsylvania from the said Principal, or any non-Pennsylvania corporation subcontractor thereunder, or for which liability has accured, but the time for payment has not arrived as required by the Act of June 10, 1947, P. O. 493, 8 P. S. Sec. 23, amended.

THE MINORITY BUSINESS ENTERPRISE PROGRAM IN

CONNECTION WITH SCP PROJECTS

IN COMPLIANCE WITH EXECUTIVE ORDER 11625

AFFIRMATIVE ACTION PLAN FOR UTILIZATION OF MINORITY BUSINESS

PROJECT NAME: PROJECT NO.:

DEVELOPER: GENERAL CONTRACTOR:

CONTRACTING

Prior to the signing of contracts, between the _____ _____ and the General Contractor, the General Contractor shall provide to the _____ a preliminary statement of Minority Business Utilization where known; where not known, such information shall be supplied prior to the signing of any contract between the General Contractor and subcontractor(s).

UTILIZATION OF BUSINESSES

Each General Contractor undertaking work on this project shall assure that to the greatest extent feasible, contracts for work to be performed in connection with the project are awarded to minority business concerns.

The General Contractor shall, to the greatest extent feasible, utilize minority business concerns for procurement (materials, supplies, services) to be performed in connection with this project. To this end the General Contractor projects a Utilization Goal of $_____ _____, (%).

CATEGORY	Amount Available in Dollars	GOAL ALLOCATION Amount Projected in Dollars
A. Minority Contractors	$_____	$_____
B. Minority Procurement	$_____	$_____

GOOD FAITH EFFORT

The following minority business referral agencies will be contacted; SBA, State OMBE, and Others: (List)_____

_____

This is to certify that _____ will abide by and initiate in all our contracts, to the greatest extent feasible, the requirements of Executive Order 11625.

_____
Signature

_____
Title Date

SUBCONTRACTOR'S

CERTIFICATION OF COMPLIANCE

SECTION 3

CERTIFICATION OF COMPLIANCE WITH REGULATIONS TO SECTION 3 OF THE HOUSING AND URBAN DEVELOPMENT ACT OF 1968 AS REQUIRED FOR PARTICIPATION IN THE SMALL COMMUNITIES PROGRAM, PURSUANT TO THE HOUSING AND COMMUNITY DEVELOPMENT ACT OF 1974, P.L. 93-383, AS AMENDED.

PURPOSE, AUTHORITY AND RESPONSIBILITY

Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u (hereinafter Section 3) requires that to the greatest extent feasible, opportunities for training and employment in a Section 3 covered project be given lower income residents of the project area and that contracts for work in connection with the project be awarded to business concerns which are located in, or owned in substantial part by persons residing in the area of the project.

_____
(hereinafter called the Subcontractor)
upon being awarded a contract for_____

_____
in the area of the Local Public Agency to the extent feasible, will make a good faith effort to utilize the services of businesses located in or substantially owned by persons who live within the project boundaries.

The Contractor has been informed by the Local Public Agency, that the Department of Community Affairs has determined that the project area boundaries for the Small Communities Program are the municipal limits.

To complete the project it is also estimated that the Subcontractor will be subcontracting for supplies and services for which certain business concerns eligible under Section 3 could provide. In order to comply with the regulations for utilization of businesses under Section 3, the Subcontractor will adopt an Affirmative Action Plan.

CONTRACTOR'S
AFFIRMATIVE ACTION PLAN FOR BUSINESS UTILIZATION
SECTION 3

A. The Contractor shall utilize, to the maximum extent feasible, eligible, Section 3 business concerns located in the _____ and contracting for work to be performed in connection with the completion of the contract. Eligible Section 3 businesses are those which qualify as "small" under the Small Business Administration size standards and which are socially and economically disadvantaged.

B. The Contractor has established a goal of _____% of the total contract amount which he expects to award to eligible Section 3 business concerns. The Contractor's Business Utilization Report sets forth the classification of subcontracts, the estimate of each subcontractor dollar amount, whether a Section 3 business is intended to be utilized and the dollar amount of proposed subcontracts to Section 3 businesses.

C. To achieve the goal specified in paragraph "B", the Contractor shall:

1. Make full use of minority business listings made available by the DCA Regional Office, Small Business Administration and the Pennsylvania Department of Commerce OMBE.

2. Take steps to insure that subcontract which are typically let on a bid rather than a negotiated basis are also let on a negotiated basis, whenever feasible.

3. Where competitive bids are solicited, include as part of the bid documents the contractor's goal for Section 3 as it relates to the work for which bids are being solicited, require each bidder to submit their Utilization Goals and Affirmative Action Plan for achieving Section 3 Business Utilization.

4. Insert the Section 3 contract language required by 24 CFR 135.20(b) in all subcontracts; and require to be executed by the subcontractor a certification of compliance with Section 3, and an Affirmative Action Plan for Business Utilization.

D. The Contractor will report to the _____ on a monthly, quarterly, or per project basis, the results of the affirmative efforts undertaken per paragraphs A, B, and C above, including the efforts of its subcontractors.

_____ _____
Signature/Contractor Date

_____ _____
Approved/(City/County) Date

SUBCONTRACTOR'S

AFFIRMATIVE ACTION PLAN FOR BUSINESS UTILIZATION

SECTION 3

A. The Subcontractor shall utilize, to the maximum extent feasible, eligible Section 3 business concerns located in the area of the Local Public Agency contracting for work to be performed in connection with the completion of the contract. Eligible Section 3 businesses are those which qualify as "small" under the Small Business Administration's size standards and which are socially and economically disadvantaged.

B. The Subcontractor has established a goal of _____% of the total subcontract amount which he expects to award to eligible Section 3 business concerns. The Subcontractor's Business Utilization Table, sets forth the classification of subcontracts, the estimate of each subcontractor dollar amount, whether a Section 3 business is intended to be utilized and the dollar amount of proposed subcontracts to Section 3 businesses.

C. To achieve the goal specified in paragraph "B", the Subcontractor shall:

1. Make full use of minority business listings made available by the Small Business Administration and the Pennsylvania Department of Commerce OMBE.

2. Take steps to insure that subcontracts which are typically let on a bid rather than a negotiated basis are also let on a negotiated basis, whenever feasible.

3. Where competitive bids are solicited, include as part of the bid documents the subcontractor's goal for Section 3 as it relates to the work for which the bids are being solicited, require each bidder to submit their Utilization Goals and Affirmative Action Plan for achieving Section 3 Business Utilization.

4. Insert the Section 3 contract language required by 24 CFR 135.20(b) in all subcontracts; and require to be executed by the subcontractor a Certification of Compliance with Section 3, similar to the Contractor's Certification of Compliance, and an Affirmative Action Plan for Business Utilization.

_____ _____

Signature/Subcontractor Date

_____ _____

Approved/Local Public Agency Date

CONTRACTOR'S

CERTIFICATION OF COMPLIANCE

SECTION 3

CERTIFICATION OF COMPLIANCE WITH REGULATIONS TO SECTION 3 OF THE HOUSING AND URBAN DEVELOPMENT ACT OF 1968 AS REQUIRED FOR PARTICIPATION IN THE SMALL COMMUNITIES PROGRAM, PURSUANT TO THE HOUSING AND COMMUNITY DEVELOPMENT ACT OF 1974, P.L. 93-383, AS AMENDED.

PURPOSE, AUTHORITY AND RESPONSIBILITY

Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u (hereinafter Section 3) requires that to the greatest extent feasible, opportunities for training and employment in a Section 3 covered project be given lower income residents of the project area and that contracts for work in connection with the project be awarded to business concerns which are located in, or owned in substantial part by persons residing is the area of the project.

_____
(hereinafter called the Contractor)
upon being awarded a contract for _____

_____
in the area of the Section 3 covered project, will, to the greatest extent feasible, make a good faith effort to utilize the services of businesses located in or substantially owned by persons who live within the project boundaries.

The Contractor has been informed by the Local Public Agency, that the Department of Community Affairs has determined that the project area boundaries for the Small Communities Program are the municipal limits.

To complete the project it is also estimated that the Contractor will be subcontracting for supplies and services for which certain business concerns eligible under Section 3 could provide. In order to comply with the regulations for utilization of businesses under Section 3, the Contractor will adopt an Affirmative Action Plan. The Contractor will also require each subcontractor, if any, to adopt an Affirmative Action Plan.

WORK FORCE NEEDS TABLE

EMPLOYEES

Occupation Category 1/	Approximate Number of Skilled Employees Required	Total Number of Skilled Employees Presently on Payroll	Total Number of Skilled Employees to be Hired	Total Number of Lower Income Residents to be Hired

1/ The following are the occupational category classifications that should be inserted in the Table:

1. Asbestos Workers
2. Bricklayers
3. Carpenters
4. Cement Masons
5. Electricians
6. Elevator Constructors
7. Glaziers
8. Iron Workers
9. Lathers
10. Machinists
11. Operating Engineers
12. Painters
13. Plasterers
14. Plumbers
15. Roofers
16. Sheet Metal
17. Tile Setters
18. Others (Specify)

EMPLOYMENT CERTIFICATION

A. The Contractor hereby certifies that the above table represents the approximate number of employee positions that are needed and which are not presently filled by regular and permanent employees, and which new employees will be required in the execution of the _____ contract and also represents the number of lower income project area residents that the contractor proposes to make a good faith effort to employ.

B. The Contractor certifies that it will make a good faith effort to employ the number of lower income employees stated above by contacting such organizations as the Bureau of Employment Security, in addition to advertising through the local news media and erecting signs on the project site contractor's employment posters.

C. The Contractor, prior to subcontracting any portion of the work covered by this contract will require a Manpower Utilization Table to be prepared and certification similar to paragraph A, B, and C to be executed.

MANPOWER UTILIZATION TRAINING TABLE

TRAINEES

Occupation Category 1/	Approximate Number of Trainees Required	Total Number of Trainees Presently On Payroll	Total Number of Trainees to Be Hired	Total Number of Lower Income Trainees To be Hired

1/ The following are the occupational category classifications that should be inserted in the Table:

1. Asbestos Workers
2. Bricklayers
3. Carpenters
4. Cement Masons
5. Electricians
6. Elevator Constructors
7. Glaziers
8. Iron.Workers
9. Lathers
10. Machinists
11. Operating Engineers
12. Painters
13. Plasterers
14. Plumbers
15. Roofers
16. Sheet Metal
17. Tile Setters
18. Others (Specify)

MANPOWER UTILIZATION TRAINING TABLE - TRAINEES - CONTINUED

TRAINEE CERTIFICATION

A. The Contractor hereby certifies that the above table represents the approximate number of trainee positions required in the execution of the _____ contract and also represents the number of lower income project area residents that the Contractor proposes to utilize in filling Trainee positions.

B. The Contractor certifies that it will make a good faith effort to fulfill the number of lower income trainees stated above by utilizing such organizations as the Bureau of Employment Security.

C. The Contractor certifies that the trainees to be utilized on this project in no event is less than the number of Trainees determined by the Secretary of Labor for each building construction occupation.

D. The Contractor, prior to subcontracting any portion of the work covered by this contract will require a Manpower Utilization Table to be prepared and certification similar to Paragraphs A, B, and C to be executed.

REPORTING

The Contractor will report to the _____ on a monthly, quarterly or per project basis the results of employee and trainee employment of lower income residents of the _____. The Contractor reports will include not only his efforts, but the efforts of subcontractors, if any. The Contractor will, to the greatest extent feasible, abide by the requirements of Section 3 of the Housing and Urban Development Act of 1968, 12, U.S.C. 170lu, in carrying out its contract.

Date_____

_____
Contractor

_____
Project Name

CONTRACTOR'S SECTION 3 BUSINESS UTILIZATION REPORT

Contractor:_____
Date:_____
Section 3 Goals: Percent_____

Project Name:_____
Project Number:_____
$_____

Proposed Suppliers[1] and/or Subcontractors	Estimated Dollar Amount	Use of Section 3 Businesses		Proposed Dollar Amount to Section 3 Businesses
		YES	NO	
TOTALS	$			$

1/ The following are the examples of services which may be required by Suppliers and these classifications should be inserted if applicable:

1. Selling bricks
2. Selling lumber
3. Selling cement, sand and gravel
4. Making steel cast
5. Selling electrical supplies
6. Selling kitchen appliances
7. Selling bathroom fixtures
8. Window-installation
9. Air conditioning sales and/or installation
10. Floor tile sales and/or installations
11. Door sales and/or installations
12. Landscaping
13. Carpeting
14. Stationery and/or advertising
15. Other (Specify)

This list should also include professional services, and all of the construction trades, i.e., plumbing, electrical, drywall, carpenters, etc. which are intended to be subcontracted.

LOCAL PUBLIC AGENCY	BUSINESS UTILIZATION REPORT	COVERED AREA CONTRACTOR'S ID NO.	ESTABLISHED GOALS PERCENT: AMOUNT:	REPORTING PERIOD

NAME AND LOCATION OF CONTRACTOR	PROJECT NAME AND TYPE OF CONSTRUCTION

NAME AND ADDRESS OF SUBCONTRACTORS	TYPE OF SUBCONTRACT 1/	OWNERS 50% + LIVE IN COUNTY YES	OWNERS 50% + LIVE IN COUNTY NO	DATE OF AWARD	SUBCONTRACTS AWARDED DOLLAR AMOUNTS REPORT PERIOD	SUBCONTRACTS AWARDED DOLLAR AMOUNTS CUMULATIVE	SECTION 3 SUBCONTRACTS AWARDED - DOLLAR AMOUNTS REPORT PERIOD	SECTION 3 SUBCONTRACTS AWARDED - DOLLAR AMOUNTS CUMULATIVE
CUMULATIVE TOTALS								

SIGNATURE AND TITLE OF PERSON PREPARING REPORT	TELEPHONE NUMBER	DATE SIGNED	PAGE ____ OF ____

1/ Use appropriate letters for classification of subcontracts
C - Construction
S - Supplies

NOTICE OF INTENT TO AWARD

TO _____
Contractor

_____
Address

(This notice is subject to completion of satisfactory financing.)

It appears that you are the low bidder on Contract _____

_____

for the construction of _____

_____

Pursuant to the Specifications under which your Proposal was submitted, you are hereby notified that the OWNER represented by the undersigned intends to award a Contract to you for the aforesaid work. The Contract Price is computed to be

_____

on the basis of the acceptance of your Proposal. You are required by the Information for Bidders to furnish the required Contractor's Performance Bond and Payment Bond within ten (10) days from the date of this Notice to you.

Dated this _____ day of _____, 19_____.

_____
OWNER

By _____
Name

_____
Title

ACCEPTANCE OF NOTICE

Receipt of the above Intent to Award is hereby acknowledged this _____ day of _____, 19_____.

_____

By _____

Title _____

NOTICE OF AWARD

TO:

PROJECT DESCRIPTION;

The OWNER has considered the BID submitted by you for the above-described work in response to its Advertisement for Bids dated _____, 19____ and Information for Bidders.

You are hereby notified that your BID has been accepted for items in the amount of $_____.

You are required by the Information for Bidders to execute the Agreement and deliver it to the Owner within ten (10) calendar days from the date of this Notice to you.

If you fail to execute said Agreement within ten (10) days from the date of this Notice, said OWNER will be entitled to consider all your rights arising out of the OWNER'S acceptance of your BID as abandoned and as a forfeiture of your Bid Bond. The OWNER will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of this NOTICE OF AWARD to the OWNER.

Dated this _____day of _____, 19____.

_____
Owner

By_____

Title_____

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE OF AWARD is hereby acknowledged by

_____

this _____ day of _____, 19___.

By_____

Title_____

(2) Notice of the cause of the delay was given within the time and in the manner prescribed by the contract; and

(3) The causes of the delay justify and require an extension of the time as herein provided as a matter of legal right without the assertion of a claim by the owner for (actual) (liquidated) damages because of the contractor's failure to complete the work within the number of days specified by the contract.

Subject to conditions hereinafter set forth, an equitable adjustment of the contract price and the contract time is established, as follows:

THE CONTRACT PRICE IS (INCREASED) (DECREASED) TO _____ AND _____/100 DOLLARS ($_____) AND THE CONTRACT TIME IS (NOT CHANGED)(EXTENDED _____ CALENDAR DAYS) TO (ENDING DATE).

The conditions last above referred to are as follows:

A. The aforementioned change(s), and work affected thereby, are subject to all contract stipulations and covenants; and

B. The rights of the Local Public Agency are not prejudiced; and

C. All claims against the Local Public Agency which are incidental to or as a consequence of the aforementioned change(s) are satisfied.

Accepted:

_____	_____
Contractor	Local Public Agency
By_____	By_____
Title_____	Title_____
Date_____	Date_____

GENERAL SPECIFICATIONS

GENERAL CONDITIONS

PART I

101. DEFINITIONS

Whenever used in any of the Contract Documents, the following meanings shall be given to the terms herein defined:

a. The term "Contract" means the contract executed by the Local Public Agency and the Contractor, of which these GENERAL CONDITIONS, PARTS I, II and III form a part.

b. The term "Local Public Agency" means the Irvona Municipal Auth. which is authorized to undertake this Contract.

c. The term "Contractor" means the person, firm, or corporation entering into the Contract with Local Public Agency to construct and install the Improvements embraced in this Site Preparation Contract.

d. The term "Project Area" means the site of the Construction of Contracts 89-01 & 89-02 - Irvona Municipal Authority within which are the specified Contract limits of the Improvements contemplated to be constructed in whole or in part under this Contract.

e. The term "Engineer" means Neilan Engineers Div., engineer in charge, serving the Local Public Agency with Architectural or Engineering Services, his successor, or any person or persons, employed by said Local Public Agency for the purpose of directing or having in charge the work of Site Preparation embraced in this Contract, the said Engineer acting directly or indirectly through any assistant having immediate charge of a portion thereof limited by the particular duties intrusted to him.

f. The term "Local Government" means the City (town, borough, or political subdivision) of Irvona, Irvona, Pennsylvania, within which the Project Area is situated.

g. The term "Contract Documents" means and shall include the following: Executed Agreement, Addenda (if any), Invitation for Bids, Instructions to Bidders, Signed Copy of Bid, General Conditions, Parts I, II and III, Special Conditions, Technical Specifications, and Drawings (as listed in the Schedule of Drawings).

h. The term "Drawings" means the drawings listed in the Schedule of Drawings.

i. The term "Technical Specifications" means that part of the Contract Documents which describes outlines and stipulates: the quality of the materials to be furnished; the quality of workmanship required; and the methods to be used in carrying out the construction work to be performed under this Contract.

j. The term "Addendum" or "Addenda" means any changes, revisions or clarifications of the Contract Documents which have been duly issued by the Local Public Agency to prospective bidders prior to the time of receiving bids.

102. SUPERINTENDENCE BY CONTRACTOR

At the site of the work the Contractor shall provide a superintendent or foreman who shall have full authority to act for the Contractor, except where the Contractor is an individual and gives his personal superintendence to the work. It is understood that such representative shall be acceptable to the Engineer. The Contractor shall also provide an adequate staff for the proper coordination and expediting of his work.

103. SUBCONTRACTS

a. The Contractor shall not award any work to any subcontractor until each has completed and submitted a Non-Collusion Affidavit and a Certification by Proposed Subcontractor Regarding Equal Employment Opportunity to the Contractor. It shall also be the responsibility of the Contractor to employ only subcontractors who have certified their eligibility in written contracts containing Federal Labor Standards Provisions.

b. Should any subcontractor be found ineligible after award of a contract, its contract shall be terminated.

c. The Contractor shall be as fully responsible to the Local Public Agency for the acts and omissions of his subcontractors, and of persons either directly or indirectly employed by them, as he is for the acts and omissions of persons directly employed by him.

d. The Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the work to require compliance by each subcontractor with the applicable provisions of the Contract for the Improvements embraced in the Site Preparation.

e. Nothing contained in the Contract shall create any contractual relation between any subcontractor and the Local Public Agency.

104. SEPARATE CONTRACTS

The Local Public Agency may award, or may have awarded other contracts for additional work, and the Contractor shall coordinate his operations with those of other Contractors. The Contractor shall not commit or permit any act which will interfere with the performance of work by any other Contractor as scheduled.

105. FITTING AND COORDINATION OF THE WORK

The Contractor shall be responsible for the proper fitting of all work and for the coordination of the operations of all trades, subcontractors

or materialmen engaged upon this Contract. He shall be prepared to guarantee to each of his subcontractors the locations and measurements which they may require for the fitting of their work to all surrounding work.

NON-COLLUSION AFFIDAVIT OF SUBCONTRACTOR

State Of_____)
)ss.
County Of_____)

_____, being first duly sworn,
deposes and says that:

(1) He is (Owner, partner, officer, representative or agent) _____ hereinafter referred to as the "Subcontractor";

(2) He is fully informed respecting the preparation and contents of the subcontractor's Proposal submitted the subcontractor to_____, the Contractor for certain work in connection with the _____ Contract pertaining to the Project in _____ (City or County and State);

(3) Such subcontractor's proposal is genuine and is not a collusive or sham proposal;

(4) Neither the subcontractor nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived, or agreed, directly or indirectly with any other Bidder, firm or person to submit a collusive or sham Proposal in connection with such Contract or to refrain from submitting a Proposal in connection with such Contract, or has in any manner, directly or indirectly sought by unlawful agreement or connivance with any other Bidder, firm or person to fix the price or prices in said subcontractor's Proposal, or to secure through collusion, conspiracy connivance, or unlawful agreement any advantage against the _____ (Local Public Agency) or any person interested in the proposed Contract; and

(5) The price or prices quoted in the subcontractor's Proposal are fair and proper and are not tainted by any collusion, conspiracy, connivance, or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affiant.

(Signed) _____

_____
(Title)

Subscribed and sworn to before me
this _____ day of _____,
19____.

_____

_____
(Title)

PA DEPARTMENT OF COMMUNITY AFFAIRS
BUREAU OF HOUSING AND DEVELOPMENT
SMALL COMMUNITIES PROGRAM DIVISION

CERTIFICATION BY PROPOSED SUBCONTRACTOR REGARDING EQUAL EMPLOYMENT OPPORTUNITY

NAME OF PRIME CONTRACTOR _____ PROJECT NO. _____

INSTRUCTIONS

This certification is required pursuant to Executive Order 11246 (30 F.R. 12319-25). The implementing rules and regulations provide that any bidder or prospective contractor, or any of their proposed subcontractors, shall state as an initial part of the bid or negotiations of the contract whether it has participated in any previous contract or subcontract subject of the equal opportunity clause; and, if so, whether it has filed all compliance reports due under applicable instructions.

Where the certification indicates that the subcontractor has not filed a compliance report due under applicable instructions, such subcontractor shall be required to submit a compliance report before the owner approves the subcontract or permits work to begin under the subcontract.

SUBCONTRACTOR'S CERTIFICATION

Subcontractor's Name: _____

Address: _____

_____

1. Bidder has participated in a previous contract or subcontract to the Equal Opportunity Clause.

   ☐ Yes ☐ No

2. Compliance reports were required to be filed in connection with such contract or subcontract.

   ☐ Yes ☐ No

3. Bidder has filed all compliance reports due under applicable instructions, including SF-100.

   ☐ Yes ☐ No None Required ☐

4. If the answer to item 3 is "No," please explain in detail on reverse side of this certification.

Certification - The information above is true and complete to the best of my knowledge and belief.

NAME AND TITLE OF SIGNER (Please Type)

SIGNATURE

DATE

106. MUTUAL RESPONSIBILITY OF CONTRACTORS

If, through acts of neglect on the part of the Contractor, any other Contractor or any subcontractor shall suffer loss or damage on the work, the Contractor shall settle with such other Contractor or Subcontractor by agreement or arbitration, if such other Contractor or Subcontractor will so settle. If such other Contractor or Subcontractor shall assert any claim against the Local Public Agency on account of any damage alleged to have been so sustained, the Local Public Agency will notify this Contractor, who shall defend at his own expense any suit based upon such claim, and, if any judgment or claims against the Local Public Agency shall be allowed, the Contractor shall pay or satisfy such judgment or claim and pay all costs and expenses in connection therewith.

107. CONSTRUCTION SCHEDULE

a. Immediately after execution and delivery of the Contract, the Contractor shall submit to the Local Public Agency an estimated construction progress schedule, showing the proposed dates of commencement and completion of each of the various sections of work required under the Contract, the anticipated amount of each monthly payment to become due to the Contractor and the accumulated percent of progress each month.

b. Cost Breakdown: The Contractor shall submit to the Local Public Agency a breakdown of his estimated cost of all Site Preparation work, so arranged and itemized as to meet the approval of the Local Public Agency. This breakdown shall be submitted promptly after execution of the agreement and before any payment is made to the Contractor for the work performed under the Contract. After approval by the Local Public Agency the unit prices established in the breakdown shall be used in estimating the amount of partial payments to be made to the Contractor. (Note: This paragraph B is to be used only with a lump sum Contract.)

108. PAYMENTS TO CONTRACTOR

a. Partial Payments

The Contractor shall prepare his requisition for partial payment as of the last day of the month and submit it, with the required number of copies, to the Engineer for his approval. The amount of the payment due the Contractor shall be determined by adding to the total value of work completed to date, the value of materials properly stored on the site and deducting (1) ten percent (10%) of the total amount, to be retained until final payment and (2) the amount of all previous payments. If the Contract is for a lump sum, the total value of work completed to date shall be based upon the estimated quantities of work completed to date on each item and the unit prices established in the Cost Breakdown and adjusted in accordance with the value of work completed to date on approved change orders.

b. Final Payment

1. After final inspection and acceptance by the Local Public Agency of all work under the Contract, the Contractor shall prepare his requisition

for final payment which shall be based upon the carefully measured or computed quantity of each item of work at the applicable unit prices stipulated in the Agreement. The total amount of the final payment due the Contractor under this Contract shall be the amount computed as described above less all previous payments. Final payment to the Contractor shall be made subject to his furnishing the Local Public Agency with a release in satisfactory form of all claims against the Local Public Agency arising under and by virtue of his contract, other than such claims, if any, as may be specifically excepted by the Contractor from the operation of the release as provided under the section Disputes under General Conditions, Part I.

2. The Local Public Agency, before paying the final estimate, may require the Contractor to furnish releases or receipts from all subcontractors having performed any work and all persons having supplied materials, equipment (installed on the Project) and services to the Contractor, if the Local Public Agency deems the same necessary in order to protect its interest. The Local Public Agency, however, may if it deems such action advisable make payment in part or in full to the Contractor without requiring the furnishing of such releases or receipts and any payments so made shall in no way impair the obligations of any surety or sureties furnished under this Contract.

3. Withholding of any amount due the Local Public Agency under the Section entitled "Liquidated Damages" under SPECIAL CONDITIONS, shall be deducted from the final payment due the Contractor.

c. Withholding Payments

The Local Public Agency may from any payment otherwise due the Contractor so much as may be necessary to protect the Local Public Agency and if it so elects may also withhold any amounts due from the Contractor to any subcontractors or material dealers, for work performed or material furnished by them. The foregoing provisions shall be construed solely for the benefit of the Local Public Agency and will not require the Local Public Agency to determine or adjust any claims or disputes between the Contractor and his subcontractors or material dealers, or to withhold any moneys for their protection unless the Local Public Agency elects to do so. The failure or refusal of the Local Public Agency to withhold any moneys from the Contractor shall in nowise impair the obligations of any surety or sureties under any bond or bonds furnished under this Contract.

d. Payments Subject to Submission of Certificates

Each payment to the Contractor by the Local Public Agency shall be made subject to submission by the Contractor of all written certifications required of him and his subcontractors by the Section entitled CONTRACTOR'S CERTIFICATES under GENERAL CONDITIONS.

109. CHANGES IN THE WORK

a. The Local Public Agency may make changes in the scope of the work required to be performed by the Contractor under the Contract or making additions thereto, or by omitting work therefrom, without invalidating the Contract, and without relieving or releasing the Contractor from any of his obligations under the Contract or any guarantee given by him pursuant to the Contract provisions, and without affecting the validity of the guaranty bonds, and without relieving or releasing the surety or sureties of said bonds. All such work shall be executed under the terms of the original Contract unless it is expressly provided otherwise.

b. Except for the purpose of affording protection against any emergency endangering life or property, the Contractor shall make no change in the materials used or in the specified manner of constructing and/or installing the improvements or supply additional labor, services or materials beyond that actually required for the execution of the Contract, unless in pursuance of a written order from the Local Public Agency authorizing the Contractor to proceed with the change. No claim for an adjustment of the Contract Price, will be valid unless so ordered.

c. If applicable unit prices <u>are</u> contained in the Agreement (established as a result of either a unit price bid or a Supplemental Schedule of Unit Prices) the Local Public Agency may order the Contractor to proceed with desired changes in the work, the value of such changes to be determined by the measured quantities involved and the applicable unit prices specified in the Contract; provided that in case of a unit price contract the net value of all changes does not increase or decrease the original total amount shown in Agreement by more than twenty-five percent (25%) in accordance with the section entitled UNIT PRICES under INSTRUCTIONS TO BIDDERS.

d. If applicable unit prices <u>are not</u> contained in the Agreement or if the total net change increases or decreases the total Contract Price more than twenty-five percent (25%) the Local Public Agency shall, before ordering the Contractor to proceed with desired changes, request an itemized proposal from him covering the work involved in the change after which the procedure shall be as follows:

(1) If the proposal <u>is acceptable</u> the Local Public Agency will prepare the change order in accordance therewith for acceptance by the Contractor and

(2) If the proposal <u>is not acceptable</u> and prompt agreement between the two parties cannot be reached, the Local Public Agency may order the Contractor to proceed with the work on a cost-plus-limited basis. A cost-plus-limited basis is defined as the net cost of the Contractor's labor, materials and insurance plus fifteen percent (15%) of said net cost to cover overhead and profit, the total cost not to exceed a specified limit.

e. Each change order shall include in its final form:

(1) A detailed description of the change in the work.

(2) The Contractor's proposal (if any) or a conformed copy thereof.

(3) A definite statement as to the resulting change in the contract price and/or time.

(4) The statement that all work involved in the change shall be performed in accordance with contract requirements except as modified by the change order.

110. CLAIMS FOR EXTRA COST

a. If the Contractor claims that any instructions by Drawings or otherwise involve extra cost or extension of time, he shall, within ten days after the receipt of such instructions, and in any event before proceeding to execute thework, submit his protest thereto in writing to the Local Public Agency, stating clearly and in detail the basis of his objections. No such claim will be considered unless so made.

b. Claims for additional compensation for extra work, due to alleged errors in ground elevations, contour lines, or bench marks, will not be recognized unless accompanied by certified survey data, made prior to the time the original ground was disturbed, clearly showing that errors exist which resulted, or would result, in handling more material, or performing more work, than would be reasonable estimated from the Drawings and map issued.

c. Any discrepancies which may be discovered between actual conditions and those represented by the Drawings and maps shall at once be reported to the Local Public Agency and work shall not proceed except at the Contractor's risk, until written instructions have been received by him from the Local Public Agency.

d. If, on the basis of the available evidence, the Local Public Agency determines that an adjustment of the Contract Price and/or Time is justifiable, the procedure shall be as provided in Section - CHANGES IN THE WORK under GENERAL CONDITIONS, PART I.

111. TERMINATION: DELAYS: AND LIQUIDATED DAMAGES

a. Termination of Contract. If the Contractor refuses or fails to prosecute the work with such diligence as will insure its completion within the time specified in these Contract Documents, or as modified as provided in these Contract Documents, the Local Public Agency, by written notice to the Contractor, may terminate the Contractor's right to proceed with the work. Upon such termination, the Local Public Agency may take over the work and prosecute the same to completion, by contract or otherwise, and the Contractor and his sureties shall be liable to the Local Public Agency for liquidated damages for any delay in the completion of the work as provided below. If the contractor's right to proceed is so terminated, the Local Public Agency may take possession of and utilize in completing the work such materials, tools, equipment, and plant as

as may be on the site of the work and necessary therefore.

b Liquidated Damages for Delays. If the work be not completed within the time stipulated in Section 302 - Time for Completion including any extensions of time for excusable delays as herein provided, the Contractor shall pay to the Local Public Agency as fixed, agreed, and liquidated damages (it being impossible to determine the actual damages occasioned by the delay) for each calendar day of delay, until the work is completed, the amount as set forth in Section 303 - Liquidated Damages and the Contractor and his sureties shall be liable to the Local Public Agency for the amount thereof.

c. Excusable Delays. The right of the Contractor to proceed shall not be terminated nor shall the Contractor be charged with liquidated damages for any delays in the completion of the work due:

(1) To any acts of the Government, including controls or restrictions upon or requisitioning of materials, equipment, tools, or labor by reason of war, National Defense, or any other national emergency;

(2) To any acts of the Local Public Agency;

(3) To causes not reasonably foreseeable by the parties to the Contract at the time of the execution of the Contract which are beyond the control and without the fault or negligence of the Contractor, including, but not restricted to, acts of God or the public enemy, acts of another Contractor in the performance of some other contract with the Local Public Agency, fires, floods, epidemics, quarantine, restrictions, strikes, freight embargoes, and weather of unusual severity such as hurricanes, tornadoes, cyclones and other extreme weather conditions; and

(4) To any delay of any subcontractor occasioned by any of the causes specified in subparagraphs (1), (2) and (3) of this paragraph "c".

Provided, however, that the Contractor promptly notify the Local Public Agency within ten (10) days in writing of the cause of the delay. Upon receipt of such notification the Local Public Agency shall ascertain the facts and the cause and extent of delay. If, upon the basis of the facts and the terms of this contract, the delay is properly excusable, the Local Public Agency shall extend the time for completing the work for a period of time commensurate with the period of excusable delay.

112. ASSIGNMENT OR NOVATION

The Contractor shall not assign or transfer, whether by an assignment or novation, any of its rights, duties, benefits, obligations, liabilities, or responsibilities under this Contract without the written consent of the Local Public Agency; provided, however, that assignments to banks, trust companies, or other financial institutions may be made without the consent of the Local Public Agency. No assignment or novation

of this Contract shall be valid unless the assignment or novation expressly provides that the assignment of any of the Contractor's rights or benefits under the Contract is subject to a prior lien for labor performed, services rendered, and materials, tools, and equipment supplied for the performance of the work under this Contract in favor of all persons, firms, or corporations rendering such labor or services or supplying such materials, tools, or equipment.

113. DISPUTES

a. All disputes arising under this Contract or its interpretation except those disputes covered by FEDERAL LABOR STANDARDS PROVISIONS General Conditions Part II, whether involving law or fact or both, or extra work, and all claims for alleged breach of contract shall within ten (10) days of commencement of the dispute be presented by the Contractor to the Local Public Agency for decision. All papers pertaining to claims shall be filed in quadruplicate. Such notice need not detail the amount of the claim but shall state the facts surrounding in the claim in sufficient detail to identify the claim, together with its character and scope. In the meantime the Contractor shall proceed with the work as directed. Any claim not presented within the time limit specified this paragraph shall be deemed to have been waived, except that if the claim is of a continuing character and notice of the claim is not given within ten days of its commencement, the claim will be considered only for a period commencing ten (10) days prior to the receipt by the Local Public Agency of notice thereof.

b. The Contractor shall submit in detail his claim and his proof thereof. Each decision by the governing body of the Local Public Agency will be in writing and will be mailed to the Contractor by registered mail, return receipt requested.

c. If the Contractor does not agree with any decision of the Local Public Agency, he shall in no case allow the dispute to delay the work but shall notify the Local Public Agency promptly that he is proceeding with the work under protest and he may then except the matter in question from the final release.

114. TECHNICAL SPECIFICATIONS AND DRAWINGS

Anything mentioned in the Technical Specifications and not shown on the Drawings or shown on the Drawings and not mentioned in the Technical Specifications, shall be of like effect as if shown on or mentioned in both. In case of difference between Drawings and Technical Specification, the Technical Specifications shall govern. In case of any discrepancy in Drawings, or Technical Specifications, the matter shall be immediately submitted to the Local Public Agency, without whose decision, said discrepancy shall not be adjusted by the Contractor, save only at his own risk and expense.

115. SHOP DRAWINGS

a. All required show drawings, machinery details, layout drawings, etc., shall be submitted to the Engineer in two copies for approval

sufficiently in advance of requirements to afford ample time for checking, including time for correcting, resubmitting and re-checking if necessary. The Contractor may proceed, only at his own risk, with manufacture or installation of any equipment or work covered by said show drawings, et. until they are approved and no claim, by the Contractor, for extension of the contract time will be granted by reason of his failurre in this respect.

b. Any drawings submitted without the Contractor's stamp of approval will not be considered and will be returned to him for proper resubmission. If any drawings show variations from the requirements of the Contract because of standard shop practice or other reason, the Contractor shall make specific mention of such variation in his letter of transmittal in order that, if acceptable, suitable action may be taken for proper adjustment of contract price and/or time otherwise the Contractor will not be relieved of the responsibility for executing the work in accordance with the Contract even though the drawings have been approved.

c. If a shop drawing is in accord with the contract or involves only a minor adjustment in the interest of the Local Public Agency not involving a change in contract price or time, the Engineer may approve the drawing. The approval shall be general, shall not relieve the Contractor, from his responsibility for adherence to the contract or for any error in the drawing and shall contain in substance the following:

"The modification shown on the attached drawing is approved in the interest of the Local Public Agency to effect an improvement for the Project and is ordered with the understanding that it does not involve any change in the Contract Price or time; that it is subject generally to all Contract stipulation and covenants; and that it is without prejudice to any and all rights of the Local Public Agency under the Contract and surety bond or bonds."

116. REQUESTS FOR SUPPLEMENTARY INFORMATION

It shall be the responsibility of the contractor to make timely requests of the Local Public Agency for any additional information not already in his possession which should be furnised by the Local Public Agency under the terms of this Contract, and which he will require in the planning and execution of the work. Such requests may be submitted from time to time as the need is approached, but each shall be filed in ample time to permit appropriate action to be taken by all parties involved so as to avoid delay. Each request shall be in writing, and list the various items and the latest date by which each will be required by the Contractor. The first list shall be submitted within two weeks after Contract award and shall be as complete as possible at that time. The Contractor shall, if requested, furnish promptly any assistance and information the Engineer may require in responding to these requests of the Contractor. The Contractor shall be fully responsible for any delay in his work or to others arising from his failure to comply fully with the provisions of this Section.

117. MATERIALS AND WORKMANSHIP

a. Unless otherwise specifically provided for in the Technical

Specifications, all workmanship, equipment, materials and articles incorporated in the work shall be new and the best grade of the respective kinds for the purpose. Where equipment, materials, articles or workmanship are referred to in the Technical Specifications as "equal to" any particular standard, the Engineer shall decide the question of equality.

b. The Contractor shall furnish to the Local Public Agency for approval the manufacturer's detailed specifications for all machinery, mechanical and other special equipment, which he contemplates installing together with full information as to type, performance characteristics, and all other pertinent information as required, and shall likewise submit for approval as required full information concerning all other materials or articles which he proposes to incorporate in the work. (See Section - SAMPLES, CERTIFICATES AND TESTS under GENERAL CONDITIONS, PART I.)

c. Machinery, mechanical and other equipment, materials or articles installed or used without such prior approval shall be at the risk of subsequent rejection.

d. Materials specified by reference to the number or symbol of specific standard, such as an A.S.T.M. Standard, a Federal Specification or other similar standard, shall comply with requirements in the latest revision thereof and any amendment or supplement thereto in effect on the date of the Invitation for Bids, except as limited to type, class or grade, or modified in such reference. The standards referred to, except as modified in the Technical Specifications shall have full force and effect as though printed therein.

e. The Local Public Agency may require the Contractor to dismiss from the work such employee or employees as the Local Public Agency or the Engineer may deem incompetent, or careless, or insubordinate.

118. SAMPLES, CERTIFICATES AND TESTS

a. The Contractor shall submit all material or equipment samples, certificates, affidavits, etc., as called for in the contract documents or required by the Engineer, promptly after award of the contract and acceptance of the Contractor's bond. No such material or equipment shall be manufactured or delivered to the site, except at the Contractor's own risk, until the required samples or certificates have been approved in writing by the Engineer. Any delay in the work caused by late or improper submission of samples or certificates for approval shall not be considered just cause for an extension of the contract time.

Each sample submitted by the Contractor shall carry a label giving the name of the Contractor, the project for which it is intended, and the name of the producer. The accompanying certificate or letter from the Contractor shall state that the sample complies with contract requirements, the name and brand of the product, its place of origin, the name and address of the producer and all specifications or other detailed information which will assist the Engineer in passing upon the acceptability of the sample promptly. It shall also include the statement that all materials or equipment furnished for use in the project will comply with the samples and/or certified statements.

b. Approval of any materials shall be general only and shall not constitute a waiver of the Local Public Agency's right to demand full compliance with Contract requirements. After actual deliveries, the Engineer will have such check tests made as he deems necessary in each instance and may reject materials and equipment and accessories for cause, even though such materials and articles have been given general approval. If materials, equipment or accessories which fail to meet check tests have been incorporated in the work, the Engineer will have the right to cause their removal and replacement by proper materials or to demand and secure such reparation by the Contractor as is equitable.

c. Except as otherwise specifically stated in the Contract, the costs of sampling and testing will be divided as follows:

(1) The Contractor shall furnish without extra cost, including packing and delivery charges, all samples required for testing purposes, except those samples taken on the project by the Engineer;

(2) The Contractor shall assume all costs of re-testing materials which fail to meet contract requirements;

(3) The Contractor shall assume all costs of testing materials offered in substitution for those found dificient; and

(4) The Local Public Agency will pay all other expenses.

119. PERMITS AND CODES

a. The Contractor shall give all notices required by and comply with all applicable laws, ordinances, and codes of the Local Government. All construction work and/or utility installations shall comply with all applicable ordinances, and codes including all written waivers. Before installing any work, the Contractor shall examine the Drawings and Technical Specifications for compliance with applicable ordinances and codes and shall immediately report any discrepancy to the Local Public Agency. Where the requirements of the Drawings and Technical Specifications fail to comply with such applicable ordinances or codes, the Local Public Agency will adjust the Contract by Change Order to conform to such ordinances or codes (unless waivers in writing covering the difference have been granted by the governing body or department) and make appropriate adjustment in the Contract Price or stipulated unit prices.

Should the Contractor fail to observe the foregoing provisions and proceed with the construction and/or install any utility at variance with any applicable ordinance or code, including any written waivers (notwithstanding the fact that such installation is in compliance with the Drawings and Technical Specifications), the Contractor shall remove such work without cost to the Local Public Agency, but a Change Order will be issued to cover only the excess cost the Contractor would have been entitled to receive if the change had been made before the Contractor commenced work on the items involved.

b. The Contractor shall at his own expense, secure and pay to the appropriate department of the Local Government the fees or charges for all permits for street pavement, sidewalks, sheds, removal of abandoned water taps, sealing of house connection drains, pavements cuts, buildings, electrical, plumbing, water, gas and sewer permits required by the local regulatory body or any of its agencies.

c. The Contractor shall comply with applicable local laws and ordinances governing the disposal of surplus excavation, materials debris and rubbish on or off the Project Area and commit no trespass on any public or private property in any operation due to or connected with the Improvements embraced in this Contract.

120. CARE OF WORK

a. The Contractor shall be responsible for all damages to person or property that occur as a result of his default or negligence in connection with the prosecution of the work and shall be responsible for the proper care and protection of all materials delivered and work performed until completion and final acceptance, whether or not the same has been covered in whole or in part by payments made by the Local Public Agency.

b. The Contractor shall provide sufficient competent watchmen, both day and night, including Saturdays, Sundays and holidays, from the time the work is commenced until final completion and acceptance.

c. In an emergency affecting the safety of life or property, including adjoining property, the Contractor, without special instructions or authorization from the Local Public Agency, is authorized to act at his discretion to prevent such threatened loss or injury, and he shall so act. He shall likewise act if instructed to do so by the Local Public Agency. Any compensation claimed by the Contractor on account of such emergency work will be determined by the Local Public Agency as provided in the Section - CHANGES IN THE WORK under GENERAL CONDITIONS, PART I.

d. The Contractor shall avoid damage as a result of his operations to existing sidewalks, streets, curbs, pavements, utilities (except those which are to be replaced or removed), adjoining property, etc., and he shall at his own expense completely repair any damage thereto caused by his operations.

e. The Contractor shall shore up, brace, underpin, secure, and protect as may be necessary, all foundations and other parts of existing structures adjacent to, adjoining, and in the vicinity of the site, which may be in any way affected by the excavations or other operations connected with the construction of the Improvements embraced in this Contract. The Contractor shall be responsible for the giving of any and all required notices to any adjoining or adjacent property owner or other party before the commencement of any work. The Contractor shall indemnify and save harmless the Local Public Agency from any damages on account of settlements or the loss of lateral support of adjoining property and from all loss or expense and all damages for which the Local Public Agency may become liable in consequence of such injury or damage to adjoining and adjacent structures and their premises.

121. ACCIDENT PREVENTION

a. The Contractor shall exercise proper precaution at all times for the protection of persons and property and shall be responsible for all damages to persons or property, either on or off the site, which occur as a result of his prosecution of the work. The safety provisions of applicable laws and building and construction codes shall be observed and the Contractor shall take or cause to be taken such additional safety and health measures as the Local Public Agency may determine to be reasonably necessary. Machinery, equipment and all hazards shall be guarded in accordance with the safety provisions of the "Manual of Accident Prevention in Construction" published by the Associated General Contractors of America, Inc., to the extent that such provisions are not in conflict with applicable local laws.

b. The Contractor shall maintain an accurate record of all cases of death, occupational disease, and injury requiring medical attention or causing loss of time from work, arising out of and in the course of employment on work under the Contract. The Contractor shall promptly furnish the Local Public Agency with reports concerning these matters.

c. The Contractor shall indemnify and save harmless the Local Public Agency from any claims for damages resulting from personal injury and/or death suffered or alleged to have been suffered by any person as a result of any work conducted under this contract.

122. SANITARY FACILITIES

The Contractor shall furnish, install, and maintain ample sanitary facilities for the workmen. As the needs arise, a sufficient number of enclosed temporary toilets shall be conveniently placed as required by the sanitary codes of the State and Local Government. Drinking water shall be provided from an approved source, so piped or transported as to keep it safe and fresh and served from single service containers or satisfactory types of sanitary drinking stands or fountains. All such facilities and services shall be furnished in strict accordance with existing and governing health regulations.

123. USE OF PREMISES

a. The Contractor shall confine his equipment, storage of materials, and construction operations to the Contract Limits as shown on the Drawings and as prescribed by ordinances or permits, or as may be desired by the Local Public Agency, and shall not unreasonably encumber the site or public rights of way with his materials and construction equipment.

b. The Contractor shall comply with all reasonable instructions of the Local Public Agency and the ordinances and codes of the Local Government, regarding signs, advertising, traffic, fires, explosives, danger signals, and barricades.

124. REMOVAL OF DEBRIS, CLEANING, ETC.

The Contractor shall, periodically or as directed during the progress

of the work, remove and legally dispose of all surplus excavated material and debris, and keep the Project Area and public rights of way reasonably clear. Upon completion of the work, he shall remove all temporary construction facilities, debris and unused materials provided for the work, and put the whole site of the work and public rights of way in a neat and clean condition. Trash burning on the site of the work will be subject to prior approval of the Local Public Agency and existing State and Local regulations.

125. INSPECTION

a. All materials and workmanship shall be subject to inspection, examination, or test by the Local Public Agency and the Engineer at any and all times during manufacture or construction and at any and all places where such manufacture or construction is carried on. The Local Public Agency shall have the right to reject defective material and workmanship or require its coorection. Unacceptable workmanship shall be satisfactorily corrected. Rejected material shall be promptly segregated and removed from the Project Area and replaced with material of specified quality without charge therefor. If the Contractor fails to proceed at once with the correction of rejected workmanship or defective material, the Local Public Agency may be contract or otherwise have the defects remedied or rejected materials removed from the Project Area and charge the cost of the same against any moneys which may be due the Contractor, without prejudice to any other rights or remedies of the Local Public Agency.

b. The Contractor shall furnish promptly all materials reasonably necessary for any tests which may be required. (See Section - SAMPLES, CERTIFICATES AND TESTS, under the GENERAL CONDITIONS, PART I.) All tests by the Local Public Agency will be performed in such manner as not to delay the work unnecessarily and shall be made in the Technical Specifications.

c. The Contractor shall notify the Local Public Agency sufficiently in advance of backfilling or concealing any facilities to permit proper inspection. If any facilities are concealed without approval or consent of the Local Public Agency, the Contractor shall uncover for inspection and recover such facilities all at his own expense, when so requested by the Local Public Agency.

Should it be considered necessary or advisable by the Local Public Agency at any time before final acceptance of the entire work to make an examination of work already completed, by uncovering the same, the Contractor shall on request promptly furnish all necessary facilities, labor, and material. If such work is found to be defective in any important or essential respect, due to fault of the Contractor or his subcontractors the Contractor shall defray all the expenses of such examination and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the Contract, the actual cost of labor and material necessarily involved in the examination and replacement, plus 15 percent of such costs to cover superintendence, general expenses and profit, shall be allowed the Contractor and he shall, in addition if completion of the

work of the entire Contract has been delayed thereby, be granted a suitable extension of time on account of the additional work involved.

d. Inspection of materials and appurtenances to be incorporated in the Improvements embraced in this Contract may be made at the place of production, manufacture or shipment, whenever the quantity justifies it, and such inspection and acceptance, unless otherwise stated in the Technical Specifications, shall be final except as regards (1) latent defects, (2) departures from specific requirements of the Contract, (3) damage or loss in transit, or (4) fraud or such gross mistakes as amount to fraud. Subject to the requirements contained in the preceding sentence, the inspection of materials as a whole or in part will be made at the Project Site.

e. Neither inspection, testing, approval nor acceptance of the work in whole or in part, by the Local Public Agency or its agents shall relieve the Contractor or his sureties of full responsibility for material furnished or work performed not in strict accordance with the Contract.

f. Any work performed within the right-of-way of any Pennsylvania Department of Transportation highway, roadway or travelway shall be subject to inspection by a representative of the Pennsylvania Department of Transportation. It shall be the responsibility of the Local Government to reimburse the Pennsylvania Department of Transportation for any and all such inspection services.

126. REVIEW BY LOCAL PUBLIC AGENCY

The Local Public Agency, its authorized representatives and agents and the DCA Representative for the Administrator (as defined under General Conditions Part II) shall, at all times have access to and be permitted to observe and review all work, materials, equipment, payrolls. personnel records, employment conditions, material invoices, and other relevant data and records pertaining to this Contract, provided, however, that all instructions and approval with respect to the work will be given to the Contractor only by the Local Public Agency through its authorized representatives or agents.

127. FINAL INSPECTION

When the Improvements embraced in this Contract are substantially completed, the Contracotr shall notify the Local Public Agency in writing that the work will be ready for final inspection on a definite date which shall be stated in the notice. The notice will be given at least ten (10) days prior to the date stated for final inspection, and bear the signed concurrence of the representative of the Local Public Agency having charge of inspection. If the Local Public Agency determines that the status of the Improvements is as represented, it will make the arrangements necessary to have final inspection commenced on the date stated in the notice, or as soon thereafter as is practicable. The inspection party may also include the DCA Representative and representatives of each department of the Local Government having in charge improvements of like character when such Improvements are later to be accepted by the Local Government.

128. DEDUCTION FOR UNCORRECTED WORK

If the Local Public Agency deems it not expedient to require the Contractor to correct work not done in accordance with the Contract Documents, an equitable deduction from the Contract Price will be made by agreement between the Contractor and the Local Public Agency and subject to settlement, in case of dispute, as herein provided.

129. INSURANCE

a. The Contractor shall carry or require that there be carried Workmen's Compensation Insurance for all his employees and those of his subcontractors engated in work at the site, in accordance with State or Territorial Workmen's Compensation Laws.

b. The Contractor shall carry or require that there be carried Manufacturer's and Contractor's Public Liability Insurance with limits of not less that $50,000 bodily injury each person - $50,000 each occurance to protect the Contractor and his subcontractors against claims for injury to or death of one, or more than one, person, because of accidents which may occur or result from operations under the Contract; such insurance shall cover the use of all equipment, including but not limited to excavating machinery, trenching machines, cranes, hoists, rollers, concrete mixers, and motor vehicles, in the construction of the Improvements embraced in this contract.

c. The Contractor shall carry, during the life of the Contract, Property Damage Insurance in an amount not less than $20,000 to protect him and his subcontractors from claims for property damage which might arise from operations under the contract.

d. Before commencing work, the Contractor shall submit evidence of the coverage required above to the Local Public Agency for review and approval. The Local Public Agency will, in writing, identify the policies and indicate its approval or disapproval. New policies from other companies shall be provided in place of those disapproved. Such insurance shall be carried with financially responsible insurance companies, licensed in the State and approved by the Local Public Agency, and shall be kept in force until the Contractor's work is accepted by the Local Public Agency. Contracts of insurance (covering all operations under this Contract) which expire before the Contractor's work is accepted by the Local Public Agency shall be renewed and evidence submitted to the Local Public Agency for its approval.

130. PATENTS

The Contractor shall hold and save the Local Public Agency, its officers, and employees, harmless from liability of any nature or kind, including costs and expenses for or on account of, any patented or unpatented invention, process, article, or applicance manufactured or used in the performance of the Contract, including its use by the Local Public Agency, unless otherwise specifically stipulated in the Technical Specifications.

131. WARRANTY OF TITLE

No material, supplies, or equipment for the work shall be purchased subject to any chattel mortgage or under a conditional sale or other agreement by which an interest therein or in any part thereof is retained by the seller or supplier. The Contractor shall warrant good title to all materials, supplies, and equipment installed or incorporated in the work and upon completion of all work, shall deliver the same together with all improvements and appurtenances constructed or placed thereon by him to the Local Public Agency free from any claims, liens, or charges. Neither the Contractor nor any person, firm or corporation furnishing any material or labor for any work covered by this Contract shall have any right to a lien upon any improvement or appurtenance thereon. Nothing contained in this paragraph, however, shall defeat or impair the right of persons furnishing materials or labor to recover under any bond given by the Contractor for their protection or any rights under any law permitting such persons to look to funds due the Contractor in the hands of the Local Public Agency. The provisions of this paragraph shall be inserted in all subcontracts and material contracts and notice of its provisions shall be given to all persons furnishing materials for the work when no formal contract is entered into for such materials.

132. GENERAL GUARANTY

Neither the final certificate of payment nor any provision in the Contract nor partial or entire use of the Improvements embraced in this Contract by the Local Public Agency or the public shall constitute an acceptance of work not done in accordance with the Contract or relieve the Contractor of liability in respect to any express warranties or responsibility for faulty materials or workmanship. The Contractor shall promptly remedy any defects in the work and pay for any damage to other work, resulting therefrom which shall appear within a period of 12 months[1] from the date of final acceptance of the work. The Local Public Agency will give notice of defective materials and work with reasonable promptness.

133. EXPLOSIVES AND BLASTING

Blasting shall not be allowed.

134. PRECONSTRUCTION CONFERENCE

A preconstruction conference is to be held by the Local Public Agency with the contractor and his subcontractors. The purpose of the conference is to assure that the contractor and his subcontractors understand and accept their contract obligations under Executive Order 11246 and understand the Local Public Agency's role in the enforcement of those contract obligations.

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1. Supply in this section, the number of calendar months over which the guaranty will extend. This period of time should be determined in line with the character of the improvements and local practice in this respect.

The Contractor shall be represented by officials who will be directly responsible for the selection of the work force and for supervision over construction workers.

Executive Order 11246 requires that the Contractor provides equal employment opportunity in all aspects of his employment.

135. INTEREST OF MEMBERS OF THE COMMONWEALTH AND OTHERS

a. No officer, member, or employee of the Commonwealth and no member of its governing body who exercises any functions or responsibilities in the review or approval of services being performed under this Contract shall participate in any decision relating to this Contract, which affects his personal interest or the interest of any corporation, partnership, or association in which he is directly or indirectly interested; nor shall any such officer, member, or employee of the Commonwealth and no member of its governing body have any interest, direct or indirect, in this Contract or the proceeds thereof.

b. No member of the governing body of the Local Public Agency who exercises any functions or responsibilities in connection with the carrying out of the Project to which this Contract pertains, and no other officer or employee of the Local Public Agency who exercises any such functions or responsibilities, shall have any private interest, direct or indirect, in this Contract which is incompatible or in conflict with the discharge or fulfillment of his functions and responsibilities in connection with the carrying out of the Project to which this Contract pertains.

136. PROHIBITION AGAINST PAYMENTS OF BONUS OR COMMISSION

The assistance provided under this Agreement shall not be used in the payment of any bonus or commission for the purpose of obtaining DCA approval of the application for additional assistance, or any other approval or concurrence of DCA required under this Agreement, Title I of the Housing and Community Development Act of 1974 or DCA regulations with respect thereto: Provided, however, that reasonable fees or bona fide technical consultant managerial or other such services, other than actual solicitation, are not hereby prohibited if otherwise eligible as program costs.

137. CERTIFICATION OF ELIGIBILITY

By entering into this contract, the Contractor certifies that neither it (nor he or she) nor any person of firm who has an interest in the Contractor's firm is a person or firm ineligible to be awarded Government Contracts.

GENERAL CONDITIONS

PART II

FEDERAL REQUIREMENTS

All bidders must comply with the following Federal requirements:

1. Title VI of the Civil Rights Act of 1964 (P.L. 88-352) as stated in 24 CFR 570.496.

   "No person in the United States shall on the grounds of race, color, national origin, or sex be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity funded in whole or in part with funds made available under this Title."

2. Executive Order 11063, as amended.

   "No person in the United States shall on the basis of race, color, religion, sex, or national origin, be discriminated against in housing (and related facilities) provided with Federal assistance and in lending practices with respect to residential property when such practices are connected with loans insured or guaranteed by the Federal Government."

3. Executive Order 11246.

   A. If the contract amount is less than $10,000 the following conditions shall apply:

      During the performance of this contract, the Contractor agrees as follows:

      (1) The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, or national origin. Such actions shall include, but not be limited to, the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Local Public Agency setting forth the provisions of this nondiscrimination clause.

      (2) The Contractor will, in all solicitation or advertisements for

employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.

(3) The Contractor will cause the foregoing provisions to be inserted in all subcontracts for any work covered by this contract so that such provisions will be binding upon each subcontractor, provided that the foregoing provisions shall not apply to contracts or subcontracts for standard commercial supplies or raw materials.

B. If the contract amount exceeds $10,000 the following conditions shall apply:

(1) The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

(2) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.

(3) The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or worker's representatives of the Contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(4) The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965; and the rules, regulations and relevant orders of the Secretary of Labor.

(5) The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and rules, regulations and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and

accounts by the Contracting Agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations and orders.

(6) In the event of the Contractor's noncompliance with the non-discrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulations, or order of the Secretary of Labor, or as otherwise provided by law.

(7) The Contractor will include the portion of the sentence immediately preceding paragraph (b-1) and the provisions of paragraphs (b-1) through (b-7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the Contracting Agency may direct as a means of enforcing such provisions, including sanctions for noncompliance: Provided, however, that in the event a Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the Contracting Agency, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (EXECUTIVE ORDER 11246)

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

Goals and Timetables for Minority Participation for Each Trade	Goals and Timetables for Female Participation in Each Trade
3%	6.9%

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or Federally assisted) performed in the covered area.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals established for the geographical area where the contract resulting from this solicitation is to be performed. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address, and telephone number of the subcontractor; employer identification number; estimated dollar amount of the subcontractor; estimated starting and completion dates of the subcontract; and the geographical area in which the contract is to be performed.

4. As used in this Notice, and in the contract resulting from this solicitation, the "covered area" is (insert description of the geographical areas where the contract is to be performed giving the state, county and city, if any).

STANDARD FEDERAL EQUAL EMPLOYMENT

OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS

(EXECUTIVE ORDER 11246)

1. As used in these specifications:

   a. "Covered area" means the geographical area described in the solicitation from which this contract resulted;

   b. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;

   c. "Employer Identification Number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.

   d. "Minority" includes:

      (i) Black (all persons having origins in any of the Black African

racial groups not of Hispanic origin);

(ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);

(iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, and the Indian Subcontinent, or the Pacific Islands); and

(iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North American and maintaining identifiable affiliations through membership and participation or community identification).

2. Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of $10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO Clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization, the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. The Contractor is expected to make substantially uniform progress toward its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

6. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

   a. Ensure and maintain a working environment free of harrassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

   b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

   c. Maintain a current file of names, addresses and telephone numbers of each minority and female offstreet applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or referred, not employed by the Contractor, this shall be documented in the file with the reason thereafter, along with whatever additional actions the Contractor may have taken.

   d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligation.

   e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs,

especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under 7b above.

f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layofff, termination or other employment decisions including specific review of these items with onsite supervisory personnel such as Superintendents, General Foreman, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and in disposition of the subject matter.

h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.

i. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment sources, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women, and where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's workforce.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through

appropriate training, etc. such opportunities.

m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitation of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the Contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through p of these Specifications provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and nonminority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

11. The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including, suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246 as amended, and its implementing regulations by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4-8.

14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation, if any, employee identification number when assigned, social security number, race, sex, status (e.g. mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application or requirements for the hiring of local or other area residents (e.g. those under the Public Works Employment Act of 1977 and the Small Communities Program).

4. Contract Work Hours and Safety Standards Act (40 U.S.C. 327 et.seq.)

The Contractor, if the contract is in excess of $2,000, and any of his subcontractors, shall comply with Section 103 and 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 327-330) as supplemented by Department of Labor Regulations contained in 29 CFR Part 5.

Under Section 103 of the Act, the Contractor and any of his subcontractors, shall be required to compute the wages of every mechanic and laborer on the basis of standard work day of eight hours and a standard work week of forty hours. Work in excess of the standard work week is permissible, provided the worker is compensated at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in any week. Section 5 of the Federal Labor Standards Provisions, as shown below, sets forth in detail the Section 103 requirements.

Section 107 of the Act provides that no laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous or dangerous to his health and safety, as determined under construction, safe and health standards promulgated by the Secretary of Labor. These requirements do not apply to the purchase of supplies or materials or articles ordinarily available on the open market.

5. Federal Labor Standards Provisions.

Pennsylvania Department of Community Affairs Small Communities Program.

1. Applicability

The Project or Program to which the work covered by this Contract pertains is being assisted by the Pennsylvania Small Communities Program and the following Federal Labor Standards Provisions are included in this Contract pursuant to the provisions applicable to such Federal assistance.

2. Minimum Wage Rates for Laborers and Mechanics

A. Minimum Wages.

(1) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics. Contributions made or costs

reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR 5.5(a)(1)(iv); also, regular contributions made or costs incurred for more than a weekly period (but not less than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period.

Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR Part 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under 29 CFR Part 5.5(a)(1)(ii)) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the Contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

(2) (a) Any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. DCA shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(b) If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and DCA or its designee agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate)

a report of the action taken shall be sent by DCA or its designee to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise DCA or its designee within the 30-day period that additional time is necessary.

(c) In the event the Contractor, the laborers or mechanics to be employed in the classification or their representatives, and DCA or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), DCA or its designee shall refer the questions, including the views of all interested parties and the recommendations of DCA or its designee, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise DCA or its designee within the 30-day period that additional time is necessary.

(d) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(b) or (c) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(3) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the Contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(4) If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, provided that the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

B. Withholding.

DCA or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the Contractor under this contract or any other Federal contract with the same prime Contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime Contractor so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees and helpers, employed by the Contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee or helper, employed or working on the site of the work, all or part of the wages required by the contract, DCA or its designee may, after written notice to the Contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased. DCA or its designee may, after written notice to the Contractor, disburse such amounts withheld for and on account of the contractor or subcontractor to the respective employees to whom they are due.

C. Payrolls and Basic Records

(1) Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the work preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5 (a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section 1(b)(2)(B) of the Davis-Bacon Act, the Contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(2) (a) The Contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to DCA or its designee if the agency is a party to the contract, but if the agency is not such a party, the Contractor will submit the payrolls to the applicant, sponsor, or owner, as the case may be, for transmission to DCA or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR Part 5.5(a)(3)(i). This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal Stock Number 029-005-00014-1), U.S. Government Printing Office, Washington, D.C. 20402. The prime Contractor is responsible for the submission of copies of payrolls by all subcontractors.

(b) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be maintained under 29 CFR Part 5.5(a)(3)(i) and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissable deductions as set forth in 29 CFR Part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(c) The weekly submission of properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph A.3(ii)(b) of this section.

(d) The falsification of any of the above certification may subject the Contractor or subcontractor to civil or or criminal prosecution under Section 1001 of Title

18 and Section 231 of Title 31 of the United States Code.

(3) The Contractor or subcontractor shall make the records required under paragraph A.3(i) of this section available for inspection, copying, or transcription by authorized representatives of DCA or its designee or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the Contractor or subcontractor fails to submit the required records or to make them available, DCA or its designee may, after written notice to the Contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR Part 5.12.

D. Apprentices and Trainees.

(1) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the Contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a Contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in

the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(2) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(3) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

E. Compliance with Copeland Act requirements. The Contractor shall comply with the requirements of 29 CFR Part 3 which are incorporated by reference in the contract.

F. Subcontracts. The Contractor or subcontractor will insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as DCA or its designee may by appropriate instruction require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all contract clauses in 29 CFR Part 5.5.

G. Contract termination; debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a Contractor and a subcontractor as provided in 29 CFR 5.12.

H. Compliance with Davis-Bacon and Related Act Requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract.

I. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the Contractor (or any of its subcontractors) and DCA or its designee, the U.S. Department of Labor, or the employees or their representatives.

J. Certification of Eligibility.

(1) By entering into this contract, the Contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the Contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(2) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(3) The penalty for making false statements is prescribed

in the U.S. Criminal Code, 18 U.S.C. 1001. Additionally, U.S. Criminal Code, Section 1010, Title 18, U.S.C., "Federal Housing Administration transaction", provides in part: "Whoever, for the purpose of . . . influencing in any way the action of such Administration . . . makes, utters or publishes any statement, knowing the same to be false . . . shall be fined not more than $5,000 or imprisoned not more than two years, or both."

K. Complaints, Proceedings, or Testimony by Employees. No laborer or mechanic to whom the wage, salary, or other labor standards provisions of this Contract are applicable shall be discharged or in any other manner discriminated against by the Contractor or any subcontractor because such employee has filed any complaint or instituted or caused to be instituted any proceeding or has testified or is about to testify in any proceeding under or relating to the labor standards applicable under this Contract to his employer.

3. Contract Work Hours and Safety Standards Act. As used in this paragraph, the terms "laborers" and "mechanics" include watchmen and guards.

A. Overtime requirements. No Contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any work week in which he or she is employed on such work to work in excess of forty hours in such work week unless such laborer or mechanic received compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such work week.

B. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in subparagraph (A) of this paragraph, the Contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such Contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in subparagraph (A) of this paragraph, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard work week of forty hours without payment of the overtime wages required by the clause set forth in subparagraph (A) of this paragraph.

C. Withholding for unpaid wages and liquidated damages. DCA or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the Contractor or subcontractor under any such contract or any other Federal contract with the same prime contract, or any other Federally assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor such sums as may be determined to be necessary to satisfy any liabilities of such Contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in subparagraph (B) of this paragraph.

D. Subcontracts. The Contractor or subcontractor shall insert in any subcontracts the clauses set forth in subparagraph (A) through (D) of this paragraph and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in subparagraphs (A) through (D) of this paragraph.

4. Health and Safety

A. No laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his health and safety as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation.

B. The Contractor shall comply with all regulations issued by the Secretary of Labor pursuant to Title 29 Part 1926 (formerly part 1518) and failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act (Public Law 91-54, 83 Stat. 96).

C. The Contractor shall include the provisions of this Article in every subcontract so that such provisions will be binding on each subcontractor. The Contractor shall take such action with respect to any subcontract as the Secretary of the Department of Community Affairs or the Secretary of Labor shall direct as a means of enforcing such provisions.

6. Section 3 of the Housing and Urban Development Act of 1968 (12 U.S.C. 1701 u).

1. This Agreement is subject to the requirements of Section 3 of the Housing and Urban Development Act of 1968 (12 U.S.C. 1701 u) as amended, the regulations issued at 24 CFR Part 135, and any applicable rules and orders of DCA issued thereunder prior to the execution of this Agreement. The Section 3 clause, set forth in 24 CFR Part 135.20(b) provides:

"Every applicant, recipient, contracting party, contractor, and subcontractor shall incorporate, or cause to be incorporated in all contracts for work in connection with a Section 3 covered project, the following clause (referred to as a Section 3 clause):

A. The work to be performed under this contract is on a project assisted under the State's Small Communities program which provides Federal financial assistance from the Department of Housing and Urban Development and is subject to the requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701 u. Section 3 requires that to the greatest extent feasible opportunities from training and employment be given lower income residents of the project area and contracts for work in connection with the project to be awarded to business concerns which are located in, or owned in substantial part by persons residing in the area of the project.

B. The parties to the contract will comply with the provisions of said Section 3. The parties to the contract certify and agree that they are under no contractual or other disability which would prevent them from complying with these requirements.

C. The Contractor will send to each labor organization or representative of workers with which he has a collective bargaining agreement or other contract or understanding, if any, a notice advising the said labor organization or workers' representative of his commitments under this Section 3 clause and shall post copies of the notice in conspicuous places available to employees and applicants for employment training.

D. The Contractor will include this Section 3 clause in every subcontract for work in connection with the project and will, at the direction of the applicant for or recipient of Federal financial assistance, take appropriate action pursuant to the subcontract upon a finding that the subcontractor is in violation of these regulations. The Contractor will not subcontract with any subcontractor where it has notice or knowledge that the latter has been found in violation of these regulations under 24 CFR Part 135 and will not let any subcontract unless the subcontractor has first provided it with a preliminary statement of ability to comply with the requirements of these regulations.

E. Compliance with the provisions of Section 3 and the regulations set forth in 24 CFR Part 135, shall be a condition of the Federal financial assistance provided to the project, binding upon the applicant or recipient for such assistance, its successors and assigns. Failure to fulfill these requirements shall subject the applicant or recipient, its contractors and subcontractors, its successors and assigns to those sanctions specified by the grant or loan agreement or contract through which Federal assistance is provided, and to such sanctions as are specified by 24 CFR Part 135.

2. The Contractor agrees to abide by the Section 3 clause set for above and will also cause this Section clause to be inserted in any subcontracts entered into with third parties for work covered by this agreement.

3. Prior to the signing of the Contract, the Contractor shall prepare and submit to the Local Public Agency a preliminary statement of work force needs and identify targets for employment of trainees and regular work force, and for business utilization. Each subcontractor shall be required by the Contractor to prepare and submit to the same documents as are required of the Contractor. Forms of statement and target identification, and the Contractor's Certification of Compliance meeting the requirements of this Section are attached hereto and incorporated herein by reference.

7. Lead Based Paint Requirements.

Title IV of the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. 4831) prohibits the use of lead-based paint in residential structures constructed or rehabilitated with Federal assistance in any form.

8. Clean Air and Clean Water Acts.

This Agreement is subject to the requirements of the Clean Air Act, as amended, 42 U.S.C. 1857 et. seq., and the regulations of the Environmental Protection Agency with respect thereto, at 40 CFR Part 15, as amended from time to time.

The Contractor and any of its subcontractors for work funded under the Agreement which is excess of $100,000 agree to the following requirements:

(1) A stipulation by the Contractor or subcontractors that any facility to be utilized in the performance of any non-exempt contract or subcontract is not listed on the List of Violating Facilities issued by the Environmental Protection Agency (EPA) pursuant to 40 CFR 15.20.

(2) Agreement by the Contractor to comply with all the requirements of Section 114 of the Clean Air Act, as Amended (42 U.S.C. 1857c-8) and Section 308 of the Federal Water Pollution Control Act, as amended. (33 U.S.C. 1318) relating to the inspection, monitoring, entry, reports and information, as well as all other requirements specified in said Section 114 and Section 308, and all regulations, and guidelines issued thereunder.

(3) A stipulation that as a condition for the award of the contract prompt notice will be given of any notification received from the Director, Office of Federal Activities, EPA, indicating that a facility utilized or to be utilized for the contract is under consideration to be listed on the EPA List of Violating Facilities.

(4) Agreement by the Contractor that he will include or cause to be included the criteria and requirements in paragraph (1) through

(4) of this section in every nonexempt subcontract and requiring that the Contractor will take such action as the Government may direct as a means of enforcing such provision.

9. Energy Conservation Provisions.

Contractors must recognize mandatory standards and policies relating to energy efficiency contained in the Cost Effective Energy Conservation Measures.

10. Section 109 of the Housing and Community Development Act of 1974.

"No person in the United States shall on the grounds of race, color, national origin, or sex be excluded from participation in, be denied the benefits, or be subjected to discrimination under any program or activity funded in whole or in part with funds made available under this Title."

11. Executive Order 11625 - Minority Business Enterprise

A. It is the policy of the Local Public Agency to take positive steps to maximize the utilization of minority business enterprises in all contract activity administered by the Local Government.

B. The Contractor will utilize his best efforts to carry out this policy in the award of his subcontracts to the fullest extent consistent with the efficient performance of this contract.

As used in this contract, the term "minority business enterprise" means a business, at least 50 percent of which is owned by minority group members, or in the case of publicly owned businesses, at least 51 percent of the stock is owned by minority group members. For the purpose of this definition, minority groups are members of Blacks, Hispanics, Asians, Native Americans, Alaskans or Pacific Islanders.

12. Executive Order 12138 - Women's Business Enterprise

A. It is the policy of the Local Public Agency to take positive steps to maximize the utilization of women business enterprises in all contracts administered by the Local Government.

B. The Contractor will utilize his best efforts to carry out this policy in the award of his subcontracts to the fullest extent consistent with the efficient performance of this contract.

As used in this contract, the term "women business enterprise" means a business that is at least 51 percent owned by a woman or women who also control and operate it. "Control" in this context means exercising the power to make policy decisions. "Operate" in this context means being actively involved in the day-to-day management.

13. Age Discrimination Act of 1975

No person in the United States shall, on the basis of age, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under, any program or activity receiving Federal financial assistance.

14. Section 504 Handicapped (if $2,500 or over)

Affirmative Action for Handicapped Workers

A. The Contractor will not discriminate against any employee or applicant for employment because of physical or mental handicap in regard to any position for which the employee or applicant for employment is qualified. The Contractor agrees to take affirmative action to employ, advance in employment and otherwise treat qualified handicapped individuals without discrimination based upon their physical or mental handicap in all employment practices such as the following: Employment upgrading, demotion or transfer, recruitment, advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship.

B. The Contractor agrees to comply with the rules, regulations, and relevant orders of the Secretary of Labor issued pursuant to the Act.

C. In the event of the Contractor's noncompliance with the requirements of this clause, actions for noncompliance may be taken in accordance with the rules, regulations, and relevant orders of the Secretary of Labor issued pursuant to the Act.

D. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices in a form to be prescribed by the Director, provided by or through the contracting officer. Such notices shall state the Contractor's obligation under the law to take affirmative action to employ and advance in employment qualified handicapped employees and applicants for employment, and the rights of applicants and employees.

E. The Contractor will notify each labor union or representative or workers with which it has a collective bargaining agreement or other contract understanding, that the Contractor is bound by the terms of Section 503 of the Rehabilitation Act of 1973, and is committed to take affirmative action to employ and advance in employment physically and mentally handicapped individuals.

F. The Contractor will include the provisions of this clause in every subcontract or purchase order of $2,500 or more unless exempted by rules, regulations, or orders of the Secretary issued pursuant to Section 503 of the Act, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as

the Director of the Office of Federal Contract Compliance Programs may direct to enforce such provisions, including action for non-compliance.

STATE REQUIREMENTS

All Bidders must also comply with the following State requirements:

15. Pennsylvania Steel Products Procurement Act (No. 178-3).

If any steel products are to be used or supplied in the performance of the Contract, only steel products produced in the United States shall be used or supplied in the performance of the Contract or any subcontracts thereunder. This provision shall not apply in any case where the head of the public agency, in writing, determines that the type of steel products necessary to the performance of the Contract are not produced in the United States in sufficient quantities to meet the requirements of the Contract.

16. Pennsylvania Human Relations Act, as amended.

A. CONTRACTOR shall not discriminate against any employee, applicant for employment, independent contractor or any other person because of race, color, religious creed, ancestry, national origin, age or sex.

CONTRACTOR shall take affirmative action to ensure that applicants are employed, and that employees or agents are treated during employment, without regard to their race, color, religious creed, ancestry, national origin, age or sex. Such affirmative action shall include but is not limited to the following: Employment, upgrading, demotion, or transfer; recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training.

CONTRACTOR shall post in conspicuous places, available to employees, agents, applicants for employment, and other persons a notice to be provided by the contracting agency setting forth the provisions of this nondiscrimination clause.

B. CONTRACTOR shall in advertisements or requests for employment placed by it or on its behalf state all qualified applicants will receive consideration for employment without regard to race, color, religious creed, ancestry, national origin, age or sex.

C. CONTRACTOR shall send each labor union or workers' representative with which it has a collective bargaining agreement or other contract or understanding, a notice advising said labor union or workers' representative of its commitment to this non-discrimination clause. Similar notice shall be sent to every other source of recruitment regularly utilized by CONTRACTOR.

D. It shall be no defense to a finding of non-compliance with the Contract Compliance Regulations issued by the Pennsylvania Human Relations Commission of this non-discrimination clause that CONTRACTOR had delegated some of its employment practices to any union, training program or other source of recruitment which prevents it from meeting its obligations. However, if the evidence indicates that the CONTRACTOR was not on notice of the third-party discrimination or made a good faith effort to correct it, such factor shall be considered in mitigation in determining appropriate sanctions.

E. Where the practices of a union or of any training program or other source of recruitment will result in the exclusion of minority group persons, so that CONTRACTOR will be unable to meet its obligations under the Contract Compliance Regulations issued by the Pennsylvania Human Relations Commission, or this non-discrimination clause, CONTRACTOR shall then employ and fill vacancies through other non-discriminatory employment procedures.

F. CONTRACTOR shall comply with the Contract Compliance Regulations of the Pennsylvania Human Relations Commission, 16 PA Code Chapter 49 and with all laws prohibiting discrimination in hiring or employment opportunities. In the event of CONTRACTOR's non-compliance with the non-discrimination clause of this CONTRACT or with any such laws, this CONTRACT may, after hearing and adjudication, be terminated or suspended, in whole or in part, and CONTRACTOR may be declared temporarily ineligible for further COMMONWEALTH contracts, and such other sanctions may be imposed and remedies invoked as provided by the Contract Compliance Regulations.

G. CONTRACTOR shall furnish all necessary employment documents and records to, and permit access to its books, records and accounts by, the contracting agency and the Human Relations Commission, for purposes of investigation to ascertain compliance with the provisions of the Contract Compliance Regulations, pursuant to §49.35 of these Regulations. If CONTRACTOR does not possess documents or records reflecting the necessary information requested, it shall furnish such information on reporting forms supplied by the contracting agency or the Commission.

H. CONTRACTOR shall actively recruit minority subcontractors or subcontractors with substantial minority representation among their employees.

I. CONTRACTOR shall include the provisions of this non-discrimination clause in every subcontract, so that provisions will be binding upon each subcontractor.

J. The terms used in this non-discrimination clause shall have the same meaning as in the Contract Compliance Regulations issued by the Pennsylvania Human Relations Commission, 16 PA Code Ch. 49.

K. CONTRACTOR's obligations under this clause are limited to the CONTRACTOR's facilities within Pennsylvania, or where the contract is for purchase of goods manufactured outside of Pennsylvania, the facilities at which such goods are actually produced.

ATTACHMENTS TO

GENERAL CONDITIONS

PART II

(Include in this Section Davis-Bacon Wage Determination)

Commonwealth of Pennsylvania
Department of Community Affairs
Bureau of Housing and Development
Small Communities Program Division

SCP–CDBG REQUEST FOR WAGE DETERMINATION AND RESPONSE

TO:

Compliance Section
Small Communities Program Division
Bureau of Housing and Development
Department of Community Affairs
Room 513 Forum Building
Harrisburg, PA 17120

Send Determination To:

Neilan Engineers
1065 Tayman Avenue
P.O. Box 837
Somerset, PA 15501 Attn: John Larimer
Telephone Number: (814) -- 445-6551

GRANTEE: Irvona Municipal Authority

John Larimer (Requesting Officer's Name) John Larimer (Signature)

PROJECT NUMBER:

DATE OF REQUEST: November 17, 1989

Estimated Advertising Date: November 20, 1989

Estimated Bid Opening Date: December 18, 1989

Estimated $ Value of Contract: $160,000

TYPE OF WORK:
☐ Building ☐ Highway
☐ Residential ☒ Heavy

Previous Decision Number (If any): N/A

LOCATION OF WORK (Include municipality):

Irvona Borough
Chess Township
Beccaria Township

COUNTY: Clearfield

STATE: Pennsylvania

DESCRIPTION OF WORK (be specific, print or type):

Waterline replacement consisting of approximately 1000 LF of 6" DIA and 600 LF of 2" DIA with appurtenances, well source development and approximately 6,000 LF of resesrvoir access road improvements.

INSTRUCTIONS

In response to your request the Wage Decision(s) noted below is/are being sent to you.

Grantees should satisfy themselves that the attached Wage Decision is the correct Decision for their Project Activities. As they are available, modifications or other changes affecting this Decision will be sent. Grantees, however, are responsible for assuring that current and correct wage rate information is being used in CDBG Projects.

The request for a Wage Determination is to be made on this form. Inquiries to determine if Wage Decision information still is current may be made by use of this form, or by telephone if necessary. Allow a reasonable period of time to notify prospective bidders of any changes or modifications.

GRANTEES MUST NOTIFY THIS OFFICE OF CHANGES IN ESTIMATED BID OPENING DATES.

Grantees must notify this office of the date of Start of Construction and Contract Award Date, using form DCA-BHD-135.

Grantees must request Verification of Contractor Eligibility for contractors selected, using form DCA-BHD-118.

If your project activities are not covered by a general Wage Decision a request will be made by this office for an appropriate Project Wage Determination. You will be advised that this action was necessary. Responses to such requests take a minimum of four weeks and the response period can be longer. Grantees are advised to request wage determinations early if project activities are unusual or not covered by General Wage Decisions.

Grantees should be throughly familiar with the information in the SCP Labor Standards Enforcement Handbook. If you have any questions please contact this office.

For SCP Use Only

RECEIVED: NOV 20 1989

WAGE DECISION: PA89-4 WITMODS

ACTION:

COMPLIANCE OFFICER: Gary R. Thomas (Signature) 11/21/89 (Date)

TYPE OR PRINT CLEARLY

U.S. Department of Labor

GENERAL WAGE DECISION NO. PA89-4

Supersedes General Wage Decision No. PA88-4

State: PENNSYLVANIA

County(ies): ALLEGHENY, ARMSTRONG, BEAVER, BEDFORD, BLAIR, BUTLER, CAMBRIA, CAMERON, CENTRE, CLARION, CLEARFIELD, CLINTON, CRAWFORD, ELK, ERIE, FAYETTE, FOREST, FRANKLIN, FULTON, GREENE, HUNTINGDON, INDIANA, JEFFERSON, LAWRENCE, MCKEAN, MERCER, MIFFLIN, POTTER, SOMERSET, VENANGO, WARREN, WASHINGTON, WESTMORELAND.

Construction Type: Heavy & Highway

Construction Description: Heavy and Highway Construction, excluding Sewer grouting projects and excluding Sewage and Water Treatment Plant Projects.

Modification Record:

No.	Publication Date	Page No.(s)
1	Jan. 27, 1989	870
2	Mar. 24, 1989	873-874
3	May 19, 1989	870-871
4	June 2, 1989	870-871
5	June 9, 1989	870
6	June 16, 1989	871-872
7	Sept. 15, 1989	870

	Basic Hourly Rates	Fringe Benefits
BRICKLAYERS (Allegheny County Only)	17.55	5.24
CARPENTERS		
Zone I	15.92	32.5%
Zone II	15.74	32.5%
CARPENTER - WELDER		
Zone I	16.29	32.5%
Zone II	16.11	32.5%
CARPENTER - BURNER		
Zone I	16.11	32.5%
Zone II	15.92	32.5%
CEMENT MASONS	16.23	30%
DIVERS	30.00	30%
DIVERS TENDERS	16.30	30%
PILEDRIVERMEN	17.06	30%
PILEDRIVERMEN - WELDER	17.29	30%
*IRONWORKERS		
Reinforcing		
Zone 1	13.56	5.18
*Structural, Ornamental & Reinforcing		
*Zone 2	19.265	5.26
Zone 3	16.87	7.75
Zone 4	16.21	6.42
LABORERS		
Class I		
Zone I	13.51	28.9%
Zone II	13.40	28.9%
Class II		
Zone I	13.66	28.9%
Zone II	13.57	28.9%
Class III		
Zone I	14.06	28.9%
Zone II	14.06	28.9%
Class IV		
Zone I	14.94	28.9%
Zone II	14.94	28.9%
Class V (Flaggers):		
Zone 1	9.89	28.9%
Zone 2	9.89	28.9%
*LANDSCAPING		
Zone 1		
Class 1	11.98	29%
Class 2	12.40	29%
*Zone 2		
Class 1	13.80	23%+ .10
LINE CONSTRUCTION		
Class 1		
Zone 1	19.04	1.50+ 3-3/8%
Zone 2	15.75	.80+ 12.5%
Class 2		
Zone 1	13.33	1.50+ 3-3/8%
Zone 2	11.03	.80+ 12.5%
Class 3		
Zone 1	12.38	1.50+ 3-3/8%

Zone 2			
Class 4	10.24	.80+	12.5%
Zone 1			
Zone 2	11.42	1.50+	3-3/8%
Zone 3	9.45	.80+	12.5%
Class 1	17.29	1.75+	3-4/4%
Class 2	12.20	1.75+	3-3/4%
Class 3	12.03	1.75+	3-3/4%
Class 4	10.80	1.75+	3-3/4%
LINE CONSTRUCTION (Railroad Only)			
Zone 1			
Class 1	12.34	.60+	6%+ a
Class 2	12.34	.60+	6%+ a
Class 3	10.78	.60+	6%+ a
PLUMBERS (Bridge - Drain pipe)			
Zone 1	17.49	6.17	
POWER EQUIPMENT OPERATORS			
Class I			
Zone I	17.04	5.18	
Zone II	16.75	5.18	
Class II			
Zone I	16.78	5.18	
Zone II	16.47	5.18	
Class III			
Zone I	13.13	5.18	
Zone II	12.83	5.18	
Class IV			
Zone I	12.67	5.18	
Zone II	12.34	5.18	
Class V			
Zone I	12.42	5.18	
Zone II	12.13	5.18	
TRUCK DRIVERS:			
Class 1			
Zone 1	14.37	19%	
Zone 2	14.15	19%	
Class 2			
Zone 1	14.54	19%	
Zone 2	14.36	19%	
Class 3			
Zone 1	15.17	19%	
Zone 2	14.99	19%	
Zone 3 - Allegheny, Beaver and Butler Counties:			
Class 1			
Trucks hauling concrete from off-site Commercial batch plants	9.60	1.65	

WELDERS - Rate for craft to which welding is incidental

FOOTNOTE:

a. Paid Holidays: New Year's Day; Declaration Day; Independence Day; Labor Day; Thanksgiving Day; Christmas Day and Good Friday.

*PA89-4

AREA COVERED BY CARPENTERS ZONES

ZONE I - Allegheny, Armstrong, Beaver, Butler, Erie, Fayette, Greene, Lawrence, Mercer, Washington and Westmoreland
ZONE II - Bedford, Blair, Cambria, Cameron, Centre, Clarion, Clinton, Clearfield, Crawford, Elk, Forest, Franklin, Fulton, Huntingdon, Indiana, Jefferson, McKean, Mifflin, Potter, Somerset, Venango and Warren

AREA COVERED BY IRONWORKERS ZONES

ZONE 1 - Butler, Cambria, Erie, Fayette, Mercer, Washington, Westmoreland, Lawrence, Somerset, Allegheny, Beaver, Armstrong, Blair, Cameron, Centre, Clarion, Clearfield, Crawford, Forest, Greene, Indiana, McKean, Venango, Warren, Bedford, Jefferson, Clinton, Elk, Fulton and Potter Counties

ZONE 2 - Franklin, Huntingdon and Mifflin Counties

ZONE 3 - Allegheny, Armstrong, Beaver, Butler, Cambria, Clarion, Fayette, Indiana, Washington & Westmoreland Counties

ZONE 4 - Clearfield, Blair, Cameron, Centre, Elk, Jefferson, Mckean, Clinton & Potter.

AREA COVERED BY LABORERS ZONES

ZONE I - Allegheny, Armstrong, Beaver, Blair, Butler, Cambria, Clarion, Clearfield, Elk, Erie, Fayette, Greene, Indiana, Lawrence, McKean, Mercer, Somerset, Venango, Warren, Washington, Westmoreland

ZONE II - Bedford, Cameron, Centre, Clinton, Crawford, Forest, Franklin, Fulton, Huntingdon, Jefferson, Mifflin, Potter

AREA COVERED BY LANDSCAPE LABORERS ZONES

ZONE 1 - Allegheny, Armstrong, Beaver, Butler, Clarion, Crawford, Fayette, Greene, Indiana, Jefferson, Lawrence, Mercer, Venango, Washington, Westmoreland, Bedford, Blair, Cambria, Centre, Clearfield, Clinton, Erie, Franklin, Fulton, Huntingdon, Mifflin, Somerset

ZONE 2 - Cameron, Elk, Forest, McKean, Potter, Warren

AREA COVERED BY LINE CONSTRUCTION ZONES

ZONE 1 - Allegheny, Armstrong, Beaver, Bedford, Blair, Cambria, Centre, Clarion, Clearfield, Fayette, Fulton, Greene, Huntingdon, Indiana, Jefferson, Somerset, Washington & Westmoreland Counties

ZONE 2 - Franklin & Mifflin Counties

ZONE 3 - Butler, Cameron, Clinton, Crawford, Elk, Erie, Forest, Lawrence McKean, Mercer, Venango, Warren & Potter Counties

AREA COVERD BY LINE CONSTRUCTION
(Railroad Only)

ZONE 1 - Armstrong, Bedford, Blair, Cambria, Centre, Clarion, Clearfield, Fayette, Franklin, Fulton, Greene, Huntingdon, Indiana, Jefferson, Indiana, Jefferson, Somerset, Washington, Westmoreland Counties:

AREA COVERD BY PLUMBERS (Bridge - Drain Pipe)

ZONE 1 - Allegheny, Washington, Greene, Armstrong Counties.

AREA COVERED BY POWER EQUIPMENT OPERATORS ZONES

ZONE I - Allegheny, Armstrong, Beaver, Blair, Butler, Cambria, Centre, Clarion, Clearfield, Crawford, Erie, Elk, Fayette, Greene, Indiana, Jefferson, Lawrence, McKean, Mercer, Somerset, Venango, Warren, Washington & Westmoreland, Counties

ZONE II - Bedford, Cameron, Clinton, Forest, Franklin, Fulton, Huntingdon, Mifflin, Potter

AREAS COVERED BY TRUCK DRIVERS ZONES

ZONE I - Allegheny, Armstrong, Beaver, Blair, Butler, Cambria, Centre, Clearfield, Crawford, Erie, Fayette, Greene, Indiana, Jefferson, Lawrence, McKean, Mercer, Somerset, Venango, Warren, Washington, and Westmoreland

ZONE II - Bedford, Cameron, Clarion, Clinton, Elk, Forest, Franklin, Fulton, Huntingdon, Mifflin, and Potter

*LABORERS CLASSIFICATION DEFINITIONS

CLASS I - Railroad Construction Laborers (Including Craft Tenders, handling Salamancers L. P. Gas Heaters or similar etc.); Asphalt Curb Sealer; Asphalt Tamper; Batchman (weigh); Blaster's Helper; Boatman; Brakeman; Change House Attendant; Coffer Dam; Concrete Curing Pitman; Puddler; Drill Runner's Helper, (Including Drill Mounted on Truck, Track, or similar and Davey Drill - Spots-clean-up & Helps to maintain); Electric Brush and or Grinder; Fence Construction (including Fence Machine Operator); Form Stripper and Mover; Gabion (Erectors and Placers); Hydro Jet Blaster Nozzlemen; Manually moved Emulsion Sprayer; Radio Actuated Traffic Control Operator; Rip Rap Work, Scaffolds and Runways; Sheeters and Shorers; Structural Concrete Top Surfacer; Walk Behind Street Sweeper; Welder's Helper (pipeline); Wood Chipper, reinforcing steel placers (bending aligning and securing and cadweld

CLASS II - Air Tool Operator (all types); Asphalt, Batch & Concrete Plant Operator (manually operated) asphalt Rakers; Burner; Caisson Men (open air); Carryable Pumps; Chain Saw Operator (including attachments); Cribbing (Concrete or steel); Curb Machine Operator (asphalt or concrete - walk behind); Diamond Head Core Driller; Drill Runner's Helper (Tunnel); Fork Lift (walk behind); Form Setter (Road Forms Line Man); Highway Slab Reinforcement Placers (Including Joint and Basket Setters); Hydraulic Pipe Pusher; Liner Plates (Tile or Vitrified Clay); Mechanical Compacting Equipment Operators; Mechanical Joint Sealer, Dope Pot and Tar Kettle; Mortar Mixer (hand or machine); Muckers, Brakemen & All Other Labor (Includes installation of Utility Lines); Pipe Layers (Regardless of material); Portable Single Unit Conveyor; Post Hole Auger (2 or 4 cycle-hand operated); Power Wheelbarrows and Buggies; Rail Porter or Similar; Sand Blaster; Vibrator Operator, All Rail Road Track Work to Include The Following: Adzing Machine, Ballast Router; Bolting Machine; Power Jacks; Rail Drill; Railroad Brakeman; Rail Saw; Spike Drivers (Manually or handheld tool); Spike Pullers; Tamping Machine; Thermitweld; signal man; toxic or hazardous waste removal (including asbestos)

CLASS III - Blacksmith, blaster, brick stone and block pavers and block cutters (wood, belgian and asphalt), cement mortar lining car pusher, cement mortar mixer (pipe relining), cement mortar pipe reliners, concrete saw operator (walk behind), curb cutters and setters, elevated roadway drainage construction, form-setter (road forms-lead man), grout machine operator, gunite or dry pack gun (nozzle and machine man), manhole or catch basin (brick, block, concrete or any prefabrication), Miners and drillers (including lining, supporting and form workmen, setting of shields, miscellaneous equipment and jumbos), multi-plate pipe (aligning and securing), placing wire mesh on gunite projects, wagon drill operators (air track or similar), walk behind ditching machine (trencher or similar), welder

CLASS IV - Welder (pipeline); High Burner (any burning not done from deck

LANDSCAPE LABORERS CLASSIFICATIONS DEFINITIONS

CLASS 1 - Landscape laborer to include general landscaping work and the driving of trucks for the distribution of materials on the job site but not to include dump trucks used to transport supplies to the job

CLASS 2 - Landscape tractor operator to operate small industrial rubber tire tractor equipped with front end loader and back hoe attachment used for the sole purpose of landscape work including soil spreading, but not for heavy and highway

LINE CONSTRUCTION CLASSIFICATIONS DEFINITIONS

ZONE 1 & 2
CLASS 1 - Linemen
Class 2 - Winch truck operators

Class 3 - Truck Driver
Class 4 - Groundman
ZONE 3
Class 1 - Lineman, Dynamite man, Heavy Equipment Operator
Class 2 - Winch truck operator
Class 3 - Truck Driver
Class 4 - Groundman

CLASSIFICATION DEFINITIONS FOR LINE CONSTRUCTION
(RAILROAD ONLY)

ZONE 1
CLASS 1 - Lineman

CLASS 2:
"A" Equipment Operators:

1. Hoisting equipment - when erecting complete towers, erecting framed structures, erecting steel transmission poles, erecting railroad pole extensions and crossbeams and when operating personnel lift baskets.

2. Tension pulling equipment under energized conditions - paralled with other energized circuits or above energized circuits on the same structure, not to include crossovers. Bunled consuctor stringing, including static conductors on bundled conductor lines.

3. Excavating augures 36" inches in diameter or larger, 3/4 cubic yard backhoe and larger, trencher over four feet in depth, bulldozer D-6 (caterpillar) or larger, and place on finish grade work

CLASS 3:

"B" Equipment Operators:
Operators of all other equipment

POWER EQUIPMENT OPERATORS CLASSIFICATION DEFINITIONS

CLASS I - Autograde (C.M.I. & similar); Backfiller; Backhoe - 360 Swing; Cableway; Caisson Drill (similar to Hugh Williams); Central Mix Plant; Cooling Plant; Concrete Paving Mixer; Concrete Pump (self-propelled); Cranes; Cranes (Boom or mast 101 ft. or over up to & including 150 ft. inclusive of jib + $.25; Boom or mast over 150 ft. up to & including 200 ft. inclusive of jib + $.50; Boom or mast over 200 ft. inclusive of jib + $.75; Tower-Stationary- Climbing Tower Crane); Derrick; Derrick Boat; Dozer (D-6 & over); Dragline; Dredge; Dredge Hydraulic; Elevating Grader; Frankl Pile Machine; Gradall (Remote control or other-wise); Grader (Power-Fine Grade); Helicopter; Hilift (4 cy. and over); Hoist 2 Drums or more (in one unit); Hydraulic Boom Truck (with pivotal cab) (single motor-Pitman or similar); Kocal; Locomotive (std. Gauge); Metro-chib Harvester or similar; Milling Machine (Roto Mill or Similar); Mix Mobile; Mucking Machine (Tunnel); Pile Driver Machine; Pipe Extrusion Machine; Presplitter Drill (Self contained); Refrigeration Plant (Soil

GENERAL SPECIFICATIONS

SPECIAL CONDITIONS FOR SITE PREPARATION[1]

301. PROJECT SITE

The Project Area of the Site Preparation Contracts consists of the following general area: Irvona Borough, Beccaria and Chest Townships in Clearfield County, all as shown on the Construction Drawings.

302. TIME FOR COMPLETION

The work which the Contractor is required to perform under this Contract shall be commenced at the time stipulated by the Local Public Agency in the Notice to Proceed to the Contractor and shall be fully completed within 150 consecutive calendar days thereafter.

303. LIQUIDATED DAMAGES[2]

As actual damages for any delay in completion of the work which the Contractor is required to perform under this Contract are impossible for determination, the Contractor and his Sureties shall be liable for and shall pay to the Local Public Agency the sum of $100.00 as fixed, agreed and liquidated damages for each calendar day of delay from the above stipulated for completion, or as modified in accordance with Section 109 - CHANGES IN WORK under GENERAL CONDITIONS - PART I, until such work is satisfactorily completed and accepted.

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1. The "SPECIAL CONDITIONS" provide a flexible Division of the Contract Documents in which to place provisions which contain elements that vary from one project to another, and which covers situations peculiar to the Project involved. The Conditions outlined may require modification to fit the local situation or it may be necessary to include additional provisions to amplify the Contract requirements.

2. The minimum amount of the liquidated damages per calendar day should be sufficient to reimburse the Local Public Agency for all salaries for inspectors, the DCA Site Representative, and overhead expense due to the Contractor having failed to complete the Improvements embraced in this Contract within the time stipulated for completion.

304. RESPONSIBILITES OF CONTRACTOR

Except as otherwise specifically stated in the Contract Documents and Technical Specifications, the Contractor shall provide and pay for all materials, labor, tools, equipment, water, light, heat, power, transportation, superintendence, temporary construction of every nature, charges, levies, fee or other expenses and all other services and facilities of every nature whatsoever necessary for the performance of the Contract and to deliver all Improvements embraced in this Contract for Site Preparation complete in every respect within the specified time.

305. COMMUNICATIONS

a. All notices, demands requests, instructions, approvals, oroposals and claims must be in writing.

b. Any notice to or demand upon the Contractor shall be sufficiently given if delivered at the office of the Contractor stated on the signature page of the Agreement (or at such other office as the Contractor may from time to time designate in writing to the Local Public Agency), or if deposited in the United States mail in a sealed, postage prepaid envelope, or delivered with charges prepaid to any telegraph company for transmission, in each case addressed to such office.

c. All papers required to be delivered to the Local Public Agency shall, unless otherwise specified in writing to the Contractor, be delivered to the Local Public Agency at (Address), and any notice to or demand upon the Local Public Agency shall be sufficiently given if so delivered, or if deposited in the United States mail in a sealed, postage prepaid envelope, or delivered with charges prepaid to any telegraph company for transmission to said Local Public Agency at such address, or to such other representatives of the Local Public Agency or to such other address as the Local Public Agency may subsequently specify in writing to the Contractor for such purpose.

d. Any such notice shall be deemed to have been given as of the time of actual delivery or (in case of mailing) when the same should have been received in due course of post, or in the case of telegrams, at the time of actual receipt, as the case may be.

306. JOB OFFICES

a. The Contractor and his subcontractors may maintain such office and storage facilities on the Site as are necessary for the proper conduct of the work. These shall be located so as to cause no interference to any work to be performed on the Site. The Local Public Agency shall be consulted with regard to locations.

b. If no office is maintained, a suitable place for posting required notices, with adequate protection from the weather, shall be provided.

c. Upon completion of the Improvements, or as directed by the Local Public Agency the Contractor shall remove all such temporary structures and facilities from the Site, same to become his property and leave the Site of the work in the condition required by the Contract.

307. PARTIAL USE OF SITE IMPROVEMENTS

The Local Public Agency, at its election, may give notice to the Contractor and place in use those sections of the Improvements which have been completed, inspected and can be accepted as complying with the Technical Specifications and if in its opinion, each such section is reasonably safe, fit and convenient, for the use and accommodation for which it was intended, provided;

a. The use of such sections of the Improvements shall in no way impede the completion of the remainder of the work by the Contractor.

b. The Contractor shall not be responsible for any damages or maintenance costs due directly to the use of such sections.

c. The use of such sections shall in no way relieve the Contractor of his liability due to having used defective materials or to poor workmanship.

d. The period of guarantee stipulated in the Section 132 - GENERAL GUARANTY under GENERAL CONDITIONS, PART I, shall not begin to run until the date of the final acceptance of all work which the Contractor is required to construct under this Contract.

308. WORK BY OTHERS[3]

The following work will be done by others:

a. At no expense to the Contractor:

(1) On-Site:

(a)_____
(b)_____, etc.

(2) Off-Site:

(a)_____
(b)_____, etc.

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3. It may be that local ordinances or regulations require connections, or disconnections, from utilities or sewers to be made by designated departments or companies. These facts should be obtained and inserted in this Section. The costs, if any, to the Contractor should be stated in paragraph "b". Delete such items not applicable.

b. At the expense of the Contractor for Contract 89-01:

(1) On-Site:

(a)_____
(b)_____, etc.

(2) Off-Site:

(a) Extend electric power service to Hockenberry Run Reservoir
(b)_____, etc.

309. CONTRACT DOCUMENTS AND DRAWINGS

The Local Public Agency will furnish the Contractor without charge 4[4] copies of the Contract Documents, including Technical Specifications and Drawings. Additional copies requested by the Contractor will be furnished at cost.

310. PROGRESS SCHEDULE

The Contractor shall prepare a Progress Schedule in accordance with Section 107 of the GENERAL CONDITIONS and, in addition to the information required therein, the Progress Schedule shall show graphically:

a. Any pre-determined times allotted to the utility companies or utilities authorities for their work.

b. Practical time limits for the successful completion of the various types and phases of work encompassed in this Contract in accordance with the requirements of the specifications.

c. Any other type of delay or time consuming process of which the Contractor may be aware.

All of the above shall be shown to be accomplished within the time limits as stated in Section 302, TIME FOR COMPLETION. As the work progresses the Contractor shall revise and maintain current the Progress Schedule for the uncompleted portions of the work, regardless of the cause of such revisions, at the direction of the Local Public Agency or the Engineer.

311. SUBSTITUTION

Wherever in the following specifications, a catalog number, trade designation, the name of any individual or system of construction has been used, the same has been done with the intention of indicating only the character, class, quality or kind of material or fixture that is desired and any or all of said fixtures, materials, or construction may be provided equal in every respect in quality and purpose to those named in the specification,

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4. Insert number to be supplied without cost to the Contractor which should be determined by the magnitude of the Contract and probable number of subcontracts.

regardless of the name and designation used, which are for convenience in specifying only. But before any Contractor may use any fixture, material, or system of construction other than that specified, he shall first notify the Local Public Agency and secure permission to do so, and if required, shall submit a sample for inspection and approval.

312. SIGNS, BARRICADES, LIGHTS

Contractor shall, at his own cost and expense, erect and maintain any necessary warning lights, barricades and signs as ordered by the Engineer in a manner acceptable to the Local Public Agency.

313. PROTECTION OF EXISTING SITE CONDITIONS

The Contractor shall locate existing buildings, plantings, paving, utility services (both overhead and underground), etc., and shall protect same from damage during this construction operation. Should damage occur repairs shall be made in a manner satisfactory to the Owner and Landscape Architect at the Contractor's expense.

314. REDUCTION IN WORK

The Local Public Agency reserves the right to increase or decrease the quantity of any bid item by any amount without adjustment to any of the unit bid prices.

315. ENGINEER'S RESPONSIBILITY AND AUTHORITY

The Engineer shall perform the following work and assume certain authorities during the life of this Contract.

a. The work shall be subject at all times to the inspection of the Engineer or his authorized assistants, who shall have free access to every facility at all times for inspecting the materials and work. This work shall not in any way guarantee the Contractor's work. The presence of the Engineer or his authorized assistants shall not lessen the responsibility of the Contractor.

b. Approve or disapprove any materials, and equipment used by the Contractor.

c. Sample and test any materials as the Engineer deems necessary.

d. Any doubt as to the meaning of these technical specifications and/or drawings, or any obscurity as to the wording or intent of them, will be explained by the Engineer. All directions and explanations required or necessary to complete, explain or make definite any section of the specifications and/or drawings and give them due effect will be given by the Engineer in writing whose decision thereon will be final.

e. The Engineer will have authority to reject materials and suspend work in case of any dispute which may arise between the Engineer and the Contractor due to defective materials or substandard performance

of work until the question or questions at issue can be referred to and decided by the Local Public Agency.

Additional responsibilities and authorities invested in the Engineer will be found in GENERAL CONDITIONS, PART I.

316. TEMPORARY SUSPENSION OF CONSTRUCTION

The Engineer shall have the authority to suspend the construction, wholly or in part, for such period or periods as he may deem necessary, due to unsuitable weather, or such other conditions as are considered unfavorable for the suitable prosecution of the construction, or for such times as is necessary, due to the failure on the part of the Contractor to carry out orders given or perform any or all provisions of the Contract.

If the Engineer suspends the construction in part, he will have the authority to direct the Contractor to perform such other parts or items of construction which, in his opinion, may be performed with favorable results and advantageously for the time of completion of the project, and shall notify the Contractor accordingly in writing.

If it should become necessary to stop construction for an indefinite period, the Contractor shall store all materials in such a manner that they will not obstruct or impede the traveling public nor become damaged in any way. He shall take every precaution to prevent damage or deterioration of the construction performed; provide suitable drainage, etc.

317. INTENT OF PLANS AND SPECIFICATIONS

All work done and materials furnished under this Contract shall be in accordance with the Contract Plans; the Instructions to the Bidders; the General Conditions; Parts I and II, the Special Conditions, Technical Specifications, and Form 408 referenced sections of the Commonwealth of Pennsylvania Department of Transportation Specifications, latest edition with the supplements thereto and revisions thereof included in these specifications. When a section and/or sections of the Commonwealth of Pennsylvania Department of Transportation Specifications is referred to, it shall become a part of these specifications and shall be as binding as if the section and/or sections referred to were written completely in these specifications except that, in the event, any contradiction exists between the Commonwealth of Pennsylvania Department of Transportation Specifications and any part of the Contract Documents, the Contract Documents shall govern and the conditions thereof adhered to.

The intent of the specifications and drawings is to prescribe a complete work which the Contractor undertakes to do in full compliance with the Contract Documents. If there is any apparent contradiction or ambiguity between the drawings and specifications, the Contractor shall bring the fact to the attention of the Engineer and shall obtain his decision as to the true meaning or intention before proceeding with the portion of the work affected. Wherever in the specifications or drawings "directed", "required", "ordered" or words of similar import are used, it shall be understood that directed, required, order, by the Engineer is intended.

In like manner when "as shown", "as indicated", "as detailed", or words of similar import are used in the specifications, reference to the Contract Drawings listed in the Schedule of Drawings is intended.

318. WORK INCIDENTAL TO CONTRACT ITEMS

Where connection is made to existing facilities the new construction shall be modified or adjusted to meet the existing construction, as directed by the Engineer, and the cost of this work will be included in the Contract Lump Sum Price; therefore, no separate or additional compensation will be allowed.

319. CONSTRUCTION RESERVATION

It shall be the Contractor's responsibility to investigate the location and elevation of all surface or subsurface utilities or other obstructions affecting his work before preparing his bid.

Any additional expense resulting from such obstructions shall be included in the Contractor's unit bid prices for various items of work and no extra payment will be allowed.

320. DAMAGE TO EXISTING CONSTRUCTION

The Contractor shall be held responsible for any and all damages outside the limits of construction indicated on the drawings or designated by the Engineer. This includes damage to adjacent curb gutter, existing tennis courts, drainage structures, gas and water mains, electric or telephone facilities, pavements, buildings, walls, etc. Any such damage shall be satisfactorily repaired or replaced by the Contractor at his own expense.

321. DISPOSAL OF EXISTING MATERIALS

Any existing debris, except those materials noted in the Contract Documents for re-use or storage at the direction of the Local Public Agency, which is removed during construction shall become the property of the Contractor and it shall be his responsibility to dispose of off the site.

322. PUBLIC CONVENIENCE AND SAFETY

The Contractor shall not cause any infringement or damage to property within or adjacent to the project area, and will be required to cooperate with the persons involved with respect to reasonable requests pertaining to access and protection of their property.

323. STORAGE OF MATERIALS

The Contractor shall remove and store, as directed, materials removed from the site to be used in new construction in a manner which will provide a stock pile free of debris and other materials. Materials shall be placed on wooden platforms or other clean surfaces, not on the ground, and placed under cover when directed by the Local Public Agency or the Engineer.

324. INSURANCE

A. This condition supplements the insurance requirements set forth in the General Conditions.

B. Insurance company or companies shall be licensed to conduct business in the Commonwealth of Pennsylvania.

C. Liability insurance shall include all major divisions of coverage and be on a comprehensive basis including:

1. Premises - Operations including explosion-collapse-underground (X-C-U)
2. Completed Operations
3. Contractual - including specified provision for Contractor's obligations under the General Conditions.
4. Owned, non-owned, and hired motor vehicles
5. Broad form coverage for property damage

D. Required insurance shall be written for not less than the following limits of liability or as required by law, whichever is greater.

1. Workmen's compensation - Statutory
2. Employer's liability - $100,000
3. Comprehensive general liability

a. Bodily injury - $500,000 each person; $1,000,000 each occurrence
b. Personal injury - $500,000 each person; $1,000,000 aggregate; $1,000,000 general aggregate
c. Property damage - $200,000 each occurrence; $200,000 aggregate
d. Completed operations - same limits as above

(1) Completed operations insurance shall remain in force for at least ninety days following final acceptance of work by Owner.

4. Automobile Liability

a. Bodily injury - $500,000 each person; $1,000,000 each occurrence.
b. Property damage - $500,000 each occurrence

5. Contractual liability - same limits as above

E. Contractor shall purchase and maintain Builders Risk Insurance upon the entire work at the site as required under the General Conditions.

F. Owner's protective liability and all-risk insurance shall name the Owner as co-insured.

G. Public liability, property damage and Workmen's Compensation Insurance shall also name the Commonwealth of Pennsylvania, Department of Commerce as named insured on such policies of insurance.

325. CHANGE IN CONTRACT TIME

A. Contract time may only be changed by a change order. All claims for an extension in the contract time shall be in writing delivered to the Owner and Engineer at least ten days prior to termination date of the contract. All claims for adjustment in the contract time shall be determined by Engineer if Owner and Contractor cannot otherwise agree. Any change in contract time resulting from any such claims shall be incorporated in a change order.

B. Contract time will be extended in an amount equal to time lost due to delays beyond the control of the Contractor as set forth in Section 111 of the General Conditions, provided he makes a claim therefore as provided. All claims for an extension of contract time shall be accompanied by sufficient data to justify the claim.

C. All time limits stated in the Contract Documents are of the essence of the Agreement. Provisions of this Article shall not exclude recovery for damages for delay by either party.

326. MISCELLANEOUS

A. All moneys not paid when due hereunder shall bear interest at the legal rate of 6% per annum as stipulated in Pa. State Act 317.

B. All specifications, drawings and copies thereof furnished by Engineer shall remain his property. They shall not be used on another project and, with the exception of those sets which have been signed in connection with the execution of the Agreement, shall be returned to him on request upon completion of the project.

C. Duties and obligations imposed by these General Conditions and the rights and remedies available hereunder and, in particular but without limitations, the warranties, guarantees, and obligations imposed upon the Contractor by Sections 131 and 132 and the rights and remedies available to Owner and Engineer thereunder, shall be in addition to and not a limitation of any otherwise imposed or available by law, by special guarantee or other provisions of the Contract Documents.

D. Contract Documents shall be governed by the law of the place of the project. This shall include, but not be limited to, Pa. Act #317 regulating the award and execution of public contracts.

E. Unless otherwise provided in the Contract Documents, all materials and equipment shall be new.

327. CONTRACTOR'S SCHEDULE

A. Unless given written authorization to the Contractor or required by an unforeseen circumstance, the Contractor shall set and maintain a regular work schedule not to exceed 40 working hours per week.

B. Failure to maintain a regular schedule may result in back charging of the Contractor for additional administrative or inspection expense caused by his irregular working hours.

328. CONTRACT PROVISIONS FOR RETAINAGE (Supplement to Article 19 of the General Conditions)

A. The Owner will retain a portion of the amount due the Contractor to insure the proper performance of the Contract. The sum or sums withheld by the Owner will be 10 percent of the amount due the Contractor until 50 percent of the Contract is satisfactorily completed. Once the Contract is 50 percent completed, one-half of the amount retained will be returned to the Contractor. The sum or sums withheld by the Owner from the Contractor after the Contract is 50 percent completed and satisfactory to the Engineer will not exceed 5 percent of the amount due the Contractor on the work. Subsequently, by the time the work is substantially completed, the Owner will hold no more than 5 percent of the original contract amount.

B. In the event a dispute arises between the Owner and any Prime Contractor, which dispute is based upon increased costs claimed by one Prime Contractor occasioned by delays or other actions of another Prime Contractor, additional retainage in the sum of one and one-half times the amount of any possible liability may be withheld until such time as a final resolution is agreed to by all parties directly or indirectly involved, unless the Contractor causing the additional claim furnished a bond satisfactory to the Owner to indemnify the Owner against the claim.

DETAILED TECHNICAL SPECIFICATIONS

SECTION 1A - SUMMARY OF WORK

1A.1 Scope

A. This project consists of two (2) separate contracts. Contract 89-01 consists of water well drilling, testing and development of a proposed public water supply in accordance with Department of Environmental Resource regulations governing potable public water supply development.

Contract 89-02 consists of access road improvements to include grading, base material, fill and drainage. This Contract also includes additive alternates, water line replacement and related improvements at several locations within the Owner's service area. Work includes the construction of new 6-inch and 2-inch water lines, appurtenances, fire hydrant replacements, connections to existing water lines and surface restoration, all as shown on the Drawings and as specified herein.

B. All materials shall be new.

C. The specifications for this Contract and Standard Typical Details are bound in one (1) book of Contract Specifications, and the Drawings are bound in one (1) set of Contract Drawings.

1A.2 Work Under These Contracts

A. Under these contracts, the Contractors shall furnish all plant materials, equipment, appliances, supplies and labor required to perform all operations in connection with the complete construction of the project in strict accordance with the Contract Documents.

1A.3 Work By Others - Contract 89-01

A. Electric utility service is proposed to the Hockenberry Run Reservoir Well sites. The utility service fee is included in the contract. This fee is to be paid to United Electric Cooperative, P.O. Box 688, Dubois, PA 15801, ATTN: David McCracken. The Electric Coop will be responsible for extending power service to the Reservoir.

1A.4 Operation During Construction

A. The Contractor shall note that a portion of the work to be done under Contract 89-02 involves connections and additions to existing water lines. If interruption becomes absolutely necessary, Contractor shall notify the Owner and Engineer of initial start and duration of interruption at least two (2) working days in advance, and shall receive approval for interruption before actual work so that the Owner can make arrangements to operate valves as required. Under no circumstances except an emergency shall the Contractor operate existing valves or equipment without prior permission from either the Engineer or Owner.

1A.5 Salvage

A. All existing materials not reused in the completion of the contract or in restoration shall become the property of the Contractor except the following:

1. Valves
2. Fittings
3. Fire Hydrants
4. Appurtenances

These items and any other items identified by the Owner or Engineer shall remain the property of the Owner and shall be delivered by the Contractor to an area designated by the Authority.

1A.6 Construction Schedule

A. Since access to the reservoir for Contract 89-01 depends upon the road improvements under Contract 89-02, the following schedule is meant to coordinate the work. Based on a Notice to Proceed issued January 15, 1990.

Contract 89-02 - completion of access road drainage and improvements-completed February 15, 1990.

Contract 89-01 - complete test drilling by March 2, 1990.

This schedule does not change the overall contract time.

1A.7 Permits Required

A. Contract 89-01 - to drive into the Hockenberry Run Reservoir on a Game Commission Road, a special road use permit must be obtained from the Pennsylvania Game Commission. Contact Dennis Jones, Regional Land Manager at 412-238-9523.

1B.1 Description

A. Abbreviations and symbols used in the specifications shall be assumed to have the following meanings:

AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
AIA	American Institute of Architects
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
ANSI	American National Standards Institute (formerly USAS)
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWS	American Welding Society
AWWA	American Water Works Associations
BF	Board Feet
CS	Commercial Standard, US Dept. of Commerce
CSI	Construction Specification Institute
DER	Pennsylvania Department of Environmental Resources
FS	Federal Specification
HUD	US Dept. of Housing and Urban Development
MS	Military Specifications
NBS	National Bureau of Standards
NEC	National Electric Code
NEMA	National Electric Manufacturers Association
PennDOT	Pennsylvania Department of Transportation
UL	Underwriters' Laboratories
'	feet
"	inches
psi	pounds per square inch
psf	pounds per square foot
# or lb.	pound
LF	lineal feet
CY	cubic yard
SY	square yard
MBF	thousand board feet
SF	square feet
CF	cubic feet
SDR	standard dimension ratio
AC	asbestos cement
CI	cash iron
DI	ductile iron
R/W	right-of-way
RCCP	reinforced cement concrete pipe
CMP	corrugated metal pipe
bit.	bituminous
PVC	Poly vinyl chloride
LS	Lump Sum

1B.2 Definitions

A. Publication 408 shall mean the Pennsylvania Department of Transportation Specifications, Publication 408, latest edition.

SECTION 1C - CUTTING AND PATCHI

1C.1 Scope

A. This section covers the conditions under which cutting and patching of material is permitted and the requirements of such work.

1C.2 Materials

A. The following materials may be cut without prior approval of the Engineer:

1. Cast Iron
2. Steel
3. PVC
4. Copper
5. Ductile Iron
6. Aluminum
7. Reinforced Cement Concrete Pipe
8. ABS Truss Pipe

B. All other materials may not be cut without written consent of the Engineer.

C. All cutting and patching shall be in accordance with the recommendations of the specified material supplier.

1. If no specific recommendations are available from the manufacturer, cutting and patching shall be as directed by Engineer.

1D.1 Transportation and Handling

A. Materials, products and equipment shall be properly containerized, packaged, boxed, stored and protected to prevent damage during transportation and handling. Damaged material will not be used in the work.

1D.2 Identifying Markings

A. All major manufactured articles, equipment and materials shall bear identifying markings signifying pertinent class, capacity or type.

1D.3 Product Approval Standards

A. Definitions

1. The term "product" shall include material, equipment, assembly methods, manufacturer, brand, trade name or other description.

2. References to "equal" or similar terms mean that approval of Engineer is required.

B. Proof of Compliance

1. Whenever the contract documents require that a product be in accordance with federal specifications, ASTM designation, ANSI specifications or other association standard, vendor shall present an affidavit from the manufacturer certifying that the product complies therewith. Where requested or specified, submit supporting test data to substantiate compliance.

1E.1 Scope

A. Contractors shall furnish samples and testing services necessary to ensure job control as specified.

1E.2 Samples and Certification

A. Contractors shall submit samples and data to Engineer for approval prior to ordering materials. Additional samples not listed may be required by Engineer. Additional samples shall be supplied by contractors when requested.

B. Submit the following for approval:

1. Site Improvements

a. Selected backfill material - sample
b. Seeding materials - certification
c. Plant mix formulas for bituminous paving & patching

2. Concrete - Plain and Reinforced

a. Cement - material certification only
b. Fine aggregate - material certification only
c. Coarse aggregate - material certification only
d. Reinforcing steel and wire mesh - material certification only
e. Admixtures - certification

3. Mechanical Equipment

a. Pipe - Certificate of Compliance (with specified standards). Submit one certificate for every class and size of pipe incorporated in the project.

b. Gaskets - sample.

c. Valves - Certificate of Compliance (with specified tests and standards).

d. Fire and Flushing Hydrants - Certificate of Compliance

e. Air Relief and Vacuum Valves - Certificate of Compliance (with specified tests and standards).

f. Miscellaneous Valves - Certificate of Compliance (with specified tests and standards).

g. Fittings - Hydrostatic - Certificate of Compliance (with specified tests and standards).

h. Pumps - Certified Pump Curves for every different pump furnished.

1E.3 Testing

A. Contractors shall engage at his cost and expense and retain an independent testing laboratory for materials testing. Laboratory retained shall be subject to approval of Engineer.

B. Contractors shall be responsible for furnishing samples of materials to be tested. Samples shall be delivered to job site for pick up by testing laboratory.

C. Contractors shall pay all expenses incurred in collecting, packing and delivering samples to testing laboratory or its representative along with the cost of all tests performed.

D. Contractors shall submit to Engineer for consideration all existing satisfactory test results for tests required. If acceptable, testing of that material may be waived. For example, if concrete source is from a plant approved by PennDOT, Engineer may waive tests that would duplicate testing performed by PennDOT. This does not apply to users tests listed in 1E.4.

1E.4 Testing List

Material to be Tested	Type of Method of Test Required
Concrete Cylinder Test 7th & 28th Day Compressive 4 Cylinders per Test	ASTM C 39 and ASTM C 617
Slump Test	ASTM C 143
Entrained Air Content	ASTM C 231
Bituminous Pavement	Extraction and 4" Coring of Pavement
Water Line	Hydrostatic as per Applicable Standards and Specifications
Bacteriological Tests	AWWA Standard Methods Fecal and Total Coliform

A. The number of tests required will not exceed five (5) for each material to be tested, provided tested material meet specification requirements.

B. No more than five (5) pavement extractions of bituminous pavement will be made at locations designated by the Engineer. If more than 20 percent of the test fail, the Engineer can order additional tests at no additional cost to the Owner.

C. Two (2) copies of test reports shall be submitted directly to Engineer by testing laboratory. All field tests shall be witnessed by the Engineer.

D. Location and sequence of tests shall be determined by the Engineer.

1E.5 Inspection

A. General project inspection services shall be furnished by the Owner.

1. Contractors shall be responsible for the cost of inspection services required by PennDOT, if applicable, at no additional cost to the Owner.

1F.1 Temporary Guardrails and Barricades

A. Furnish, erect and maintain barricades and flashing warning lights at all exposed excavations when work is not progressing.

1. Barricades and lights shall be continuously maintained around exposed excavations at pedestrian or traffic crossings, urbanized areas, or as otherwise directed by the Engineer.

2. Lights shall operate from dusk until dawn.

1F.2 Temporary Access Road

A. Owner will obtain temporary construction easements to all work areas on property not owned by Owner, as required.

B. Contractor will be permitted to construct access and haul roads within limits of construction easements provided locations of such roads is approved by Engineer in writing before road is constructed.

C. Upon completion of construction all lands utilized for access and haul roads shall be restored to as good as, or better than, their original condition.

1F.3 Temporary Pollution Control

A. Provide sufficient sanitary facilities at all construction areas for the use of all employees on the project.

1. Use of these facilities by employees shall be mandatory.

a. Contractor shall dismiss all employees who fail to use sanitary facilities and commit nuisances at the site.

2. Contractor shall maintain sanitary facilities in a clean and odor free condition.

B. A separate Soil Erosion and Sedimentation Control Plan has been developed for this project and is bound at the end of these specifications. Requirements of this plan are hereby made a part of this contract and shall be strictly adhered to.

1. Implementation of the Soil Erosion and Sedimentation Control Plan shall not relieve Contractor of his obligation or liability under the Act of June 22, 1937, PL 1987 as amended, governing soil erosion and sedimentation control.

C. Other Anti-Pollution Measures

1. Contractor shall thoroughly acquaint himself with the terms of all Federal and state statues, rules and regulations dealing with the prevention of environmental pollution and the preservation of public natural resources that apply to this project. Contractor's attention is directed specifically to the following requirements:

   a. Control of dust and airborne particulate matter.

   b. Removal of earth and other material from streets and roads that has been deposited either directly or indirectly as a result of construction operations.

   c. Use of "low noise" and properly muffled equipment.

   d. Operation of construction equipment only during normal workday hours.

2. Contractor shall include in his bid all costs of complying with the terms of the listed statutes, rules and regulations. In the event that these are amended, or if new statutes, rules and regulations become effective which cause Contractor to perform additional work, Owner will issue a change order setting forth any additional work that must be undertaken. This change order will not invalidate the Contract. Change order will specify the amount of additional payment, if any, that will be made to the Contractor. If the Owner and Contractor cannot arrive at a mutually agreeable price of the extra work, payment will be made in accordance with Article 14 of the General Conditions. No payment will be made for work performed without written authorization to do so.

3. Bidder shall determine what, if any, local ordinances, codes and regulations apply to his work, and shall comply with all such ordinances, codes and regulations. Contractor will be required to comply with acts and regulations of local, state and federal agencies having jurisdiction over the entire project, or any part of the project.

4. Contractor's failure to comply with existing laws and regulations may result in prosecution of the Contractor by local, state or federal agencies.

1F.4 Temporary Field Office

A. Contractor may erect a temporary field office for his use.

B. Off-site location of temporary field office will be the sole responsibility of the Contractor.

1F.5 Project Signing

A. No signs or advertisements will be allowed to be displayed at the project site without the written approval of the Engineer.

1F.6 Removal of Temporary Facilities

A. All temporary facilities shall be removed from the project site prior to job closeout.

1F.7 Construction Photographs

A. Construction photographs shall be taken prior to any work.

1. No construction shall be permitted in a areas not photographed.

B. All pictures shall be color 4" x 5" minimum size, or larger if needed to properly show the work.

C. One print of each photograph shall be mailed to the Owner and one print to the Engineer. Photographs shall be neatly labeled, dated and identified in a title box in the lower right-hand corner showing the date of exposure, project name and locations, and direction of view. Appropriate comments may be legibly entered on the back of the photograph.

D. All negatives shall be retained by the photographer until completion of the work, at which time they shall become the property of the Owner. Contractor shall obtain and deliver the negatives to the Owner.

1F.8 Engineer's Field Office

A. An Engineer's field office is NOT required under this Contract.

1F.9 Traffic Control

A. Contractor shall be responsible for maintaining and protecting the flow of traffic within the project work areas at all times. Cost of flagman, inspectors, traffic control, signs, etc. required for highway work shall be paid for by the Contractor.

B. Contractor shall furnish, erect, place and maintain all traffic control signs and devices within construction area at all times during project construction to provide the safe movement of vehicular and pedestrian traffic through and around the work areas.

C. Traffic control on roads and streets shall be the Contractor's responsibility, and shall be in accordance with the requirements of the governing municipality. Traffic control for PennDOT roads and other roads and streets where no specific requirements exist, the following shall be used as a guide:

1. PennDOT Publication #203, Work Zone Traffic Control, latest revision.

2. Figure 10a of Publication #203 as applicable for the construction operation anticipated.

3. Steel plates shall be used to cover excavation and protect pavement during curing.

   a. Plates shall be secured against movement.

4. PennDOT Publication "Regulations Governing Design, Locations and Creation of Traffic Signs, Signals and Marking".

5. Section 901 of PennDOT Publication 408, latest Edition.

D. Immediately upon completion of the work, Contractor shall remove all traffic control devices erected by him.

E. Traffic control devices so removed shall remain the property of the Contractor.

1G.1 Submittals

A. Progress Schedules

1. Progress schedules shall be in the form of a progress chart of suitable scale to indicate the percentage of work scheduled for completion at all times. Contractor shall enter on his chart the actual progress at the end of every week, or as directed by the Engineer. Three (3) copies of the completed schedule shall be delivered to Engineer within ten (10) days after the initial job conference.

2. Progress schedules shall be revised and updated by the Contractor to reflect changes in the rate of progress or time of completion.

B. Progress Reports

1. Contractor shall prepare and submit to the Engineer no later than the tenth day of every month a written progress report summarizing the progress of the various parts of the work, giving the existing status, rate of progress, estimated time of completion, and causes of delays, if any.

C. Survey Data

1. Contractor shall be responsible for properly laying out the work for lines and measurements for the work executed under the Contract Documents. Contractor shall verify the figures shown on the Drawings before laying out the work, and report errors or inaccuracies in writing to Engineer before commencing work. Engineer, or his representative, shall in no case assume responsibility for laying out the work.

2. Contractor shall be responsible for the proper location and level of work and for maintenance of reference lines and bench marks. Engineer will provide reference points and bench marks.

D. Shop Drawings, Data and Submittals

1. After award of the Contract, Contractor shall submit five (5) copies of shop drawings and/or catalog data, setting, fabrication, and/or equipment drawings, of all architectural, structural, mechanical, electrical, piping, equipment and other component material and facilities proposed to be furnished under each Contract. Contractor shall submit shop drawings accompanied by a "Shop Drawing Transmittal" Form.

2. Shop drawings shall be submitted on the following:

   a. Gate Valves and Boxes
   b. Plugs and Caps
   c. Pipe (All Types)
   d. Fittings
   e. Couplings
   f. Fire Hydrants
   g. Pumps

3. Resubmissions

   a. Resubmittal procedure shall follow procedure of initial submittal.

4. Engineer's Action on Transmittal Form

   a. Incomplete or erroneous transmittals will be returned without action.

   b. Remainder of transmittal will be filled out by Engineer.

5. Submittal Procedures by Contractor

   a. Submit Shop Drawings and samples in accordance with General Conditions. All items shall bear the Contractor's name, approval date, and Contractor's initial. Submittals shall clearly indicate the items being considered.

6. Engineer's Review

   a. Engineer will process submission and indicate appropriate action on submission or transmittal.

1G.2 As-Built Records

A. The Contractor shall maintain project record "as-built" documents on a daily basis.

   1. Engineer will provide two (2) sets of documents for this purpose.

B. Records shall note all significant deviations from contract documents. All fittings and appurtenant items shall be located by measurements from at least two (2) fixed reference points. If necessary, the Contractor shall perform field surveys to conform invert elevations, line locations and line lengths.

C. The record set of drawings, shop drawings and specifications shall be kept at the job site for inspection by the Engineer and Owner. The record set shall correctly show changes and be maintained clearly and neatly with appropriate supplementary notes.

SECTION 1H - PROJECT MEETINGS

1H.1 Scope

A. Project meetings and conferences necessary to ensure the prompt, orderly completion of work are included in this section.

B. A preconstruction job conference will be held at a time and location designated by the Engineer prior to the start of construction. The successful bidder and their superintendents shall attend this conference.

1H.2 Progress Meetings

A. Contractors and any subcontractors, material men or vendors whose presence is requested shall attend meetings (hereinafter referred to as progress meetings) when called by the Engineer or his representative for the purpose of discussing the execution of the work. Each of such meetings will be held at the time and place designated by the Engineer or his representative. All decisions, instructions and interpretations given by the Engineer, or his representative, at these meetings shall be binding and conclusive on the contractors. The proceedings of these meetings will be recorded and the contractors will be furnished a reasonable number of copies for their use and for distribution to various subcontractors, material men and vendors involved.

B. Progress meetings may also be called by each contractor for the purpose of coordinating, expediting and scheduling the work of each contract. Other contractors and their subcontractors, material men or vendors whose presence is requested and deemed necessary by the Engineer are required to attend.

SECTION 1I - PROJECT CLOSEOUT

1I.1 Documents Required Prior to Final Payment

A. Prior to final payment and before issuance of final certificate for payment, in accordance with provisions of General Conditions, file the following documents with Engineer:

1. Guarantees and Warranties - those required by General Conditions and any other extended guarantees stated in the technical sections of the specifications.

2. Release or Waiver of Liens - as required by General Conditions.

3. As-Built Drawings:

a. Furnish two (2) sets of "as-built" prints showing in a clear, legible fashion the location of all piping, equipment and facilities.

Division 2 - Site Work

SECTION 2A- SUBSURFACE INFORMATION

2A.1 Subsurface Information

A. No subsurface information was obtained for this project.

2A.2 Subsurface Exploration

A. Contractors, during the bidding period, may be permitted to conduct subsurface explorations for their own information in the preparation of their bids, provided Contractors obtain approval of property owners, PennDOT, Conemaugh Township Supervisors, or the Owner to conduct subsurface explorations upon their respective properties.

B. Requests to conduct subsurface explorations shall be addressed to both Owner and Engineer in writing providing the following data:

1. Person or firm to conduct subsurface exploration.

2. Detailed location of all proposed bore holes or excavation trenches.

3. Insurance certificates for liability against claims due to damage to both public and private property and buried public utility lines.

4. Waiver holding Owner and Engineer harmless in all claims arising from damages to property, bodily injury, or public utilities as a result of subsurface explorations.

5. Every request for permission to conduct subsurface explorations shall be acted upon within five (5) days from date of receipt.

6. In no case will either Owner or Engineer assume responsibility for claims or inaccurate or incomplete bids due to insufficient subsurface information.

SECTION 2B - EXISTING UTILITIES AND UNDERGROUND STRUCTURES

2B.1 General

A. Contractors shall comply with requirements of Pa. Act 287 and its revision and update by Act 172, regulating excavation operations around underground utility lines. A listing of the utilities in Beccaria Township, Clearfield County, are inserted at the end of this section.

B. The Contractor is required by Act 172 to make a toll free call to the Pennsylvania One Call System (1-800-242-1776) to notify them that digging will take place. No subsurface excavation will be permitted under this contract until the Contractor furnished the Engineer with the serial number he obtained when he made the One Call telephone call.

C. A utility line shall be deemed to include all plant, equipment, controls, transmission and distribution lines, including services to individual customers, both above and below ground, owned, operated, or leased by a public, semi-public, or private utility.

2B.2 Existing Utilities

A. Location and extent of all known utility lines are indicated on the drawings. Information presented on the drawings is not guaranteed to be either complete or correct. Each Contractor shall be responsible for contacting all utilities to determine the precise location and depth of underground utility lines within the project area.

B. Protect all existing utility lines from damage. Follow individual utility's recommendations for utility line protection.

C. Contractors shall immediately report all damage to utility lines to both utility and Engineer

D. All damage caused to existing utility lines by Contractor's operations shall be repaired by Contractor to complete satisfaction of utility at no additional cost to the Owner.

E. Contractors shall assume all liability for damages filed by a utility arising from loss of utility service due to Contractor's operations.

F. Contractors shall notify individual utilities of intent to commence construction around existing utility lines at least seven (7) calendar days before construction is to commence. Notification shall be in writing.

G. Should uncharted or incorrectly charted piping or other utilities be encountered during excavation, consult Engineer immediately for directions as to how to proceed.

H. Contractor shall not interrupt existing utility's service unless written permission to do so is obtained from utility affected.

2B.4 Other Underground Structures

A. Any other pipe or structure encountered shall be protected from damage.

B. Contractor shall be responsible for any damage caused by his work and shall repair, to the satisfaction of the Authority and Engineer, at no additional cost.

C. Pipe underdrains which, in the opinion of the Owner and Engineer, must be removed to permit the construction to proceed, will be replaced and paid for as indicated in Section 20A.

D. All repairs or replacements of pipe underdrains shall be in accordance with PennDOT Form 408, Section 610 - Pipe Underdrain and Pavement Base Drain.

2B.4 Emergency Action

A. In the event damage to an existing utility line would result in potential loss of life or extensive property damage, Contractors shall immediately proceed with whatever means are at their disposal to remove the hazard.

B. Immediately upon removal of the hazard, Contractors shall notify both the utility and the Engineer.

SECTION 2C - CLEARING AND GRUBBING

2C.1 Scope

A. The work covered by this section consists of furnishing all labor, equipment and appliances necessary to complete all site preparation as shown on the drawings and specified herein:

1. Necessary protection for trees that are to remain.
2. Obstructions interfering with the proposed work.
3. Topsoil removal, clearing and grubbing.

2C.2 Precautions

A. Perform the work in a manner to prevent damage or injury to property or to the public. Provide barriers, warning lights and other protection as required and protect as necessary existing monuments, bench marks or utilities that are to remain in service. Restore all damage to original condition or repair as directed by Engineer at no additional cost to the Owner.

B. Before starting work, protect any trees or shrubs shown, designated or adjacent to the work to be saved by boxing or wire fencing staked securely in place or other approved means, maintain until completion of work or until removal may be directed by Engineer. Any trees cut or damaged during construction shall have the damaged portion covered with black asphalt paint.

2C.3 Disposition of Utilities

A. Owner will make all necessary arrangements for relocating active utilities in the way of new work that must be moved and for shutting off and disconnecting utilities that are to be abandoned.

2C.4 Clearing and Grubbing

A. Clearing

1. Contractor shall remove all trees, snags, shrubs, brush and other materials extending above the surface of the ground unless otherwise specified.

2. Clearing shall be flush with the existing ground surface or extend below the surface of the ground.

3. Limits of clearing shall be as follows:

a. Pipelines and conduits - to limits of trench excavation unless otherwise approved by Owner or Engineer.

b. Trees and shrubs that are to be removed will be marked by the Engineer

B. Grubbing

1. Grubbing shall consist of removing all stumps, roots, rubbish, junk, down timber, rotten wood and other objectionable material.

2. Removal of grubbed material by blasting will not be permitted. Limits of grubbing shall be the same as clearing limits.

2C.5 Disposal of Cleared and Grubbed Material

A. All material removed under this section shall become the property of the Contractor unless otherwise specified.

B. Contractor shall dispose of all waste material not designated for salvage and shall obtain all necessary waste areas for disposal of material off the site.

C. Permits for disposal of waste material on private property shall be in writing by the owner of the property. If property is in the name of more than one owner, all must sign. Two copies of the permit shall be submitted to the Engineer designating the disposal areas and conditions for such disposal.

2C.6 General

A. Clearing and grubbing operations shall maintain a sufficient distance ahead of excavating operation to avoid work slowdown or interference.

B. Clearing and grubbing beyond the construction right-of-way limits will not be permitted.

C. Engineer will locate right-of-way limits in all questionable areas before clearing and grubbing operations commence.

2C.7 Topsoil Removal

A. Contractor shall remove all topsoil to its full depth from within all areas to be excavated. Topsoil shall be stockpiled and stored as directed by Engineer for reuse in final grading.

2D.1 Scope

A. The Contractor shall construct and maintain diversions and/or such other works necessary to permit construction in the dry and to protect all permanent work under this Contract.

B. The requirements of this section shall apply to all sources of water whether from flowing streams, ground water, or surface water.

C. Unless otherwise specifically authorized in writing, all permanent structures shall be constructed in areas free from water. The necessary means of dewatering permanent work areas shall be maintained by the Contractor until such permanent work is complete and accepted.

2D.2 Plan of Operations

A. The Contractor, upon request from the Engineer, shall submit for approval, drawing and/or a description of the plan of operation that the Contractor proposes to use. No work under this section shall commence prior to approval of the plan, if requested. However, such approval will not relieve the Contractor of full responsibility for the adequacy and successful functioning of the works.

2D.3 Removal of Temporary Works

A. After completion of the permanent works, temporary works shall be completely removed and the area left in good condition, satisfactory to the Engineer.

2D.4 Damage to Work

A. Loss of any permanent works or loss of any temporary works will not be reason for claim against the Owner. Any such losses or damage to any part of the work, permanent or temporary, shall be the responsibility of the Contractor, who shall replace or repair, as required, to the satisfaction of the Engineer.

2D.5 Excavation Protection

A. Contractor shall prevent surface water and subsurface ground water flowing into excavations from flooding project site and surrounding area. Do not allow water to accumulate in excavations. Remove water to prevent softening of foundation bottoms, undercutting footings and soil changes detrimental to stability of subgrades and foundations. Provide and maintain pumps, sumps, suction and discharge lines and other dewatering system components necessary to convey water away from excavations.

1. Convey both water removed from excavations and rainwater to collection or runoff areas. Provide and maintain temporary drainage ditches and other diversions outside excavation limits. Do not use trench excavations as temporary drainage ditches.

2. Dispose of water so as not to cause a public health nuisance, or injure property. Where points of drainage discharge are in question, aproval shall be obtained from Engineer before such discharge is made.

3. Subgrades for thrust blocks and other structures shall be free from excess water during concrete placement and shall be maintained free from all excess surface and ground water for a period of at least 24 hours after concrete is placed.

Section 2E - Excavation

2E.1 General

A. Excavation shall consist of removing, hauling, and disposing of all material encountered, regardless of character, at any location indicated on the drawings, as specified herein or as directed by the Engineer.

B. All excavation is unclassified. For the purpose of describing and establishing limits, excavation work will be defined as follows:

1. General Excavation shall include all excavation required for roadway, ditches, channels, impoundments, structure foundations, etc.

2. Pipe Trench Excavation shall include excavation for pipe culverts, storm sewers, sanitary sewers, underdrains, water lines and other piping.

2E.2 Explosives

A. No blasting shall be done without first notifying the Owner and Engineer. The Owner reserves the right to prohibit blasting where, in their opinion, it is not warranted.

B. When blasting is permitted by the Owner, such operations shall be in charge of experienced and licensed blasters only, and be carried out in strict accordance with the existing ordinances of the Federal, State, county or municipality governing the same, and in accordance with Federal blasting regulations. Care shall be taken to protect from injury all persons, pipes, railway tracks, all underground structures encountered, and all buildings along the lines of the work. Blasts shall be fired at such times a may be fixed by the Engineer or Owner. Such control, however, shall not relieve Contractor of his responsibility for damage done when blasting. Where special blasting bonds are required, Contractor shall obtain and maintain these bonds at his cost, even though such bonds shall be in the name of the Owner. Cost of these bonds shall be considered incidental to other items of work. Required bonds and insurance covering blasting shall be obtained by Contractor from the same carrier. All other costs associated with the blasting operation, such as, but not limited to, bonds, surveys, insurance, etc., shall be at Contractor's expense.

2E.3 Rights-of-Way and Easements

A. Owner will require and pay for all rights-of-way and easements and permits required for this work.

1. The Contractor shall be responsible for obtaining from the Owner and complying with the requirement of all easements and rights-of-way.

2E.4 Miscellaneous

A. The Contractor shall protect structures, utilities, sidewalks, pavements and other facilities from damage caused by settlement, lateral movement, undermining, washout and other hazards created by earthwork operations.

1. Equipment having rubber runners or tires shall be utilized exclusively on permanent pavement.

a. Equipment having outriggers shall utilize wood or rubber blocking to protect pavement from damage.

2. The Contractor shall excavate by hand in areas where deemed necessary by the Engineer or where available space is too limited to permit use of equipment.

B. Adequate provisions shall be made for the flow of sewers, drains, culverts, and water courses encountered during construction.

1. All such structures disturbed or damaged during the work shall be repaired to the satisfaction of the Engineer at no additional cost to the Owner.

C. The Contractor shall perform earthwork operations in such a manner as to keep the job site free of ponded water and the subgrade at proper moisture content required for compaction. Diversion and care of water and dewatering shall be as specified in Section 2D or as directed by the Engineer.

D. Excavated material shall be deposited in such a manner as to interfere as little as possible with the execution of the work.

E. Earthwork operations shall be conducted so as to maintain safe pedestrian and vehicular traffic unless provisions for detours or disruption of traffic are set forth herein or are approved by the Engineer prior to start of construction.

1. Access to all existing valve pit covers, valve boxes, curb stop boxes, fire and police call boxes or other utility controls shall be maintained at all times.

F. All materials encountered, regardless of types or hardness and including existing foundations and other underground installations, shall be removed to required lines and depths. No claims for extra compensation or extension of time due to subsurface conditions encountered will be considered.

G. The Contractor shall remove all street and sidewalk pavements, curbing, drains, riprap, barriers, walls and other such obstacles as required for proper execution of the work and shall store and protect all materials that can be used in restoring the site to its original condition.

H. Pavements and road surfaces shall be removed as part of the excavation. Pavement shall be removed 12 inches beyond the limit of excavation by sawing to a neat straight line. The face of the remaining pavement shall be approximately vertical.

I. Excavate all ashes, cinders, refuse, organic material and other unsatisfactory subgrade materials that extend below required elevations to additional depth required by the Engineer. Replace unsuitable material with approved backfill material. Compact and grade backfill to required density and tolerance.

1. Such additional excavation and backfill shall be considered incidental to the work of the project.

2. Unsuitable excavated material shall be removed from site of work and wasted in approved areas.

J. If the bottom of an excavation at subgrade consists of material which, in the opinion of the Engineer, is unstable such that it cannot be removed and replaced with approved backfill material, the Contractor shall construct a foundation consisting of piling timbers or other materials in accordance with plans prepared by the Engineer.

1. Such additional foundation construction will be paid for as a change in work. Unit bid prices furnished by the Contractor for applicable items will be used as a basis for determining the price of the additional work.

K. The Contractor shall give two days' notice to the Engineer when excavations will be completed, so that an inspection of the bearing stratum can be made prior to the placement of concrete.

L. The Contractor shall protect the bottom of all excavations from freezing.

M. Provide and place all timberwork, sheeting, shoring, bracing and other classes of timberwork to adequately protect the work from earth pressure as required by federal and state laws and municipal ordinances. All sheeting, bracing, shoring or other supports not ordered left in place by the Engineer shall be removed after excavation is refilled in such a manner to prevent caving in. Upon removal, all voids shall be carefully backfilled and compacted. Where sheeting and bracing are required, excavation width shall be increased accordingly. Trench sheeting shall remain in place until pipe has been laid and earth around pipe compacted to a depth of two feet over top of pipe. Sheeting and shoring at concrete structure excavations shall remain in place until the concrete has cured to 70% of the specified 28-day strength.

1. The decision as to whether or not sheeting and shoring are necessary, and the design of such sheeting and shoring, will be made by the Contractor who shall assume sole responsibility for the safety of the work and adjacent structures and properties during and following the excavation operation.

N. Removal of materials beyond indicated grade elevations or dimensions without specific directions of the Engineer is prohibited.

1. Unauthorized excavation beneath footings, foundation bases, or concrete anchors shall be corrected by extending indicated bottom elevation to the excavation bottom without altering the required top elevation.

a. Type C concrete fill as specified in Division 3 may be used to bring elevations to proper position only when approved by Engineer.

2. All other unauthorized excavations shall be backfilled and compacted to indicated grade as specified for authorized excavations of the same type.

3. No claims or extra compensation due to unauthorized excavations will be allowed.

O. Contractor shall protect excavation bottoms against freezing when atmospheric temperature is less than 35°F.

2E.5 General Excavation

A. General excavation shall be to the limits shown on the drawings, as specified herein or as directed by the Engineer.

1. Excavation for structures shall conform to the elevations and tolerances shown within plus or minus one-tenth of a foot (0.10'). Extend excavations a sufficient distance from footings and foundations to permit placing and removal of concrete formwork and inspection of structure surfaces.

2E.6 Pipe Trench Excavation

A. Pipe trenches shall be excavated so that the pipe can be laid to the proper alignment and to avoid obstacles. Trench shall be excavated only as far in advance of pipe laying as permitted either by statute or the Engineer. Trenches shall be laid to the lines and grades shown on the drawings.

B. Width of pipe trench shall be kept to a minimum. Excavation of the pipe zone shall be confined to the limits of the trench width, as indicated on the drawings, measured at the pipe for the size and type of pipe being installed.

1. Bedding shall be as indicated on the drawings or as specified in Section 2F.

2. Bell holes of sufficient size shall be excavated at each joint in order to insure proper making of the joints, inspection of the work, and placing and compaction of the backfill, but not so large that undue stress is placed on the pipe when the trench is backfilled. Trench shall be widened only at the location of bells.

3. Trench for ductile and cast iron pipe installation shall be excavated to depth required to provide uniform and continuous bearing and support for the pipe on solid, undisturbed ground at every point between bell holes. It will be permissible to disturb the finished subgrade over a maximum length of 18 inches near the middle of each length of pipe by the withdrawal of pipe slings or other lifting tackle. All parts of the bottom of the trench excavated below specified grade shall be corrected with approved material and thoroughly compacted as specified. Finished subgrade shall be prepared accurately by means of hand tools.

   a. Trench for PVC pipe installation shall be excavated to a depth sufficient to permit installation of required bedding material beneath the pipe.

   b. Subgrade beneath centerline of pipe shall be finished to within 0.03 foot of a straight line between pipe joints or batterboards unless otherwise specified. All tolerances shall be above specified grade.

C. Ledge rock, boulders, and large stones shall be removed to provide a clearance of at least 6" below and on each side of all pipes for pipes 24" in diameter or less and 9" for pipe larger than 24" in diameter.

SECTION 2F - COMPACTED BACKFILL, FILL AND SUBGRADE

2F.1 General

A. Compacted backfill shall be used for filling pipe trenches and all excavated areas around structures when indicated. Compacted backfill shall also be used for replacing unsatisfactory foundation material for structures and for replacing caved-in material and for replacing materials excavated beyond established limits. Compacted backfill shall be placed to the original ground surface or to the lines and grades shown on the drawings, as specified herein, or as directed by the Engineer.

B. Fill shall consist of the placement of suitable materials in designated areas in accordance with these specifications and to the lines and grades shown on the drawings, including roadway embankments.

C. Subgrade shall consist of the preparation of the top surface of the roadbed or ground to accommodate the placement of pavements, slabs, structures, shoulders, curbs, gutters, etc. in accordance with these specifications and to the lines and grades as shown on the drawings.

D. Also included in this section is pipe zone bedding material as required for pipe installation. Bedding is defined as that material occupying the entire pipe zone, below, beside and over the pipe as shown on the details.

2F.2 Materials

A. Backfill material shall be secured from required excavations or borrow areas shown on the drawings or approved by the Engineer. Backfill material shall be free of ashes, rock or gravel larger than 3" in any dimension, debris, waste, frozen materials, organics or other deleterious matter.

B. Pipe trench backfill material above pipe zone in pavement and shoulder areas shall be as shown on the drawings. All other areas, material shall be suitable backfill material as specified previously.

C. Fill shall be secured from required excavations or approved borrow areas as shown on the drawings or as specified by the Engineer. The material shall be free from large rocks, broken concrete, roots, brush, other organic matter, trash, and frozen and other objectionable materials. It shall be reasonably well graded from coarse to fine. Unless otherwise specified, the material shall be granular and pervious in nature. If obtained from required excavation, the material may require sorting to remove objectionable material and also require stockpiling for later use. No separate payment will be made for sorting or stockpiling.

1. Borrow fill, if required, shall be obtained from off-site source at no additional cost to the Owner.

D. Pipe zone bedding material shall be as follows:

1. Cast iron or ductile iron pipe - "backfill material" as specified in Section 2F.2.A; however, bedding shall be free of rock or gravel larger than 1" in any dimension.

2. PVC pipe - crushed stone or gravel meeting the approval requirements of PennDOT Form 408, for No. 1 coarse aggregate; No. 2B modified or No. 2RC aggregate.

3. Cement concrete and reinforced cement concrete pipe - crushed stone or gravel meeting the requirements of PennDOT Form 408 (1976 Edition) Section 703.2 for No. 2A coarse aggregate.

4. Service lines - fine aggregate (sand) meeting the requirements of PennDOT Form 408, Section 703.1 for Type A sand.

2F.3 Placement and Compaction

A. Backfilling of pipe trenches shall take place as soon as possible. Backfilling operations shall be so conducted that permanent structures will not be disturbed and that the lines and grades of pipes will be maintained. Backfill shall be placed in the dry and shall not be frozen or placed on frozen ground.

B. No backfill shall be placed against nor on top of concrete surfaces until the earlier condition stated below has been attained, unless otherwise directed by the Engineer.

1. The concrete has developed at least seventy percent (70%) of the specified 28-day strength.

2. The time elapsed since placement of concrete is at least:

Walls and vertical faces	10 days
Conduit (inside forms in place)	7 days
Footings, cradles or bedding	2 days

C. Backfill around structures and pipe trench backfill shall be placed in four (4) inch layers and each layer shall be compacted with approved tampers. Where the material is granular in nature, vibratory-type power tampers will be required. Compaction shall be to a minimum density of 120 pounds per cubic foot.

D. Backfill material around structures and in pipe trenches shall be moistened or dried as necessary to bring it to the optimum moisture for compaction. Special care shall be taken to insure a thorough compaction of the pipe zone backfill material on each side and for a depth of twelve (12) inches above pipes and culverts. Backfill shall be brought up equally on opposite sides of pipe lines, culverts, wall stems, and similar structures. Backfill material having such a high water content as to prevent good compaction shall not be used. Backfill layers shall be evenly spread before compaction. Prior to operating equipment over pipes and other structures, backfill material shall be unformly compacted to a depth of at least two (2) feet over the top of pipes and structures and to a greater depth, if necessary, to prevent damage to the pipes or structures.

E. Pipe zone bedding for pipes shall be as shown on the drawings for the type of pipe specified.

F. Fill shall be placed in accordance with the requirements of PennDOT Form 408 Section 206, "Embankment."

G. Subgrade shall be prepared in accordance with the requirements of PennDOT Form 408 Section 210, "Subgrade."

2F.4 Maintenance

A. Protect newly graded areas from traffic and erosion and keep free of trash and debris. Repair and re-establish grades in settled, eroded and rutted areas to specified tolerance.

2G.1 General

A. This Section covers the replacement of topsoil and re-establishment of a vegetative ground cover in unpaved areas. Backfill above the pipe zone shall be as specified in Section 2F of these specifications. Unpaved area restoration shall be as shown on typical standard detail appended to these specifications.

B. All areas disturbed by the work and not receiving another surface finish shall be treated as turf, unless otherwise directed by Engineer. Borrow topsoil, if required, shall be obtained from off-site borrow areas at no extra cost to Owner. Borrow areas shall be approved by Engineer. Fertilizers and seed shall be delivered and stored in original, unopened containers, kept dry and not opened until needed for use. Faulty or damaged containers shall not be used.

C. This item will be considered incidental to the work. No separate pay item will be included.

2G.2 Materials

A. Topsoil shall be friable loam, reasonably free of subsoil, clay lumps, brush, roots, weeds, and other objectionable organic material, stones and other inorganic material larger than 2" in any dimension, litter, and all materials harmful to plant growth.

B. Lime shall be pulverized agricultural limestone containing a minimum of 85% total carbonates ground so that at least 90% passes a No. 20 sieve and at least 50% passes a No. 100 sieve.

C. Fertilizer shall be standard 5-10-5 commercial product in bags showing weight and analysis and manufacturer's name. Availability of the various elements shall conform to standards of the Association of Official Agricultural Chemists.

D. Grass seed shall be clean and fresh, packed in sealed bags showing net weight, composition of mix, date of germination tests and supplier's name.

E. Grass seed formula shall be as follows:

1. Composite of mix shall be PennDOT Formula "D" for all areas except Formula "B" shall be used for lawn replacement. Lawn areas determined by Engineer as not compatible with Formula "B", shall be seeded with a mix equivalent to adjacent grassed areas.

F. Mulch shall be clean wheat or oats straw.

2G.3 Application

A. Topsoil

1. Apply topsoil to all areas to receive turf except slopes 2:1 or greater. Compact topsoil to a depth of 3".

2. Excess topsoil, if any, shall become property of Owner. Contractor shall stockpile and stabilize as directed by Engineer.

B. Lime and Fertilizer

1. Apply lime at rate of fifty pounds per one thousand square feet.

2. Apply fertilizer at the rate of thirty pounds per one thousand square feet.

3. Work lime and fertilizer into soil to a depth of at least 2" by raking, discing or harrowing.

C. Seeding

1. Apply seed uniformly at rate of three pounds per one thousand square feet. Use suitable mechanical spreader or sow by hand. Hydroseeding will be permitted.

2. Contractor shall have choice of time during which he will seed, and shall be responsible for obtaining a satisfactory catch of grass as hereinafter specified.

D. Mulching

1. Apply mulch within 48 hours after seeding, and at minimum rate of one hundred thirty pounds per one thousand square feet. Mechanical blower will be allowed to apply mulch provided machine is specifically designed and approved for this purpose. Machines that cut mulch into short pieces will not be permitted.

2. Anchor mulch by use of twine and stakes, wire staples, paper or plastic nets, or other means approved by Engineer. Emulsified asphalt will be allowed provided it is applied uniformly at a rate of three and four-tenths (3.4) gallons per one thousand square feet.

2G.4 Maintenance

A. All areas and spots not showing a catch of grass shall be re-seeded. This operation shall be repeated until a complete coverage is obtained. Seeded areas shall be kept moist until a satisfactory catch of grass is established.

2H.1 General

A. This section includes requirements for paved area restoration. Paved areas shall consist of concrete pavement, bituminous pavement and stabilized surfaces located in municipal and PennDOT shoulders and highways; walks and private driveways. Cost of flagmen and inspectors required for all work on highways shall be paid by the Contractor. Work under this Contract will be performed entirely within municipal or PennDOT right-of-ways. Some of the following paragraphs that cover restoration in other areas do not apply to this contract.

B. Unless specifically stated to the contrary, paving and surfacing placed shall correspond to that removed during construction, i.e., concrete paving shall be replaced by concrete paving.

C. Pavement materials for State roads shall conform to requirements of Publication Title 67 Pennsylvania Code, Chapter 459, latest revision. Pavement materials shall be as follows:

1. Bituminous Concrete Base Course - Conform to PennDOT Form 408, Section 305.

2. Bituminous Surface Course - Type ID-2 wearing course, conforming to PennDOT Form 408, Section 420.

3. Bituminous Binder Course - Type ID-2, conforming to PennDOT Form 408, Section 421.

4. Bituminous Surface Treatment - shall conform to PennDOT Form 408, Section 408.

5. Cement Concrete

   a. Roadway Replacement - High early strength conforming to PennDOT Form 408, Section 704.

   b. All Others - Type B conforming to Division 3 of these specifications.

6. Reinforcement - Deformed bars and steel wire fabric conforming to PennDOT Form 408, Section 709.

7. Bituminous Penetrate - shall conform to PennDOT Form 408, Section 461.2.

8. Tack Coat - E-1 Emulsified Asphalt conforming to PennDOT Bulletin 25 and PennDOT Form 408, Section 460.2(a).

9. Joint Sealer - shall conform to PennDOT Form 408, Section 470.2(a).

D. 2RC aggregate (select granular material) shall be as specified in PennDOT Form 408, Section 703.3.

E. Reference: Made to PennDOT Form 408 shall be the latest edition.

2H.2 Municipal Highway Shoulder Restoration (Local Roads)

A. Municipal highway shoulder restoration shall be as shown on the typical standard details appended to these specifications to the lines and grades that existed prior to the work.

1. Municipal shoulder restoration shall be a stabilized type.

2. Existing turf shoulders shall be restored in kind.

3. The restoration of dirt, stone or gravel private driveways shall use this item as a minimum standard.

4. This item will be considered incidental to the work. No separate pay item will be included.

2H.3 Municipal Highway Restoration (Local Roads)

A. As shown on the typical details, bituminous pavement for municipal highway restoration and other pavement restoration shall be to the lines and grades that existed prior to the work and as follows:

1. Prior to restoration, the existing pavement edge along the trench shall be cut or sawed in a neat straight line to the bottom elevation of the existing base course. Drilling will not be permitted. All existing pavement damaged by the work shall be removed and replaced.

2. Bituminous concrete base course applied as per PennDOT Form 408, Section 305.

a. Depth of pavement shall be as shown on the drawings attached.

3. Bituminous binder course applied as per PennDOT Form 408, Section 421.

a. Depth of pavement shall be as shown on the drawings attached.

4. Bituminous surface course applied as per PennDOT Form 408, Section 420.

a. Depth of pavement shall be as shown on the drawings attached.

5. Cement Concrete - as per Division 3 as herein specified.

a. Roads and Driveways - 6" thick reinforced with steel wire fabric, 6" X 6" 10 gauge.

b. Sidewalks and other concrete paved areas - 4" thick reinforced with steel wire fabric, 6" X 6" 10 gauge.

B. Sealing of Joints

1. After the bituminous wearing course has been placed and compacted flush with the existing adjacent pavement, the joint between the new and existing pavement shall be sealed with a joint sealer placed in a minimum 4 inch strip (maximum 6" width) and sprinkled with sand to prevent pickup by traffic.

2. The joint between new concrete paving and old concrete shall be sealed by constructing a sealant reservoir, 1/2" wide and 1/2" deep along the joint by sawing, forming or tooling. The reservoir shall be sealed with joint sealing material meeting the requirements of PennDOT Form 408, Section 705.5(a).

C. Stabilized surface for municipal highway restoration and other stabilized restoration shall be as shown on the Typical Details to the lines and grades that existed prior to the work and as follows:

1. This work shall be in accordance with PennDOT Form 408, Section 677.

2H.4 State Highway Shoulder Restoration

A. All work shall conform to Publication Title 67 Pennsylvania Code, Chapter 459, latest revision.

B. Paved and stabilized shoulders shall be reconstructed and restored to a serviceable condition, of the same type as existed before the start of work.

C. Other state highway shoulder restoration shall be as shown on the typical detail standard appended to the rear of these specifications. Backfill above the pipe zone shall be PennDOT select granular material:

1. If the length of the work exceeds 50 feet, the shoulder shall be graded, rolled and penetrated with RT-2C or MC-30 bituminous material at a minimum rate of .25 gallon per square yard and chipped or lightly sanded to prevent tracking of oil onto pavement.

2H.5 State Highway Restoration

A. State highway restoration shall be as shown on the applicable typical standard detail and as required by PennDOT Regulation 67 Pa. Code... Chapter 459 latest edition. The Contractor shall utilize one of the two restoration methods listed below:

1. Final paving, RIGID BASE RESTORATION METHOD - Prior to replacement of the base course, one foot from each edge of the trench shall be sawed or cut, in a neat straight line to the bottom elevation of the existing base course, and the detached material shall be removed. Drilling will not be permitted.

   a. The base course shall be replaced with a minimum of eight inch, high early strength concrete to the elevation of the existing crushed aggregate base course. The high early strength concrete shall then be cured in accordance with Section 501.3(n), Form 408. If a trench exceeds four feet in width, No. 6 reinforcing bars shall be installed in the concrete base course, placed at six-inch centers measured longitudinally in the direction of the trench with a two inch clearance on each and a three inch clearance on the bottom.

   b. Following the concrete curing, a tack coat of E-1 bituminous material shall be applied in accordance with Section 460, Form 408.

   c. After the tack coat has cured, the bituminous binder and/or wearing course shall be placed so as to conform to the existing type of road binder and wearing course.

2. Final paving, FLEXIBLE BASE RESTORATION METHOD - Prior to making the permanent restoration, one foot from each edge of the trench shall be sawed or cut, in a neat straight line, to the bottom elevation of the existing base course, and the detached material shall be removed. Drilling shall not be permitted.

   a. Temporary restoration shall be made and kept in place for a minimum of 90 days. The base material shall consist of either a minimum eight-inch stone base, a minimum five-inch aggregate bituminous base, a minimum five-inch aggregate lime pozzolan or a minimum four-inch bituminous concrete, with a surface of two-inch bituminous material. Where the existing pavement structure includes a course of subbase material, it shall be placed to a depth equal to the existing course depth with material meeting the requirements of Section 350, Form 408.

   b. After the minimum 90 day period, but before 210 days, the temporary restoration shall be removed and permanent restoration made.

   c. The permanent base course shall consist of bituminous concrete meeting the requirements of Section 305, Form 408 and having a minimum depth of five inches or a depth equal to the existing base course, whichever is greater.

   d. The permanent binder and surface course shall be placed in accordance with the depths of the existing bituminous surface, but in no case shall the binder course be less than one and one-half inch ID-2 and the wearing course be less than one inch ID-2 or FJ-1.

SECTION 2I RAILROAD AND HIGHWAY BORINGS AND/OR ENCASEMENT

2I.1 Scope

A. This section covers the requirements for railroad and highway borings and/or encasements.

B. Railroad and highway borings and/or encasements shall be constructed at the locations and to the lines and grades shown on the drawings. Boring equipment shall be approved by Engineer.

C. All pipeline installations to be installed by borings beneath railroad or highways shall be encased in a casing pipe.

D. As directed by the Engineer, to facilitate carrier pipe removal, casing pipes may also be required when boring is not required.

2I.2 Materials

A. Carrier pipes under highways shall be mechanical joint ductile iron and class as specified in Section 15A. Carrier pipes under railroads shall be mechanical joint ductile iron Class 56. Size shall be as shown on the drawings.

B. Casing pipe shall be of steel construction, conforming to ASTM A106, Grade B, complete with welded joints and bitumastic waterproofing compound coating on the interior of the pipe. Casing pipe shall conform to the following schedule:

Casing Pipe

Carrier Pipe Diameter	Nominal Size	Pipe Schedule
4"	12"	20
6"	14"	20
8"	18"	20
10"	20"	20
12"	22"	20

1. Size as indicated on the drawing.
2. The interior of the pipe shall be bitumastic coated.

C. Gravel seal on each end of casing pipe shall be AASHTO #57 aggregate as specified in PennDOT Form 408, Section 703.3 (1983 Edition).

2I.3 Method of Installation

A. Boring shall consist of pushing the pipe into the earth with a boring auger rotating within the pipe to remove the spoil. When augers, or similar devices are used for pipe emplacement, the front of the pipe shall be provided with mechanical arrangements or devices that will positively prevent the auger and cutting head from leading the pipe so that there will be no unsupported excavation ahead of the pipe.

The auger and cutting head arrangement shall be removeable from within the pipe in the event an obstruction is encountered. The over-cut by the cutting head shall not exceed the outside diameter of the pipe by more than one-half inch. The face of the cutting head shall be arranged to provide reasonable obstruction to the free flow of soft or poor material.

B. If an obstruction is encountered during installation to stop the forward action of the pipe, and it becomes evident that it is impossible to advance the pipe, operations will cease and the pipe shall be abandoned in place and filled completely with cement grout.

C. The carrier pipe shall be installed in the casing pipe by winch-drawn cable or by jacking.

1. Care must be exercised to avoid damage to pipe or pipe joints.

D. Chocks or skids should be placed and banded on the carrier pipe to ensure approximate centering within the casing pipe and to prevent damage during installation. Care must be exercised in order to prevent metal-to-metal contact.

1. Lubricants may be used between skids to ease installation; however, petroleum products (oil, grease, etc.) shall NOT be used.

E. Upon completion of carrier pipe insertion, place gravel seals at each end of casing pipe and backfill as specified.

SECTION 2J - ACCESS ROAD

2J.1 Scope

A. This section covers the improvements to the existing Hockenberry Reservoir Access Road. The road location is shown on the Drawings. The improvements generally include adding stone base, drainage cross drains, side ditches and grading the existing surface. The location of the improvements are shown on the Drawings.

2J.2 Materials

A. All materials supplied for this project shall be PennDOT approved, and shall meet the requirements of the referenced section of PennDOT Specifications Form 408, latest edition. Required materials are as follows:

1. Coarse Aggregate, Section 203.2 and 203.3:

   a. No. 4 Aggregate (AASHTO No. 1)
   b. No. 2RC Aggregate, Select Granular Material

2. Corrugated Polyethylene (PE) Drain Pipe, Section 601.2(a).

3. Geotextile Fabric Section 735 - Fabric shall be Type 2B for roadway stabilization. The fabric shall be equal to Mirafi 500X manufactured by Mirafi, Inc., Belton 790 from Belton Industries and Typar 3341 from Remay, Inc.

2J.3 Construction

A. Subgrade and Grading - The existing roadway shall be graded, shaped after drainage pipes are installed. Equipment needed for this work are graders or dozers and rollers.

B. Drainage Dips - Broad based drainage dips as shown on the Drawings shall be graded at the locations directed by the Engineer. Each dip shall have a free flowing drainage outlet.

C. Geotextile Fabric - Fabric of the type specified shall be rolled over the prepared subgrade as directed by the Engineer. Care shall be taken not to run equipment over the fabric or drop any stones from higher than 12".

D. Crushed Aggregate Base Course - The base course shall be constructed as directed by the Engineer. The depth and width of the base course is shown on the Drawings. The stone shall be spread and compacted in no more than 8" lifts.

SECTION 3A - CONCRETE, GROUT, REINFORCEMENT AND SPECIALS

3A.1 Scope

A. This section covers materials, mixing, forming, placing and curing of all cast-in-place concrete, including reinforcement.

3A.2 General Requirements

A. Coordinate work with work of other trades to provide anchors, sleeves, conduits and other openings or materials to be installed prior to concrete placement.

1. Should equipment or pipe not be delivered to the site in sufficient time for incorporation into concrete, Contractor may provide opening for later incorporation of such equipment, provided written permission is obtained from Engineer at time of request.

B. Shop Drawings showing all dimensions necessary for fabrication and placing of reinforcing steel and accessories, without reference to Project Drawings, shall be submitted for approval in accordance with these specifications.

1. At the discretion of Engineer, additional Shop Drawings for formwork may be required when safety considerations are involved.

C. Contractor shall adhere to ACI 304-73, "Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete" and ACI 318-83, "Building Code Requirements for Reinforced Concrete," in executing requirements of this section.

3A.3 Storage of Materials

A. Cement shall be stored in weathertight bins or building that will protect it from dampness and in such manner as to permit easy access for suitable inspection and identification of each carload or equivalent. Cement shall not be stored in excess of eight bags high and shall be covered with tarpaulins. When permission is given by the Engineer to store temporarily in the open, a platform and adequate waterproof covering shall be provided.

B. Aggregate stockpiles shall be arranged and used in a manner to avoid excessive segregation or contamination with other materials or with other sizes of like aggregates. To insure that this condition is met, any test for determining conformation to requirements for cleanliness and grading shall be performed on samples secured from the aggregates at the point of batching. Stockpiles shall be built in successive horizontal layers not exceeding four feet in thickness, with each layer completed before the next one is started. Frozen or partially frozen aggregates shall not be used.

C. Sand shall be allowed to drain until it has reached a uniform moisture content before it is used.

D. Admixtures shall be stored in such a manner as to avoid contamination or damage. For those used in the form of suspensions or nonstable solutions, suitable agitating equipment shall be provided to assure uniform distribution of the ingredients. Liquid admixtures shall be protected from freezing and other temperature changes which would adversely affect their characteristics.

3A.4 Materials

A. Cement

1. Portland Cement Type I or Type III conforming to ASTM Designation C-150.

2. Cement shall be delivered only in approved bags or barrels with the brand, type and name of manufacturer clearly marked thereon or may be delivered in bulk in a manner approved by Engineer. A bag of cement shall contain 94 pounds net. A barrel of cement shall contain 376 lbs. net. Information as to brand, type and manufacturer must be provided in shipping invoices accompanying bulk cement. Cement shall not be used which has been retrieved or reclaimed from used bags.

B. Aggregate

1. Concrete aggregate shall conform to the specifications for Concrete Aggregate, ASTM Designation C-33.

a. Fine Aggregate - natural sand, artificial or manufactured sand will be acceptable.

b. Coarse Aggregate - coarse aggregate shall be crushed stone or gravel.

1. Maximum size of aggregate shall be no larger than 1/5 of the narrowest dimension between sides of forms within which the concrete is to be cast, nor larger than 3/4 of the minimum clear spacing between reinforcing bars and forms. For unreinforced slabs, maximum size of aggregate shall not be larger than 1/3 the slab thickness. These requirements may be waived if, in the opinion of the Engineer, the mixture possesses sufficient workability that the concrete can be placed without honeycombs or voids.

2. In general, the maximum size of aggregate to be used in the various items of concrete work shall be in accordance with the following table, but shall not exceed the limitations of the above paragraph:

RANGE FOR MAXIMUM SIZE OF AGGREGATES IN INCHES

Minimum Dimensions of Section in "	Reinforced Walls, Beams and Columns	Unre-Inforced Walls	Heavily Reinforced Slabs	Lightly Reinforced or Unre-inforced Slabs	All Other Construction
2-1/2 to 5	1/2 to 3/4	3/4	3/4 to 1	3/4 to 1-1/2	3/4 to 1
6 to 1	3/4 to 1-1/2	1-1/2	1-1/2	1-1/2 to 3	1-1/2
12 to 29	1-1/2 to 3	3	1-1/2 to 3	3	3
30 or more	1-1/2 to 3	6	1-1/2 to 3	3 to 6	3 to 6

*Based on square sieve openings.

C. Water

1. Water shall be tasteless, odorless, colorless, free from injurious amounts of sewage, oil, acid, alkali, organic matter and other deleterious substances and shall be suitable for human consumption.

D. Admixtures

1. Water-Reducing - "Eucon WR 75" by the Euclid Chemical Company, "Poxzzlith 200N" by Master Builders or "Plastocrete 160" by Sika Chemical Corporation. The admixture shall conform to ASTM C-494, Type A and contain not more than 1% chloride ions.

2. High-Range Water Reducing (Super Placticizer) - "Eucon Super 37" by the Euclid Chemical Company or "Sikament" by Sika Chemical Corporation. The admixture shall conform to ASTM C-494, Type F or G, and contain not more than 1% chloride ions.

3. Non-Corrosive Accelerator - "Accelguard" by The Euclid Chemical Company or "Darex Set Accelerator" by W. R. Grace & Company. The admixture shall conform to ASTM C-494, Type C or E, and have long term test data proving its noncorrosive effect on metal deck and reinforcing steel.

4. Water Reducing, Retarding - "Eucon Retarder 75" by the Euclid Chemical Company, "Pozzolith 100R" by Master Builders or "Plastiment" by Sika Chemical Corporation. The admixture shall conform to ASTM C-494, Type D, and not contain more than 1% chloride ions.

5. Air Entraining - Conform to ASTM C260.

6. Calcium Chloride - Not permitted.

3A.5 Mixes

A. All mix designs shall be proportioned in accordance with Section 4.3 (Field Experience and/or Trial Mixtures) of ACI 318-83.

B. Concrete for all parts of the work shall be homogenous and, when hardened, shall have the required strength, resistance to deterioration, durability and other specified properties. Three types of concrete are designated as follows:

1. Type A: (Air entrainment is optional) - For interior slabs on grade, footings, foundations and thrust blocks protected against cyclical freezing and thawing.

2. Type B: (Air entrainment is required) - For exterior slabs on grade, stream encasements, endwalls, headwalls, basement walls, retaining walls and beams subjected to cyclical freezing and thawing and placement in very wet conditions.

3. Type C: (Air entrainment is optional) - For all other concrete used.

C. Required concrete strength, f_c' shall be as follows:

Type	Compressive (psi)			Flextural (psi)		
	3-day	7-day	28-day	3-day	7-day	28-day
A	---	2750	3300	---	500	600
B	---	3330	4000	---	500	600
C	---	1500	2000	---	350	400

High Early Strength - Concrete shall achieve 7 and 28-day strengths for type intended at 3 and 7 days respectively.

D. Concrete subject to destructive exposure, such as freezing and thawing, severe weathering or chemicals, shall contain entrained air as required by these specifications. For all such concrete the water-cement ratio shall not exceed 0.53 (6.0 gallons per sack of cement). Concrete subjected to deicers, the water-cement ratio shall not exceed 0.45 (5.1 gallons per sack of cement).

E. Slump of concrete of normal weight, as determined by "Method of test for Slump of Portland Cement Concrete" (ASTM C-143), shall be in accordance with Table 1 unless the HRWR admixture (Super Plasticizer) is used. Water, in excess of that included in the approved mix design, may not be added at the plant or in the field.

TABLE 1

Type of Construction	Slump in Inches	
	Hand Placed	Vibrator Used
Reinforced Footings	2 to 5	1 to 3
Plain Footings and Substructure Walls	1 to 4	1 to 3
Slabs, Beams and Reinforced Walls	2 to 5	1 to 4
All Other Placements	1 to 3	1 to 2

The maximum slump of concrete containing the HRWR admixture (Super Plasticizer) shall be 8" unless otherwise approved by the Engineer.

F. Air content of air-entrained concrete shall conform to Table 2. Air content shall be determined in accordance with ASTM C173 (Volumetric Method) or ASTM C231 (Pressure Method).

TABLE 2: TOTAL AIR CONTENT FOR VARIOUS SIZES OF COARSE AGGREGATES

Nominal Maximum Size of Coarse Aggregate in "	Total Air Content Percent by Volume
1/2 or smaller	5 to 9
3/4	4 to 8
1	3.5 to 6.5
1-1/2 or larger	3 to 6

G. Admixtures shall be used as follows:

1. Any concrete may contain the specified water-reducing admixture (Type A) or the specified HRWR admixture (Super Plasticizer, Type F or I) when approved by the Engineer.

2. When increased workability, pumpability, lower water-cement ratio, or higher ultimate and/or early strengths are required, the HRWR admixture (Super Plasticizer) may be used when approved by the Engineer.

3. All thin slabs (8" thick or less) placed below 50° F shall contain the specified noncorrosive accelerator when approved by the Engineer.

4. When high temperatures, humidity and/or placing conditions dictate, the Engineer may require a change to the specified water-reducing, retarding formulation (Type D) in lieu of the water-reducing admixture (Type A).

5. All concrete required to be air entrained shall contain an approved air-entraining admixture.

6. All Class B Concrete shall contain a water reducing, retarding admixture as specified in Section 3A.4.D.4.

H. Calcium chloride shall <u>not</u> be permitted.

I. Proportion of ingredients shall be selected to produce:

1. Proper placeability, durability, strength and other required properties.

2. A mixture of which will work readily into corners and angles of the forms and around reinforcements by methods of placing and consolidation employed on the work, but without permitting materials to segregate or excessive free water to collect on the surface.

J. The mix designs shall be proportioned in accordance with Section 4.3 (Field Experience and/or Trial Mixtures) of ACI 318-83. If the proposed mix is based on previous field experience, the mix and supporting data shall be submitted to the Engineer for approval. Otherwise, the mix design shall be prepared in accordance with trial batches (Section 4.3) by an independent laboratory engaged by the Contractor. Tests shall be made in accordance with the following procedures:

1. Concrete trial mixtures having proportions and consistency suitable for the work shall be made using at least three different water-cement ratios which will produce a range of strengths encompassing those required for the work. Trial mixes shall be designed to produce the maximum allowable slump.

2. Proportions of ingredients shall be determined and tests conducted in accordance with the basic relationships and procedures outlined in "Recommended Practice for Selecting Proportions for Normal and Heavyweight Concrete," ACI 211.1.

3. For each water-cement ratio, at least three (3) specimens for each age to be tested shall be made and cured in accordance with "Method of Making and Curing Concrete Test Specimens in the Laboratory" ASTM C-192, and tested for strength at 28 days, or at any earlier or later age specified. Tests shall be conducted in accordance with "Method of Test for Compressive Strength of Cylindrical Concrete Specimens." ASTM C-39.

4. From results of these tests, a curve shall be plotted showing relationship between water-cement ratio and compressive strength. The water-cement ratio to be used in the proposed mix design shall be that which achieves an average strength 1200 psi above the specified strength, f_c'.

MAXIMUM PERMISSIBLE WATER-CEMENT RATIOS

Maximum Permissible Water-Cement Ratios, By Weight

Type	Specified 28-Day Compressive Strength in psi	Non-Air Entrained Concrete	Air Entrained Concrete
A	3300	0.55	0.44
B	4000	----	0.35
C	2000	0.76	0.62

Concrete subjected to deicers shall have a maximum water-cement ratio of 0.45. If concrete is designed to be watertight, concrete shall have a maximum water-cement ratio of 0.48.

K. Contractor shall submit for approval supporting data for his proposed mix designs.

3A.6 Mixing Concrete

A. General - Ready-mixed concrete shall be mixed and delivered in accordance with ASTM C-94, "Standard Specifications for Ready-Mixed Concrete" modified as follows:

1. During a continuous placement the interval between loads shall not exceed 20 minutes, or be so great that concrete in place becomes partially hardened.

2. Water used to flush mixer or agitator between loads shall not become a part of concrete in the work.

3. Truck mixers shall be revolving drum type equipped with water mixing tank. Place only prescribed amount of mixing water in tank for batch type and size unless tank is equipped with device to allow Engineer to read amount of water added and his approval is given.

4. Prepare delivery tickets for every ready-mixed concrete load delivered. If a laboratory representative is inspecting batching operation, he shall prepare the ticket. Otherwise batch plant operator shall prepare the ticket. Truck drivers shall deliver tickets to Engineer at the site at the time of delivery. Tickets shall contain the following information:

   a. Number of yards delivered on this truck.
   b. Quantities of materials in the batch.
   c. Time at which the truck left the batching plant.
   d. Time at which the cement was added.
   e. Outdoor temperature in the shade.
   f. Numerical sequence of the delivery.
   g. Date.

B. Batch Mixing at the Site

1. Concrete shall be mixed in a batch mixer conforming to requirements of the Mixer Manufacturers Bureau of the Associated General Contractors of America. Mixer shall bear a manufacturer's rating plate indicating the rated capacity and the recommended revolutions per minute and shall be operated in accordance with these recommendations. It shall be equipped with a suitable charging hopper, water storage tank and a water-measuring device and be capable of thoroughly mixing the aggregates, admixtures, cement and water into a uniform mass with specified mixing time and of discharging the mix without segregation.

2. All liquid admixtures shall be dispensed by means of an automatic dispenser or similar metering device. Powdered admixtures shall be weighed or measured by volume as recommended by manufacturer. Accuracy of measurement of any admixture shall be within ±3% of the quantity used.

3. The batch shall be so charged into the mixer that some water will enter in advance of the cement and aggregates. Water shall continue to flow for a period which may extend to the end of the first 25% of the specified mixing time. Controls shall be provided to insure that no additional water may be added during mixing. Entire batch shall be discharged before mixer is recharged.

4. Each batch of two cubic yards or less shall be mixed for not less than 1-1/2 minutes. Mixing time shall be increased 15 seconds for each additional cubic yard or fraction thereof.

5. Mixer shall be clean and the pick-up and throw-over blades in the drum shall be replaced when they have lost 10% of their original depth.

C. Retempering and Changing Slump

1. Concrete shall be mixed only in quantities for immediate use. Concrete which has set shall not be retempered but shall be discarded.

2. Addition of water to increase slump shall be prohibited. Ingredients shall be cooled before mixing, or well-crushed ice may be substituted for all or part of the mixing water if, due to high temperature, deemed necessary by the Engineer.

D. Cold Weather

1. To maintain the temperature of the concrete above minimum placing temperature, the as-mixed temperature shall not be less than 55°F when the mean temperature falls below 40°F.

2. If water or aggregate has been heated, water shall be combined with the aggregate in the mixer before cement is added. Cement shall not be added to mixtures of water and aggregate when temperature of mixture is greater than 100°F.

E. Hot Weather

1. Ingredients shall be cooled before mixing, if necessary, to maintain temperature of concrete below the maximum placing temperature of 90°F.

3A.7 Placing Concrete

A. General

1. Placing of concrete shall be done in accordance with ACI 304, "Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete," except as modified or revised by these specifications.

B. Preparation Before Placing

1. Hardened concrete and foreign materials shall be removed from inner surfaces of the conveying equipment.

2. Chutes shall be of metal or metal-lined.

3. If two or more lengths of chute are used, they shall have approximately the same slope. Slopes shall neither exceed one vertical to two horizontal, or be less than one vertical to three horizontal.

4. If the distance of the discharge end of the chute above the surface of the concrete is more than three times the thickness of the layer being deposited, or more than four feet total, a spout shall be used and the lower end maintained as near to the surface of deposit as practical. When operation is intermittent, the chute shall discharge into a hopper.

5. The chute shall be thoroughly cleaned before and after each run and the debris from any water used shall be discharged outside the forms.

D. Placing

1. Concrete shall be deposited continuously or in layers of such thickness that no concrete will be deposited on concrete which has hardened sufficiently to cause the formatin of seams or places of weakness within the section.

2. If a section cannot be placed continuously, construction joints shall be located at approved points.

3. Placing shall be carried on at such a rate that concrete which is being integrated with fresh concrete is still plastic. Concrete which has partially hardened, or has been contaminated by foreign materials, shall not be deposited.

4. Concrete shall be deposited in the forms as nearly as practical in its final position to avoid rehandling.

5. Temporary spreaders in forms shall be removed when concrete placing has reached an elevation rendering their service unnecessary. They may remain embedded in the concrete only if made of metal or concrete and if prior approval is obtained.

6. Forms for walls or thin sections of considerable height shall be provided with openings or other devices that will prevent segregation and accumulation of hardened concrete on the forms or on the metal reinforcement above the level of the concrete.

7. Before depositing new concrete on or against concrete which has hardened and to which it is to bond, the forms shall be retightened. Surface of hardened concrete shall be roughened in a manner that will not leave loosened particles of aggregate or damaged concrete at the surface. It shall be thoroughly cleaned of foreign matter and laitance, and dampened with water. New concrete shall be placed after the bonding compound has dried.

8. Where a smooth finish is required, the concrete shall be carefully placed and consolidated to assure a full surface of mortar against the form without formation of excessive surface voids.

9. Mechanical vibrators shall have a minimum frequency of 8,000 vibrations per minute and be operated by competent workmen. Over vibration and use of vibrators to transport concrete within forms shall not be allowed. Vibrators shall be inserted and withdrawn (approximately vertical) at many points from 18 inches to 30 inches apart for five to ten seconds duration. A spare vibrator shall be kept on the job site during all concrete placing operations.

10. Accumulation of water on the surface of the concrete due to water gain, segregation or other causes during placement and consolidation shall be prevented as far as possible by adjustments in the mixture. Provision shall be made for the removal of such accumulated water so that under no circumstances will concrete be finished with such "bleed water" on the surface.

11. Unless adequate protection is provided, or prior approval is obtained from the Engieer, concrete shall not be placed during rain, sleet or snow.

12. Rainwater shall not be allowed to increase the mixing water, nor to damage the surface finish.

E. Cold Weather Placing

1. Concrete shall be placed in cold weather in accordance with ACI 306, "Recommended Practice for Cold Weather Concrete" except as modified or revised below:

   a. Before placing concrete during cold weather, forms shall be free from frost and ice.

   b. During those seasons of the year (after the first frost in the fall and until daily mean temperature in the spring reaches 40°F for three successive days) when freezing temperatures can be anticipated, Contractor shall maintain facilities to keep concrete from freezing for at least 48 hours after placing.

c. When daily mean temperature drops below 40°F for more than one day, concrete shall be maintained at a temperature of 55°F for a minimum of five days. During this period concrete and adjacent form surfaces shall be kept moist at all times. When heating enclosures are to be provided, care shall be taken to provide adequate space around outer edges and top of concrete structure to permit circulation of the heater air so that neither freezing nor excessive heating of these extremities can occur. Method proposed for protection must have the approval of the Engineer and all facilities for protection and heating must be on hand before concrete is placed.

d. The specified noncorrosive accelerator may be used when approved by the Engineer.

e. After required protection period is over, heat shall be removed gradually so that a temperature differential of no more than 40°F will occur over the first 24 hours.

f. Forms shall not be removed from concrete surfaces during protection period stipulated above, nor shall forms be removed for a period of three days during those seasons of the year previously specified when the difference between daily high and low temperatures may reasonably be expected to exceed 40°F.

F. Hot Weather Placing

1. Concrete shall be placed in hot weather in accordance with ACI 305, "Recommended Practice for Hot Weather Concreting," except as modified below:

a. At air temperature of 90°F or above, concrete shall be kept as cool as possible during placing. Exposed concrete surfaces shall be kept continuously moist by wet-curing for at least 24 hours after concrete has been placed. After the period of wet-curing, a suitable heat-reflecting plastic membrane or white-pigmented curing compound may be used.

3A.8 Repair of Surface Defects

A. After forms have been removed, any concrete not formed as shown, or which shows a defective surface which cannot be properly repaired or patched, shall be removed. Adequacy of surfaces will be governed by the judgment of the Engineer.

B. All tie holes and repairable defective areas shall be patched immediately after form removal.

C. All honeycombed and other defective concrete shall be removed to sound concrete, but in no case to a depth of less than one inch. Area to be patched, and an area at least six inches wide surrounding it, shall be dampened to prevent absorption of water from patching mortar. The bonding compound, "Euco Weld" by the Euclid Chemical Company or "Weldcrete" by Larson Products, or approved equal, shall be applied. The patching mortar shall be placed after the bonding compund has dried.

D. Patching mixture shall be made of same material and of approximately same proportions as used for concrete, except that coarse aggregate shall be omitted and mortar shall consist of not more than one part cement to 2-1/2 parts sand by damp, loose volume.

E. Quantity of mixing water shall be no more than necessary for handling and placing. Patching mortar shall be mixed in advance and allowed to stand with frequent manipulation with a trowel, without addition of water, until it has reached the stiffest consistency that will permit placing.

F. Tie holes shall be cleaned, dampened and filled solid with patching mortar.

G. With prior approval of the Engineer as to method and procedures, the compounds used for all structural repairs shall be "Euco Epoxy #456, #460 or #463" by the Euclid Chemical Company; "Colma Dur Mortar," "Sikadur Hi-Mod L.V." or "Sikadur Hi-Mod" by Sika Chemical Corporation, or approved equal.

3A.9 Flatwork

A. Edge forms and intermediate screed strips shall be set accurately to produce designed elevations and contours in the finished surface, and shall be sufficiently strong to support vibrating bridge screeds or roller pipe screeds if the nature of finish specified requires the use of such equipment. Concrete surface shall be aligned to contours of screed strips by use of strike-off templates or approved compacting type screeds.

B. Concrete in slabs shall be thoroughly consolidated. Internal vibration shall be used along bulkheads of slabs on grade. Consolidation of slabs shall be obtained with vibrating bridge screeds, roller pipe screeds or other approved means. Concrete to be consolidated shall be as dry as practicable and surfaces shall not be manipulated prior to finishing operations.

3A.10 Concrete Finish

A. All concrete surfaces shall be finished as specified as soon after placing the concrete as conditions will permit. Placing of concrete and removal of forms shall be scheduled so that finishing surfaces can be completed as soon as possible without jeopardizing the structure. No cement plaster or cement brush coats will be accpetable.

B. Formed concrete surfaces which are not exposed to view in the finished work shall be finished by removing the form ties below surface of concrete, pointing up and rubbing down to remove fins and irregularities and leaving a reasonable smooth surface.

C. Formed concrete surfaces exposed to view in the finished work shall be finished by removing the forms as early as is practical, immediately removing the form ties to a depth of at least 3/4-inch beneath the surface and pointing up the holes and filling all cavities and depressions with a cement mortar similar to that in concrete, and finishing flush with a wood float or trowel.

D. Cement mortar shall not be applied except to fill holes or cavities.

E. Fins, form marks, projections and uneven spots shall be removed by rubbing or grinding the surfaces. Entire surface of concrete shall then be thoroughly drenched with water and rubbed with a carborundum brick or other approved abrasive until all fins, joint marks and mortar spots have been eliminated and a smooth finish of uniform texture and appearance has been produced.

F. Similar finishes on exterior exposed walls shall be carried one foot below finished grade. All exposed concrete surfaces shall be required to present a smooth and uniform surface.

G. Concrete for slabs shall be placed, consolidated, struck off and leveled to established grade. After the surface has stiffened sufficiently to permit the operation and the water sheen has disappeared, float the surface at least twice to a uniform sandy texture. Where required, the surface shall then be troweled, at least twice, to a smooth, hard, dense finish. The floating operation shall not begin until all excess water has been removed or evaporated.

H. All interior floors and platforms exposed to view shall receive a steel trowel finish.

I. All exterior slabs, sidewalks, etc. shall receive a broomed finish after the surface has received a float finish. Texture shall be as directed by the Engineer.

3A.11 Curing and Protection

A. Freshly deposited concrete shall be protected from premature drying and excessively hot or cold temperatures and maintained without drying at a relatively constant temperature for a period of seven days or for a longer time if necessary for hydration of the cement and proper strength gain.

B. Initial curings shall immediately follow finish operation. Concrete shall be kept continously moist at least 24 hours.

C. Immediately following initial curing and before concrete has dried, additional curing shall be accomplished by one of the following materials or methods:

1. Continuing the method used in initial curing.

2. Building paper or polyethylene sheeting as specified.

3. Liquid membrane-curing compound except on surfaces to receive coatings or additional lifts of concrete. Curing compounds conforming to "Specifications for Liquid Membrane-Forming Compounds for Curing Concrete" (ASTM C-309). Such compounds shall be applied in accordance with recommendations of the manufacturer and shall not be used on any surfaces against which additional concrete or other cementitious finishing materials are to be bonded, not on surfaces on which such curing is prohibited by these specifications.

D. Final curing shall continue until cumulative number of days during which temperature of the air in contact with concrete is above 50°F has totaled seven days.

E. If high early strength concrete has been used, these temperatures need only to be maintained for three (3) days.

F. Rapid drying at the end of the curing period shall be prevented.

G. During curing period, concrete shall be protected from damaging mechanical disturbances, particularly load stresses, heavy shock and excessive vibration. All finished concrete surfaces shall be protected from damage caused by construction equipment, materials or methods and by rain or running water. Self-supporting structures shall not be loaded in such a way to overstress concrete.

3A.12 Formwork

A. All formwork shall be as required in ACI 347, "Recommended Practice for Concrete Formwork" except as modified below:

1. Forms shall conform to shape, lines, grades and dimensions of the concrete as called for in the drawings. All lumber used for forms shall be thoroughly cleaned and treated with an approved form oil. Lumber used in forms for exposed surfaces shall be dressed to a uniform thickness and free from loose knots or other defects. For unexposed surfaces and rough work, undressed lumber free of nails and clean of hardened concrete or other foreign material may be used. Lumber once used in forms shall have nails withdrawn and surfaces to be in contact with concrete shall be thoroughly cleaned before being used again. Forms for all exposed concrete shall be carefully built to produce contour and design indicated. Care shall be taken to assure that all form joints are vertical or horizontal. No sloping joints will be accepted.

B. Form sheathing for exposed surfaces shall be composed of tongue and groove lumber, shiplap, plywood, concrete form board or steel.

C. Steel lining of wood lagging will not be permitted. Tongue and groove shiplap when used shall conform to American Lumber Standards for No. 2 boards.

D. Plywood used for sheathing or lining shall be Grade B-B, exterior or better, as described in the Commercial Standards of the Douglas Fir Plywood Association.

E. Forms used shall produce a concrete surface with "abrupt" irregularities less than 1/4" and gradual irregularities less than 1/2" in five feet.

F. Where circular or curved surfaces greater than 10'0" radius will be exposed to view, forms may be constructed of panels with a maximum width of 12".

G. For small radius curves of 10'0" or less, forms shall be circular, conforming to the true shape of the structure.

H. Forms shall be sufficiently tight to prevent leakage of mortar. They shall be properly braced or tied together to maintain the desired position and shape during and after placing concrete, and so they will not tremble or distort in a high wind.

I. Temporary openings shall be provided at base of wall forms and other points where necessary to facilitate cleaning and inspection immediately before depositing concrete.

J. Embedded metal rods of a design approved by Engineer shall be used for internal form-ties. They shall be so designed and arranged that when the forms are removed no metal shall be with 3/4-inch of any concrete surface. Ties used shall be manufactured in such a way that installation will not necessitate a hole in the form larger than the tierod. Ordinary wire ties and ties that require removal from concrete will not be permitted. Wall ties shall be submitted to Engineer for approval prior to use on the job.

K. Form surfaces shall be prepared as follows:

1. Forms shall be sufficiently tight to prevent leakage of grout or cement paste. Board forms having joints opened by shrinkage of wood shall be swelled until closed by wetting before concrete is placed.

2. Plywood and other wood surfaces not subject to shrinkage shall be sealed against absorption of moisture from concrete by either:

   a. A field-applied commercial form oil or sealer.

   b. A factory-applied nonabsorptive liner. Excess oil or sealers shall be removed prior to placing of concrete.

3. When steel forms are coated to prevent bond with concrete, it shall be done prior to placing of reinforcing steel. Excess material shall not be allowed to stand in puddles in the forms, nor allowed to come in contact with concrete or reinforcing against which fresh concrete will be placed.

4. Where as-cast finishes are required, materials which will impart a stain to the concrete shall not be applied to form surfaces. Where finished surface is required to be painted, material applied to form surfaces shall be compatible with type of paint to be used. All form surfaces shall be cleaned before reuse.

L. No form or form support shall be removed from formed surface for at least 24 hours. Exposed surfaces shall receive moisture curing as soon as the fresh concrete will accept it without damage. Forms shall be removed in such manner as to insure complete safety of structure. Responsibility for removal of forms shall be with Contractor. However, the following minimum requirements shall be adhered to:

1. In cold or inclement weather, requirement for removal of forms shall be as stated in the article under "Placing Concrete in Cold Weather."

2. Forms for supporting reinforced concrete roofs or floors shall not be removed nor form supports slackened for a period of 28 days unless Contractor can produce satisfactory evidence that concrete has attained the specified 28-day strength characteristic.

3. Portions of the structure subjected to construction loads or backfill shall have attained sufficient strength to withstand these loads, and Contractor will be required to produce evidence that such strength has been attained.

4. No construction loads exceeding structural design loads shall be supported upon any unshored portion of the structure under construction.

M. Evidence that concrete has attained a strength sufficient for the above conditions shall consist of reports of compression tests made on job-cured cylinders. Cost of such tests shall be borne by Contractor.

N. In case Contractor shall remove any form or slacken any supports before above conditions have been met, concrete elements may be condemned even though there is not an apparent defect.

3A.13 Reinforcement

A. Reinforcing bars shall conform to requirements of ASTM A 615, "Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement." All reinforcing bars shall be Grade 60 unless otherwise noted on the drawings.

B. Welded wire fabric for concrete reinforcement shall be electrically-welded wire fabric of cold-drawn wire conforming to ASTM A-185, "Specification for Welded Steel Wire Fabric for Concrete Reinforcement."

C. Reinforcement shall be accurately formed to the dimensions indicated on the drawings. Stirrups and tie bars shall be bent around a pin having a diameter not less than two times the minimum thickness of the bar except for hooks. Bends for other bars shall be made around a pin having a diameter not less than six times the minimum thickness, except for bars larger than one inch, in which case the bend shall be made around a pin of eight bar diameters. All bars shall be bent cold.

D. Bars use for concrete reinforcement shall meet the following requirements for fabricating tolerances:

1. Sheared length: ±1 inch
2. Depth of truss bars: +0. -1/2 inch
3. Stirrups, ties and spirals: ±1/2 inch
4. All other bends: ±1/2 inch

E. Metal reinforcement shall not be straightened or rebent in a manner that will injure the material. Bars with kinks or bends not shown on the drawings shall not be used. Heating the reinforcement will not be permitted.

F. Metal reinforcement shall be accurately positioned in accordance with information on the drawings and secured against displacement by using annealed iron wire ties or suitable clips at intersections, and shall be supported by concrete or metal supports, spacers or metal hangers.

G. Bars shall be placed to the following tolerances:

1. Concrete cover to formed surfaces: ±1/4 inch
2. Minimum spacing between bars: -1/4 inch
3. Top bars in slabs and beams:

   a. Members 3 inches deep or less: ±1/4 inch
   b. Members more than 8 inches but not over 2 feet deep: ±1/2 inch

4. Crosswise of members: Spaced evenly with 2 inches
5. Lengthwise of members: ±2 inches
6. 3-inch members more than 2 feet deep: ±1 inch

H. Bars may be moved as necessary to avoid interference with other reinforcing steel, conduits or embedded items. If bars are moved more than one bar diameter, or enough to exceed the above tolerances, the resulting arrangement of bars shall be subject to approval.

I. If it is necessary to splice reinforcement at points other than shown on the drawings, the character of the splice shall be determined by the Engineer. The overlap in splices shall be 40 bar diameters.

J. Welded wire fabric shall be lapped at least 1-1/2 meshes plus end extension of wires, but not less than 12 inches in structural slabs. It shall be lapped at least 1/2 mesh plus end extension of wires, but not less than six inches in slabs on the ground. All laps of wire mesh shall be securely tied together with No. 14 tie wire, one tie for each two running feet. Wires shall be staggered and tied in such a manner that they cannot slip. The mesh shall be extended across supporting beams and walls. Adequate support for mesh shall be used during placing of concrete so that mesh is completely surrounded by concrete and not less than two inches above bottom of slabs on the ground, or 1/2 inch above the formwork.

K. Metal reinforcement, before positioned, shall be free from loose mill and rust scale, and from coatings, including ice and form oil, that destroy or reduce the bond. Where there is delay in depositing concrete, reinforcement shall be reinspected and cleaned where necessary.

L. Unless permitted, reinforcement shall not be bent after being partially embedded in hardened concrete.

3A.14 Joints and Embedded Items

A. Construction Joints

1. Joints shall be so made and located as to least impair the strength of the structure and shall be approved. In general they shall be located as shown on the drawings; however, if not shown, in no case shall construction joints be placed at intervals greater than 25 feet. Joints shall be perpendicular to the main reinforcements.

2. All reinforcing steel and mesh shall be continued across construction joints not intended for expansion or contraction of the structure. Additional reinforcing shall be provided as directed by the Engineer.

3. Surface of concrete at all joints shall be thoroughly cleaned and all laitance removed.

4. For structural members, when required or permitted, bond shall be obtained by one of the following methods:

a. Use of the bonding compound "Euco Weld" by the Euclid Chemical Company or "Weldcrete" by Larson Products.

b. Use of the surface retarder, "Surface Retarder-F" by the Euclid Chemical Company or "Rugasol F" by Sika Chemical Corporation, which delays but does not prevent setting of surface mortar. Retarded mortar shall be removed within 24 hours after placing to produce a rough exposed aggregate bonding surface.

c. By roughening surface of concrete in an approved manner which will expose aggregate uniformly and will not leave laitance, loosened particles of aggregate or damaged concrete at the surface.

B. Expansion Joints

Expansion joint locations shall be as shown on the drawings; however, if not shown, in no case shall expansion joints be placed at intervals greater than 75 feet.

1. Reinforcement or other embedded metal items bonded to concrete shall not be permitted to extend continuously through expansion joints.

2. Premolded expansion joint filler shall be of size shown on the project drawings, and shall conform to "Standard Specification for Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structureal Construction," (ASTM D 1752).

C. Other Embedded Items

1. All sleeves, inserts, anchors and embedded items required for adjoining work, or for its support, shall be placed prior to concreting.

D. Placing Embedded Items

1. Expansion joint material and embedded items shall be positioned accurately and supported against displacement. Voids in sleeves, inserts and anchor slots shall be filled temporarily with readily removable material to prevent entry of concrete into the voids.

3A.15 Method of Measurement and Basis of Payment

A. Concrete shall be measured by the cubic yard to the closest one-half cubic yard (0.5 CY) for each type of concrete specified, complete in place.

B. Measurement shall include all reinforcement, joints, insulation, curing compounds, formwork and finish required for placement in accordance with the specifications.

C. Concrete will be paid for at the unit prices bid for each type.

D. No payment will be made for repairs or replacement of defective work.

Division 15 - Mechanical

SECTION 15A - PIPING AND APPURTENANCES

15A.1 General

A. Scope

1. This section includes the furnishing, installing, laying, jointing, testing and sterilizing, as required, of all process and utility pipe, fittings, special castings and appurtenant materials and equipment, all as indicated on the drawings and as specified herein.

2. The type of pipe to be used under this Contract shall be as follows:

   a. 6-inch Water Lines: either ductile iron pipe Class 50 or PVC plastic pipe, water lines 2 inches and larger (ASTM D-2241) SDR 21.

   b. Galvanized Steel Pipe: ASTM A120, standard weight.

   c. Service Lines: Copper Type K, of a size to match existing service line.

15A.2 Ductile Iron Pipe and Ductile or Cast Iron Fittings

A. Scope

1. Unless otherwise specifically noted on the plans or described herein, all ductile iron pipe installed underground shall be thickness Class 50 ductile iron. Bedding shall be as shown on the Contract Drawings. Backfill requirements shall be as specified in Division 2.

2. All interior exposed ductile iron pipe shall be Class 53, ductile iron flanged joint.

B. Standard Specifications

1. All pipe, fittings and accessories shall conform to requirements of the following standard specifications, latest revision, as applicable:

AMERICAN NATIONAL STANDARDS INSTITUTE STANDARDS

A.21.1 ANSI - Standard for Thickness Design of Cast Iron Pipe
A.21.4 ANSI - Standard for Cement-Mortar Lining for Cast Iron Pipe and Fittings for Water
A.21.6 ANSI - Standard for Cast Iron Pipe Centrifugally Cast in Metal Mold for Water or Other Liquids
A.21.8 ANSI - Standard for Cast iron Pipe Centrifugally Cast in Sand-lined Molds for Water or Other Liquids.
A.21.10 ANSI - Standard for Cast Iron Fittings 2" through 48", for Water and Other Liquids
A.21.11 ANSI - Standard for Rubber Gasket Joints for Cast Iron Pressure Pipe and Fittings
A.21.50 ANSI - Standard for the Thickness Design of Ductile Iron Pipe
A.21.51 ANSI - Standard for Ductile Iron Pipe, Centrifugally Cast in Metal or Sand-lined Molds for Water or Other Liquids
B.16.1 ANSI - Standard for Cast Iron Pipe flanges and Flanged Fittings 25, 125, 250 and 800 Pounds
CIPRA Standard Cast iron Pipe Research Association Standard for Flanged Pipe with Threaded Flanges

C. Pipe

1. All ductile iron pipe shall be designed in accordance with aforementioned ANSI A.21.51 and manufactured in accordance with ANSI A.21.51.

2. Flanged pipe shall have a thickness in accordance with standards of manufacturer, but not less than that specified by the CIPRA Standard.

3. Pipe for use with sleeve type couplings shall be as specified except that ends shall be plain, without bells or beads.

D. Fittings

1. Fittings shall conform to requirements of the aforementioned ANSI A.21.10 and shall be of a pressure classification at least equal to that of the pipe with which they are used. Fittings shall be of either ductile iron or cast iron construction.

2. Flanged fittings which are not available under ANSI A.21.10 (e.g. laterals or reducing ells) shall be furnished to conform to requirements of the aforementioned ANSI B.16.1 in the 125 pound pressure class.

3. Fittings shall be provided with standard bases where so indicated.

4. Fittings for underground piping shall be mechanical joint unless otherwise indicated.

E. Types of Joints

1. Joints for mechanical joint or push-on joint pipe shall conform to ANSI A.21.11.

2. Mechanical joint pipe and fittings shall be provided with sufficient quantities of accessories conforming to ANSI A.21.11. Bolts shall be of high strength cast iron.

3. Gaskets shall be of a composition suitable for exposure to the liquid within the pipe, as per ANSI A.21.11.

4. Flanges for flanged pipe shall conform to ANSI B.16.1, except that special drilling or tapping shall be as necessary to ensure correct alignment and bolting.

5. Flanged pipe shall use long hub flanges which shall be screwed on tight at the foundry by machine before they are faced and drilled.

6. Where so indicated, pipe and fittings shall be furnished with approved lugs or hooks cast integrally for use with bolts or bridle rods and socket clamps to keep pipe from pulling apart under pressure.

F. Lining and Coating

1. All pipe and fittings shall be lined and coated as follows:

a. Inside of all pipe and fittings shall be given a standard thickness cement lining and bituminous seal coat in accordance with ANSI A.21.4.

b. All pipe and fittings to be installed underground shall be coated on outside with standard bituminous coating specified under the appropriate ANSI Specification for pipe and fittings.

c. All pipe and fittings embedded or cast in concrete or exposed on interior of buildings shall not be coated. Pipe and fittings shall be painted as directed by the Owner.

d. Machined surfaces shall be cleaned and coated with suitable rust-preventative coating at the shop immediately after being machined.

G. Gaskets, Bolts and Nuts

1. For flanged joints, gaskets shall be ring or rubber, with cloth insertion. Gaskets 12" in diameter and smaller shall be 1/16" thick; larger than 12" shall be 3/32" thick.

2. Flanged joints shall be made with bolts, bolt studs with nut on each end, or studs with nuts where flange is tapped. Number and size of bolts shall conform to same ANSI Standard as the flanges. Bolts and nuts shall, except as otherwise specified or noted on the drawings, be Grade B, conforming to ASTM Standard Specification for Low-Carbon Steel Externally and Internally Threaded Standard Fasteners, Designation A307-68. Bolt studs and studs shall be of same quality as machine bolts.

H. Pipe Jointure

1. Push-on Pipe

a. Thoroughly clean out the bell, remove all foreign matter, brush coat gasket groove with lubricant.

b. Insert gasket with solid face toward installer.

c. Release gasket and press remaining loop into lubricated groove.

d. Apply coating of lubricant to exposed gasket surface prior to joint assembly.

e. Clean plain end and grind or file any sharp edges.

f. Guide plain end into bell.

g. If deflection is required, it should be taken after joint is assembled.

2. Mechanical-Joint Pipe

a. Inside of bell and plain end of pipe shall be cleaned thoroughly of all foreign matter, then these surfaces and the gasket shall be brushed over with soapy water.

b. With gland and gasket on plain end of pipe, "seat" plain end in the bell and press gasket firmly and evenly into bell.

c. Move gland into position for bolting, insert all bolts and make nuts finger tight.

d. Tighten bolts to specified torque - 75 to 90 foot pounds.

15A.3 PVC Plastic Pipe (AWWA C-900) and Cast Iron or Ductile Iron Fittings

A. Scope

1. Contractor shall furnish, install, lay, joint and test all AWWA C-900 Poly Vinyl Chloride (PVC) pipe, appropriate fittings, specials (4" and larger) and appurtenant materials and equipment, all as shown on the drawings and herein specified.

2. Unless otherwise specifically noted on the plans or described herein, all AWWA C-900 PVC pipe shall be Class 150 SDR 18. Bedding shall be as shown on the Contract Drawings. Backfill requirements shall be as specified in Division 2.

B. Pipe

1. Pipe shall have the minimum chemical and physical properties as described in AWWA C900 for the class specified. Standard laying lengths shall be 20' for all sizes. A maximum of 15% of the pipe may be furnished in random lengths of not less than 10' long.

C. Fittings

1. Fittings shall be of either ductile iron or cast iron construction. PVC water pipe shall have the same outside diameter as cast iron or ductile iron pipe. PVC pipe shall be capable of being assembled directly into a cast iron or ductile iron bell or fitting.

2. The rubber ring suitable for cast iron or ductile iron fitting or bell shall be used in jointure, NOT the PVC rubber ring.

D. Joints

1. Provisions shall be made for expansion and contraction at each joint with an elastomeric ring which shall meet requirements of AWWA C900. Bell section shall be designed to be at least as strong as the pipe wall. Bell-end pipe and couplings designed for making PVC joints using elastomeric gaskets to affect the pressure seal shall be tested as assembled joints, and shall meet the laboratory performance requirements specified in ASTM D3139.

E. Pipe Jointure

1. Clean ring groove and inspect bell to be sure no foreign matter is present.

2. Clean and properly insert rubber ring - DO NOT LUBRICATE RUBBER RING.

3. Clean spigot end of any foreign matter.

4. Lubricate spigot end of pipe with manufacturer's recommended lubricant.

5. Insert spigot end into bell so it is in contact with ring. Push spigot end in until the reference mark on spigot end is flush with end of bell.

15A.4 PVC Plastic Pipe (ASTM D-2241) and Cast Iron or Ductile Iron Pipe and Fittings

A. Scope

1. Contractor shall furnish, install, lay, joint and test all ASTM D-2241 Poly Vinyl Chloride (PVC) pipe, appropriate fittings, specials and appurtenant materials and equipment, all as shown on the drawings and herein specified.

2. ASTM D-2241 pipe bedding shall be as shown on the Contract Drawings. Backfill requirements shall be as specified in Division 2.

B. Pipe

1. All pipe and fittings shall meet or exceed all requirements of ASTM specification ASTM D-2241 and ASTM D-1784. Pipe shall be standard 20' lengths as supplied by the manufacturer. Shorter pipe pieces shall be provided or cut to suit actual dimensions. Pipe shall be Class 200, SDR 21.

C. Fittings

1. Fittings shall be of either ductile iron or cast iron mechanical joint construction. PVC ASTM D-2241 pipe shall be capable of being assembled directly into a cast iron or ductile iron bell or fitting.

2. ASTM D-2241 PVC pipe shall require the use of a transition gasket to accommodate the smaller outside diameter of the PVC pipe.

D. Joints

1. Provisions shall be made for expansion and contraction at each joint with an elastomeric ring which shall meet requirements of ASTM F-477. Bell section shall be designed to be at least as strong as the pipe wall. Bell-end pipe and couplings designed for making PVC joints using elastomeric gaskets to affect the pressure seal shall be tested as assembled joints, and shall meet the laboratory performance requirements specified in ASTM D3139.

E. Pipe Jointure

1. Clean ring groove and inspect bell to be sure no foreign matter is present.

2. Clean and properly insert rubber ring - DO NOT LUBRICATE RUBBER RING.

3. Clean spigot end of any foreign matter.

4. Lubricate spigot end of pipe with manufacturer's recommended lubricant.

5. Insert spigot end into bell so it is in contact with ring. Push spigot end in until the reference mark on spigot end is flush with end of bell.

15A.5 Small Diameter PVC Pressure Plastic Pipe - Inside Buildings

A. Scope

1. Contractor shall furnish, install, lay, joint and test all small diameter (smaller than 4" diameter) Poly Vinyl Chloride (PVC) Pressure Pipe, appropriate fittings, specials and appurtenant materials and equipment, all as shown on the drawings and herein specified.

B. Pipe and Fittings

1. Pipe and fittings installed within structures shall be schedule 80 and shall be joined by solvent weld, procedure shall conform to ASTM 2855 "Making Solvent Cemented Joints with PVC Pipe and Fittings".

15A.6 Copper Pipe and Fittings

A. Scope

1. Contractor shall furnish, install, lay, joint and test all copper pipe, fittings, specials and appurtenant materials and equipment, all as indicated on the drawings and hereinafter specified.

B. Tubing

1. All copper tubing utilized for conducting liquids or air above ground shall be Type L, Hard Drawn for solder joints, conforming to ASTM Specification B-88.

2. Copper tubing for underground service shall be Type K, annealed and conforming to ASTM B-88.

3. Copper tubing utilized for instrument air shall be either Type K, hard-drawn for solder joints, conforming to ASTM B-88, or Type L, 1/4 hard-temper, compression joint, conforming to ASTM B-68.

C. Fittings

1. Solder type fittings shall be wrought copper, Type L or Type K to match adjacent piping and conforming to ANSI B16.22.

2. Compression type fittings shall be brass Type L, conforming to ANSI B16.26.

3. All fittings for underground cold water service shall be flared brass, conforming to ANSI A40.2.

15A.7 Underground Water Line Installation in the Vicinity of Existing or Proposed Sanitary Sewers and Storm Sewers

A. Requirements for water line installation as per the Department of Environmental Resources are as follows:

1. Horizontal Separation - Whenever possible, a water main should be laid at least 10' horizontally from any existing or proposed drain or sewer line. Should local conditions prevent a lateral separation of 10', a water main may be laid closer than 10' to (or in the same trench as) a storm or sanitary sewer, provided that the main is laid in a separate trench, or on a undisturbed earth shelf located on one side of the sewer at such an elevation that bottom of water main is at least 18" above top of the sewer. When it is impossible to obtain proper horizontal and vertical separation as stipulated, both water main and sewer shall be constructed of push-on or mechanical joint ductile iron pipe, and shall be pressure-tested to assure water tightness before backfilling.

2. Vertical Separation - Whenever water mains must cross house sewers, storm drains, or sanitary sewers, the water main shall be laid at such an elevation that bottom of the water main is 18" above top of the drain or sewer. This vertical separation should be maintained for that portion of the water main located within 10' horizontally of any sewer or drain it crosses, said 10' to be measured as the normal distance from the water main to pass under a sewer or drain, the water main shall be laid with a push-on or mechanical joint ductile iron pipe, or protected with concrete encasement and should extend on each side of the crossing until the normal distance from the water main to sewer, or drain line, is at least 10'. In making such crossing, it is preferable to centger a length of water main pipe over the sewer to be crossed, so that joints will be equi-distant from the sewer and as remote therefrom as possible. Where a water main must cross under a sewer, a vertical separation of 18" between bottom of the sewer and top of the water main shall be maintained, with adequate support for the larger-sized sewer lines to prevent them from settling on and breaking the water main.

3. Sewer Manholes- No water pipe shall pass through or come into contact with any part of a sewer manhole.

15A.8 Pipeline Testing

A. Pressure Main Pressure and Leakage Tests

1. All pressure mains shall be tested by the Contractor in a manner satisfactory to and witnessed by the Engineer. Contractor shall furnish all equipment, apparatus, pumps, taps and gauges to conduct the following tests:

   a. The section under test shall be filled with water, all air expelled from the line and maintained full of water for a period of not less than 24 hours.

   b. Pressure and leakage test shall first consist of raising the water pressure (based on the elevation of the lowest point of the section under test and corrected to the gauge elevation) to a pressure in pounds per square inch numerically equal to the pressure rating of the pipe and maintaining such pressure for a period of 30 minutes.

   c. Pressure and leakage test shall then consist of dropping the water pressure (based on the elevation of the lowest point of the section under test and corrected to the gauge elevation) to a pressure in pounds per square numerically equal to 50 lbs. greater than the normal working pressure of the pipe line. Such tests shall be maintained for an additional one and one-half (1-1/2) hours.

d. For all pipelines not underground, the section tested shall be considered as having failed to pass the test if the pressure test described in Item b cannot be maintained without additional pumping.

e. At the end of the test period for both the pressure test (Item b) and the leakage test (Item c), the section tested will be accepted if the total leakage is not greater than that determined by the following formula:

$$L = \frac{10 \times D}{5280 \times 24}$$

Where:

L = Allowable leakage in gallon/hour/foot
D = Nominal pipe diameter in inches

2. If the section fails to pass the pressure and leakage tests, Contractor shall do everything necessary to locate, uncover and repair or replace the defective pipe, fitting, or joint; all at his own expense and without extension of time for completion of the work. Additional test and repairs shall be made until the section passes the specified test.

15A.9 Miscellaneous

A. Flexible Connections

1. Flexible couplings shall be Dresser Industries, Inc., Style 38, or equal, shall be steel and arranged for plain end ductile iron pipe installation. Transition couplings shall be Dresser Industries,, Inc., Style 162, or equal.

2. Flexible couplings on pressure lines shall be suitably harnessed in accordance with recommendations of the manufacturer, or otherwise protected against separation from thrust.

B. Disinfection

1. All potable water lines shall be sterilized by use of chlorine or chlorine compounds in such amounts as to produce a concentration of 50 mg/l. Chlorinated water shall be retained in the pipe long enough to destroy all non-spore forming bacteria. This period shall be at least 24 hours and preferably longer, as may be directed. After chlorinated water has been retained for the required time, the chlorine residual at the pipe extremities and at other representative points shall be at least 25 mg/l. Disinfection shall conform to AWWA specification C-601, latest revision.

2. Following disinfection, all treated water shall be thoroughly flushed from the pipe until the water through its entire length shall, upon test, be proven bacteriologically safe.

C. Foundry Inspection and Testing

1. All pipe and fittings shall be inspected and tested at the foundry as required by the standard specifications to which the material is manufactured. Contractor shall furnish in duplicate to Engineer sworn certificates of such tests. All inspection and testing at the foundry shall be accomplished at no additional expense to the Owner.

SECTION 15B - VALVES AND APPURTENANCES

15B.1 Scope

A. This section includes the furnishings, installing and testing, if required, of all valves and appurtenant materials and equipment.

B. Contractor shall submit in the number of copies required manufacturer's shop drawings of each type of valve to be furnished. Such shop drawings shall be in sufficient detail to indicate compliance with the specifications both as to operation and material of construction of the valves and other accessory equipment.

C. Operators for all valves shall be accessible, and where valves are located within a structure they shall be provided with operating handwheels, levers, nuts, chain wheels and chain, extension stems and guides, and floor stands.

D. All valves shall be restrained with concrete blocking as detailed on the drawings.

15B.2 Gate Valves

A. All gate valves shall be iron body, double disc, bronze mounted valves, conforming in all respects to AWWA standard C500, latest revision.

B. Unless otherwise noted, valves installed within structures shall be arranged for outside screw and yoke operation; valves installed underground shall be non-rising stem, complete with (2") square operating nut for wrench operation.

C. Gate valves shall be furnished with O-ring type of stem seal, with flanged mechanical joint, or plain ends, as required. Unless otherwise specified, all valves shall open by turning the wrench nut to the left or counterclockwise.

15B.3 Tapping Sleeves and Tapping Valves

A. Tapping sleeves shall be as manufactured by Darling, Mueller or approved equal. Sleeves shall be suitable for operating at a working pressure of 150 psi. Contractor shall verify existing pipeline material and dimensions to insure proper fit and installation.

1. Tapping sleeves shall be furnished complete with all fittings necessary for connection to a tapping valve and to an existing water line.

B. Tapping gate valves shall conform to standard duty gate valve requirements.

C. All tapping valves shall be furnished with a valve box conforming to the requirements for standard duty gate valves.

15B.4 Valve Boxes

A. Each valve shall be equipped with a valve box which shall be made of cast iron of 3-piece construction of the screw type with not less than 5-1/4" diameter shaft and a large oval base. Valve boxes shall be as manufactured by Mueller, Clow, or approved equal.

B. Size or depth of setting shall be adjustable over a range to accommodate a cover over the pipe 4'-6" and the box length shall be variable to suit the installation. A deep socket type cover shall be furnished with each box on which shall be cast the word "WATER". Valve boxes shall be given two coats of coal tar varnish.

C. Each valve box shall center directly over valve nut and be held in position to avoid displacement during backfilling. Top of cover shall be set to grade and box adequately supported on concrete block or brick as directed by Engineer. Valve boxes shall not touch or rest on the bonnet or any other part of the valve. In tamping and backfilling around them, special care shall be taken to keep boxes plumb and have them firmly supported. Any boxes found out of plumb, or which are not firmly supported, shall be dug up and reset.

15B.5 Curb Stops

A. Curb stops shall be Mueller Type 15200, Ford Z22, or approved equal, and constructed with an inlet and outlet having fitting threads for use with flared copper service tubes, Type K, soft. Curb stop bodies and keys shall be precision fitted and individually lapped. Taper on key shall be steeper than average to permit easier operation. Stop shall be all bronze construction.

B. The large diameter of the inverted key shall be on the bottom and the key shall be held in place by a bronze base cap and leather gasket. Key shall be designed so that water pressure from inlet side of the body exerts an upward force on the bottom of the key. Tapping of the shut-off rod shall unseat the key slightly for easy turning and pressure shall cause it to reseat. Inverted key stops shall be furnished with a bronze combined cap and tee and a fully enclosed strong and accurate check. Each curb stop shall be fully tested in both open and closed position with air pressure under water.

15B.6 Corporation Stops

A. Corporation stops shall be Mueller Type H-15010, Hayes Model 5210, Ford Type F6125, or approved equal, and constructed with an inlet thread and outlet fitting thread in accordance with Standard Specifications for Threads for Underground Service Line Fittings, AWWA C800-55, specifically in accordance, respectively, with Figure 1 - Standard Corporation Stop Thread and Figure 2 - Fitting Thread for Use with Flared Copper Service Tubes, Type K, soft. Stops shall be all red brass construction.

B. Corporation stops shall be precision fitted and have individually lapped ground key stops. Threaded end of key shall be designed so that tightening of key as many times as required for normal adjustment will strip the threads instead of breaking the stem. Stop shall be all bronze construction. Stop shall be furnished with a straight coupling nut, nut to have an extra long skirt. Concave surface of nut shall oppose the convex surface of the body uniformly to permit a tight and smooth joint. Opposed convex surfaces shall not compress the end of the flange. Each corporation stop shall be fully tested in both open and closed position with air pressure under water.

15B.7 Curb Boxes

A. Curb boxes shall be the Buffalo type and shall be Mueller H10350, Hayes Buffalo Type 92D, Tyler Series 6500, or approved equal. Shaft shall be 2-1/2" in size. Curb boxes shall be constructed of cast iron, box lid shall be furnished with the word "WATER" cast thereon, and lid screw shall be of red brass construction.

15B.8 Tapping Saddle (Service Clamp)

A. Tapping saddle shall be a heavy bronze body with double bronze strap. Saddle shall be compatible to the type of pipe being used and the corporation stop selected. Saddle shall be a type recommended by the water main manufacturer.

15B.9 Check Valves

A. Check valves shall be of a heavy duty type featuring a heavy cast iron body, fully bronze mounted with bronze clapper disc accurately seated by a bronze clapper arm against a bronze seat ring. Clapper and lever mounted on a large diameter stainless steel shaft that turns in bronze bushings help securely in valve body by cap screws. Bushings shall be sealed by O-rings protected by integral dirt seals.

B. Valve shall have flanged ends.

C. Check valves shall be a lever and weight operating type as manufactured by Mueller Co. or approved equal.

SECTION 15C - FIRE HYDRANTS AND INSTALLATION

15C.1 Hydrants

A. Hydrants shall conform to the following:

1. Size Main Valve Opening	5-1/4 inches
2. Direction to Open Hydrant	Counterclockwise (left)
3. Number of 2-1/2" Hose Nozzles, thread	Two (2) Natl. Std.
4. Number and Size Pumper Nozzle, thread	One (1) 4-1/2" Natl. Std.
5. Type of Inlet Connection	Mechanical Joint
6. Size of Inlet Connection	6 Inch
7. Size and Shape of Operating Nut	1-1/2 Pentagon, point to opposite flat

B. Hydrants shall be frost-proof and provided with drains which close when hydrant is opened and open promptly when hydrant is closed. Hydrants shall conform to requirement of American Water Works Association Specification AWWA C-502. Hydrant body shall be cast iron.

C. Hydrant shall be AWWA compression type as manufactured by Kennedy, Mfg. Co., Guardian Model K81A, to match existing hydrants on the system.

15C.2 Hydrant Installation

A. Fire hydrants shall be located as shown or directed in a manner to provide complete accessibility and also to minimize possibility of damage from vehicles or injury to pedestrians.

B. When placed behind curb, hydrant barrel shall be set so that no portion of pumper or hose nozzle cap is less than 6" nor more than 12" from the gutter face of the curb.

C. When set in the lawn space between curb and sidewalk, or between sidewalk and the property line, no portion of the hydrant or nozzle cap shall be within 6" of the sidewalk of the curb.

D. All hydrants shall stand plumb and have their nozzles parallel with or at right angles to the curb with the pumper nozzle facing the curb except hydrants having two hose nozzles 90° apart shall be set with each nozzle facing the curb at an angle of 45°. Hydrants shall be set to the established grade with nozzles at least 18" above ground. Hydrant safety flange shall not be more than 6" nor less than 2" above grade.

E. Each fire hydrant shall be connected to the main with a 6" lateral controlled by an independent 6" gate valve unless otherwise directed. Each hydrant lateral valve shall be fastened to the main with a special adapter, hydrant tee, harness or tie rods.

F. Each fire hydrant shall be installed as follows:

1. Excavate to required depth.

2. Place Type A concrete foundation minimum 18" square by 6" thick under hydrant - foundation to be level.

3. Brace and block hydrant against three sides of trench wall using poured or precast concrete - do not block hydrant drain.

4. Fill space around hydrant with clean crushed aggregate, PennDOT #57, to a height of 18" above hydrant base and extending around hydrant at least 18".

5. Cover granular fill with polyethylene film and backfill to grade.

6. Where hydrants are located in sloping terrain, provide a clear area of at least 2'-0" in back and along side of hydrants.

7. Where water lines are lower than normal depth, Contractor shall install extensions on the hydrants so hydrants will be at specified elevation above grade.

8. Fire hydrants shall be delivered to the job site factory-primed with a rust inhibitive primer, and shall be finish painted after complete installation with paint and color as approved by Owner.

SECTION 15D - WATER SERVICE CONNECTIONS

15D.1 Scope

A. Service connections shall be furnished and installed as shown on the drawings, and specified herein. New service connections shall be required at certain locations to switch existing services from existing water lines to new water lines installed by this project.

B. Typical connections shall include tap on new line, saddle, corporation stop, service line and connectors. These items shall be as hereinbefore specified. Water service connections are shown as one of two types. Type A connections include a new curb stop and box and are located on same side of roadway as the new line installation. Type B installations do not include a curb stop and box and are to reconnect services located on the opposite side of highway.

C. Locations for new connections shall be as shown on the drawings and as directed in the field by the Engineer or his representative.

15D.2 Procedure

A. Contractor shall relocate all individual service lines from existing water lines that will be abandoned to new water lines.

B. At locations where service lines must be extended to a new main on the opposite side of a paved street, the new service line shall be installed by open cutting of the existing pavement.

C. New service line shall be bedded with a minimum of 3 inches of sand around the copper pipe. Under no circumstances will slag be permitted for this use.

D. Corporation stop shall be installed in accordance with water main manufacturer's recommendations.

E. Service line shall be the same size as existing service line unless otherwise directed by Engineer.

F. After new water main is tested, disinfected and pressurized, Contractor shall connect new water service line to each individual water customer's existing service line.

G. Contractor shall furnish all fittings necessary to connect to existing services.

H. Connections shall conform to Authority and Municipal Regulations and Codes.

I. Connections shall be scheduled to minimize inconvenience to water customers.

J. Connections shall be made so that no customer is without water for more than four (4) hours.

SECTION 15E - DEVELOPMENT OF PUBLIC WATER SUPPLY WELLS AT THE HOCKENBERRY RUN RESERVOIR

15E.1 General Description of Work

A. The goals of the drilling and testing program are three-fold:

1. To drill two 6-inch exploratory test wells to define the yield and water chemistry of the Allegheny, Pottsville and Mauch Chunk Formations at the Hockenberry Run reservoir located in southwestern Clearfield County, some 3 miles southwest of the Town of Irvona. The yield, water quality, and bedrock stratigraphy data collected during test drilling shall be evaluated to develop design specifications for a production well which will optimize well yield and water quality. The test wells will be constructed with casing and grout to assure that the finished production well meets PA DER construction specifications for public water supply sources.

2. To conduct the step-drawdown and 48-hour constant rate pumping tests mandated by PA DER to certify both the yield and water quality of the production well.

3. To install a permanent well pump installation in the Mauch Chunk Formation Production Well.

15E.2 Geologic Conditions

A. The potential test well sites lie in a valley-bottom setting immediately adjacent to the Hockenberry Run Reservoir. A 15 to 30 foot thick mantle of alluvial and/or residual soils overlies the bedrock in this area. Review of well logs and analysis of geologic mapping suggests that the following bedrock formations will be encountered:

1. Interbedded sandstone, shale, coal and clay of the lower half of the Allegheny Formation (Middle Kittanning through Brookville Coals) to a depth of approximately 150 feet.

2. Massive sandstones and minor shales, clays and coals (Mercer Coal and Clay) of the Pottsville Formation to a depth of approximately 290 feet.

3. Interbedded shales and calcareous sandstones of the Mauch Chunk Formation to the bottom of the test well at some 400 to 450 feet.

B. In this setting, the Allegheny traditionally produces moderate yields (25 - 75 gpm) of decent quality water with slightly elevated iron and manganese concentrations. The underlying Pottsville Formation is capable of producing large yields (100-200 gpm) but this aquifer almost always produces water with a very high concentration of iron and manganese. The yield potential of the Mauch Chunk is most likely limited by its deep burial, however, this formation commonly produces excellent quality water. Due to the poor water quality of the Pottsville, the target aquifers at the site are the Allegheny and Mauch Chunk Formations.

15E.3 Test Well and Production Well Drilling

A. A 6-inch diameter test well shall be drilled to collect yield, water chemistry and bedrock stratigraphy data. The construction of the 6-inch test well shall proceed in the following manner:

1. Ten-inch diameter steel casing, equipped with a drive shoe, shall be set to a depth of 40 feet. Installation of this 40-foot length of 10-inch casing should result in a large amount of flexibility in production well design as it should both advance the test well to bedrock and also satisfy PA DER's minimum grouting requirements for an 6-inch diameter production well.

2. After the 10-inch casing is installed, a 9-7/8" "rock socket" will be drilled to an anticipated depth of 290 feet to allow an installation of 6-inch diameter casing, equipped with a drive shoe. After the 6-inch permanent casing is set, it will be grouted in place. A 6-inch diameter open hole shall then be drilled to a total depth of approximately 400 feet. A continuous geologic log shall be kept as the hole is drilled and water samples shall be collected at each significant water-bearing zone. The yield of each water-bearing zone should be accurately measured, and if broken rock is encountered, these zones should be developed with air surging and/or foam injection.

B. The data collected during test drilling should give us a good profile of the yield and water chemistry of the well as it is advanced through the Allegheny, Pottsville and Mauch Chunk Formations.

C. The second 6-inch diameter test well shall be drilled in the Allegheny Formation to collect yield, water chemistry and bedrock stratigraphy data. The well construction shall proceed as follows:

1. Ten-inch diameter steel casing, equipped with a drive shoe, shall be set to a depth of 40 feet. Installation of this 40-foot length of 10-inch casing should result in a large amount of flexibility in production well design as it should both advance the test well to bedrock and also satisfy PA DER's minimum grouting requirements for a 6-inch diameter production well.

2. After the 10-inch casing is installed, a 9-7/8" "rock socket" will be drilled to an anticipated depth of 5 feet to allow an installation of a 6-inch diameter casing, equipped with a drive shoe. After the 6-inch permanent casing is set, it will be grouted in place. A 6-inch diameter open hole shall then be drilled to a total depth of approximately 145 feet. A continuous geologic log shall be kept as the hole is drilled and water samples shall be collected at each significant water-bearing zone. The yield of each water-bearing zone should be accurately measured, and if broken rock is encountered, these zones should be developed with air surging and/or foam injection.

D. The Contractor shall follow the requirements of the Soil Erosion and Sedimentation Control Plan which is a part of this Contract.

E. Regardless of which aquifer is utilized in the final well design, all grouting during the production well construction shall be accomplished with a grout pump and tremie pipe system. Following any grouting activities, drilling shall cease for a minimum 24-hour period to allow the grout to set. All materials used in the construction of the production well shall conform to the specifications outlined in the PA DER "Public Water Supply Manual". After well construction is completed, the production well shall be developed via air-surging and air-lift pumping until it yields a sediment-free discharge.

15E.4 Pumping Tests

A. The 8-hour step-drawdown and 48-hour constant rate pumping tests, and a 24-hour water level recovery test, will be conducted at the two production wells. The Contractor shall be responsible for installing and removing a submersible pump and power source capable of delivering a discharge at least as large as follows:

1. "Mauch Chunk" Well Pump shall be capable of pumping 95 gpm from a pumping level of 190 feet.

2. "Allegheny" Well Pump shall be capable of pumping 100 gpm from a level of 80 feet.

B. A 1-inch diameter water level access tube should be installed in the well to the top of the pump intake to allow installation of a continuous-reading water level recorder (supplied and installed by the geologist). A gate valve of appropriate diameter shall be installed at the well head to control the flow from the well. An appropriate orifice barrel/ manometer tube assembly (supplied by the geologist) shall be attached to the gate valve to accurately measure flow from the well. The flow from the well shall be discharged directly to the Hockenberry Run stream channel.

15E.5 Well Pump

A. A complete well pump installation with motor control center shall be furnished and installed in the "Mauch Chunk" Formation Well. The well pump shall be a 4-inch pump capable of pumping 95 gpm at 190 feet TDH. The pump motor shall be single phase 7-1/2 Hp. The pump shall be equal to Grundfos Model 75S75-12 (7-1/2 Hp). The pump shall be connected to a 2" diameter galvanized iron pipe and fitted with a pitless adapter.

B. The Contractor shall set a wooden termination pole with meter socket, disconnect switch and pump controller for connection to the electric utility service drop. The pole shall be a 30 foot, Class 5 pole. The electrical service shall be 240 volt, 1 phase, 100 amp service. The disconnect switch shall be 100 amp, fused switch. The pump controller shall meet the manufacturers recommendation for the size and type of motor. The disconnect and motor controller shall be in NEMA IIIR weatherproof enclosures. A lock hasp shall be provided on each door. All work shall be in conformance with the National Electric Code, latest edition. The Contractor shall have the electrical installation inspected at his own cost.

Sheet No. _____ of _____

Date _____

RECORD OF WELL PUMPING TEST

OWNER _____
(Name and Address)

WELL NO. _____ LOCATION _____

TEST RESULTS:

TIME	GPM	WATER LEVEL (FEET BELOW REF. PT.)	DRAWDOWN (FEET)	WATER*

*NOTE WHETHER WATER IS CLEAR OR TURBID

SECTION 20A - METHOD OF MEASUREMENT AND BASIS FOR PAYMENT

20A.1 Scope

A. The Bid items listed in the Bid Schedule of the Form of Proposal (C-Pages) for this Contract shall be measured and the payment quantities shall conform to this Section.

B. All payments will be made at the unit prices for each item listed in the Bid Schedule.

C. Any item not specifically listed on the Bid Schedule, but necessary to complete the work required by these contract specifications and contract drawings, will be considered incidental to the related item given in the Bid Schedule of the Form of Proposal. No payment will be made for these items.

20A.2 Water Line

A. Water lines will be measured and paid for by the lineal foot for each type, class and size installed. Measurement will be to the nearest whole foot (1.0') complete in place including, but not limited to, clearing, grubbing, excavation, pipe, gaskets, bedding PennDOT inspection, tests, disinfection, and dechlorination.

B. All excavation and bedding within the pipe zone will be considered incidental to the water line construction and no claims for extra payment will be considered.

20A.3 Fittings, Ductile or Cast Iron

A. Fittings will be measured to the nearest pound, complete with gaskets, glands, etc., complete in place.

B. Contractor shall submit a breakdown of poundage total, if requested by the Engineer.

20A.4 Road Boring - Encased

A. Encased road borings as shown on the Detailed Drawings including boring, casing pipe, carrier pipe, pipe zone bedding and accessories will be measured lump sum complete, in place.

20A.5 Restoration Unpaved Areas

A. Unpaved area restoration, as shown on the Detailed Drawings will include restoration of unpaved areas disturbed by installation of water lines and will be measured to the nearest whole foot (1.0'), measured horizontally and will include compacted backfill from the pipe zone to the proper grade, topsoil raking, seeding, fertilizer and mulch. Satisfactory completion of this item ends with the production of a good catch of grass except in existing dirt roadways where grass is not required.

20A.6 Restoration, Municipal Highway Shoulders

A. Restoration of local highway shoulders, as shown on the Detailed Drawings, will include restoration of local highway pavement disturbed by installation of water lines. Measurement will be made horizontally to the nearest whole foot (1.0'), and will include compacted backfill from the pipe zone to subgrade, 8" of 2RC aggregate, graded, rolled and penetrated as shown.

20A.7 Restoration, Municipal Highway Pavement

A. Restoration of local highway areas as shown on the Detailed Drawings will include restoration of local highway pavement disturbed by installation of water lines. Measurement will be made horizontally to the nearest whole foot (1.0') of and will include compacted backfill from the pipe zone to subgrade area, base course and bituminous wearing course as required.

20A.8 Restoration, State Highway Shoulders

A. Restoration of state highway shoulders, Type "A", as shown on the Detailed Drawings will include restoration of the shoulder area of state highway which was disturbed by installation of water lines. Measurement will be made horizontally to the nearest whole foot (1.0'), and will include compacted 2RC backfill from the pipe zone to subgrade and the surface treatment as specified.

20A.9 Restoration, State Highway Pavement

A. Restoration of state highway areas as shown on the Detailed Drawings will include restoration of state highway pavement disturbed by installation of water lines. Measurement will be made horizontally to the nearest whole foot (1.0') and will include compacted 2RC backfill from the pipe zone to subgrade area, base course and bituminous wearing course as required.

20A.10 Gate Valve and Box

A. Gate valve and box will be measured and paid for as a unit, by diameter, complete in place, including excavation, proper valve installation on the water line, backfill of the pipe zone and trench and placement of the valve box to it's proper grade.

B. Concrete valve base, anchor straps and bolts also included in this item.

20A.11 Couplings

A. Couplings will be measured as a unit, by diameter, complete and in place including preparation of existing line for installation of coupling.

20A.12 Concrete

A. Concrete will be measured, complete in place, on a cubic yard basis to the nearest 1/4 cubic yard for each type of concrete used. Work covered by this item includes but is not limited, concrete protection of water lines, thrust blocking and pavement and walk replacement. Included in this measurement is all required excavation, form work, and reinforcing.

20A.13 Hydrant Installation

A. Fire hydrants shall be measured and paid for as a unit, complete in place, to the limits shown on the detail drawings. This measurement shall include all required excavation, valve, valve box, concrete valve base and anchor base, anchors, tie rods, backfill, surface restoration and concrete thrust block.

B. This item includes removal of existing hydrant in addition to the items in hydrant installation.

20A.14 Water Service Connections - (Type A & B)

A. Service connections to existing customers will be measured per individual service transferred from an existing line to a new line. Service connection shall be installed complete including tap, pipe, saddle, corporation, excavation, backfill, connection fittings, miscellaneous materials, labor and equipment to provide a complete working service to the customer.

B. Pavement restoration as required will be paid for under municipal highway.

C. Curb stops and boxes are required for Type "A" connections installation of a certain water service connections.

20A.15 Blow-Off

A. Blow-off installation will be measured per individual unit furnished and installed complete, including all excavation and backfill, fittings, and access box, piping, concrete and miscellaneous material necessary to construct complete unit as shown on Detailed Drawings.

20A.16 Mobilization

A. Any mobilization costs such as testing insurance, bonding, etc., will be considered incidental to the construction of this project and no claims for extra payment for any of these items shall be considered.

20A.17 Aggregate

A. Coarse aggregate of the type and size called for shall be paid for at the price per ton for all material delivered and placed in accordance with these drawings and specifications. Material slips shall be given to the project inspector.

20A.18 Corrugated Drain Pipe

A. This pipe shall be paid for by the lineal foot for each size installed. Measurement will be to the nearest whole foot (1.0') complete in place including excavation, pipe, bands, bedding and backfill.

20A.19 Geotextile

A. This material shall be paid for by the square yard measured in place. This price shall include furnishing and installing the fabric.

20A.20 Ditch Along Access Road

A. This work shall be paid for by the lineal foot measured along the edge of the road and shall include all excavation, clearing, grading, shaping and disposal of materials.

20A.21 Road Grading

A. This work shall be paid for by the hour for grading work and shall include furnishing suitable equipment, operator, supervision, and grade checker. Time shall be counted to the nearest one-half hour for actual working time. No payment shall be made for down time due to equipment problems.

IRVONA MUNICIPAL AUTHORITY

SOIL EROSION AND SEDIMENTATION CONTROL PLAN
CONTRACT 89-01 - WATER WELL DEVELOPMENT
CONTRACT 89-02 - ACCESS ROAD AND WATER LINE REPLACEMENT

December 1989

A. PROJECT DESCRIPTION

The recommended soil erosion and sedimentation control plan for this project is designed to control erosion at its source and to keep surface flows from carrying sediment beyond work limits. The project location of Contract 89-01 is in Chest Township, Clearfield County, while Contract 89-02 is in Chest and Beccaria Townships, Clearfield County. This project includes the construction of 1,100 LF of water line and appurtenances, the replacement of two fire hydrants, roadway drainage modifications for the access road to Hockenberry Run Reservoir which travels along Hockenberry Run, and the development of water wells adjacent to the reservoir.

B. SITE DATA

The project sites for Contracts 89-01 and 89-02 are as follows:

a. Contract 89-01 - Development of a water well site located about 3 miles west of Coalport near the Hockenberry Run Reservoir.

b. Contract 89-02

1. Construction of roadway drainage modifications for the access road to Hockenberry Run Reservoir along Hockenberry Run from the reservoir to the intersection of S.R. 3005 to the northwest of Irvona Borough.

2. Construction of a 6" diameter water line along S.R. 3005 at the northwest corner of Irvona Borough and a 2" diameter water line replacement northwest of the intersection of S.R. 3005 and S.R. 0053 in Irvona Borough.

3. Construction of a 6" diameter water line along Washington Street and a 6" diameter water line along Lynwood Street in the Village of Rosebud, Beccaria Township, north of Coalport Borough.

4. Replacement of a fire hydrant along Hill Street in the Village of Rosebud, Beccaria Township, north of Coalport Borough and replacement of a fire hydrant at the intersection of Liberty Street (T-802) and S.R. 2002 in the Village of Blain City, Beccaria Township, north of Coalport Borough.

D. EROSION CONTROL FOR PIPELINE CONSTRUCTION

In areas of water line construction, Contractor shall provide temporary erosion and sedimentation control devices during construction and permanent control devices upon completion of all earthmoving operations in a work area. Costs incurred by providing these erosion and sedimentation control devices shall be considered incidental to the contract Total Base Bid for Contracts 89-01 and 89-02.

Trenching shall be done with a minimal amount of disturbance to natural vegetation and excavated material shall be placed somewhere other than in natural runoff channels. During construction, Contractor shall provide erosion and sedimentation control devices in the form of hay bales (See Standard Detail 12) in areas where erosion is likely to occur. In some areas, temporary diversion piping may be required to keep runoff water from entering the construction area.

Contractor shall seed and mulch (as indicated in Section 2G) immediately following trench backfill, in areas that were vegetated prior to trenching operations. In areas other than those with a vegetative cover, Contractor shall, immediately upon trench backfill, restore the surface to its original or improved condition.

Backfilled trenches on steep slopes shall have erosion checks or other approved devices placed across the disturbed areas, perpendicular to the slope so as to intercept and divert runoff away and onto vegetated ground. These diversions shall be placed no further than 100 feet apart on slopes greater than 10%.

E. EROSION CONTROL MEASURES FOR WELL SITE CONSTRUCTION

Contractor shall provide the erosion control devices as indicated on the Site Plan. However, it shall be the Contractor's responsibility to take all action to avert erosion. Costs incurred by providing erosion and sedimentation control measures shall be considered incidental to the Total Base Bid for Contract 89-01.

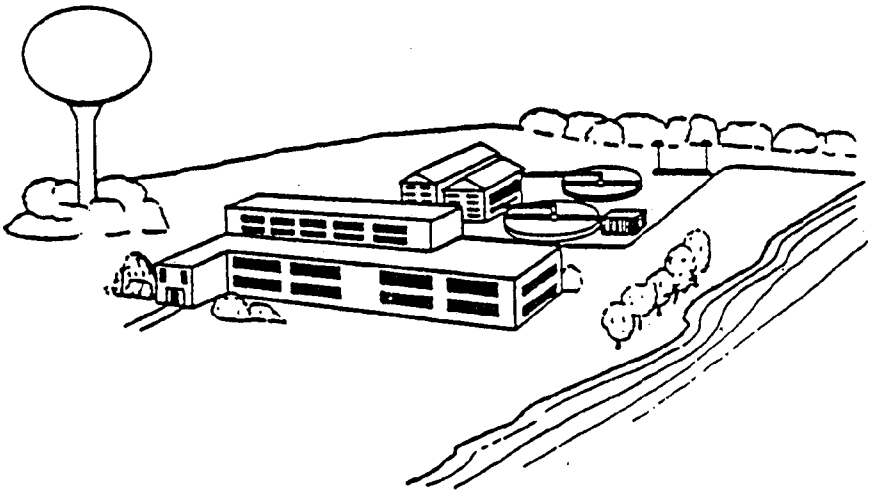
During drilling operations, each well area shall have straw bales placed around the downhill perimeter as indicated on the Water Well Development Site Plan. Straw bales shall be placed end-to-end and securely staked with hardwood flats as indicated in the Standard Details. These erosion control devices shall be left in place during the entire construction period and repaired or replaced as necessary.

Straw bales shall be similarly placed on the downhill perimeter of the settling basins (shown in Standard Details), which will receive all silt laiden water produced during the drilling operations. These basins will be left in place to trap any sediment before entering any natural water course, even after drilling is completed. The settling basins shall be cleaned periodically to prevent a buildup of sediment. Collapsed or damaged barriers shall be replaced. When the wells are under operation, the barriers and straw erosion checks shall be removed and the disturbed areas restored with seed and mulch.

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COPY

Public Water Supply Manual



PART II

COMMUNITY SYSTEM DESIGN STANDARDS

DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER SUPPLY AND COMMUNITY HEALTH
DIVISION OF DRINKING WATER MANAGEMENT

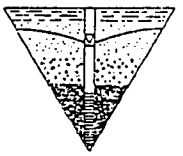
TABLE II-5
Steel Pipe*

Size (inches)	Diameter (inches) External	Diameter (inches) Internal	Thickness (inches)	Weight per foot (pounds) Plain ends (calculated)	Weight per foot (pounds) With Threads and Couplings (Nominal)
6 id	6.625	6.065	0.280	18.97	19.18
8	8.625	7.981	0.322	28.55	29.35
10	10.750	10.020	0.365	40.48	41.85
12	12.750	12.000	0.375	49.56	51.15
14 od.	14.000	13.250	0.375	54.57	57.00
16	16.000	15.250	0.375	62.58	65.30
18	18.000	17.250	0.375	70.59	73.00
20	20.000	19.250	0.375	78.60	81.00
22	22.000	21.000	0.500	114.81	
24	24.000	23.000	0.500	125.49	
26	26.000	25.000	0.500	136.17	
28	28.000	27.000	0.500	146.85	
30	30.000	29.000	0.500	157.53	
32	32.000	31.000	0.500	168.21	
34	34.000	33.000	0.500	178.89	
36	36.000	35.000	0.500	189.57	

*Abstracted from previous AWWA Standard for Deep Wells, AWWA-A100-66. The minimum thickness for standard and two-ply carbon-steel well casings (based on well diameters and depths) as outlined in the current editions of AWWA-A100 shall apply.

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JAMES R. CASSELBERRY
Ground-Water Geologist



108 E. Main Street / P.O. Box 616
Boalsburg, Pennsylvania 16827
(814) 466-7128

RECEIVED
NOV 12 '91
The Neilan Engineers
Somerset, Pa.

November 8, 1991

Scott Rugh
Neilan Engineers
1065 Tayman Ave., P.O. Box 837
Somerset, PA 15501-0837

Re: Scope of Work and Costs for Irvona Well Development Project

Dear Scott:

At your request, I have written this letter to present a scope of work and associated costs for conducting a groundwater exploration program for Irvona Municipal Authority. The scope of this project includes the location, drilling supervision, and test pumping of a single, fracture-trace test well. I have broken the following hydrogeologic consulting proposal down into 4 separate phases. The estimated prices given for each phase of my proposal will be treated as not to exceed values and the job will be billed on an hourly basis for the work actually performed according to the attached rate schedule.

Fracture Trace and Lineament Analysis

The work conducted under this phase of the project will culminate in the identification of a high-yield potential, fracture-trace, test well site. This work includes:

1) Obtaining several flights of both high and low altitude aerial photographs of the Irvona area.

2) Analyzing these aerial photographs for fracture traces and lineaments.

3) Identifying well sites at fracture trace intersections.

4) Locating the fracture-zone test well sites in the field.

5) Inspecting the test well sites with the project engineer to determine the feasibility of drill rig access.

6) Once a well site has been selected for drilling, write a short letter report describing the well site geology and anticipated drilling conditions. This letter should be attached to the project engineer's request to Pa DER for a sanitary survey of the test well site.

Total Cost = $1350

Supervision of Test Well Drilling

The work conducted under this phase of the project involves:

1) Coordinating the drilling contractor's activities and supervising the work in the field as necessary, acting as the Authority's representative. This work would include: collection and analysis of formation and water samples; compilation of a continuous geologic log describing the lithology, yield and water quality of the formations encountered, and; making field decisions regarding drilling depth, casing lengths, screen selection and placement, and well development techniques.

As the time required to complete this work is largely dependent upon both the efficiency of the drilling contractor and the nature of the drilling conditions actually encountered, I have presented an estimated cost for this phase based upon 3 days of drilling supervision. The final cost for this phase will be adjusted on an hourly basis for the work actually performed.

Total Cost = $1600

Supervision of Pumping Test Activities

The work performed during this phase of the project includes:

1) Conducting a day-long, step-drawdown pumping test. The data from this step-drawdown pumping test shall be analyzed to select a realistic pumping rate for the ensuing, long-term, 72-hour, constant-rate pumping test.

2) Installation and calibration of a continuous water level recorder and flow meter prior to the start of the long-term pumping test. Use of these instruments ensures accurate data for aquifer analysis to determine the sustained yield potential of the well. The use of this equipment also dramatically reduces the costs for performing the long-term pumping test (no need for a man to continually measure water levels during the test). The water level recording equipment will monitor drawdown levels through-out the 72-hour pumping test.

3) Plotting the drawdown data during the course of the long-term pumping test to evaluate the potential need for adjustment in pumping rate.

4) Sampling the well at the conclusion of the long-term pumping test for Pa DER's "New Source Sampling Matrix". At this time, the water level measurement equipment will be reprogrammed to measure recovery levels for the 48-hour period following the cessation of pumping.

The cost for this work reflects some $1200 in lab costs associated with the water samples collected during the pumping test program (key parameters at 24 and 48-hours/Pa DER New Source Analysis and radon

JAMES R. CASSELBERRY
Ground-Water Geologist

108 E. Main Street / P.O. Box 616
Boalsburg, Pennsylvania 16827
(814) 466-7128

at the conclusion of the pumping test).

Total Cost = $3300

Report Preparation

1) Write a summary report describing the well construction and the results of the pumping test program. This report shall define both the water quality and sustained yield potential of the well and shall contain all the hydrogeologic information necessary for permitting the well as a source of public water supply. Recommendations regarding the use of the well will be made. Any construction modifications deemed necessary to improve well performance will also be identified.

Total Cost = $900

My total estimated cost for performing all phases of the project is $7150. If you have any questions on the scope of work or costs included in this proposal, please give me a call. Thank you for giving me the opportunity to work with you on this project.

Regards,

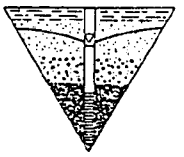
James R. Casselberry

JRC/jc
Attachment

JAMES R. CASSELBERRY
Ground-Water Geologist

108 E. Main Street / P.O. Box 616
Boalsburg, Pennsylvania 16827
(814) 466-7128

JAMES R. CASSELBERRY
Ground-Water Geologist



108 E. Main Street / P.O. Box 616
Boalsburg, Pennsylvania 16827
(814) 466-7128

November 1, 1991

General Rate Schedule for Consulting Services

Professional Services:

Principal	$62.00 per hour
Project Hydrogeologist	$42.00 per hour
Drafting/Data Processing	$20.00 per hour
Expert Witness Testimony	1.5 x above rates

Related Expenses:

Car Mileage @ $.30 per mile

Four-Wheel Drive Vehicle Mileage @ $.35 per mile

Travel expenses and subcontractor's costs will include a 15% surcharge

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Water Supply Application and Technical Specifications to Permit Well No. 1 for a Public Water Supply

Irvona Municipal Authority

October 8, 1990

Prepared By:

Neilan Engineers Division
1065 Tayman Avenue
P.O. Box 837
Somerset, Pennsylvania 15501

ER-BCE-41: 4/81

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF COMMUNITY ENVIRONMENTAL CONTROL

Date Prepared: 7-9-90

APPLICATION FOR PUBLIC WATER SUPPLY PERMIT

FOR DEPARTMENT USE ONLY

A. APPLICANT (Name and Address of Water Company)

Irvona Municipal Authority
Berwind Street
Irvona, PA 16656

TELEPHONE NO. 814-672-3959

B. PROJECT LOCATION

Serving Water to the Public within:
Municipality: Irvona Borough and Beccaria Township

County: Clearfield

C. HEREBY APPLIES FOR APPROVAL OF PLANS AND PERMIT OF THE FOLLOWING:

FOR: 1. [X] Use as Source of Supply [X] Construction [X] Operation

4. SOURCE

[X] Well(s) [ ] Spring(s)
[ ] Stream [ ] Lake

Known As: Well No. 1

5. FACILITIES

[ ] Impoundment
[ ] Settling
[ ] Filtration
[ ] Iron Removal
[ ] Softening
[ ] Disinfection
[ ] Pump Station(s)
[ ] Transmission Lines
[ ] Distribution Storage
[ ] Distribution System

I hereby certify that the completeness report and all plans, modules, and documents designated therein are attached to this application, and made a part hereof.

Donna Morrison
Name of Responsible Water Company Official

Name of Responsible Water Company Official	Title	Date of Application
Donna Morrison	Secretary - Treasurer	October 1, 1990

Address: Berwind Street Irvona, PA 16656

AFFIDAVIT

Commonwealth of Pennsylvania, County Of Somerset

I, _____, being duly sworn, according to law, depose and say that I (am the applicant) (am an officer or official of the applicant) (have the authority to make this application) and that the plans, reports and documents submitted as part of the application are true and correct to the best of my knowledge and belief.

Sworn and Subscribed to before me this 1st Day Of Oct. 19 90

R. ERIC CRITCHFIELD, Notary Public
Somerset Boro., Somerset County, PA
My Commission Expires June 13, 1992

Notary Public

Donna Morrison
Name of Responsible Water Company Official

THE SECTION BELOW IS TO BE COMPLETED BY THE DESIGN ENGINEER AUTHORIZED BY THE APPLICANT TO PREPARE THIS APPLICATION

Name of Design Engineer and Firm: F. Scott Rugh, P.E., Neilan Engineers, Inc.

Mailing Address: 1065 Tayman Ave., Somerset, PA 15501

Telephone Number: 814 445-6551

Agreement Date: 9-27-90

Signature of Design Engineer: F Scott Rugh

REGISTERED PROFESSIONAL ENGINEER'S
F. SCOTT RUGH
SEAL
ENGINEER
027377-E
PENNSYLVANIA

DATE PREPARED	COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL RESOURCES BUREAU OF COMMUNITY ENVIRONMENTAL CONTROL	For Department Use Only
9-27-90	**PUBLIC WATER SUPPLY**	
DATE REVISED	MODULE 3 — WELLS	

NOTE

IF ANY OF THE QUESTIONS IN THIS MODULE ARE NOT KNOWN DUE TO THE FACT THAT THE WELLS HAVE BEEN IN USE FOR A LONG PERIOD OF TIME AND SPECIFIC INFORMATION IS NOT AVAILABLE, ATTACH NECESSARY DISCUSSION SHEETS EXPLAINING HOW THESE WELLS COMPLY WITH THE RULES AND REGULATIONS OF THE DEPARTMENT, CHAPTER 109, ON THE BASIS OF THE TOPOGRAPHY AND GEOLOGY OF THE AREA, THE SANITARY SURVEY, THE WATER QUALITY DATA AND AVAILABLE INFORMATION ON CONSTRUCTION OF THE WELL.

A. GENERAL

1.	IS THE TEST METHOD FOR WELLS CLEARLY OUTLINED IN THE SPECIFICATIONS?	[X] Yes	[ ] No	[ ] N/A
2.	ARE THE TEST DATA INCLUDED GIVING WATER LEVEL DRAWDOWN AND PUMPING RATE DURING THE ENTIRE TEST OF THE PROPOSED WELL, AND OF THE DRAWDOWN IN WELLS WITHIN 500 FEET AND THE RECOVERY WATER LEVELS UPON CONCLUSIONS OF PUMPING?	[X] Yes	[ ] No	[ ] N/A
3.	HAS THE DURATION OF THE TEST BEEN DETERMINED WITH DUE CONSIDERATION TO CLARITY OF WATER AND THE OBTAINING OF REPRESENTATIVE SAMPLES OF WATER FOR CHEMICAL AND BACTERIOLOGICAL ANALYSIS?	[X] Yes	[ ] No	[ ] N/A

B. CASING AND LINER PIPES

1.	DOES THE PROTECTIVE CASING OF WROUGHT IRON OR STEEL HAVE MINIMUM WEIGHTS AND THICKNESS AS SPECIFIED IN TABLES 1 AND 2 OF THE PUBLIC WATER SUPPLY MANUAL?	[X] Yes	[ ] No	[ ] N/A
2.	IS WELL CASING PIPE OTHER THAN WROUGHT IRON OR STEEL ADAPTABLE BOTH TO THE STRESSES TO WHICH THE PIPE WILL BE SUBJECTED DURING INSTALLATION AND TO THE CORROSIVENESS OF THE WATER?	[ ] Yes	[ ] No	[X] N/A
3.	IS THE PIPE TO BE DRIVEN EQUIPPED WITH A DRIVE SHOE?	[X] Yes	[ ] No	[ ] N/A
4.	ARE CASING AND LINER PIPE JOINTS WELDED OR THREADED?	[X] Yes	[ ] No	
5.	IS PROTECTIVE CASING THAT IS TO BE GROUTED IN THE DRILL HOLE OR ANNULAR OPENING PROVIDED WITH SUFFICIENT GUIDES WELDED TO THE CASING TO PERMIT THE UNOBSTRUCTED FLOW AND DEPOSITION OF GROUT TO A MINIMUM THICKNESS OF 1.50 INCHES, OR TO A GREATER THICKNESS AS INDICATED IN ITEMS 8-6, AND H-6?	[X] Yes	[ ] No	
6.	DO TEMPORARY CASINGS AND LINERS INSTALLED WITHOUT DRIVING HAVE A MINIMUM THICKNESS OF 0.25 INCHES?	[ ] Yes	[ ] No	[X] N/A
7.	IS CASING PIPE UTILIZED FOR PROTECTION AGAINST CONTAMINATION AND HAVING WEIGHTS LESS THAN SPECIFIED BY TABLES 1 AND 2 OF THE PUBLIC WATER SUPPLY MANUAL SURROUNDED BY 4 INCHES OF CONCRETE, GROUT NEAT CEMENT GROUT OR OTHER APPROVED MATERIAL?	[ ] Yes	[X] No	[ ] N/A
8.	IS THE WALL OR CURBING AT LEAST 6 INCHES THICK AND POURED IN ONE OPERATION?	[ ] Yes	[ ] No	[X] N/A

IRVONA MUNICIPAL AUTHORITY
CLEARFIELD COUNTY, PENNSYLVANIA

1993 WATER PROJECT

PaDER PUBLIC WATER SUPPLY PERMIT APPLICATION

December 1992

Prepared by:

NEILAN ENGINEERS DIVISION
The EADS Group
1065 Tayman Avenue
Somerset, Pennsylvanial 15501

Date Prepared
11-23-92

DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF COMMUNITY ENVIRONMENTAL CONTROL

APPLICATION FOR PUBLIC WATER SUPPLY PERMIT

FOR DEPARTMENT USE ONLY

A. APPLICANT (Name and Address of Water Company)

Irvona Municipal Authority
Berwind Street
Irvona, PA 16656

TELEPHONE NO. (814) 672-3959

B. PROJECT LOCATION

Serving Water to the Public within:
Municipality: Irvona Borough and portions of Beccaria Twp.
County: Clearfield

C. HEREBY APPLIES FOR APPROVAL OF PLANS AND PERMIT OF THE FOLLOWING:

FOR: 1. [X] Use as Source of Supply [X] Construction [X] Operation

4. SOURCE

[X] Well(s) [ ] Spring(s)
[ ] Stream [ ] Lake

Known As: Hockenberry Run Well No. 2

5. FACILITIES

[ ] Impoundment
[ ] Settling
[ ] Filtration
[ ] Iron Removal
[ ] Softening
[X] Disinfection
[X] Pump Station(s)
[X] Transmission Lines
[X] Distribution Storage
[ ] Distribution System

I hereby certify that the completeness report and all plans, modules and documents designated therein are attached to this application, and made a part hereof.

Kenneth J Hewitt
Name of Responsible Water Company Official

Name of Responsible Water Company Official	Title	Date of Application
Kenneth Hewitt	Chairman	12-15-92

Address: Berwind Street Irvona, PA 16656

AFFIDAVIT

Commonwealth of Pennsylvania, County Of Somerset

I, Kenneth J Hewitt, being duly sworn, according to law, depose and say that I (am the applicant) (am an officer or official of the applicant) (have the authority to make this application) and that the plans, reports and documents submitted as part of the application are true and correct to the best of my knowledge and belief.

Sworn and Subscribed to before me this 15 Day Of December 1992

Randal B Mulhollen
Notary Public

NOTARIAL SEAL
RANDAL B. MULHOLLEN, NOTARY PUBLIC
SOMERSET BOROUGH, SOMERSET COUNTY
MY COMMISSION EXPIRES MARCH 4, 1996

Kenneth J Hewitt
Name of Responsible Water Company Official

THE SECTION BELOW IS TO BE COMPLETED BY THE DESIGN ENGINEER AUTHORIZED BY THE APPLICANT TO PREPARE THIS APPLICATION

Name of Design Engineer and Firm
F. Scott Rugh, P.E., Neilan Engineers Division

Mailing Address	Telephone Number
1065 Tayman Avenue, P.O. Box 837 Somerset, PA 15501	(814) 445-6551

Agreement Date	Signature of Design Engineer
5-12-92	F Scott Rugh

DESIGN ENGINEER'S SEAL
F. SCOTT RUGH
ENGINEER
027377-E
PENNSYLVANIA

DATE PREPARED
11-23-92
DATE REVISED

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF COMMUNITY ENVIRONMENTAL CONTROL

PUBLIC WATER SUPPLY
MODULE 3 – WELLS

For Department Use Only

NOTE

IF ANY OF THE QUESTIONS IN THIS MODULE ARE NOT KNOWN DUE TO THE FACT THAT THE WELLS HAVE BEEN IN USE FOR A LONG PERIOD OF TIME AND SPECIFIC INFORMATION IS NOT AVAILABLE, ATTACH NECESSARY DISCUSSION SHEETS EXPLAINING HOW THESE WELLS COMPLY WITH THE RULES AND REGULATIONS OF THE DEPARTMENT, CHAPTER 109, ON THE BASIS OF THE TOPOGRAPHY AND GEOLOGY OF THE AREA, THE SANITARY SURVEY, THE WATER QUALITY DATA AND AVAILABLE INFORMATION ON CONSTRUCTION OF THE WELL.

A. GENERAL

1. IS THE TEST METHOD FOR WELLS CLEARLY OUTLINED IN THE SPECIFICATIONS? ☐ Yes ☐ No ☒ N/A
   Well drilled under previous contract
2. ARE THE TEST DATA INCLUDED GIVING WATER LEVEL DRAWDOWN AND PUMPING RATE DURING THE ENTIRE TEST OF THE PROPOSED WELL, AND OF THE DRAWDOWN IN WELLS WITHIN 500 FEET AND THE RECOVERY WATER LEVELS UPON CONCLUSIONS OF PUMPING? ☒ Yes ☐ No ☐ N/A
   Refer to attached Hydrogeologist report
3. HAS THE DURATION OF THE TEST BEEN DETERMINED WITH DUE CONSIDERATION TO CLARITY OF WATER AND THE OBTAINING OF REPRESENTATIVE SAMPLES OF WATER FOR CHEMICAL AND BACTERIOLOGICAL ANALYSIS? ☒ Yes ☐ No ☐ N/A

B. CASING AND LINER PIPES

1. DOES THE PROTECTIVE CASING OF WROUGHT IRON OR STEEL HAVE MINIMUM WEIGHTS AND THICKNESS AS SPECIFIED IN TABLES 1 AND 2 OF THE PUBLIC WATER SUPPLY MANUAL? ☒ Yes ☐ No ☐ N/A
2. IS WELL CASING PIPE OTHER THAN WROUGHT IRON OR STEEL ADAPTABLE BOTH TO THE STRESSES TO WHICH THE PIPE WILL BE SUBJECTED DURING INSTALLATION AND TO THE CORROSIVENESS OF THE WATER? ☐ Yes ☐ No ☒ N/A
3. IS THE PIPE TO BE DRIVEN EQUIPPED WITH A DRIVE SHOE? ☒ Yes ☐ No ☐ N/A
4. ARE CASING AND LINER PIPE JOINTS WELDED OR THREADED? ☒ Yes ☐ No
5. IS PROTECTIVE CASING THAT IS TO BE GROUTED IN THE DRILL HOLE OR ANNULAR OPENING PROVIDED WITH SUFFICIENT GUIDES WELDED TO THE CASING TO PERMIT THE UNOBSTRUCTED FLOW AND DEPOSITION OF GROUT TO A MINIMUM THICKNESS OF 1.50 INCHES, OR TO A GREATER THICKNESS AS INDICATED IN ITEMS B-6, AND H-6? ☒ Yes ☐ No
6. DO TEMPORARY CASINGS AND LINERS INSTALLED WITHOUT DRIVING HAVE A MINIMUM THICKNESS OF 0.25 INCHES? ☐ Yes ☐ No ☒ N/A
7. IS CASING PIPE UTILIZED FOR PROTECTION AGAINST CONTAMINATION AND HAVING WEIGHTS LESS THAN SPECIFIED BY TABLES 1 AND 2 OF THE PUBLIC WATER SUPPLY MANUAL SURROUNDED BY 4 INCHES OF CONCRETE, GROUT NEAT CEMENT GROUT OR OTHER APPROVED MATERIAL? ☐ Yes ☐ No ☒ N/A
8. IS THE WALL OR CURBING AT LEAST 6 INCHES THICK AND POURED IN ONE OPERATION? ☐ Yes ☐ No ☒ N/A

ALL-STATE® LEGAL 800-222-0510 E0S11 RECYCLED

Pennsylvania Department of Environmental Protection

P. O. Box 209
Hawk Run, PA 16840-0209

July 28, 1998

HAWK RUN DISTRICT OFFICE

(814) 342-8200
FAX (814) 342-8216

Mr. Carl Rudnick
Irvona Municipal Authority
Berwind Street
Irvona, PA 16656

COPY

RE: Service Request HR #98-068
Irvona Municipal Water Supply
Investigation
Beccaria Township, Clearfield County

Dear Mr. Rudnick:

I have completed my investigation of your municipal well degradation complaint. I was asked to review the Irvona Municipal well problem and determine if the problem could be attributed to recent or past surface mining activity. A review of our records indicates that there has not been any substantial surface mining activity in the vicinity of the municipal wells in the past twenty-five years.

The surface mining that has occurred in the Hockenberry Run watershed has been reviewed and has not been found to be hydrologically connected to the recharge zones of the municipal well supply. Surface and deep mining operations in the adjacent watersheds generate mine drainage, which is contained within those adjacent watersheds. There is no evidence of inter-watershed movement of mine drainage that could affect the municipal well supply.

Any water quality impact from surface or deep coal mining to the municipal wells would be evident in the water quality characteristics of the well supply. Generally, mine drainage-impacted waters have high sulfate concentrations. An increase in Sulfate concentration is a prime indicator of an impact from mine drainage pollution. I have compiled the available water quality information for Well #1 and Well #2 and have enclosed it with this letter. A review of water quality data for Well #1 and Well #2 reveals that sulfate concentrations remain at background levels of less than 20 mg/L. Therefore, an impact from mine drainage is not evident at the municipal well supply.

For the purposes of generating a prompt response to your complaint, I have not generated a report that addresses the specific mining operations in the area. Current surface mining operations in Becarria Township are isolated from the Hockenberry Run watershed. If there is a specific mining operation which you believe is a cause of concern, please contact me and I will specifically research that operation.

One of your main concerns was the increasing iron concentration that appeared in Well #1 during the past year. On June 24, 1998, our office lowered the downhole camera down Well #1 for the purposes of discovering the source of the noise that emanated from the well bore. During that camera run, we discovered a significant casing leakage problem. These leakage problems occurred in the surface casing at 74 feet and 110 feet below the surface. Water was clearly seen entering the well bore under hydraulic pressure. Using a bailer, the Department obtained water quality samples (#4458156, #4458157) of the leakage at 74 feet. The chemical analysis of these samples has recently returned from the lab and reveal that the leakage water contains elevated, particulate iron concentrations (14.7 mg/L). A filtered water sample to remove suspended matter taken from the leakage reveals somewhat lower dissolved iron concentrations (2.02 mg/L). One can only conclude that the iron concentration problem of Well #1 can be attributed to a leakage problem of the surface casing. Water from the Lower Allegheny Formation laden with particulate iron is flowing into Well #1 at the leakage points. The leakage water has sulfate concentrations less than 20 mg/L; therefore, the Allegheny Formational waters are not impacted by mine drainage in the area of Well #1. Copies of the leakage samples are enclosed.

Bacteriological water samples were taken from Well #1 and Well #2 for analysis for iron and sulfate bacteria. Analysis of these samples report negative results for bacteria contamination. I have enclosed the lab results for these samples for your review and records.

In conclusion, my investigation has concluded that the alleged water contamination experienced by Irvona Municipal Authority is not contributable to recent or past surface mining activities in the area.

Given the leakage problem, you asked me to present you with options to deal with the problem so that the authority can make a sound informed decision on how best to serve it's customers. I have limited experience in dealing with well problems of this magnitude and I am unfamiliar with the regulations governing the development or repair of municipal water supplies. You should not hesitate to seek help from other DEP personnel who are experienced with dealing with these problems.

Probably the least expensive option is to repair or seal the leaks in Well #1. You may want to consider using a series of inflatable packers to seal the leakage areas. However, this may not work or only provide a temporary solution to the problem. There may be other solutions to sealing the leakage areas. You may want to explore these solutions by contacting some experienced well drilling contractors or oil well service companies that specialize in downhole well problems.

Given the deep hydrologic regime, the overlying poor water quality aquifers, and the problems you have already experienced with your current well supply, you should logically re-evaluate your option to drill another municipal supply well in the area. Obviously, if not properly engineered, the current problems could reoccur, thus rendering a replacement well useless.

I hope this letter addresses your concerns with respect to the surface mining impact question. I am enclosing the water sample analyses for the samples that I gathered during my investigation. If you have any further questions, please feel free to contact me at the Hawk Run District Office.

The regulations pertaining to a citizen's complaint entitle you to request an informal review of the Department's investigation if you do not agree with the findings. Your request for an informal review should contain the following information:

1. Nature of the complaint.

2. How you are or may be adversely affected by the mining operation.

3. Why you feel the Department's decision is incorrect.

4. If applicable, indicate portion(s) of the report of the Department's investigation that was incomplete or was overlooked.

If all of the above are not included in your request, no further action will be taken by the Department.

A written request for an informal review shall be mailed to:

Director
Bureau of Mining and Reclamation
Department of Environmental Protection
P.O. Box 8461
Harrisburg, PA 17105-8461

If you have questions or comments regarding this matter, please contact me at your convenience.

Sincerely,

David Bisko

David Bisko
Hydrogeologist
District Mining Operations

Enclosure

DB/dcb

cc: John P. Varner
Bill Kosmer, Williamsport Regional Office
Tom Tarcson
Scott Barnes
David Bisko

VERIFICATION

I am authorized as a member of the Board the Irvona Municipal Authority to make this Verification on behalf of Irvona Municipal Authority, and hereby state that all of the facts set forth in the foregoing document are true and correct to the best of my knowledge, information and belief. I understand that the statements herein are made subject to the penalties of 18 Pa. C.S. §4904 (relating to unsworn falsification to authorities).

Dated: 5-16-01

CERTIFICATE OF SERVICE

I hereby certify that I have this day served a true and correct copy of the foregoing document upon the person and in the manner indicated below.

Service by First Class U.S. Mail:

James R. Casselberry
108 East Main Street
Post Office Box 616
Boalsburg, PA 16827

James R. Casselberry & Associates, Inc.
108 East Main Street
Post Office Box 616
Boalsburg, PA 16827

Robert J. Ray, Esquire
Kelly B. Bakayza, Esquire
Burnes, White & Hickton, LLC
120 Fifth Avenue, Suite 2400
Pittsburgh, PA 15222
(counsel on behalf of The EADS Group)

James N. Bryant, Esquire
Bryant & Associates, P.C.
107 East Main Street
Millheim, PA 16854
(counsel on behalf of David Eriksen, t/a Eriksen Well Drilling)

Scott T. Wyland

DATED: May 25, 2001

IN THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA
CIVIL ACTION

IRVONA MUNICIPAL AUTHORITY, Plaintiff	:	
vs.	:	No. 00 - 955 - CD
DAVID ERIKSEN, t/a ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION, Defendants	:	JURY TRIAL DEMANDED

PRELIMINARY OBJECTIONS

Amended Comp. filed - don't need this. Thanks!

Filed on behalf of

Defendant - Eriksen Well Drilling

Counsel of Record for this Party:

James N. Bryant, Esq.
Attorney-At-Law
PA I.D. 14084

BRYANT & ASSOCIATES, P.C.
107 East Main Street
Millheim, PA 16854

(814) 349-5666

FILED
JUN 01 2001
William A. Shaw
Prothonotary

IN THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA
CIVIL ACTION

IRVONA MUNICIPAL AUTHORITY, Plaintiff	:	
vs.	:	No. 00 - 955 - CD
DAVID ERIKSEN, t/a ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION, Defendants	:	JURY TRIAL DEMANDED

ORDER

AND NOW, this ____ day of _____, 2001, upon consideration of the foregoing Preliminary Objections, a rule is granted upon the Plaintiff to show cause why such relief should not be granted. Rule returnable thereon the _____ day of _____, 2001, for filing written response.

NOTICE

A Petition or Motion has been filed against you in Court. If you wish to defend against the claims set forth in the following Motion by entering a written appearance personally or by attorney and filing in writing with the Court your defenses or objections to the matter set forth against you. You are warned that if you fail to do so the case may proceed without you and an order may be entered against you by the Court without further notice for relief requested by the Petitioner or Movant. You may lose rights important to you.

YOU SHOULD TAKE THIS PAPER TO YOUR LAWYER AT ONCE. IF YOU DO NOT HAVE A LAWYER OR CANNOT AFFORD ONE, GO TO OR TELEPHONE THE OFFICE SET FORTH BELOW TO FIND OUT WHERE YOU CAN GET LEGAL HELP.

COURT ADMINISTRATOR
CLEARFIELD COUNTY COURTHOUSE
MARKET & SECOND STREETS
CLEARFIELD, PA 16830
814-765-2641, EXT. 50-51.

BY THE COURT:

_____

IN THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA
CIVIL ACTION

IRVONA MUNICIPAL AUTHORITY, Plaintiff	:	
vs.	:	No. 00 - 955 - CD
DAVID ERIKSEN, t/a ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION, Defendants	:	JURY TRIAL DEMANDED

PRELIMINARY OBJECTIONS

AND NOW, comes the Defendant, Eriksen Well Drilling, by and through its attorney, James N. Bryant, Esq., of Bryant & Associates, P.C., and files the following Preliminary Objections to the Plaintiff's complaint:

1. The complaint, in essence, testifies that Eriksen Well Drilling used the wrong well casing.

2. In Count VIII punitive damages are requested. Nothing in the conduct of Eriksen Well Drilling indicates wanton and reckless disregard of the rights of others to justify punitive damages.

WHEREFORE, Defendant, Eriksen Well Drilling requests Count VIII be stricken.

BRYANT & ASSOCIATES, P.C.

By: /s/

James N. Bryant, Esq.
Attorney ID No. 14084
Attorney for Defendant, Eriksen Well Drilling
107 East Main Street
Millheim, PA 16854
(814) 349-5666

IN THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA
CIVIL ACTION

IRVONA MUNICIPAL AUTHORITY, Plaintiff	:	
vs.	:	No. 00 - 955 - CD
DAVID ERIKSEN, t/a ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION, Defendants	:	JURY TRIAL DEMANDED

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the within PRELIMINARY OBJECTIONS was served by depositing the same with the United States Postal Service, postage prepaid, addressed to the following:

Scott T. Wyland
100 North 10th Street
P. O. Box 1778
Harrisburg, PA 17105

James R. Casselberry
108 East Main Street
P. O. Box 616
Boalsburg, PA 16827

Kelly B. Bakayza, Esq.
Burns, White & Hickton
120 Fifth Avenue, Suite 2400
Pittsburgh, PA 15222-3001

Robert J. Ray, Esq.
2400 5th Avenue Pl.
120 5th Avenue
Pittsburgh, PA 15222-3001

By:_____
James N. Bryant, Esq.
Attorney for Eriksen Well Drilling

DATED: May 31, 2001

IRVONA MUNICIPAL AUTHORITY, Plaintiff	:	IN THE COURT OF COMMON PLEAS CLEARFIELD COUNTY, PENNSYLVANIA
v.	:	
	:	CIVIL ACTION - LAW
DAVID ERIKSEN, t/a ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION,	:	NO. 00-955-CD
Defendants	:	JURY TRIAL DEMANDED

NOTICE

You have been sued in court. If you wish to defend against the claims set forth in the following pages, you must take action within twenty (20) days after this Petition and Notice are served, by entering a written appearance personally or by an attorney and filing in writing with the court your defenses or objections to the claims set forth against you. You are warned that if you fail to do so the case may proceed without you and a judgment may be entered against you by the court without further notice for any money claimed in the foregoing Petition or for any other claim or relief requested by the Petitioner. You may lose money, property or other rights important to you.

YOU SHOULD TAKE THIS PAPER TO YOUR LAWYER AT ONCE. IF YOU DO NOT HAVE A LAWYER OR CANNOT AFFORD ONE, GO TO OR TELEPHONE THE OFFICE SET FORTH BELOW TO FIND OUT WHERE YOU CAN GET LEGAL HELP.

David Meholick, Court Administrator
Clearfield County Courthouse
230 East Market Street
Clearfield, PA 16830
(814) 765-2641

FILED
JUN 21 2001
William A. Shaw
Prothonotary

IRVONA MUNICIPAL AUTHORITY, Plaintiff	:	IN THE COURT OF COMMON PLEAS CLEARFIELD COUNTY, PENNSYLVANIA
v.	:	
	:	CIVIL ACTION - LAW
DAVID ERIKSEN, t/a ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION,	:	NO. 00-955-CD
Defendants	:	JURY TRIAL DEMANDED

NOTICIA

Le han demandado a usted en la corte. Si usted quiere defenderse de estas demandas expuestas en las paginas siguientes, usted tiene viente (20) dias de plazo al partir de la fecha de la demanda y la notificacion. Usted debe presentar una apariencia escrita o en persona o por abogado y archivar en la corte en forma escrita sus defensas o sus objeciones a las demandas en contra de su persona. Sea avisado que si usted no se defiende, la corte tomara medidas y puede entrar una orden contra usted sin previo aviso o notificacion y por cualguier queja o alivio que es pedido en la peticion de demanda. Usted puede perder dinero o sus propiedades o otros derechos importantes para usted.

LLEVE ESTA DEMANDA A UN ABODAGO IMMEDIATAMENTE. SI NO TIENE ABOGADO O SI NO TIENE EL DINERO SUFICIENTE DE PAGAR TAL SERVICIO, VAYA EN PERSONA O LLAME POR TELEFONO A LA OFICINA CUYA DIRECCION SE ENCUENTRA ESCRITA ABAJO PARA AVERIGUAR DONDE SE PUEDE CONSEGUIR ASISTENCIA LEGAL.

David Meholick, Court Administrator
Clearfield County Courthouse
230 East Market Street
Clearfield, PA 16830
(814) 765-2641

IRVONA MUNICIPAL AUTHORITY, Plaintiff	:	IN THE COURT OF COMMON PLEAS CLEARFIELD COUNTY, PENNSYLVANIA
v.	:	
	:	CIVIL ACTION - LAW
DAVID ERIKSEN, t/a ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION,	:	NO. 00-955-CD
Defendants	:	JURY TRIAL DEMANDED

AMENDED COMPLAINT

AND NOW, comes the plaintiff, Irvona Municipal Authority, by and through its attorneys, Malatesta Hawke & McKeon LLP, and sets forth the following complaint:

1. By this action, Irvona Municipal Authority brings suit against its well driller, hydrogeologist and engineers for damages caused by the defendants' faulty construction of two public water supply wells, which were constructed with grossly inadequate and defective well casings. The defective well casings caused the failure and closure of one well; the entire community water supply is threatened by the possible failure of the sole remaining well, whose substandard casing threatens contamination of the community's only public drinking water supply. The three defendants constructed the wells in wanton and reckless disregard of clearly published standards concerning the minimum thicknesses for protective well casings for public water supply wells. Irvona Municipal Authority seeks compensatory and punitive damages for the defendants' conduct.

I. THE PARTIES

2. Plaintiff Irvona Municipal Authority ("Irvona") is a municipal authority organized under the laws of the Commonwealth of Pennsylvania, with its principal place of business at P.O. Box 247, Berwind Street, Irvona, Clearfield County, Pennsylvania 16656.

3. Defendant David Eriksen t/a Eriksen Well Drilling ("Eriksen") is a well drilling and well pump proprietor with a principal place of business at R.D. 1, Box 72, Hesston, Huntingdon County, Pennsylvania 16647.

4. Defendant James R. Casselberry ("Casselberry") is a hydrogeologist with his principal place of business at 108 E. Main Street, P.O. Box 616, Boalsburg, Centre County, Pennsylvania 16827.

5. Defendant James R. Casselberry & Associates, Inc. ("Casselberry") provides ground-water geology services and has a principal place of business at 108 E. Main Street, P.O. Box 616, Boalsburg, Centre County, Pennsylvania 16827.

6. Defendant The EADS Group, t/a Neilan Engineers Division ("Neilan"), is an engineering, architectural and surveying firm with its principal place of business at 1065 Tayman Avenue, P.O. Box 837, Somerset, Somerset County, Pennsylvania 15501-0837.

II. BACKGROUND

7. Irvona provides water service to approximately 2500 customers in the Borough of Irvona and in portions of Beccaria Township, Clearfield County, Pennsylvania.

8. The water provided by Irvona to its customers is used for domestic purposes such as drinking, bathing, washing dishes and clothes, and cooking.

9. The two Irvona wells at issue in this proceeding were permitted by the Pennsylvania Department of Environmental Resources ("DER"), (currently, the Pennsylvania Department of

Environmental Protection ("DEP")), as public water supply wells. Hereinafter, this agency will be referred to as DEP.

10. Irvona's customers expect to receive, and Irvona is required to provide, safe, potable water that is suitable to use for the domestic purposes described above in paragraph 8.

11. The consumption of unsafe or contaminated water may cause negative health effects and/or serious illness to users, especially highly susceptible individuals such as young children, the elderly, and persons with immune system deficiencies.

12. The DEP has comprehensive regulations and standards that govern and control various aspects of the provision of water to the public including, but not limited to, design and construction specifications of water system facilities, and maximum allowable contaminant levels for water. These standards are intended to insure that safe, potable water is provided to the public.

13. DEP's Public Water Supply Manual contains required specifications for well casing material used in well construction. These specifications require, inter alia, that six-inch outside diameter steel casing be a minimum thickness of .28 inches.

14. Prior to 1991, Irvona's primary source of water supply was the Hockenberry Run Reservoir, located at the headwaters of Hockenberry Run in Clearfield County, Pennsylvania.

15. Beginning in the late 1980s, Irvona began a groundwater exploration program for the purpose of investigating and evaluating additional sources of water supply to supplement the water from its reservoir during times of drought and low flows.

16. To this end, Irvona engaged the services of the defendants in various capacities related to the identification and development of this supplemental source including, but not

limited to, investigating and evaluating potential sites, and developing, constructing, testing and securing permits for the new source.

17. At the recommendation of the defendants, a new groundwater source (a well) was chosen as the means to address Irvona's additional water supply needs. Accordingly, the activities of the defendants were directed toward the design, development and construction of a new well ("Well No. 1") to supplement Irvona's reservoir as its source of supply.

18. Defendant Eriksen drilled Well No. 1 in the spring of 1990.

19. Defendant Casselberry performed pumping tests and water quality analyses on Well No. 1 during the spring of 1990.

20. Subsequently, during 1991, Irvona, in consultation with the defendants, made the decision to abandon its reservoir and develop wells as Irvona's exclusive sources of water supply.

21. At the recommendation of the defendants, the decision was ultimately made to develop two wells to serve as Irvona's sources of water supply. Well No. 1 was already located near the Hockenberry Run Reservoir. A second well ("Well No. 2") was to be located approximately 2½ miles downstream from the reservoir and from Well No. 1.

22. Defendant Neilan was hired by Irvona as the project engineer to oversee the design, development, construction and permitting of both of the new wells. A copy of the executed contract between Neilan and Irvona for Well No. 1 is attached to this Complaint as **Appendix "A."** A copy of the executed contract between Neilan and Irvona for Well No. 2 is attached to this Complaint as **Appendix "B."**

23. Defendant Casselberry was hired to provide hydrogeologic services related to the development and construction of the new wells. These services included, but were not limited

to, determining suitable sites for the new wells, evaluating and analyzing the water quality and quantity of the wells, and supervising the development and construction of the new wells.

24. Defendant Eriksen was hired to drill and construct the wells. Eriksen also installed the well pumps, as well as electric service, in the new wells.

III. THE IRVONA AREA AQUIFERS

25. The geologic formations underlying the area in and around Irvona, Pennsylvania are known as the Glenshaw, Allegheny, Pottsville and Mauch Chunk formations.

26. Generally, the hillslopes and ridges in the Irvona area are capped by the Glenshaw and Allegheny formations. Lower elevations in the Irvona region are underlain by the Pottsville formation. The Mauch Chunk formation lies beneath the Pottsville formation.

27. During early 1990, defendant Eriksen drilled Well No. 1 at a location near Irvona's Hockenberry Run Reservoir. The well was ultimately drilled through the Allegheny and Pottsville formations, into the Mauch Chunk formation, to a depth in excess of 400 feet.

28. Test results of water taken from Well No. 1 showed that the Allegheny and Pottsville formations produced highly corrosive water with concentrations of iron and manganese at levels that would require treatment for use as a public supply.

29. Test results of water taken from the Mauch Chunk formation in the Irvona area during early 1990 showed that the water was of excellent quality and contained low levels of iron and manganese. The test results indicated that this water did not have the corrosive properties of the water from the Allegheny and Pottsville formations and would require only disinfection to make it suitable for consumption.

30. By early 1990, the poor quality and corrosiveness of water from the Allegheny and Pottsville aquifers, as well as the need for special consideration in the construction of the wells'

casings to protect against the infiltration of water from these upper aquifers into the good water taken from the lower Mauch Chunk aquifer, was known or should have been known by the defendants.

31. The high concentrations of iron and manganese from the Allegheny and Pottsville formations were discussed expressly in the report titled "Irvona Municipal Authority Groundwater Exploration Report Drilling and Testing of Test Well No. 1," which was prepared by defendant Casselberry and dated June 19, 1990. A copy of this report is attached to this Complaint as **Appendix "C."**

32. The special casing requirements of the wells was further highlighted by defendant Casselberry in a letter to defendant Neilan, dated August 29, 1991, that addressed various considerations related to the development of the wells. Defendant Casselberry stated in this letter, in relevant part, as follows:

> The largest potential complication in the development of the Mauch Chunk aquifer is maintaining hydraulic isolation between the good quality Mauch Chunk aquifer and the poor quality waters of the overlying Pottsville and Allegheny Formations. Some of the Pottsville and Allegheny waters are extremely aggressive and could potentially "eat through" steel water well casings. Therefore, the use of noncorrosive casing materials should be considered in any wells having a significant thickness of Pottsville and/or Allegheny overlying the Mauch Chunk.

A copy of this letter is attached to this Complaint as **Appendix "D"** (emphasis added).

IV. THE WELLS

33. Defendant Casselberry prepared a Groundwater Exploration Report for each of the two well sites being considered for development by Irvona. The first report, for Well No. 1, is dated June 19, 1990 (**Appendix "C"**). The second report, for Well No. 2, is dated November 2, 1992. A copy of the second report is attached to this Complaint as **Appendix "E."**

34. Both of the Groundwater Exploration Reports recognize the poor quality and corrosive properties of the aquifers that overlie the Mauch Chunk formation and the need to adequately case-off the wells through these formations to protect the quality of water drawn from Mauch Chunk.

35. On page 4 of **Appendix "C,"** defendant Casselberry stated, in describing his testing protocol, "I decided to case the poor quality Allegheny strata and also the "uncertain" Pottsville water-bearing zone to allow accurate definition of the yield and water chemistry of the underlying Mauch Chunk."

36. On page 3 of **Appendix "E,"** defendant Casselberry stated, "[t]he Pottsville Gp strata typically produce extremely poor quality acidic water having elevated iron and manganese concentrations. Therefore, we anticipated casing off all of the strata overlying the Mauch Chunk Fm in order to maximize water quality."

37. Defendant Neilan, as the project engineers, prepared the Water Well Development contract documents for each of the two well projects. The contract documents for Well No. 1 (dated November 1989) were prepared in 1989 when the decision was made to develop a groundwater source to supplement the reservoir. A copy of this document set is attached to this Complaint as **Appendix "F."**

38. All of the defendants had actual knowledge of the corrosive and generally poor quality of the water in the overlying aquifers and of the need for special, non-corrosive casing to withstand the corrosive quality of this water.

V. PROJECT SPECIFICATIONS AND REQUIREMENTS

39. As described above, Irvona hired the defendants to perform the various tasks necessary to the proper design, development and construction of the wells.

40. Defendant Eriksen was hired to drill and construct the wells in compliance with the specifications set forth in the contract documents.

41. In the section titled "Instruction to Bidders" on page B-1 of **Appendix "F,"** bidders were required to:

> . . . visit the site of the proposed work and fully acquaint himself with the existing conditions there relating to construction and labor, and should fully inform himself as to the facilities involved, the difficulties and restrictions attending the performance of the contract. The Bidder should thoroughly examine and familiarize himself with the Drawings, Technical Specifications, and all other contract documents. The Contractor by the execution of the Contract shall in no way be relieved of any obligation under it due to failure to receive or examine any form or legal instrument or to visit the site and acquaint himself with the conditions there existing.

42. Section 15E of the contract document set for Well No. 1 (**Appendix "F"**) is titled "Development of Public Water Supply Wells at the Hockenberry Run Reservoir." Section 15E.3E of this document discusses well construction specifications and requires that "[a]ll materials used in the construction of the production well shall conform to the specifications outlined in the PA DEP 'Public Water Supply Manual.'"

43. The PA DEP Water Supply Manual sets forth, among other things, specifications and minimum requirements for public water supply well construction. With respect to well casing, the Water Supply Manual requires a minimum thickness of 0.28 inches for six-inch outside diameter steel well casing. Copies of the relevant pages from the PA DEP Public Water Supply Manual are attached to this Complaint as **Appendix "G."**

44. In a letter dated November 8, 1991 and addressed to Scott Rugh of defendant Neilan, defendant Casselberry described and confirmed his role in the well development project as including "[c]oordinating the drilling contractor's activities and supervising the work in the

field as necessary, acting as the Authority's representative." A copy of this letter is attached to this Complaint as **Appendix "H."**

45. As project engineer for the well projects, defendant Neilan's responsibilities included preparing a preliminary design, preparing a final design, providing assistance during bidding or negotiating, and providing construction administration including resident project services during critical parts of construction.

46. Section 1.6.2.1 of the contracts between Neilan and Irvona (**Appendices "A" and "B"**) state as follows:

> ENGINEER [Neilan] shall make visits to the site at intervals appropriate to the various stages of construction as ENGINEER deems necessary in order to observe as an experienced and qualified design professional the progress and quality of the various aspects of Contractor(s)' work . . . . ENGINEER shall endeavor to determine in general if such work is proceeding in accordance with the Contract Documents and ENGINEER shall keep OWNER informed of the progress of the work.

47. Defendant Neilan's responsibilities under its contracts with Irvona included conducting on-site observations of the work in progress to determine if the work is proceeding in accordance with the contract documents and to report any faulty or defective work.

48. The defendants were required to fully acquaint themselves with any and all restrictions, difficulties and existing or special conditions at the well sites that would affect the design and construction of the wells, such as the highly-corrosive water in the overlying aquifers and the need for adequate well casing to protect the water drawn from the Mauch Chunk aquifer.

49. Defendants Neilan and Casselberry both had supervisory and oversight responsibilities related to the design and construction of the two wells to help insure that all design and construction requirements were addressed in a safe and proper manner.

50. Given the known condition of the water in the overlying aquifers, defendants should have taken extraordinary care in the design and construction of the casing used in the two wells to protect the water drawn from the Mauch Chunk aquifer from contamination by water from the upper aquifers.

51. At a bare minimum, defendants Neilan and Casselberry were required to oversee and properly supervise the construction of the wells to insure that adequate casing with the minimum thickness required by DEP was installed.

52. Both Neilan and Casselberry were well aware, however, of the highly corrosive quality of the water from the overlying aquifers, and of the need for special, non-corrosive casing to protect the water drawn from the Mauch Chunk aquifer. (See **Appendix "D"**).

53. Defendant Neilan prepared the Water Supply Permit Applications to the DEP for the Irvona wells. At section B(1) on page 3-1 of each application, defendant Neilan falsely certified to the DEP that each well's protective casing had the minimum thickness specified in DEP's Public Water Supply Manual (0.28 inches). Copies of the relevant pages from each application are attached to this Complaint as **Appendix "I."**

VI. WELL CONTAMINATION

54. The two wells were designed, developed, tested and constructed by the defendants and were placed in service as public water supplies for Irvona.

55. During the mid-1990s the quality of the water produced by Well No. 1 deteriorated severely. High levels of iron and manganese requiring additional and constant treatment were found in the water.

56. The quality of water produced by Well No. 2 also deteriorated severely, containing contaminants similar to those found in the water from Well No. 1.

57. In response to the deterioration of water quality from the wells, Irvona immediately began the process of investigating and analyzing potential causes and sources of the contamination.

58. Defendant Casselberry conducted an investigation, including a "down-the-borehole" video survey and analysis of Well No. 2, in an attempt to find the source of the contamination.

59. In a letter dated November 25, 1997 and addressed to Scott Rugh of defendant Neilan, defendant Casselberry indicated that the Well No. 2 casing appeared to be clean and structurally sound. In fact, by late 1997, despite Irvona's diligent efforts, the source of the contamination in the wells remained unknown.

60. In early 1998, PA DEP personnel conducted an investigation for purposes of assisting Irvona to determine the cause of the contamination of the water produced by the wells.

61. By letter dated July 28, 1998, Mr. David Bisko, a hydrogeologist with DEP, stated the results of his investigation into the cause of the well contamination. In this letter, Mr. Bisko stated, "[o]ne can only conclude that the iron concentration problem of Well No. 1 can be attributed to a leakage problem of the surface casing. Water from the Lower Allegheny formation laden with particulate iron is flowing into Well No. 1 at the leakage points." A copy of this letter is attached to this Complaint as **Appendix "J."**

62. Accordingly, by late 1998, the source of the contamination in Well No. 1 was determined to be leaks in the well casing that was installed by the defendants to protect the well from the poor-quality, corrosive waters of the aquifers that overlie the Mauch Chunk formation, although at that time Irvona did not know why the casings were leaking.

63. Subsequently, upon further investigation by plaintiff Irvona in an attempt to conclusively determine the cause of the contamination, a portion of the casing in Well No. 1, which was installed and approved by the defendants to protect the Mauch Chunk water from the poor quality Allegheny and Pottsville aquifers, was cut away and removed for analysis.

64. The well casing used by the defendants was steel of a thickness less than .28 inches and was not in compliance with the specifications that were required for the Irvona well construction project. Further, the well casing was grossly inadequate given the well-known and documented problems of high iron and manganese content and aggressive corrosiveness of the water produced by the overlying aquifers.

65. The casing used in Irvona Well No. 1 is a thickness of approximately 0.165 inches.

66. The highly corrosive waters of the aquifers overlying Mauch Chunk corroded and perforated the casing used in Well No. 1. This resulted in the contamination of the good quality Mauch Chunk water due to the infiltration of the poor quality Allegheny and Pottsville formation water into the wells.

67. As a result of the contamination of the well, the DEP required that Well No. 1 be taken out of service at great expense to Irvona. Well No. 1 is no longer being used as a source of supply.

68. As noted above, the quality of the water produced by Well No. 2 also deteriorated severely from its initial high quality output and contains similar contaminants as those found in Well No. 1 prior to its being removed from service.

69. Plaintiff Irvona sampled the well casing used in Well No. 2 in an attempt to determine the cause of the contamination. Analysis and measurement of this casing sample showed that it, like the casing used in Well No. 1, was made of steel and was too thin, measuring

approximately 0.19 inches thick. The well casing is grossly inadequate given the poor quality and corrosiveness of the water overlying the Mauch Chunk formation, which conditions were well known to all of the defendants in early 1990.

70. The improper casing used by the defendants in the construction of Well No. 1 and Well No. 2 resulted in the contamination of Irvona's primary public drinking water sources.

71. With respect to Well No. 2, Irvona is currently spending substantial amounts of money and manpower to constantly treat the water to eliminate or reduce the contaminants in order to provide potable water to the public.

72. The defendants breached their contractual obligations to Irvona by using casing in the wells that was inadequate for the surrounding conditions and that did not meet the specifications required in the contract documents and the DEP Public Water Supply Manual.

73. The defendants were negligent and reckless in the design and construction of the wells because they either installed, or supervised and approved the installation of, thin steel casing that was known to be inadequate and improper for the conditions known to exist at both well sites.

74. Defendant Neilan acted knowingly and fraudulently in misrepresenting to both Irvona and DEP that the casing used in the construction of both wells met the requirements set forth in the DEP Public Water Supply Manual. Despite Neilan's false certification to DEP, the casing used in both wells was grossly inadequate and was much thinner than the required .28 inch thickness.

VII. IRVONA'S DAMAGES

75. As a result of the defendants' conduct, Irvona has incurred substantial damages to date and expects to spend significant additional sums in the future in order to correct the

problems with the wells caused by the defendants. Irvona's total damages are expected to exceed $500,000.

76. To date, Irvona has incurred over $200,000 in damages directly associated with investigating and remedying the problems with the wells caused by the defendants, including, but not limited to, the following:

(a) laboratory tests to determine the quality problems of the well water;

(b) consultations with professionals concerning water quality and related issues;

(c) disinfection of the wells that would be otherwise unnecessary absent the defendants' wrongful conduct;

(d) installation of blow-off valves for the two wells;

(e) excess energy costs;

(f) excess wear and tear on equipment and storage facilities;

(g) water loss;

(h) draining, cleaning and disinfection of storage facilities that would otherwise be unnecessary in the absence of the defendants' wrongful conduct;

(i) additional costs associated with disinfection and treatment of water supply;

(j) engineering, video and investigative costs;

(k) costs of packer placement and related efforts to segregate aquifers;

(l) costs associated with the abandonment of Well No. 1, including control of artesian discharges and control of artesian flows;

(m) loss of revenue associated with decreased consumption of poor quality water by customer base;

(n) excess labor costs; and

(o) rehabilitation of Well No. 2 that would be otherwise unnecessary in the absence of defendants' wrongful conduct;

all of which total more than $200,000 to date.

77. The damages and costs enumerated above are solely the result of the wrongful conduct of the defendants. Irvona expects to spend significant additional sums in the future to replace the water sources rendered unusable and unsafe by the defendants, including, but not limited to, the following:

(a) hydrogeologists fees;

(b) engineering fees;

(c) land acquisition costs and related surveying costs, attorneys fees and closing costs;

(d) permitting of new water sources;

(e) line installation and hook-up of new water sources;

(f) additional treatment costs and associated engineering, design, construction, permitting, legal, debt service and operational costs;

(g) well location and construction costs;

(h) access road construction costs;

(i) water testing and treatment costs;

(j) excess energy costs and fencing costs;

(k) costs associated with Well No. 2 abandonment; and

(l) other related necessary and reasonable costs associated with providing reliable potable water sources for the customers of Irvona Municipal public water supply, production, treatment and conveyance systems.

78. In addition to the costs set forth above, Irvona may be forced to incur other reasonable and necessary costs as a result of the defendants' wrongful conduct as set forth in this Complaint.

VIII. PUNITIVE DAMAGES

79. The conduct of each of the defendants warrants an award of punitive damages. Specifically, and in addition to the conduct described hereinabove, the defendants' conduct was willful, reckless and amounted to a wholly wanton disregard of the rights of Irvona and its customers, in that the defendants:

(a) failed to construct the public water well in accordance with sound engineering principles;

(b) constructed the well in blatant and outrageous disregard for clearly published standards concerning the thickness of the casing, even though each of the defendants was fully aware of the corrosive, contaminated and aggressive properties of the upper aquifers and the need to keep those aquifers segregated from the public water supply they were creating;

(c) caused Irvona to abandon its otherwise reliable surface water supply in favor of two wells, which defendants constructed in violation of engineering and DEP published standards;

(d) risked complete and total failure of Irvona's entire municipal water supply system, a result that would leave all residents completely without potable drinking water;

(e) constructed the wells in a manner that risked contamination of the Mauch Chunk formation with low-quality waters of the upper aquifers, which naturally are segregated from the deeper Mauch Chunk formation, a result which could contaminate the entire lower aquifer for all present and potential future users of said aquifer;

(f) caused the forced abandonment of Well No. 1 which in turn (i) caused the poor-quality upper aquifers to exit the ground in an "artesian well" fashion and jeopardized serious contamination and harm to the nearby stream, and (ii) left Irvona with only one operating well to serve its entire customer base, which well is inadequately cased and currently is in violation of published DEP standards and is otherwise inadequate as described hereinabove;

(g) risked contamination of the public water supply with levels of iron, manganese and other contaminants that were beyond the designed capacity of Irvona's treatment system, the failure of which could leave all of Irvona's water customers without potable water;

80. The conduct of the defendants has left Irvona in the present situation of having a single well to serve all of its municipal residents. That well is inadequately cased and at great current risk of failure.

81. The defendants accepted payment from Irvona for the construction of wells that met published DEP standards, which standards were known to the defendants and which called for a

minimum thickness of 0.284, the six inch size of both of Irvona's wells. However, the defendants did not provide Irvona with wells that Irvona contracted for and paid for.

82. Defendant Neilan falsely certified to DEP that the wells met published standards. Said false certification arguably exposes defendant Neilan and its individual signing engineer to potential criminal liability for false certification to authorities in violation of 18 Pa. C.S. § 4904.

83. Defendant Casselberry expressly recognized the dangers of the Irvona aquifers and the need to adequately case them for the safety of the users of the water system. Despite this specific knowledge on the part of Casselberry, he failed completely to insure that the wells were constructed in a manner consistent with sound engineering principles and published DEP standards.

84. Defendant Eriksen drilled the wells and selected and used casing that was thinner and cheaper than that Irvona contracted and paid for. In addition, Eriksen used casing that clearly violated published DEP standards, which standards were known or should have been known to defendant Eriksen at the time he constructed the wells. The conduct of Eriksen in constructing public water supply wells with such clearly inadequate casing amounted to a wholly wanton disregard for the safety of Irvona and its customers and amounted to either intentional or reckless conduct on his part that placed the community's entire water system at great risk of failure, as evidenced by the failure of Well No. 1.

85. Irvona contracted with and paid the defendants for two public water supply wells to serve as the sole sources of potable water for its community of customers. The defendants have left Irvona with a failed well and a single operating well that is at great current risk of failure.

COUNT I

Irvona v. Eriksen – Breach of Contract (Well No. 1)

86. The allegations set forth in paragraphs 1-85 above are incorporated herein by reference.

87. Defendant Eriksen breached his contractual obligations to plaintiff Irvona by failing to use the proper casing that was required by the contracting documents for use in the construction of Well No. 1. The specifications required the use of materials suitable for the conditions present at the well site. The specifications also required that the well casing meet the standards set forth in the DER Public Water Supply Manual.

88. Defendant Eriksen knew or should have known of the contaminated, highly corrosive water in the overlying aquifers and of the need to protect the water to be drawn from the Mauch Chunk aquifer with adequate casing, at least as thick as that required by DEP.

89. Defendant Eriksen acted with reckless indifference in using improper casing that was neither suitable nor adequate to withstand the highly corrosive waters of the aquifers that overlay the Mauch Chunk formation.

90. Defendant Eriksen used improper casing that did not conform to the standards set forth in the DER Water Supply Manual. The Manual specified the use of casing of at least 0.28-inch thickness. The casing used by defendant Eriksen was approximately only 0.165 inches thick.

91. As a result of defendant Eriksen's willful or reckless failure to use materials meeting the required specifications, Irvona's public water supply Well No. 1 has become contaminated through the infiltration of water from the aquifers that overlay Mauch Chunk.

92. As a further result of Defendant Eriksen's breach of his contractual obligations and of his reckless indifference to the health and safety of all users of water provided by Irvona, Well No. 1 has become contaminated, is no longer used as a public water supply, and must be replaced with a new well at great expense to Irvona.

93. As a result of defendant Eriksen's breach of his contractual obligations, Irvona has been forced to spend substantial sums of money, to date, in taking appropriate remedial measures to properly seal and isolate Well No. 1 to prevent further contamination of the Mauch Chunk aquifer from the overlying aquifers. Irvona will continue to spend substantial sums to correct the problems caused by defendant Eriksen's breach.

WHEREFORE, plaintiff Irvona demands judgment against defendant Eriksen for (1) compensatory damages for both past and future harm in an amount in excess of $500,000, (2) punitive damages in an amount deemed appropriate by the Court upon consideration of the defendant's intentional or reckless indifference to the health and safety risks to users of water provided by Irvona created by his failure to use adequate well casing, and (3) interest, costs and other such relief as the Court deems just.

COUNT II

Irvona v. James R. Casselberry – Breach of Contract (Well No. 1)

94. The allegations set forth in paragraphs 1-93 above are incorporated herein by reference.

95. Defendant Casselberry knew of the contamination and highly corrosive quality of the water in the overlying aquifers. Defendant Casselberry warned defendant Neilan of the need for special, corrosion-resistant casing. Defendant Casselberry beached his contractual

obligations to plaintiff Irvona by knowingly and recklessly failing to properly monitor and supervise the construction of Well No. 1 to insure that adequate well casing was used.

96. As a result of defendant Casselberry's breach of his contractual obligations, improper and inadequate casing was used in Well No. 1. Despite his recognition of the poor quality and corrosiveness of the waters contained in the aquifers above the Mauch Chunk formation, and of the need for special casing, defendant Casselberry failed to properly inspect and supervise the materials and procedures used in the construction of Well No. 1.

97. As a result of defendant Casselberry's breach of his contractual obligations, a non-corrosion resistant casing that was too thin and unable to withstand the corrosive properties of the overlying water was used in the well construction. Consequently, Irvona's public water supply Well No. 1 became contaminated through the infiltration of water from the aquifers that overlay the Mauch Chunk formation.

98. As a result of defendant Casselberry's breach of his contractual obligations, Well No. 1 became contaminated, is no longer suitable for use as a public water supply, and must be replaced with a new well at great expense to Irvona.

99. As a result of defendant Casselberry's breach of his contractual obligations, Irvona has been forced to spend substantial sums of money in taking appropriate remedial measures to properly seal and isolate Well No. 1 to prevent further contamination of the Mauch Chunk aquifer. Irvona will be forced to continue to spend substantial sums to correct the problems caused by defendant Casselberry's breach.

WHEREFORE, plaintiff Irvona demands judgment against defendant Casselberry for (1) compensatory damages for both past and future harm in an amount in excess of $500,000, (2) punitive damages in an amount deemed appropriate by the Court upon consideration of the

defendant's intentional or reckless indifference to the health and safety risks to users of water provided by Irvona created by his failure to insure the use of adequate well casing, and (3) interest, costs and other such relief as the Court deems just.

COUNT III

Irvona v. Neilan – Breach of Contract (Well No. 1)

100. The allegations set forth in paragraphs 1-99 above are incorporated herein by reference.

101. Defendant Neilan knew of the contamination and highly corrosive quality of the water in the overlying aquifers. Defendant Neilan knew that corrosion-resistant casing was recommended. Defendant Neilan beached its contractual obligations to plaintiff Irvona by knowingly and recklessly failing to properly monitor and supervise the construction of Well No. 1 to insure that adequate well casing was used.

102. As a result of defendant Neilan's breach of its contractual obligations, improper and inadequate casing was used in Well No. 1. Despite having knowledge of the poor quality and corrosiveness of the waters contained in the aquifers above the Mauch Chunk formation, defendant Neilan failed to properly inspect and supervise the materials and procedures used in the construction of Well No. 1.

103. As a result of defendant Neilan's breach of its contractual obligations, a non-corrosion resistant casing that was too thin and unable to withstand the corrosive properties of the overlying water was used in the well construction. Consequently, Irvona's public water supply Well No. 1 became contaminated through the infiltration of water from the aquifers that overlay the Mauch Chunk formation.

104. As a result of defendant Neilan's breach of its contractual obligations, Well No. 1 became contaminated, is no longer suitable for use as a public water supply, and must be replaced with a new well at great expense to Irvona.

105. As a result of defendant Neilan's breach of its contractual obligations, Irvona has been forced to spend substantial sums of money in taking appropriate remedial measures to properly seal and isolate Well No. 1 to prevent further contamination of the Mauch Chunk aquifer. Irvona will be forced to continue to spend substantial sums to correct the problems caused by defendant Neilan's breach.

WHEREFORE, plaintiff Irvona demands judgment against defendant Neilan for (1) compensatory damages for both past and future harm in an amount in excess of $500,000, (2) punitive damages in an amount deemed appropriate by the Court upon consideration of the defendant's intentional or reckless indifference to the health and safety risks to users of water provided by Irvona created by his failure to insure the use of adequate well casing, and (3) interest, costs and other such relief as the Court deems just.

COUNT IV

Irvona v. Eriksen – Breach of Contract (Well No. 2)

106. The allegations set forth in paragraphs 1-105 above are incorporated herein by reference.

107. Defendant Eriksen breached his contractual obligations to plaintiff Irvona by failing to use the proper casing in the construction of Well No. 2. The specifications required the use of materials suitable for the conditions present at the well site. The specifications also required that the well casing meet the standards set forth in the DER Public Water Supply Manual.

108. Defendant Eriksen knew or should have known of the contaminated, highly corrosive water in the overlying aquifers and of the need to protect the water to be drawn from the Mauch Chunk aquifer with adequate casing.

109. Defendant Eriksen used improper casing that is not suitable and adequate to withstand the highly corrosive waters of the aquifers that overlay the Mauch Chunk formation.

110. Defendant Eriksen used improper casing that did not conform to the standards set forth in the DER Water Supply Manual. The Manual specified the use of casing of at least 0.28-inch thickness. The casing used by defendant Eriksen was approximately only 0.19 inches thick.

111. As a result of defendant Eriksen's failure to use materials meeting required specifications, Irvona's public water supply Well No. 2 has become contaminated, or is at great risk of becoming contaminated, through the infiltration of water from the aquifers that overlay Mauch Chunk.

112. As a further result of defendant Eriksen's breach of his contractual obligations, the water from Well No. 2 has become contaminated, or is at great risk of becoming contaminated, and requires constant and substantial treatment by plaintiff Irvona. Well No. 2 must ultimately be replaced with a new well at great expense to Irvona.

113. As a result of defendant Eriksen's breach of his contractual obligations, Irvona has been forced to spend substantial sums of money in taking appropriate remedial measures to treat the water from Well No. 2 to reduce the contamination from the overlying aquifers and render the water potable.

WHEREFORE, plaintiff Irvona demands judgment against defendant Eriksen for (1) compensatory damages for both past and future harm in an amount in excess of $500,000, (2) punitive damages in an amount deemed appropriate by the Court upon consideration of the

defendant's intentional or reckless indifference to the health and safety risks to users of water provided by Irvona created by his failure to use adequate well casing, and (3) interest, costs and other such relief as the Court deems just.

COUNT V

Irvona v. Casselberry – Breach of Contract (Well No. 2)

114. The allegations set forth in paragraphs 1-113 above are incorporated herein by reference.

115. Defendant Casselberry knew of the contamination and highly corrosive quality of the water in the overlying aquifers. Defendant Casselberry warned defendant Neilan of the need for special, corrosion-resistant casing. Defendant Casselberry beached his contractual obligations to plaintiff Irvona by failing to properly monitor and supervise the construction of Well No. 2 to insure that adequate casing was used.

116. As a result of defendant Casselberry's breach of his contractual obligations, improper and inadequate casing was used in Well No. 2. Despite his recognition of the poor quality and corrosiveness of the waters contained in the aquifers above the Mauch Chunk formation, defendant Casselberry failed to properly inspect and supervise the materials and procedures used in the construction of Well No. 2.

117. As a result of defendant Casselberry's breach of his contractual obligations, a non-corrosion resistant casing that was too thin and unable to withstand the corrosive properties of the overlying water was used in the well construction. Consequently, Irvona's public water supply Well No. 2 has become contaminated, or is at great risk of becoming contaminated, through the infiltration of water from the aquifers above the Mauch Chunk formation.

118. As a result of defendant Casselberry's breach of his contractual obligations, Well No. 2 has become contaminated, or is at great risk of becoming contaminated, and requires constant and substantial treatment by plaintiff Irvona. Well No. 2 must ultimately be replaced with a new well at great expense to Irvona.

119. As a result of defendant Casselberry's breach of his contractual obligations, Irvona has been forced to spend substantial sums of money in taking appropriate remedial measures to treat the water from Well No. 2 to reduce the contamination from the overlying aquifers and render the water potable.

WHEREFORE, plaintiff Irvona demands judgment against defendant Casselberry for (1) compensatory damages for both past and future harm in an amount in excess of $500,000, (2) punitive damages in an amount deemed appropriate by the Court upon consideration of the defendant's intentional or reckless indifference to the health and safety risks to users of water provided by Irvona created by his failure to insure the use of adequate well casing, and (3) interest, costs and other such relief as the Court deems just.

COUNT VI

Irvona v. Neilan – Breach of Contract (Well No. 2)

120. The allegations set forth in paragraphs 1-119 above are incorporated herein by reference.

121. Defendant Neilan knew of the contamination and highly corrosive quality of the water in the overlying aquifers. Defendant Neilan knew of the need for special, corrosion-resistant casing. Defendant Neilan beached its contractual obligations to plaintiff Irvona by

knowingly and recklessly failing to properly monitor and supervise the construction of Well No. 2 to insure that adequate well casing was used.

122. As a result of defendant Neilan's breach of its contractual obligations, improper and inadequate casing was used in Well No. 2. Despite having knowledge of the poor quality and corrosiveness of the waters contained in the aquifers above the Mauch Chunk formation, and of the need for special casing, defendant Neilan failed to properly inspect and supervise the materials and procedures used in the construction of Well No. 2.

123. As a result of defendant Neilan's breach of its contractual obligations, a non-corrosion resistant casing that was too thin and unable to withstand the corrosive properties of the overlying water was used in the well construction. Consequently, Irvona's public water supply Well No. 2 has become contaminated, or is at great risk of becoming contaminated, through the infiltration of water from the aquifers that overlay the Mauch Chunk formation.

124. As a result of defendant Neilan's breach of its contractual obligations, Well No. 2 has become contaminated, or is at great risk of becoming contaminated, and requires constant and substantial treatment by plaintiff Irvona. Well No. 2 must ultimately be replaced with a new well at great expense to Irvona.

125. As a result of defendant Neilan's breach of its contractual obligations, Irvona has been forced to spend substantial sums of money in taking appropriate remedial measures to treat the water from Well No. 2 to reduce the contamination from the overlying aquifers and render the water potable.

WHEREFORE, plaintiff Irvona demands judgment against defendant Neilan for (1) compensatory damages for both past and future harm in an amount in excess of $500,000, (2) punitive damages in an amount deemed appropriate by the Court upon consideration of the

defendant's intentional or reckless indifference to the health and safety risks to users of water provided by Irvona created by his failure to insure the use of adequate well casing, and (3) interest, costs and other such relief as the Court deems just.

COUNT VII

Irvona v. Eriksen – Negligence (Well No. 1)

126. The allegations set forth in paragraphs 1-125 above are incorporated herein by reference.

127. Defendant Eriksen was negligent in that he failed to exercise ordinary care, skill and diligence in performing his duties related to the drilling and construction of Irvona's public water supply Well No. 1.

128. Defendant Eriksen knew or should have known of the highly corrosive quality of the water from the overlying aquifers, as well as the need for adequate casing to protect the good quality water taken from the underlying Mauch Chunk formation.

129. As a result of defendant Eriksen's negligence, an improper casing was used in the construction of Well No. 1. This casing was too thin and was inadequate to withstand the corrosive properties of the water from the overlying aquifers. The corrosive waters from the overlying aquifers "ate through" the casing and contaminated the water from the Mauch Chunk formation.

130. As a result of defendant Eriksen's negligence, Well No. 1 became contaminated and may no longer be used as a public water supply. Well No. 1 must be replaced at great expense to Irvona.

131. Defendant Eriksen has admitted his liability. (See redacted copy of letter dated May 31, 2001 from Mr. Eriksen's counsel, attached hereto as **Appendix "K."**)

132. As a result of defendant Eriksen's negligence, Irvona has been forced to spend substantial sums of money in taking appropriate remedial measures to properly seal and isolate Well No. 1 to prevent further contamination of the Mauch Chunk aquifer.

133. Defendant Eriksen otherwise failed to use due care and caution under the circumstances.

WHEREFORE, plaintiff Irvona demands judgment against defendant Eriksen for (1) compensatory damages for both past and future harm in an amount in excess of $500,000, (2) punitive damages in an amount deemed appropriate by the Court upon consideration of the defendant's intentional or reckless indifference to the health and safety risks to users of water provided by Irvona created by his failure to insure the use of adequate well casing, and (3) interest, costs and other such relief as the Court deems just.

COUNT VIII

Irvona v. Casselberry – Negligence (Well No. 1)

134. The allegations set forth in paragraphs 1-133 above are incorporated herein by reference.

135. Defendant Casselberry was negligent in that he failed to exercise ordinary care, skill and diligence in performing his duties related to the planning and supervision of the drilling and construction of Irvona's public water supply Well No. 1.

136. Defendant Casselberry knew of the highly corrosive quality of the water from the overlying aquifers, as well as the need for adequate, corrosion-resistant casing to protect the good quality water taken from the underlying Mauch Chunk formation.

137. Defendant Casselberry was negligent and reckless in that he failed to properly supervise and monitor the quality and adequacy of the construction and materials used in Well No. 1.

138. As a result of defendant Casselberry's negligence, an improper casing was used in the construction of Well No. 1. This casing was too thin and was inadequate to withstand the corrosive properties of the water from the overlying aquifers. The corrosive waters from the overlying aquifers "ate through" the casing and contaminated the water drawn from the Mauch Chunk formation.

139. As a result of defendant Casselberry's negligence, Well No. 1 became contaminated and may no longer be used as a public water supply. Well No. 1 must be replaced at great expense to Irvona.

140. As a result of defendant Casselberry's negligence, Irvona has been forced to spend substantial sums of money in taking appropriate remedial measures to properly seal and isolate Well No. 1 to prevent further contamination of the Mauch Chunk aquifer.

141. Defendant Casselberry otherwise failed to use due care and caution under the circumstances.

WHEREFORE, plaintiff Irvona demands judgment against defendant Casselberry for (1) compensatory damages for both past and future harm in an amount in excess of $500,000, (2) punitive damages in an amount deemed appropriate by the Court upon consideration of the defendant's intentional or reckless indifference to the health and safety risks to users of water

provided by Irvona created by his failure to insure the use of adequate well casing, and (3) interest, costs and other such relief as the Court deems just.

COUNT IX

Irvona v. Neilan – Negligence (Well No. 1)

142. The allegations set forth in paragraphs 1-141 above are incorporated herein by reference.

143. Defendant Neilan was negligent in that it failed to exercise ordinary care, skill and diligence in performing its duties related to the planning and supervision of the drilling and construction of Irvona's public water supply Well No. 1.

144. Defendant Neilan knew of the highly corrosive quality of the water from the overlying aquifers, as well as the need for adequate, corrosion-resistant casing to protect the good quality water taken from the underlying Mauch Chunk formation.

145. As a result of defendant Neilan's negligence, an improper casing was used in the construction of Well No. 1. This casing was too thin and was inadequate to withstand the corrosive properties of the water from the overlying aquifers. The corrosive waters from the overlying aquifers "ate through" the casing and contaminated the water from the Mauch Chunk formation.

146. As a result of defendant Neilan's negligence, Well No. 1 became contaminated and may no longer be used as a public water supply. Well No. 1 must be replaced at great expense to Irvona.

147. As a result of defendant Neilan's negligence, Irvona has been forced to spend substantial sums of money in taking appropriate remedial measures to properly seal and isolate Well No. 1 to prevent further contamination of the Mauch Chunk aquifer.

148. Defendant Neilan otherwise failed to use due care and caution under the circumstances.

WHEREFORE, plaintiff Irvona demands judgment against defendant Neilan for (1) compensatory damages for both past and future harm in an amount in excess of $500,000, (2) punitive damages in an amount deemed appropriate by the Court upon consideration of the defendant's intentional or reckless indifference to the health and safety risks to users of water provided by Irvona created by his failure to insure the use of adequate well casing, and (3) interest, costs and other such relief as the Court deems just.

COUNT X

Irvona v. Eriksen – Negligence (Well No. 2)

149. The allegations set forth in paragraphs 1-148 above are incorporated herein by reference.

150. Defendant Eriksen was negligent in that he failed to exercise ordinary care, skill and diligence in performing his duties related to the drilling and construction of Irvona's public water supply Well No. 2.

151. Defendant Eriksen knew or should have known of the highly corrosive quality of the water from the overlying aquifers, as well as the need for adequate, corrosion-resistant casing to protect the good-quality water taken from the underlying Mauch Chunk formation.

152. As a result of defendant Eriksen's negligence, an improper casing was used in the construction of Well No. 2. This casing was too thin and is inadequate to withstand the corrosive properties of the water from the overlying aquifers.

153. As a result of defendant Eriksen's negligence, Well No. 2 is contaminated, or is at great risk of becoming contaminated, and requires constant and substantial treatment by plaintiff Irvona. Well No. 2 must ultimately be replaced as a public water supply at great expense to Irvona.

154. As a result of defendant Eriksen's negligence, Irvona has been forced to spend substantial sums of money in taking appropriate remedial measures to properly treat the water to reduce the contaminants from the overlying aquifers and render the water potable.

155. Defendant Eriksen otherwise failed to use due care and caution under the circumstances.

WHEREFORE, plaintiff Irvona demands judgment against defendant Eriksen for (1) compensatory damages for both past and future harm in an amount in excess of $500,000, (2) punitive damages in an amount deemed appropriate by the Court upon consideration of the defendant's intentional or reckless indifference to the health and safety risks to users of water provided by Irvona created by his failure to insure the use of adequate well casing, and (3) interest, costs and other such relief as the Court deems just.

COUNT XI

Irvona v. Casselberry – Negligence (Well No. 2)

156. The allegations set forth in paragraphs 1-155 above are incorporated herein by reference.

157. Defendant Casselberry was negligent in that he failed to exercise ordinary care, skill and diligence in performing his duties related to the planning and supervision of the drilling and construction of Irvona's public water supply Well No. 2.

158. Defendant Casselberry knew of the highly corrosive quality of the water from the overlying aquifers, as well as the need for adequate, corrosion-resistant casing to protect the good quality water taken from the underlying Mauch Chunk formation.

159. Defendant Casselberry was negligent in that he failed to properly supervise and monitor the quality and adequacy of the construction and materials used in Well No. 2.

160. As a result of defendant Casselberry's negligence, an improper casing was used in the construction of Well No. 2. This casing was too thin and is inadequate to withstand the corrosive properties of the water from the overlying aquifers.

161. As a result of defendant Casselberry's negligence, the water from Well No. 2 is contaminated, or is at great risk of becoming contaminated, and requires constant and substantial treatment by Irvona. Well No. 2 must ultimately be replaced at great expense to Irvona.

162. As a result of defendant Casselberry's negligence, Irvona has been forced to spend substantial sums of money in taking appropriate remedial measures to properly treat the water from Well No. 2 to reduce the contamination from the overlying aquifers and render the water potable.

163. Defendant Casselberry otherwise failed to use due care and caution under the circumstances.

WHEREFORE, plaintiff Irvona demands judgment against defendant Casselberry for (1) compensatory damages for both past and future harm in an amount in excess of $500,000, (2) punitive damages in an amount deemed appropriate by the Court upon consideration of the

defendant's intentional or reckless indifference to the health and safety risks to users of water provided by Irvona created by his failure to insure the use of adequate well casing, and (3) interest, costs and other such relief as the Court deems just.

COUNT XII

Irvona v. Neilan – Negligence (Well No. 2)

164. The allegations set forth in paragraphs 1-163 above are incorporated herein by reference.

165. Defendant Neilan was negligent in that it failed to exercise ordinary care, skill and diligence in performing its duties related to the planning and supervision of the drilling and construction of Irvona's public water supply Well No 2.

166. Defendant Neilan knew of the highly corrosive quality of the water from the overlying aquifers, as well as the need for adequate, corrosion-resistant casing to protect the good-quality water taken from the underlying Mauch Chunk formation.

167. As a result of defendant Neilan's negligence, an improper casing was used in the construction of Well No. 2. This casing is inadequate to withstand the corrosive properties of the water from the overlying aquifers.

168. As a result of defendant Neilan's negligence, Well No. 2 is contaminated, or is at great risk of becoming contaminated, and requires constant and substantial treatment by Irvona. Well No. 2 must ultimately be replaced at great expense to Irvona.

169. As a result of defendant Neilan's negligence, Irvona has been forced to spend substantial sums of money in taking appropriate remedial measures to properly treat the water

from Well No. 2 to reduce the contamination from the overlying aquifers and render the water potable.

170. Defendant Neilan otherwise failed to use due care and caution under the circumstances.

WHEREFORE, plaintiff Irvona demands judgment against defendant Neilan for (1) compensatory damages for both past and future harm in an amount in excess of $500,000, (2) punitive damages in an amount deemed appropriate by the Court upon consideration of the defendant's intentional or reckless indifference to the health and safety risks to users of water provided by Irvona created by his failure to insure the use of adequate well casing, and (3) interest, costs and other such relief as the Court deems just.

COUNT XIII

Irvona v. Neilan – Fraud (Well No. 1)

171. The allegations set forth in paragraphs 1-170 above are incorporated herein by reference.

172. Defendant Neilan knew of the contaminated, highly corrosive quality of the water in the aquifers above the Mauch Chunk aquifer and of the need for special, corrosion-resistant casing.

173. Defendant Neilan knew or should have known that the DEP Public Water Supply Manual specified a thickness of at least .28 inches for the well casing used in the construction of Well No. 1.

174. Defendant Neilan fraudulently certified to DEP that the casing used in the construction of Well No. 1 met the specifications set forth in the DEP Public Water Supply Manual. (See **Appendix "E"**).

175. Defendant Neilan fraudulently misrepresented to both Irvona and DEP the thickness of the casing used in the construction of Well No. 1.

WHEREFORE, plaintiff Irvona demands judgment against defendant Neilan for (1) compensatory damages for both past and future harm in an amount in excess of $500,000, (2) punitive damages in an amount deemed appropriate by the Court upon consideration of the defendant's intentional or reckless indifference to the health and safety risks to users of water provided by Irvona created by his failure to insure the use of adequate well casing, and (3) interest, costs and other such relief as the Court deems just.

COUNT XIV

Irvona v. Neilan – Fraud (Well No. 2)

176. The allegations set forth in paragraphs 1-175 above are incorporated herein by reference.

177. Defendant Neilan knew of the contaminated, highly corrosive quality of the water in the aquifers above the Mauch Chunk aquifer and of the need for special, corrosion-resistant casing.

178. Defendant Neilan knew or should have known that the DEP Public Water Supply Manual specified a thickness of at least .28 inches for the well casing used in the construction of Well No. 2.

179. Defendant Neilan fraudulently certified to DEP that the casing used in the construction of Well No. 2 met the specifications set forth in the DEP Public Water Supply Manual.

180. Defendant Neilan fraudulently misrepresented to both Irvona and DEP the thickness of the casing used in the construction of Well No. 2.

WHEREFORE, plaintiff Irvona demands judgment against defendant Neilan for (1) compensatory damages for both past and future harm in an amount in excess of $500,000, (2) punitive damages in an amount deemed appropriate by the Court upon consideration of the defendant's intentional or reckless indifference to the health and safety risks to users of water provided by Irvona created by his failure to insure the use of adequate well casing, and (3) interest, costs and other such relief as the Court deems just.

Scott T. Wyland, Esquire, I.D. No. 52660
Steven K. Haas, Esquire, I.D. No. 73312
MALATESTA HAWKE & MCKEON LLP
Harrisburg Energy Center
100 North Tenth Street
Harrisburg, PA 17105
(717) 236-1300
Counsel for Irvona Municipal Authority

DATE: June 20, 2001

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the eads group

Reilly Engineers Division
1065 Tayman Avenue
P.O. Box 837
Somerset, Pennsylvania 15501-0837
(814) 445-8551
FAX (814) 443-2748

ENGINEERS-ARCHITECTS-SURVEYORS

October 2, 1989

Irvona Municipal Authority
Municipal Building, Berwind St.
Irvona, PA 16656

We propose to render professional engineering services in connection with the Hockenberry Run Reservoir access road improvements and water well developments (hereinafter called the "Project"). You are expected to furnish us with full information as to your requirements including any special or extraordinary considerations for the Project or special services needed, and also to make available all pertinent existing data.

Our services will consist of preparing a Study and Report, a Preliminary Design, Final Design documents, assistance during Bidding or Negotiating, Construction Administration including periodic visits during construction, and assistance during the Operational Phase, all as set forth in the printed General Provisions as amended and supplemented in Exhibits A and B, thereto, which are attached to this letter. We will also furnish such Additional Services as you may request.

You will pay us for our Basic Services:

—a lump sum fee of $ 8,000 .

Additional Services will be charged on the basis of (Direct Labor Costs) times a factor of 2.8 . Reimbursement for outside consultants will be on the basis of actual cost times a factor of 1.08.

Reimbursable Expenses incurred in connection with all Basic and Additional Services will be charged on the basis of actual cost.

We will bill you monthly for services and Reimbursable Expenses. The above financial arrangements are on the basis of prompt payment of our bills and the orderly and continuous progress of the Project through construction.

We would expect to start our services promptly after receipt of your acceptance of this proposal and to complete our services within 9 months. The time periods for the performance of our services are set forth in Exhibit A to the General Provisions.

If there are protracted delays for reasons beyond our control, if construction is not started within the period of time after completion of our final Drawings and Specifications indicated in Exhibit A, to the General Provisions, or if construction is not completed by June 30, 1990 , we would expect to negotiate with you an equitable adjustment of our compensation taking into consideration the impact of such delay including but not limited to changes in price indices and pay scales applicable to the period when services are in fact being rendered.

the eads group Neila[illegible]Engineers Divisic

It is necessary that you advise us in writing at an early date if you have budgetary limitations for Total Project Costs or Construction Cost. We must accept any such limitation as being realistic and will then endeavor to work within those limitations. If you request, we will submit to you periodically during the design phase of our services, our opinions as to the probability of completing construction within your budget and, where appropriate, request an adjustment in the budget or a revision in the extent or quality of the Project. We do not guarantee that our opinions will not differ materially from negotiated prices or bids. If you wish greater assurance as to probable Construction Cost or if you wish formal estimates, an independent cost estimator should be employed.

Services are to be rendered in the customary phases which, together with the general understandings applicable to our relationship with you, are set forth in the printed General Provisions and Exhibit A and B thereto which are attached to and made a part of this proposal. Your particular responsibilities are also set forth in the General Provisions.

This proposal, the General Provisions consisting of 9 pages and Exhibits A and B thereto which consists of 2 pages represent the entire understanding between you and us in respect of the Project and may only be modified in writing signed by both of us. If it satisfactorily sets forth your understanding of our agreement, we would appreciate our signing the enclosed copy of this letter in the space provided below and returning it to us. This proposal will be open for acceptance until October 27, , 19 89 , unless changed by us in writing.

Very truly yours,
NEILAN ENGINEERS DIVISION
The EADS Group

By _____
President

Accepted this 2nd day of
October, 1989.
Irvona Municipal Authority

By _____

ATTEST: _____

(SEAL)

EXHIBIT A to GENERAL PROVISIONS attached to LETTER AGREEMENT BETWEEN OWNER AND ENGINEER FOR PROFESSIONAL SERVICES, October 2, 1989

FURTHER DESCRIPTION OF BASIC ENGINEERING SERVICES AND RELATED MATTERS

1. This is an exhibit attached to and made a part of the General Provisions attached to letter Agreement made on October 2, 1989 between Irvona Municipal Authority (OWNER) providing for professional engineering services. The Basic Services of ENGINEER as described in Section 1 of the said General Provisions are amended or supplemented as indicated below and the time periods for the performance of certain services as indicated in said General Provisions are stipulated as indicated below.

2. During the Study and Report Phase ENGINEER shall employ a qualified Hydrogeologist to investigate the potential water well yields at the Hockenberry Run Reservoir. A feasibility report will be completed and the Report submitted within 60 calendar days.

3. The Preliminary Design Phase Services will be completed, and ENGINEER's Final Design Phase documentation and opinion of costs submitted within 15 calendar days following written authorization from OWNER to ENGINEER to proceed with that phase of services.

4. The Final Design Phase Services will be completed and Contract Documents and ENGINEER's opinion of costs submitted within 30 calendar days following written authorization from OWNER to ENGINEER to proceed with that phase of services.

5. During the Construction Phase ENGINEER shall: provide Construction Phase Services as provided in Section 1.6 except that a Resident Project Representative shall not be provided.

EXHIBIT B

Additional Services

This is an Exhibit attached to and made a part of the General Provisions attached to Letter of Agreement made on October 2, 1989 between Irvona Municipal Authority and The Neilan Engineers providing professional engineering services.

The following Additional Services not included in the basic Design Services will be provided. Services of Consultants will be charged on the basis of actual cost. The estimated cost for these services is included.

1. Complete Field Survey of access road and well sites at the reservoir.
   Estimated Cost $3,000

2. Permits - This would include preparing applications for required stream encroachments and water supply permits. The permit fees are not included.
   Estimated Cost $1,000

3. Consulting Hydrogeologist - Provide preliminary Hydrologic evaluation for well development at the Hockenberry Run Reservoir, advise on well development, observe drilling, and conduct well flow test.
   Estimated Cost $6,000

GENERAL PROVISIONS

Attached to and made a part of LETTER AGREEMENT, dated October 2, 19 89 between Irvona Municipal Authority (OWNER) and Neilan Engineers Division (ENGINEER) in respect of the Project described therein.

SECTION 1—BASIC SERVICES OF ENGINEER

1.1. General.

1.1.1. ENGINEER shall perform for OWNER professional engineering services in all phases of the Project to which this Agreement applies as hereinafter provided. These services will include serving as OWNER's professional engineering representative for the Project, providing professional engineering consultation and advice and furnishing customary civil, structural, mechanical and electrical engineering services and customary architectural services incidental thereto.

1.2. Study and Report Phase.

After written authorization to proceed, ENGINEER shall:

1.2.1. Consult with OWNER to clarify and define OWNER's requirements for the Project and review available data.

1.2.2. Advise OWNER as to the necessity of OWNER's providing or obtaining from others data or services of the types described in paragraph 3.2, and assist OWNER in obtaining such data and services.

1.2.3. Identify and analyze requirements of governmental authorities having jurisdiction to approve the design of the Project and participate in consultations with such authorities.

1.2.4. Provide analyses of OWNER's needs, planning surveys, site evaluations and comparative studies of prospective sites and solutions.

1.2.5. Provide a general economic analysis of OWNER's requirements applicable to various alternatives.

1.2.6. Prepare a Report containing schematic layouts, sketches and conceptual design criteria with appropriate exhibits to indicate clearly the considerations involved (including applicable requirements of governmental authorities having jurisdiction as aforesaid) and the alternative solutions available to OWNER and setting forth ENGINEER's findings and recommendations. This Report will be accompanied by ENGINEER's opinion of probable costs for the Project, including the following which will be separately itemized: Construction Cost, allowance for engineering costs and contingencies, and (on the basis of information furnished by OWNER) allowances for such other items as charges of all other professionals and consultants, for the cost of land and rights-of-way, for compensation for or damages to properties, for interest and financing charges and for other services to be provided by others for OWNER pursuant to paragraph 3.2. The total of all such costs, allowances, etc. are hereinafter called "Total Project Costs."

1.2.7. Furnish five copies of the Study and Report documents and review them in person with OWNER.

The duties and responsibilities of ENGINEER during the Study and Report Phase are amended and supplemented as indicated in paragraph 2 of Exhibit A "Further Descriptions of Basic Engineering Services and Related Matters".

1.3. Preliminary Design Phase.

After written authorization to proceed with the Preliminary Design Phase, ENGINEER shall:

1.3.1. In consultation with OWNER and on the basis of the accepted Study and Report documents, determine the general scope, extent and character of the Project.

1.3.2. Prepare Preliminary Design documents consisting of final design criteria, preliminary drawings, outline specifications and written descriptions of the Project.

1.3.3. Advise OWNER if additional data or services of the types described in the first subparagraph of paragraph 3.2 are necessary and assist OWNER in obtaining such data and services.

1.3.4. Based on the information contained in the preliminary design documents, submit a revised opinion of probable Total Project Costs.

1.3.5. Furnish five copies of the above Preliminary Design documents and present and review them in person with OWNER.

The duties and responsibilities of ENGINEER during the Preliminary Design Phase are amended and supplemented as indicated in paragraph 3 of Exhibit A "Further Description of Basic Engineering Services and Related Matters".

1.4. Final Design Phase.

After written authorization to proceed with the Final Design Phase, ENGINEER shall:

1.4.1. On the basis of the accepted Preliminary Design documents and the revised opinion of probable Total Project Costs, prepare for incorporation in the Contract Documents final drawings to show the general scope, extent and character of the work to be furnished and performed by Contractor(s) (hereinafter called "Drawings") and Specifications (which will be prepared in conformance with the sixteen division format of the Construction Specifications Institute).

1.4.2. Provide technical criteria, written descriptions and design data for OWNER's use in filing applications for permits with or obtaining approvals of such governmental authorities as have jurisdiction to approve the design of the Project, and assist OWNER in consultations with appropriate authorities.

1.4.3. Advise OWNER of any adjustments to the latest opinion of probable Total Project Costs caused by changes in general scope, extent or character or design requirements of the Project or Construction Costs. Furnish to OWNER a revised opinion of probable Total Project Costs based on the Drawings and Specifications.

1.4.4. Prepare for review and approval by OWNER, its legal counsel and other advisors contract agreement forms, general conditions and supplementary conditions, and (where appropriate) bid forms, invitations to bid and instructions to bidders (all of which shall be consistent with the forms and pertinent guide sheets prepared by the Engineers' Joint Contract Documents Committee), and assist in the preparation of other related documents.

1.4.5. Furnish five copies of the above documents and of the Drawings and Specifications and present and review them in person with OWNER.

The duties and responsibilities of ENGINEER during the Final Design Phase are amended and supplemented as indicated in paragraph 4 of Exhibit A "Further Description of Basic Engineering Services and Related Matters".

1.5. Bidding or Negotiating Phase.

After written authorization to proceed with the Bidding or Negotiating Phase, ENGINEER shall:

1.5.1. Assist OWNER in advertising for and obtaining bids or negotiating proposals for each separate prime contract for construction, materials, equipment and services; and, where applicable, maintain a record of prospective bidders to whom Bidding Documents have been issued, attend pre-bid conferences and receive and process deposits for Bidding Documents.

1.5.2. Issue addenda as appropriate to interpret, clarify or expand the Bidding Documents.

1.5.3. Consult with and advise OWNER as to the acceptability of subcontractors, suppliers and other persons and organizations proposed by the prime contractor(s) (herein called "Contractor(s)") for those portions of the work as to which such acceptability is required by the Bidding Documents.

1.5.4. Consult with OWNER concerning and determine the acceptability of substitute materials and equipment proposed by Contractor(s) when substitution prior to the award of contracts is allowed by the Bidding Documents.

1.5.5. Attend the bid opening, prepare bid tabulation sheets and assist OWNER in evaluating bids or proposals and in assembling and awarding contracts for construction, materials, equipment and services.

The duties and responsibilities of ENGINEER during the Bidding or Negotiating Phase are amended and supplemented as indicated in paragraph 5 of Exhibit A "Further Description of Basic Engineering Services and Related Matters".

1.6. Construction Phase.

During the Construction Phase:

1.6.1. *General Administration of Construction Contract.* ENGINEER shall consult with and advise OWNER and act as OWNER's representative as provided in Articles 1 through 17, inclusive, of the Standard General Conditions of the Construction Contract, No. 1910-8 (1983 edition) of the Engineers' Joint Contract Documents Committee. The extent and limitations of the duties, responsibilities and authority of ENGINEER as assigned in said Standard General Conditions shall not be modified, except to the extent provided in paragraph 6 of Exhibit A "Further Description of Basic Engineering Services and Related Matters" and except as ENGINEER may otherwise agree in writing. All of OWNER's instructions to Contractor(s) will be issued through ENGINEER who will have authority to act on

behalf of OWNER to the extent provided in said Standard General Conditions except as otherwise provided in writing.

1.6.2. *Visits to Site and Observation of Construction.* In connection with observations of the work of Contractor(s) while it is in progress:

1.6.2.1. ENGINEER shall make visits to the site at intervals appropriate to the various stages of construction as ENGINEER deems necessary in order to observe as an experienced and qualified design professional the progress and quality of the various aspects of Contractor(s)' work. In addition, ENGINEER shall provide the services of a Resident Project Representative (and assistants as agreed) at the site to assist ENGINEER and to provide more continuous observation of such work. Based on information obtained during such visits and on such observations, ENGINEER shall endeavor to determine in general if such work is proceeding in accordance with the Contract Documents and ENGINEER shall keep OWNER informed of the progress of the work.

1.6.2.2. The Resident Project Representative (and any assistants) will be ENGINEER's agent or employee and under ENGINEER's supervision. The duties and responsibilities of the Resident Project Representative (and assistants) are set forth in Exhibit B "Duties, Responsibilities and Limitation of Authority of Resident Project Representative".

1.6.2.3. The purpose of ENGINEER's visits to and representation by the Resident Project Representative (and assistants, if any) at the site will be to enable ENGINEER to better carry out the duties and responsibilities assigned to and undertaken by ENGINEER during the Construction Phase, and, in addition, by exercise of ENGINEER's efforts as an experienced and qualified design professional, to provide for OWNER a greater degree of confidence that the completed work of Contractor(s) will conform generally to the Contract Documents and that the integrity of the design concept as reflected in the Contract Documents has been implemented and preserved by Contractor(s). On the other hand, ENGINEER shall not, during such visits or as a result of such observations of Contractor(s)' work in progress, supervise, direct or have control over Contractor(s)' work nor shall ENGINEER have authority over or responsibility for the means, methods, techniques, sequences or procedures of construction selected by Contractor(s), for safety precautions and programs incident to the work of Contractor(s) or for any failure of Contractor(s) to comply with laws, rules, regulations, ordinances, codes or orders applicable to Contractor(s) furnishing and performing their work. Accordingly, ENGINEER can neither guarantee the performance of the construction contracts by Contractor(s) nor assume responsibility for Contractor(s)' failure to furnish and perform their work in accordance with the Contract Documents.

1.6.3. *Defective Work.* During such visits and on the basis of such observations, ENGINEER may disapprove of or reject Contractor(s)' work while it is in progress if ENGINEER believes that such work will not produce a completed Project that conforms generally to the Contract Documents or that it will prejudice the integrity of the design concept of the Project as reflected in the Contract Documents.

1.6.4. *Interpretations and Clarifications.* ENGINEER shall issue necessary interpretations and clarifications of the Contract Documents and in connection therewith prepare work directive changes and change orders as required.

1.6.5. *Shop Drawings.* ENGINEER shall review and approve (or take other appropriate action in respect of) Shop Drawings (as that term is defined in the aforesaid Standard General Conditions), samples and other data which Contractor(s) are required to submit, but only for conformance with the design concept of the Project and compliance with the information given in the Contract Documents. Such reviews and approvals or other action shall not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto.

1.6.6. *Substitutes.* ENGINEER shall evaluate and determine the acceptability of substitute materials and equipment proposed by Contractor(s), but subject to the provision of the second subparagraph of paragraph 2.1.2.

1.6.7. *Inspections and Tests.* ENGINEER shall have authority, as OWNER's representative, to require special inspection or testing of the work, and shall receive and review all certificates of inspections, testings and approvals required by laws, rules, regulations, ordinances, codes, orders or the Contract Documents (but only to determine generally that their content complies with the requirements of, and the results certified indicate compliance with, the Contract Documents).

1.6.8. *Disputes between OWNER and Contractor.* ENGINEER shall act as initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the work thereunder and make decisions on all claims of OWNER and Contractor(s) relating to the acceptability of the work or the interpretation

of the requirements of the Contract Documents pertaining to the execution and progress of the work. ENGINEER shall not be liable for the results of any such interpretations or decisions rendered in good faith.

1.6.9. *Applications for Payment.* Based on ENGINEER's on-site observations as an experienced and qualified design professional, on information provided by the Resident Project Representative and on review of applications for payment and the accompanying data and schedules:

1.6.9.1. ENGINEER shall determine the amounts owing to Contractor(s) and recommend in writing payments to Contractor(s) in such amounts. Such recommendations of payment will constitute a representation to OWNER, based on such observations and review, that the work has progressed to the point indicated, and that, to the best of ENGINEER's knowledge, information and belief, the quality of such work is generally in accordance with the Contract Documents (subject to an evaluation of such work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents and to any other qualifications stated in the recommendation). In the case of unit price work, ENGINEER's recommendations of payment will include final determinations of quantities and classifications of such work (subject to any subsequent adjustments allowed by the Contract Documents).

1.6.9.2. By recommending any payment ENGINEER will not thereby be deemed to have represented that exhaustive, continuous or detailed reviews or examinations have been made by ENGINEER to check the quality or quantity of Contractor(s)' work as it is furnished and performed beyond the responsibilities specifically assigned to ENGINEER in this Agreement and the Contract Documents. ENGINEER's review of Contractor(s)' work for the purposes of recommending payments will not impose on ENGINEER responsibility to supervise, direct or control such work or for the means, methods, techniques, sequences, or procedures of construction or safety precautions or programs incident thereto or Contractor(s) compliance with laws, rules, regulations, ordinances, codes or orders applicable to their furnishing and performing the work. It will also not impose responsibility on ENGINEER to make any examination to ascertain how or for what purposes any Contractor has used the moneys paid on account of the Contract Price, or to determine that title to any of the work, materials or equipment has passed to OWNER free and clear of any lien, claims, security interests or encumbrances, or that there may not be other matters at issue between OWNER and Contractor that might affect the amount that should be paid.

1.6.10. *Contractor(s)' Completion Documents.* ENGINEER shall receive and review maintenance and operating instructions, schedules, guarantees, bonds and certificates of inspection, tests and approvals which are to be assembled by Contractor(s) in accordance with the Contract Documents (but such review will only be to determine that their content complies with the requirements of, and in the case of certificates of inspection, tests and approvals the results certified indicate compliance with, the Contract Documents); and shall transmit them to OWNER with written comments.

1.6.11. *Inspections.* ENGINEER shall conduct an inspection to determine if the work is substantially complete and a final inspection to determine if the completed work is acceptable so that ENGINEER may recommend, in writing, final payment to Contractor(s) and may give written notice to OWNER and the Contractor(s) that the work is acceptable (subject to any conditions therein expressed), but any such recommendation and notice will be subject to the limitations expressed in paragraph 1.6.9.2.

1.6.12. *Limitation of Responsibilities.* ENGINEER shall not be responsible for the acts or omissions of any Contractor, or of any subcontractor or supplier, or any of the Contractor(s)' or subcontractor's or supplier's agents or employees or any other persons (except ENGINEER's own employees and agents) at the site or otherwise furnishing or performing any of the Contractor(s)' work; however, nothing contained in paragraphs 1.6.1 thru 1.6.11, inclusive, shall be construed to release ENGINEER from liability for failure to properly perform duties and responsibilities assumed by ENGINEER in the Contract Documents.

1.7. Operational Phase.

During Operational Phase, ENGINEER shall, when requested by OWNER:

1.7.1. Provide assistance in the closing of any financial or related transaction for the Project.

1.7.2. Provide assistance in connection with the refining and adjusting of any equipment or system.

1.7.3. Assist OWNER in training OWNER's staff to operate and maintain the Project.

1.7.4. Assist OWNER in developing systems and procedures for control of the operation and maintenance of and record keeping for the Project.

1.7.5. Prepare a set of reproducible record prints of Drawings showing those changes made during the construction process, based on the marked-up prints, drawings and other data furnished by Contractor(s) to ENGINEER and which ENGINEER considers significant.

1.7.6. In company with OWNER, visit the Project to observe any apparent defects in the completed construction, assist OWNER in consultations and discussions with Contractor(s) concerning correction of such deficiencies, and make recommendations as to replacement or correction of defective work.

The duties and responsibilities of ENGINEER during the Operational Phase are amended and supplemented as indicated in paragraph 7 of Exhibit A "Further Description of Basic Engineering Services and Related Matters".

SECTION 2—ADDITIONAL SERVICES OF ENGINEER

2.1. Normal and customary engineering services do not include service in respect of the following categories of work which are usually referred to as Additional Services.

2.1.1. If OWNER wishes ENGINEER to perform any of the following Additional Services, OWNER shall so instruct ENGINEER in writing, and ENGINEER shall perform or obtain from others such services and will be paid therefor as provided in the Letter Agreement:

—Preparation of applications and supporting documents for governmental financial support of the Project in addition to those required under Basic Services; preparation or review of environmental studies and related services; and assistance in obtaining environmental approvals.

—Services to make measured drawings of or to investigate existing conditions or facilities.

—Services resulting from significant changes in the general scope, extent or character of the Project or major changes in documentation previously accepted by OWNER where changes are due to causes beyond ENGINEER's control.

—Providing renderings or models.

—Preparing documents for alternate bids requested by OWNER for work which is not executed or for out-of-sequence work.

—Detailed consideration of operations, maintenance and overhead expenses; value engineering and the preparation of rate schedules, earnings and expense statements, cash flow and economic evaluations, feasibility studies, appraisals and valuations.

—Furnishing the services of independent professional associates or consultants for other than Basic Services.

—If ENGINEER's compensation for Basic Services is not on the basis of Direct Labor or Salary Costs, services resulting from the award of more than one prime contract for construction, materials, equipment or services for the Project, or from the construction contract containing cost plus or incentive-savings provisions for Contractor's basic compensation, or from arranging for performance by persons other than the principal prime contractors or from administering OWNER's contracts for such services.

—Services in connection with field surveys for design purposes and engineering surveys and staking out the work of Contractor(s).

—Services during out-of-town travel other than visits to the site.

—Preparation of operating and maintenance manuals to supplement Basic Services under paragraph 1.7.3.

—Preparing to serve or serving as a consultant or witness in any litigation, arbitration or other legal or administrative proceeding except where required as part of Basic Services.

2.1.2. When required by the Contract Documents in circumstances beyond ENGINEER's control, ENGINEER shall perform or obtain from others any of the following Additional Services as circumstances require during construction and without waiting for specific instructions from OWNER, and ENGINEER will be paid therefor as provided in the Letter Agreement:

—Services in connection with work directive changes and change orders to reflect the changes requested by OWNER if the resulting change in compensation for Basic Services is not commensurate with the additional services rendered.

—Services in making revisions to Drawings and Specifications occasioned by the acceptance of substitutions proposed by Contractor(s); services after the award of each contract in evaluating and determining the acceptability of an unreasonable or excessive number of substitutions proposed by Contractor; and evaluating an unreasonable or extensive number of claims submitted by Contractor(s) or others in connection with the work.

—Services resulting from significant delays, changes or price increases occurring as a direct or indirect

result of material, equipment or energy shortages.

—Additional or extended services during construction made necessary by (1) work damage by fire or other causes during construction, (2) a significant amount of defective or neglected work of any Contractor, (3) acceleration of the progress schedule involving services beyond normal working hours, (4) default by any Contractor.

SECTION 3—OWNER'S RESPONSIBILITIES

3.1. OWNER shall provide all criteria and full information as to OWNER's requirements for the Project; designate a person to act with authority on OWNER's behalf in respect of all aspects of the Project; examine and respond promptly to ENGINEER's submissions; and give prompt written notice to ENGINEER whenever OWNER observes or otherwise becomes aware of any defect in the work.

3.2. OWNER shall also do the following and pay all costs incident thereto:

—Furnish to ENGINEER borings, probings and subsurface explorations, hydrographic surveys, laboratory tests and inspections of samples, materials and equipment; appropriate professional interpretations of all of the foregoing; environmental assessment and impact statements; property, boundary, easement, right-of-way, topographic and utility surveys; property descriptions; zoning and deed restrictions; all of which ENGINEER may rely upon in performing services hereunder.

—Guarantee access to and make all provisions for ENGINEER to enter upon public and private property.

—Provide such legal, accounting, independent cost estimating and insurance counseling services as may be required for the Project, any auditing service required in respect of Contractor(s)' applications for payment, and any inspection services to determine if Contractor(s) are performing the work legally.

—Provide engineering surveys to establish reference points for construction.

—Furnish approvals and permits from all governmental authorities having jurisdiction over the Project.

—If more than one prime contractor is to be awarded for construction, designate a party to have responsibility and authority for coordinating the activities of the various prime contractors.

3.3. OWNER shall pay all costs incident to obtaining bids or proposals from Contractor(s).

SECTION 4—MEANING OF TERMS

4.1. As used herein the term "this Agreement" refers to the Letter Agreement to which these General Provisions are attached and to these General Provisions, Exhibit A "Further Description of Basic Engineering Services and Related Matters" and Exhibit B "Duties, Responsibilities and Limitations of Authority of Resident Project Representative", as if they were part of one and the same document.

4.2. The construction cost of the entire Project (herein referred to as "Construction Cost") means the total cost to OWNER of those portions of the entire Project designed and specified by ENGINEER, but it will not include ENGINEER's compensation and expenses, the cost of land, rights-of-way, or compensation for or damages to, properties unless this Agreement so specifies, nor will it include OWNER's legal, accounting, insurance counseling or auditing services, or interest and financing charges incurred in connection with the Project or the cost of other services to be provided by others to OWNER pursuant to paragraph 3.2. [Construction Cost is one of the items comprising Total Project Costs which is defined in paragraph 1.2.6.]

4.3. Direct Labor Costs used as a basis for payment mean salaries and wages (basic and incentive) paid to all ENGINEER's personnel engaged directly on the Project, including, but not limited to, engineers, architects, surveyors, designers, draftsmen, specification writers, estimators, other technical and business personnel; but does not include indirect payroll related costs or fringe benefits. For the purposes of this Agreement the principals of ENGINEER and their current hourly Direct Labor Costs are:

$25.00

The hourly Direct Labor Costs of principals of ENGINEER will be adjusted equitably to reflect changes in personnel and in ENGINEER's overall compensation procedures and practices.

4.4. The Salary Costs used as a basis for payment mean salaries and wages (basic and incentive) paid to all ENGINEER's personnel engaged directly on the Project, including, but not limited to, engineers, architects, surveyors, designers, draftsmen, specification writers, estimators, other technical and business personnel; plus the cost of customary and statutory benefits including, but not limited to, social security contributions, unem-

ployment, excise and payroll taxes, workers' compensation, health and retirement benefits, sick leave, vacation and holiday pay and other group benefits. For the purposes of this Agreement, the principals of ENGINEER and their current hourly Salary Costs are:

_____

_____

The hourly Salary Costs of principals of ENGINEER will be adjusted equitably to reflect changes in personnel and in ENGINEER's overall compensation procedures and practices.

4.5. Reimbursable Expenses mean the actual expenses incurred by ENGINEER or ENGINEER's independent professional associates or consultants directly or indirectly in connection with the Project, such as expenses for: transportation and subsistence incidental thereto; obtaining bids or proposals from Contractor(s); providing and maintaining field office facilities including furnishings and utilities; subsistence and transportation of Resident Project Representatives and their assistants; toll telephone calls and telegrams; reproduction of reports, Drawings, Specifications, Bidding Documents and similar Project-related items in addition to those required under Section 1; and if authorized in advance by OWNER, overtime work requiring higher than regular rates. In addition, when compensation for Basic Services is on the basis of cost plus a fixed fee, Direct Labor Costs or Payroll Costs method of payment, if authorized in advance by OWNER, Reimbursable Expenses will also include expenses incurred for computer time and other highly specialized equipment, including an appropriate charge for previously established programs and expenses of photographic production techniques times a factor of _____.

SECTION 5—MISCELLANEOUS

5.1. Reuse of Documents.

All documents including Drawings and Specifications prepared or furnished by ENGINEER (and ENGINEER's independent professional associates and consultants) pursuant to this Agreement are instruments of service in respect of the Project and ENGINEER shall retain an ownership and property interest therein whether or not the Project is completed. OWNER may make and retain copies for information and reference in connection with the use and occupancy of the Project by OWNER and others; however, such documents are not intended or represented to be suitable for reuse by OWNER or others on extensions of the Project or on any other project. Any reuse without written verification or adaptation by ENGINEER for the specific purpose intended will be at OWNER's sole risk and without liability or legal exposure to ENGINEER, or to ENGINEER's independent professional associates or consultants, and OWNER shall indemnify and hold harmless ENGINEER and ENGINEER's independent professional associates and consultants from all claims, damages, losses and expenses including attorneys' fees arising out of or resulting therefrom. Any such verification or adaptation will entitle ENGINEER to further compensation at rates to be agreed upon by OWNER and ENGINEER.

5.2. Opinions of Cost.

Since ENGINEER has no control over the cost of labor, materials, equipment or services furnished by others, or over the Contractor(s)' methods of determining prices, or over competitive bidding or market conditions, ENGINEER's opinions of probable Total Project Costs and Construction Cost provided for herein are to be made on the basis of ENGINEER's experience and qualifications and represent ENGINEER's best judgment as an experienced and qualified professional engineer, familiar with the construction industry; but ENGINEER cannot and does not guarantee that proposals, bids or actual Total Project or Construction Costs will not vary from opinions of probable cost prepared by ENGINEER. If prior to the Bidding or Negotiating Phase OWNER wishes greater assurance as to Total Project or Construction Costs, OWNER shall employ an independent cost estimator as provided in paragraph 3.2. ENGINEER's services to modify the Contract Documents to bring the Construction Cost within any limitation established by OWNER will be considered Additional Services and paid for as such by OWNER.

5.3. Other Provisions Concerning Payments.

If OWNER fails to make any payment due ENGINEER for services and expenses within thirty days after receipt of ENGINEER's statement therefor, the amounts due ENGINEER will be increased at the rate of 1% per month from said thirtieth day, and in addition, ENGINEER may, after giving seven days' written notice to OWNER, suspend services under this Agreement until ENGINEER has been paid in full all amounts due for services, expenses and charges.

5.4. Termination.

The obligation to provide further services under this Agreement may be terminated by either party upon

seven days' written notice in the event of substantial failure by the other party to perform in accordance with the terms hereof through no fault of the terminating party. In the event of any termination, ENGINEER will be paid for all services rendered to the date of termination, all Reimbursable Expenses and termination expenses.

5.5. Controlling Law.

This Agreement is to be governed by the law of the principal place of business of ENGINEER.

5.6. Successors and Assigns.

5.6.1. OWNER and ENGINEER each is hereby bound and the partners, successors, executors, administrators and legal representatives of OWNER and ENGINEER (and to the extent permitted by paragraph 5.6.2 the assigns of OWNER and ENGINEER) are hereby bound to the other party to this Agreement and to the partners, successors, executors, administrators and legal representatives (and said assigns) of such other party, in respect of all covenants, agreements and obligations of this Agreement.

5.6.2. Neither OWNER nor ENGINEER shall assign, sublet or transfer any rights under or interest in (including, but without limitation, moneys that may become due or moneys that are due) this Agreement without the written consent of the other, except to the extent that any assignment, subletting or transfer is mandated by law or the effect of this limitation may be restricted by law. Unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under this Agreement. Nothing contained in this paragraph shall prevent ENGINEER from employing such independent professional associates and consultants as ENGINEER may deem appropriate to assist in the performance of services hereunder.

5.6.3. Nothing under this Agreement shall be construed to give any rights or benefits in this Agreement to anyone other than OWNER and ENGINEER, and all duties and responsibilities undertaken pursuant to this Agreement will be for the sole and exclusive benefit of OWNER and ENGINEER and not for the benefit of any other party.

5.7. Arbitration.

5.7.1. All claims, counterclaims, disputes and other matters in question between the parties hereto arising out of or relating to this Agreement or the breach thereof will be decided by arbitration in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association then obtaining, subject to the limitations and restrictions stated in paragraphs 5.7.3 and 5.7.4 below. This agreement so to arbitrate and any other agreement or consent to arbitrate entered into in accordance herewith as provided in this paragraph 5.7 will be specifically enforceable under the prevailing law of any court having jurisdiction.

5.7.2. Notice of demand for arbitration must be filed in writing with the other parties to this Agreement and with the American Arbitration Association. The demand must be made within a reasonable time after the claim, dispute or other matter in question has arisen. In no event may the demand for arbitration be made after the date when institution of legal or equitable proceedings based on such claim, dispute or other matter in question would be barred by the applicable statute of limitations.

5.7.3. All demands for arbitration and all answering statements thereto which include any monetary claim must contain a statement that the total sum or value in controversy as alleged by the party making such demand or answering statement is not more than $200,000 (exclusive of interest and costs); and the arbitrators will not have jurisdiction, power or authority to render a monetary award in response thereto against any party which totals more than $200,000 (exclusive of interest and costs). The arbitrators will not have jurisdiction, power or authority to consider, or make findings (except in denial of their own jurisdiction) concerning any claim, counterclaim, dispute or other matter in question where the amount in controversy of any such claim, counterclaim, dispute or matter is more than $200,000 (exclusive of interest and costs).

5.7.4. No arbitration arising out of, or relating to, this Agreement may include, by consolidation, joinder or in any other manner, any person or entity who is not a party to this Agreement.

5.7.5. By written consent signed by all the parties to this Agreement and containing a specific reference hereto, the limitations and restrictions contained in paragraphs 5.7.3 and 5.7.4 may be waived in whole or in part as to any claim, counterclaim, dispute or other matter specifically described in such consent. No consent to arbitration in respect of a specifically described claim, counterclaim, dispute or other matter in question will constitute consent to arbitrate any other claim, counterclaim, dispute or other matter in question which is not specifically described in such consent or in which the sum or value in controversy exceeds $200,000 (exclusive of interest and costs) or which is with any party not specifically described therein.

5.7.6. The award rendered by the arbitrators will be final, judgment may be entered upon it in any court having jurisdiction thereof, and will not be subject to modification or appeal except to the extent permitted by Sections 10 and 11 of the Federal Arbitration Act (9 U.S.C. §§10, 11).

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B

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eads group

165 Tayman Avenue
P. Box 837
Somerset, Pennsylvania 15501-0837
(814) 445-6551
FAX (814) 443-2748

ENGINEERS-ARCHITECTS-SURVEYORS

April 13, 1992

Irvona Municipal Authority
Berwind Street
Irvona, Pennsylvania 16656

ENGINEERING PROPOSAL FOR NEW WATER SUPPLY SYSTEM

We present you with this proposal for Professional Engineering Services to develop a new water supply system.

The project scope was developed in the Water Supply and Treatment Feasibility Study dated October 1991, and includes the following:

1. Develop a new supply Well No. 2 along lower Hockenberry Run. Connect proposed Well No. 2 to water main. Relocate master meter and chlorinator in a new building.

2. Construct Booster Pump Station and water line extension to the Clearfield County Municipal Services and Recreation Authority System (CCMSRA) in Coalport.

3. Construct finished water storage tank and associated facilities.

Our services will consist of preparing a preliminary design, final design, assistance during Bidding or Negotiating, construction administration including resident project services during critical parts of the construction, and assistance during the operational phase.

The Authority shall pay Neilan Engineers Division for our Basic Services a lump sum fee of $35,000.00. Additional services will be charged on the basis of salary costs times a multiplier of 2.0 plus the cost of reimbursable expenses. We will bill you monthly for services and reimbursable expenses.

We would expect to start our services promptly after your acceptance of this proposal and follow the attached time line for this project as follows:

1. Complete exploratory well drilling by July 1, 1992.
2. Complete Preliminary Design by November 1, 1992.
3. Submit Water Supply Permit Application to DER by December 1, 1992.
4. Submit PennVEST Loan Application by January 1, 1993.
5. Prepare Bid Documents and Arrange Financing to begin Construction of New Facilities by December 1, 1993.
6. Begin Operation of New Facilities on December 27, 1994.

The above time line is based on meeting the Department of Environmental Resources Consent Order and Agreement.

As per Attachment 1 and Exhibit B, Additional Services for the project are estimated to be $37,000.00. Please note that we are proposing to furnish a Resident Project Representative for a total of four (4) weeks to cover critical portions of construction.

Services are to be rendered in the customary phases which, together with the general understandings applicable to our relationship with you are set forth in the printed General Provisions which are attached to and made a part of this proposal. Your particular responsibilities are also set forth in the General Provisions.

This proposal, Attachment 1, Exhibit B, and the General Provisions consisting of 9 pages represent the entire understanding between you and us in respect of the Project and may only be modified in writing signed by both of us. If it satisfactorily sets forth your understanding of our agreement, we would appreciate your signing the enclosed copy of this letter in the space provided below and returning it to us. This proposal will be open for acceptance until May 15, 1992, unless changed by us in writing.

NEILAN ENGINEERS DIVISION
The EADS Group

F. Scott Rugh, P.E.

FSR/rcw

Enclosure

cc: File 4100 W-02

Approved by:

J. Thomas Reilly, P.E.
President

Accepted by the Irvona Municipal Authority this 11th day of May, 1992.

Attested by
Secretary

ATTACHMENT 1

ESTIMATED COSTS
FOR
ADDITIONAL SERVICES
ATTACHMENT TO
PROPOSAL FOR WATER SUPPLY SYSTEM
IRVONA MUNICIPAL AUTHORITY

Field Surveys for Design. Route Survey to Well, Water Storage Tank, Water Lines and Booster Station	$ 8,000.00
Permits	$ 5,000.00
Hydrogeologist and Water Testing	$ 8,000.00
Tank Site Soils Foundation Testing and Report	$ 5,000.00
PennVEST Application	$ 3,000.00
Rights-of-Way and Land Acquisition Research and Drawings	$ 2,000.00
Resident Project Representative for 4 Weeks	$ 6,000.00
TOTAL	**$37,000.00**

EXHIBIT B TO GENERAL PROVISIONS ATTACHED TO LETTER AGREEMENT BETWEEN OWNER AND ENGINEER FOR PROFESSIONAL SERVICES, dated April 13, 1992) (for use with EJCDC No. 1910-2, 1985 Edition).

A LISTING OF THE DUTIES, RESPONSIBILITIES AND LIMITATIONS OF AUTHORITY OF THE RESIDENT PROJECT REPRESENTATIVE.

This is an Exhibit attached to, made a part of and incorporated by reference with the General Provisions attached to Letter Agreement made on April 13, 1992.
between Irvona Municipal Authority (OWNER)
and Neilan Engineers Division (ENGINEER)
providing for professional engineering services.

ENGINEER shall furnish a Resident Project Representative (RPR), assistants and other field staff to assist ENGINEER in observing performance of the work of Contractor.

Through more extensive on-site observations of the work in progress and field checks of materials and equipment by the RPR and assistants, ENGINEER shall endeavor to provide further protection for OWNER against defects and deficiencies in the work of CONTRACTOR; but, the furnishing of such services will not make ENGINEER responsible for or give ENGINEER control over construction means, methods, techniques, sequences or procedures or for safety precautions or programs, or responsibility for CONTRACTOR's failure to perform the Work in accordance with the Contract Documents and in particular the specific limitations set forth in paragraph 1.6 of the General Provisions to the Letter Agreement are applicable.

The duties and responsibilities of the RPR are limited to those of ENGINEER in ENGINEER's agreement with the OWNER and in the construction Contract Documents, and are further limited and described as follows:

A. General

RPR is ENGINEER's agent at the site, will act as directed by and under the supervision of ENGINEER, and will confer with ENGINEER regarding RPR's actions. RPR's dealings in matters pertaining to the on-site work shall in general be with ENGINEER and CONTRACTOR keeping OWNER advised as necessary. RPR's dealings with subcontractors shall only be through or with the full knowledge and approval of CONTRACTOR. RPR shall generally communicate with OWNER with the knowledge of and under the direction of ENGINEER.

B. Duties and Responsibilities of RPR

1. *Schedules:* Review the progress schedule, schedule of Shop Drawing submittals and schedule of values prepared by CONTRACTOR and consult with ENGINEER concerning acceptability.
2. *Conferences and Meetings:* Attend meetings with CONTRACTOR, such as preconstruction conferences, progress meetings, job conferences and other project-related meetings, and prepare and circulate copies of minutes thereof.
3. *Liaison:*
   a. Serve as ENGINEER's liaison with CONTRACTOR, working principally through CONTRACTOR's superintendent and assist in understanding the intent of the Contract Documents; and assist ENGINEER in serving as OWNER's liaison with CONTRACTOR when CONTRACTOR's operations affect OWNER's on-site operations.
   b. Assist in obtaining from OWNER additional details or information, when required for proper execution of the Work.
4. *Shop Drawings and Samples:*
   a. Record date of receipt of Shop Drawings and samples.
   b. Receive samples which are furnished at the site by CONTRACTOR, and notify ENGINEER of availability of samples for examination.
   c. Advise ENGINEER and CONTRACTOR of the commencement of any Work requiring a Shop Drawing or sample if the submittal has not been approved by ENGINEER.

b. Conduct final inspection in the company of ENGINEER, OWNER, and CONTRACTOR and prepare a final list of items to be completed or corrected.

c. Observe that all items on final list have been completed or corrected and make recommendations to ENGINEER concerning acceptance.

C. Limitations of Authority

Resident Project Representative:

1. Shall not authorize any deviation from the Contract Documents or substitution of materials or equipment, unless authorized by ENGINEER.
2. Shall not exceed limitations of ENGINEER's authority as set forth in the Agreement or the General Provisions to the Letter Agreement or the Contract Documents.
3. Shall not undertake any of the responsibilities of CONTRACTOR, subcontractors or CONTRACTOR's superintendent.
4. Shall not advise on, issue directions relative to or assume control over any aspect of the means, methods, techniques, sequences or procedures of construction unless such advice or directions are specifically required by the Contract Documents.
5. Shall not advise on, issue directions regarding or assume control over safety precautions and programs in connection with the Work.
6. Shall not accept Shop Drawing or sample submittals from anyone other than CONTRACTOR.
7. Shall not authorize OWNER to occupy the Project in whole or in part.
8. Shall not participate in specialized field or laboratory tests or inspections conducted by others except as specifically authorized by ENGINEER.

[The remainder of this page was left blank intentionally.]

1.4. Final Design Phase.

After written authorization to proceed with the Final Design Phase, ENGINEER shall:

1.4.1. On the basis of the accepted Preliminary Design documents and the revised opinion of probable Total Project Costs, prepare for incorporation in the Contract Documents final drawings to show the general scope, extent and character of the work to be furnished and performed by Contractor(s) (hereinafter called "Drawings") and Specifications (which will be prepared in conformance with the sixteen division format of the Construction Specifications Institute).

1.4.2. Provide technical criteria, written descriptions and design data for OWNER's use in filing applications for permits with or obtaining approvals of such governmental authorities as have jurisdiction to approve the design of the Project, and assist OWNER in consultations with appropriate authorities.

1.4.3. Advise OWNER of any adjustments to the latest opinion of probable Total Project Costs caused by changes in general scope, extent or character or design requirements of the Project or Construction Costs. Furnish to OWNER a revised opinion of probable Total Project Costs based on the Drawings and Specifications.

1.4.4. Prepare for review and approval by OWNER, its legal counsel and other advisors contract agreement forms, general conditions and supplementary conditions, and (where appropriate) bid forms, invitations to bid and instructions to bidders (all of which shall be consistent with the forms and pertinent guide sheets prepared by the Engineers' Joint Contract Documents Committee), and assist in the preparation of other related documents.

1.4.5. Furnish five copies of the above documents and of the Drawings and Specifications and present and review them in person with OWNER.

The duties and responsibilities of ENGINEER during the Final Design Phase are amended and supplemented as indicated in paragraph 4 of Exhibit A "Further Description of Basic Engineering Services and Related Matters".

1.5. Bidding or Negotiating Phase.

After written authorization to proceed with the Bidding or Negotiating Phase, ENGINEER shall:

1.5.1. Assist OWNER in advertising for and obtaining bids or negotiating proposals for each separate prime contract for construction, materials, equipment and services; and, where applicable, maintain a record of prospective bidders to whom Bidding Documents have been issued, attend pre-bid conferences and receive and process deposits for Bidding Documents.

1.5.2. Issue addenda as appropriate to interpret, clarify or expand the Bidding Documents.

1.5.3. Consult with and advise OWNER as to the acceptability of subcontractors, suppliers and other persons and organizations proposed by the prime contractor(s) (herein called "Contractor(s)") for those portions of the work as to which such acceptability is required by the Bidding Documents.

1.5.4. Consult with OWNER concerning and determine the acceptability of substitute materials and equipment proposed by Contractor(s) when substitution prior to the award of contracts is allowed by the Bidding Documents.

1.5.5. Attend the bid opening, prepare bid tabulation sheets and assist OWNER in evaluating bids or proposals and in assembling and awarding contracts for construction, materials, equipment and services.

The duties and responsibilities of ENGINEER during the Bidding or Negotiating Phase are amended and supplemented as indicated in paragraph 5 of Exhibit A "Further Description of Basic Engineering Services and Related Matters".

1.6. Construction Phase.

During the Construction Phase:

1.6.1. *General Administration of Construction Contract.* ENGINEER shall consult with and advise OWNER and act as OWNER's representative as provided in Articles 1 through 17, inclusive, of the Standard General Conditions of the Construction Contract, No. 1910-8 (1983 edition) of the Engineers' Joint Contract Documents Committee. The extent and limitations of the duties, responsibilities and authority of ENGINEER as assigned in said Standard General Conditions shall not be modified, except to the extent provided in paragraph 6 of Exhibit A "Further Description of Basic Engineering Services and Related Matters" and except as ENGINEER may otherwise agree in writing. All of OWNER's instructions to Contractor(s) will be issued through ENGINEER who will have authority to act on

of the requirements of the Contract Documents pertaining to the execution and progress of the work. ENGINEER shall not be liable for the results of any such interpretations or decisions rendered in good faith.

1.6.9. *Applications for Payment.* Based on ENGINEER's on-site observations as an experienced and qualified design professional, on information provided by the Resident Project Representative and on review of applications for payment and the accompanying data and schedules:

1.6.9.1. ENGINEER shall determine the amounts owing to Contractor(s) and recommend in writing payments to Contractor(s) in such amounts. Such recommendations of payment will constitute a representation to OWNER, based on such observations and review, that the work has progressed to the point indicated, and that, to the best of ENGINEER's knowledge, information and belief, the quality of such work is generally in accordance with the Contract Documents (subject to an evaluation of such work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents and to any other qualifications stated in the recommendation). In the case of unit price work, ENGINEER's recommendations of payment will include final determinations of quantities and classifications of such work (subject to any subsequent adjustments allowed by the Contract Documents).

1.6.9.2. By recommending any payment ENGINEER will not thereby be deemed to have represented that exhaustive, continuous or detailed reviews or examinations have been made by ENGINEER to check the quality or quantity of Contractor(s)' work as it is furnished and performed beyond the responsibilities specifically assigned to ENGINEER in this Agreement and the Contract Documents. ENGINEER's review of Contractor(s)' work for the purposes of recommending payments will not impose on ENGINEER responsibility to supervise, direct or control such work or for the means, methods, techniques, sequences, or procedures of construction or safety precautions or programs incident thereto or Contractor(s) compliance with laws, rules, regulations, ordinances, codes or orders applicable to their furnishing and performing the work. It will also not impose responsibility on ENGINEER to make any examination to ascertain how or for what purposes any Contractor has used the moneys paid on account of the Contract Price, or to determine that title to any of the work, materials or equipment has passed to OWNER free and clear of any lien, claims, security interests or encumbrances, or that there may not be other matters at issue between OWNER and Contractor that might affect the amount that should be paid.

1.6.10. *Contractor(s)' Completion Documents.* ENGINEER shall receive and review maintenance and operating instructions, schedules, guarantees, bonds and certificates of inspection, tests and approvals which are to be assembled by Contractor(s) in accordance with the Contract Documents (but such review will only be to determine that their content complies with the requirements of, and in the case of certificates of inspection, tests and approvals the results certified indicate compliance with, the Contract Documents); and shall transmit them to OWNER with written comments.

1.6.11. *Inspections.* ENGINEER shall conduct an inspection to determine if the work is substantially complete and a final inspection to determine if the completed work is acceptable so that ENGINEER may recommend, in writing, final payment to Contractor(s) and may give written notice to OWNER and the Contractor(s) that the work is acceptable (subject to any conditions therein expressed), but any such recommendation and notice will be subject to the limitations expressed in paragraph 1.6.9.2.

1.6.12. *Limitation of Responsibilities.* ENGINEER shall not be responsible for the acts or omissions of any Contractor, or of any subcontractor or supplier, or any of the Contractor(s)' or subcontractor's or supplier's agents or employees or any other persons (except ENGINEER's own employees and agents) at the site or otherwise furnishing or performing any of the Contractor(s)' work; however, nothing contained in paragraphs 1.6.1 thru 1.6.11, inclusive, shall be construed to release ENGINEER from liability for failure to properly perform duties and responsibilities assumed by ENGINEER in the Contract Documents.

1.7. Operational Phase.

During Operational Phase, ENGINEER shall, when requested by OWNER:

1.7.1. Provide assistance in the closing of any financial or related transaction for the Project.

1.7.2. Provide assistance in connection with the refining and adjusting of any equipment or system.

1.7.3. Assist OWNER in training OWNER's staff to operate and maintain the Project.

result of material, equipment or energy shortages.
—Additional or extended services during construction made necessary by (1) work damage by fire or other causes during construction, (2) a significant amount of defective or neglected work of any Contractor, (3) acceleration of the progress schedule involving services beyond normal working hours, (4) default by any Contractor.

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3.1. OWNER shall provide all criteria and full information as to OWNER's requirements for the Project; designate a person to act with authority on OWNER's behalf in respect of all aspects of the Project; examine and respond promptly to ENGINEER's submissions; and give prompt written notice to ENGINEER whenever OWNER observes or otherwise becomes aware of any defect in the work.

3.2. OWNER shall also do the following and pay all costs incident thereto:

—Furnish to ENGINEER borings, probings and subsurface explorations, hydrographic surveys, laboratory tests and inspections of samples, materials and equipment; appropriate professional interpretations of all of the foregoing; environmental assessment and impact statements; property, boundary, easement, right-of-way, topographic and utility surveys; property descriptions; zoning and deed restrictions; all of which ENGINEER may rely upon in performing services hereunder.
—Guarantee access to and make all provisions for ENGINEER to enter upon public and private property.
—Provide such legal, accounting, independent cost estimating and insurance counseling services as may be required for the Project, any auditing service required in respect of Contractor(s)' applications for payment, and any inspection services to determine if Contractor(s) are performing the work legally.
—Provide engineering surveys to establish reference points for construction.
—Furnish approvals and permits from all governmental authorities having jurisdiction over the Project.
—If more than one prime contractor is to be awarded for construction, designate a party to have responsibility and authority for coordinating the activities of the various prime contractors.

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SECTION 4—MEANING OF TERMS

4.1. As used herein the term "this Agreement" refers to the Letter Agreement to which these General Provisions are attached and to these General Provisions, Exhibit A "Further Description of Basic Engineering Services and Related Matters" and Exhibit B "Duties, Responsibilities and Limitations of Authority of Resident Project Representative", as if they were part of one and the same document.

4.2. The construction cost of the entire Project (herein referred to as "Construction Cost") means the total cost to OWNER of those portions of the entire Project designed and specified by ENGINEER, but it will not include ENGINEER's compensation and expenses, the cost of land, rights-of-way, or compensation for or damages to, properties unless this Agreement so specifies, nor will it include OWNER's legal, accounting, insurance counseling or auditing services, or interest and financing charges incurred in connection with the Project or the cost of other services to be provided by others to OWNER pursuant to paragraph 3.2. [Construction Cost is one of the items comprising Total Project Costs which is defined in paragraph 1.2.6.]

4.3. Direct Labor Costs used as a basis for payment mean salaries and wages (basic and incentive) paid to all ENGINEER's personnel engaged directly on the Project, including, but not limited to, engineers, architects, surveyors, designers, draftsmen, specification writers, estimators, other technical and business personnel; but does not include indirect payroll related costs or fringe benefits. For the purposes of this Agreement the principals of ENGINEER and their current hourly Direct Labor Costs are:

_____

_____

The hourly Direct Labor Costs of principals of ENGINEER will be adjusted equitably to reflect changes in personnel and in ENGINEER's overall compensation procedures and practices.

4.4. The Salary Costs used as a basis for payment mean salaries and wages (basic and incentive) paid to all ENGINEER's personnel engaged directly on the Project, including, but not limited to, engineers, architects, surveyors, designers, draftsmen, specification writers, estimators, other technical and business personnel; plus the cost of customary and statutory benefits including, but not limited to, social security contributions, unem-

seven days' written notice in the event of substantial failure by the other party to perform in accordance with the terms hereof through no fault of the terminating party. In the event of any termination, ENGINEER will be paid for all services rendered to the date of termination, all Reimbursable Expenses and termination expenses.

5.5. Controlling Law.

This Agreement is to be governed by the law of the principal place of business of ENGINEER.

5.6. Successors and Assigns.

5.6.1. OWNER and ENGINEER each is hereby bound and the partners, successors, executors, administrators and legal representatives of OWNER and ENGINEER (and to the extent permitted by paragraph 5.6.2 the assigns of OWNER and ENGINEER) are hereby bound to the other party to this Agreement and to the partners, successors, executors, administrators and legal representatives (and said assigns) of such other party, in respect of all covenants, agreements and obligations of this Agreement.

5.6.2. Neither OWNER nor ENGINEER shall assign, sublet or transfer any rights under or interest in (including, but without limitation, moneys that may become due or moneys that are due) this Agreement without the written consent of the other, except to the extent that any assignment, subletting or transfer is mandated by law or the effect of this limitation may be restricted by law. Unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under this Agreement. Nothing contained in this paragraph shall prevent ENGINEER from employing such independent professional associates and consultants as ENGINEER may deem appropriate to assist in the performance of services hereunder.

5.6.3. Nothing under this Agreement shall be construed to give any rights or benefits in this Agreement to anyone other than OWNER and ENGINEER, and all duties and responsibilities undertaken pursuant to this Agreement will be for the sole and exclusive benefit of OWNER and ENGINEER and not for the benefit of any other party.

5.7. Arbitration.

5.7.1. All claims, counterclaims, disputes and other matters in question between the parties hereto arising out of or relating to this Agreement or the breach thereof will be decided by arbitration in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association then obtaining, subject to the limitations and restrictions stated in paragraphs 5.7.3 and 5.7.4 below. This agreement so to arbitrate and any other agreement or consent to arbitrate entered into in accordance herewith as provided in this paragraph 5.7 will be specifically enforceable under the prevailing law of any court having jurisdiction.

5.7.2. Notice of demand for arbitration must be filed in writing with the other parties to this Agreement and with the American Arbitration Association. The demand must be made within a reasonable time after the claim, dispute or other matter in question has arisen. In no event may the demand for arbitration be made after the date when institution of legal or equitable proceedings based on such claim, dispute or other matter in question would be barred by the applicable statute of limitations.

5.7.3. All demands for arbitration and all answering statements thereto which include any monetary claim must contain a statement that the total sum or value in controversy as alleged by the party making such demand or answering statement is not more than $200,000 (exclusive of interest and costs); and the arbitrators will not have jurisdiction, power or authority to render a monetary award in response thereto against any party which totals more than $200,000 (exclusive of interest and costs). The arbitrators will not have jurisdiction, power or authority to consider, or make findings (except in denial of their own jurisdiction) concerning any claim, counterclaim, dispute or other matter in question where the amount in controversy of any such claim, counterclaim, dispute or matter is more than $200,000 (exclusive of interest and costs).

5.7.4. No arbitration arising out of, or relating to, this Agreement may include, by consolidation, joinder or in any other manner, any person or entity who is not a party to this Agreement.

5.7.5. By written consent signed by all the parties to this Agreement and containing a specific reference hereto, the limitations and restrictions contained in paragraphs 5.7.3 and 5.7.4 may be waived in whole or in part as to any claim, counterclaim, dispute or other matter specifically described in such consent. No consent to arbitration in respect of a specifically described claim, counterclaim, dispute or other matter in question will constitute consent to arbitrate any other claim, counterclaim, dispute or other matter in question which is not specifically described in such consent or in which the sum or value in controversy exceeds $200,000 (exclusive of interest and costs) or which is with any party not specifically described therein.

JAMES R. CASSELBERRY
Ground-Water Geologist

108 E. Main Street / P.O. Box 616
Boalsburg, Pennsylvania 16827
(814) 466-6328

Irvona Municipal Authority
Groundwater Exploration Report
Drilling and Testing of Test Well No. 1

Clearfield County, Pennsylvania

June 19, 1990

Ground-Water Resource Evaluation, Development and Protection

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PURPOSE AND SCOPE

I have written this report to summarize the results of the groundwater exploration program I carried out for the Irvona Municipal Authority in the spring of 1990. This exploration program consisted of the location, test drilling, and test pumping of a single fracture zone well site (Test Well No.1). The intent of this report is to develop recommendations regarding both the use of Test Well No.1 as a source of water supply and the feasibility of developing additional groundwater supplies for the Authority. The information covered in this report addresses all of the hydrogeologic input required for Pa DER permitting of Test Well No.1 as a source of public water supply.

HYDROGEOLOGIC SETTING

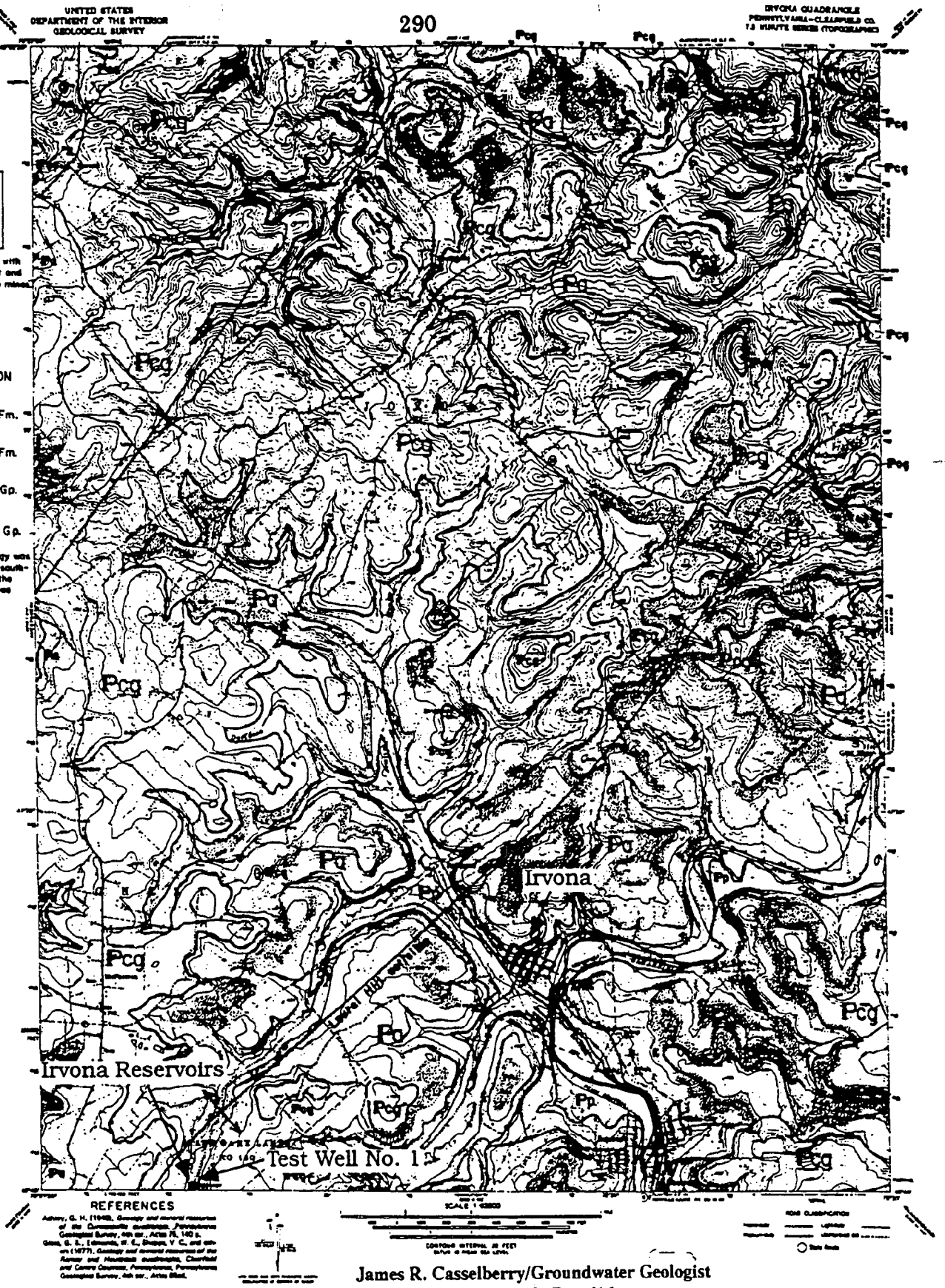
The Irvona Municipal Authority currently utilizes a reservoir system constructed in the forested headwaters of Hockenberry Run as their source of water supply (see Figure 1, Geologic Map for location). As this surface water source has been prone to depletion during drought conditions, the Authority undertook the spring of 1990 groundwater exploration program to assess the feasibility of developing a groundwater supply to supplement their surface water source.

The area surrounding Irvona is underlain by the gently folded, coal-bearing rocks of the Glenshaw, Allegheny and Pottsville Formations. In general, the hillslopes and ridges are capped by the Glenshaw and Allegheny strata and the regional valley bottoms (lower reaches of Witmer and Hockenberry Runs and Clearfield Creek) are underlain by the Pottsville Formation.

Review of well records indicate that all of these formations have the potential to produce relatively large yields in valley-bottom, fracture-zone settings. However, each of these formations also typically produce water with iron and manganese concentrations large enough to require some form of treatment for use as public water supply sources. The iron and manganese concentrations recorded for these formations range widely and appear to be related to site specific criteria such as the influence of surface mining and the pyrite content of the predominant water-bearing strata encountered at each well site, However, in general, iron and manganese concentrations appear to be highest in wells tapping the Pottsville and the lower third of the Allegheny Formation.

The only non-coal-bearing formation in the area having potential for use as an aquifer unit is the Mississipian-aged Mauch Chunk Formation. The Mauch Chunk Formation underlies the Pottsville, and, in this locale, is composed largely of calcareous sandstone. Review of well records reveal that the Mauch Chunk is capable of producing extremely large yields of excellent quality water where it lies close to the surface. Unfortunately, little testing of the Mauch Chunk has been performed in areas similar to the deeply-buried "Irvona setting".

FIGURE 1 - Geologic Map of the Irvona Area



James R. Casselberry/Groundwater Geologist
108 E. Main Street, P.O. Box 616
Boalsburg, PA 16827 814-466-7128

IRVONA

The limited amount of well data available suggest that the Mauch Chunk can produced moderately large yields in this deeply-buried setting as long as fracturing is pervasive at depth. However, in locales where the Mauch Chunk is tapped far from its recharge area, it has the potential to produce saline water. As the nearest Mauch Chunk outcrop lies some 6 miles southwest of the Irvona Reservoir (Chest Creek valley at Thomas Mills), saline water is an obvious concern in the Irvona setting. However, at least one neighboring community (Hastings) has successfully developed a deeply cased, high-yield supply well in the Mauch Chunk which produces excellent quality water.

Since the scope of this project was to investigate the feasibility of developing groundwater sources to supplement the Authority's Hockenberry Run Reservoirs, our exploration activities were focused upon the small amount of property the Authority owns adjacent to the reservoirs. Based upon the previously described aquifer conditions, the test drilling program was structured to create a profile of water chemistry and yield as a test well was advanced through the Allegheny, Pottsville and Mauch Chunk strata. After developing this test drilling profile, we hoped to design and construct a production well which would maximize both well yield and water quality.

TEST WELL SITE LOCATION

I analyzed several flights of both high and low altitude aerial photographs for fracture traces and lineaments in the area surrounding the Hockenberry Run Reservoirs. Based upon this mapping, I located three, potential, test well sites, each lying at fracture trace intersections. Two of these test well sites were located on the eastern side of the upstream reservoir and the remaining site was located some 100 feet downstream of the breast of the lower reservoir. After inspecting these test well sites, Pa DER denied permission to drill the two upstream sites because of concerns for destruction of potential wetlands habitat. However, Pa DER did grant approval of the test well site located below the downstream reservoir. This test well site has been designated as Test Well No. 1 (TW1).

TEST WELL DRILLING

Test well drilling was conducted at TW1 by Eriksen Well Drilling from March 28 - 30, 1990. Thirty-six feet of 10-inch casing was set through colluvium and weathered bedrock to advance the well into competent bedrock (see Figure 2, Well Log). After the 10-inch casing was set, a 6-inch exploratory hole was drilled through the Allegheny and Pottsville formations to evaluate aquifer conditions. Numerous, water-bearing fracture-zones were encountered in sandstone, shale and clay strata of the Allegheny Formation from a depth of 45 to 102 feet. The aggregate yield of these Allegheny water-bearing zones was exceptionally large (in excess of some 500 gpm). However, analyses of water samples taken during test drilling indicate that these Allegheny water-bearing zones produced water with extremely high iron concentrations (4 to 5 mg/l). The Allegheny strata penetrated from 103

feet to the base of the formation at 204 feet appeared to be unfractured and contained no significant water-bearing zones.

From the base of the Allegheny Formation at some 204 feet to a depth of some 300 feet, the Pottsville Formation was encountered. The Pottsville strata were dominated by massive, hard, siliceous sandstone strata. A large, water-bearing fracture zone was penetrated near the base of the Pottsville from 280 - 283 feet. Due to poor return of drill cuttings and water during drilling of this zone (primarily caused by loss of circulation to the shallower Allegheny water-bearing zones) it was impossible to measure the yield or water quality of this basal, Pottsville, water-bearing zone.

Based upon the large size of the cuttings from this Pottsville fracture zone (fist-sized), I believe it has a large water bearing capacity. However, the water quality of this fracture zone remains a guess. Though there was no evidence of pyrite in the drill cuttings from this zone, the Pottsville typically produces water with elevated iron concentrations. With this in mind, I decided to case-off the poor quality Allegheny strata and also the "uncertain" Pottsville water-bearing zone to allow accurate definition of the yield and water chemistry of the underlying Mauch Chunk.

To case-off the Allegheny and Pottsville, the existing 6-inch test hole was reamed to 9-7/8-inch diameter to a depth of 303 feet in order to accept 6-inch casing. After the 6-inch casing was installed and seated, a 6-inch diameter hole was drilled to a depth of 495 feet to explore the Mauch Chunk Formation. The Mauch Chunk strata penetrated consisted of interbedded calcareous and non-calcareous, argillaceous sandstones. Eight discrete water-bearing zones were encountered in the Mauch Chunk. The aggregate yield of the water-bearing zones was some 85 gpm and the two largest water-bearing zones were logged at depths of 405 (22 gpm) and 415 feet (35 gpm).

Review of the analyses of the water samples taken during test drilling show that these Mauch Chunk water-bearing zones produce excellent quality, alkaline, sodium bicarbonate waters with extremely low iron (0.04 mg/l) and manganese (0.03 mg/l) concentrations (see Tables 1). The only potential water quality problem discerned by the test drilling data was the relatively large increase in sodium and chloride values noted between the samples taken at 425 feet and the bottom of the test well at 495 feet. Though there were no recorded, significant, water-bearing zones in this interval, the sodium concentrations rose from 72 to 92 mg/l and the chloride concentrations rose from 9 to 26 mg/l. The rise in both of these parameters appears to signal the encounter of a small volume, "near-brine", water-bearing zone in the bottom of the well.

Based upon the well log, the most obvious location for this "near brine" zone is the soft sandstone strata logged from 451-458 feet. In an attempt to preclude this zone from "contaminating" the well, the lower 50 feet of the well bore was plugged by injecting concrete grout with a

GEOCHEMICAL TESTING
ENERGY AND ENVIRONMENTAL ANALYSIS

R.D. 2, BOX 124
Somerset, Pennsylvania 15501
Phone: (814) 445-6666 or 443-1671

REPORT OF ANALYSIS

Client: Jim Casselberry

Lab # 90-E13910

Sampled by: Client

Sampling date: 03/30/1990

Analysis completed: 04/10/1990

Description : Irvona #1-345'

Analyte	Result	Units	Test Method
pH	8.4	su	EPA 150.1
Total susp. solids	1880	mg/l	EPA 160.2
Alkalinity	147	mg/l as CaCO3	EPA 310.1
Acidity	Negative	mg/l as CaCO3	EPA 305.1
Sulfate	< 5	mg/l	EPA 375.4
Specific conductance	295	micromhos/cm	EPA 120.1
Iron, dissolved	0.04	mg/l	EPA 200.7
Manganese, dissolved	0.03	mg/l	EPA 200.7
Sodium, dissolved	60.4	mg/l	EPA 200.7

Forrest E. Walker

Forrest E. Walker,
Director of Technical Services

Table 1 (continued)

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ENERGY AND ENVIRONMENTAL ANALYSIS

R.D. 2, BOX 124
Somerset, Pennsylvania 15501
Phone: (814) 445-6666 or 443-1671

REPORT OF ANALYSIS

Client: Jim Casselberry

Lab # 90-E13912

Sampled by: Client

Sampling date: 03/30/1990

Analysis completed: 04/10/1990

Description : Irvona #1-425'

Analyte	Result	Units	Test Method
pH	8.5	su	EPA 150.1
Total susp. solids	552	mg/l	EPA 160.2
Alkalinity	154	mg/l as CaCO3	EPA 310.1
Acidity	Negative	mg/l as CaCO3	EPA 305.1
Sulfate	< 5	mg/l	EPA 375.4
Specific conductance	305	micromhos/cm	EPA 120.1
Calcium	1.24	mg/l	EPA 200.7
Magnesium	0.28	mg/l	EPA 200.7
Hardness	4.25	mg/l as CaCO3	SM16 314A
Iron, dissolved	0.08	mg/l	EPA 200.7
Total dissolv. solid	148	mg/l	EPA 160.1
Aluminum, dissolved	0.33	mg/l	EPA 200.7
Barium, dissolved	0.32	mg/l	EPA 200.7
Calcium, dissolved	1.24	mg/l	EPA 200.7
Chloride	9.3	mg/l	EPA 325.2
Magnesium, dissolved	0.28	mg/l	EPA 200.7
Manganese, dissolved	0.03	mg/l	EPA 200.7
Sodium, dissolved	71.7	mg/l	EPA 200.7

Forrest E. Walker,
Director of Technical Services

Table 1 (continued)

GEOCHEMICAL TESTING
ENERGY AND ENVIRONMENTAL ANALYSIS

R.D. 2, BOX 124
Somerset, Pennsylvania 15501
Phone: (814) 445-6666 or 443-1671

REPORT OF ANALYSIS

Client: Jim Casselberry

Lab # 90-E13913

Sampled by: Client

Sampling date: 03/30/1990

Analysis completed: 04/10/1990

Description : Irvona #1-495'

Analyte	Result	Units	Test Method
pH	8.5	su	EPA 150.1
Total susp. solids	80	mg/l	EPA 160.2
Alkalinity	167	mg/l as CaCO3	EPA 310.1
Acidity	Negative	mg/l as CaCO3	EPA 305.1
Sulfate	< 5	mg/l	EPA 375.4
Specific conductance	392	micromhos/cm	EPA 120.1
Calcium	1.42	mg/l	EPA 200.7
Magnesium	0.29	mg/l	EPA 200.7
Hardness	4.74	mg/l as CaCO3	SM16 314A
Iron, dissolved	0.02	mg/l	EPA 200.7
Total dissolv. solid	238	mg/l	EPA 160.1
Aluminum, dissolved	0.17	mg/l	EPA 200.7
Barium, dissolved	0.18	mg/l	EPA 200.7
Calcium, dissolved	1.42	mg/l	EPA 200.7
Chloride	26	mg/l	EPA 325.2
Magnesium, dissolved	0.29	mg/l	EPA 200.7
Manganese, dissolved	< 0.01	mg/l	EPA 200.7
Sodium, dissolved	91.9	mg/l	EPA 200.7

Forrest E. Walker

Forrest E. Walker,
Director of Technical Servi

grout pump and tremie pipe system. After this grouting operation, the depth of TW1 was plumbed at 445 feet.

Since both the yield and water chemistry of the test well appeared to be promising, the 6-inch test well was taken to production well status by bottom grouting both the 6-inch and 10-inch casings in place with a grout pump and tremie pipe system. All materials and construction techniques used in drilling the well conform to the specifications set forth in Pa DER's Public Water Supply Manual.

PUMPING TEST METHODOLOGY

A six-inch diameter, 5-stage, 10 hp submersible pump was set in TW1 at a depth of 278 feet. At the well head, a gate valve/electronic flow meter assembly was attached to the pump lift pipe to both measure and control the flow of water from the well. A pressure transducer/datalogger assembly was installed at the well to provide continuous monitoring of TW1's water level during all pumping test activities. All water pumped from the well was discharged directly to Hockenberry Run.

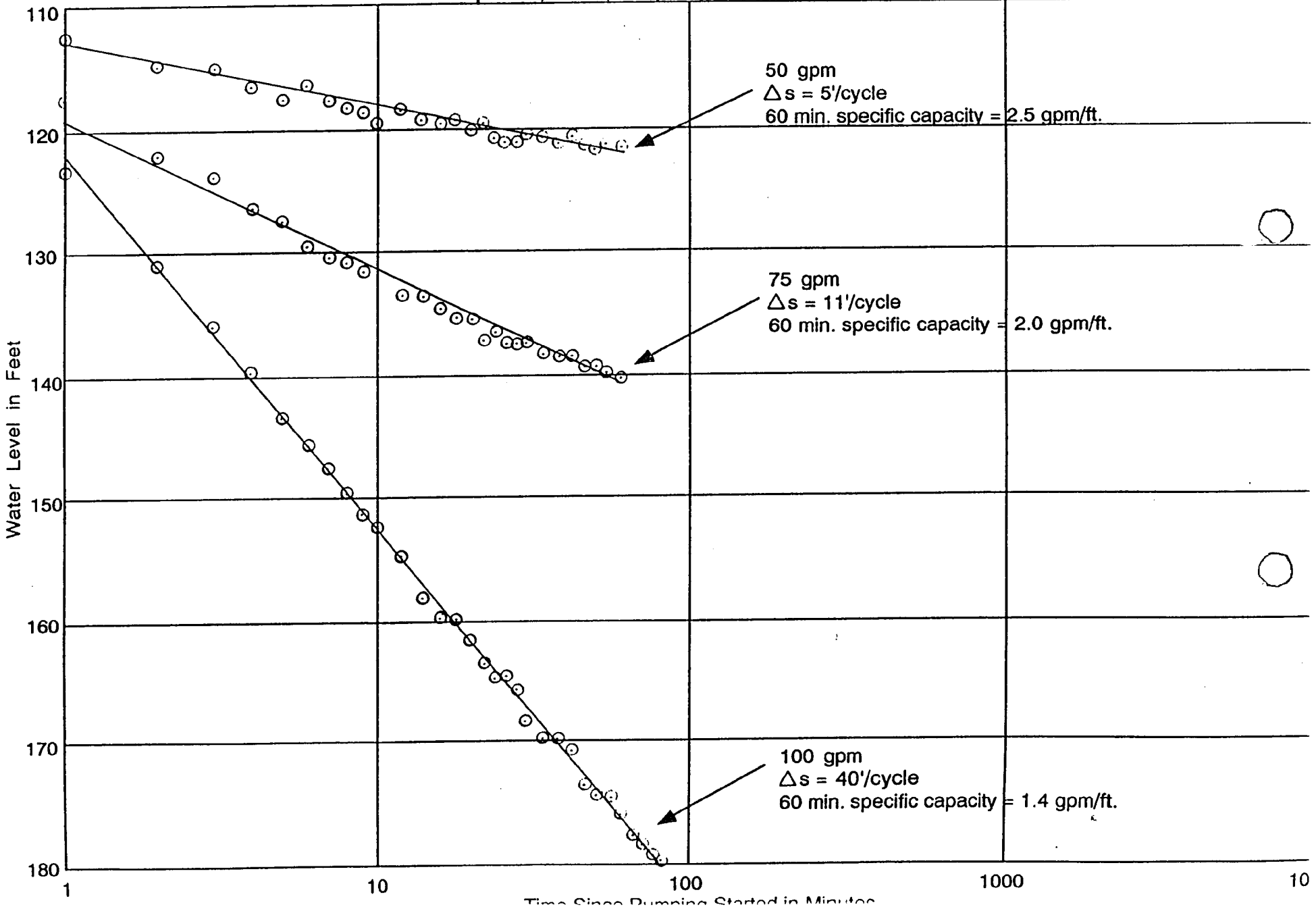
On April 20, 1989, a day-long, step-drawdown pumping test was conducted. The purpose of this step-drawdown test was to develop specific capacity data for use in selecting an appropriate pumping rate for the ensuing, 72-hour, constant-rate pumping test. Three, 60-minute "pumping steps" were conducted at rates of 50, 75 and 100 gpm. The well was allowed to recover to at least 90% of its original, pre-pumping static level in between each rate change in the step test.

The long-term, constant-rate pumping test was conducted from April 23 - 26, 1990. No significant rainfall fell immediately prior to or during the pumping test. Water levels were observed in stream bed piezometers and in two old shallow wells adjacent to the reservoirs during the long-term test to check for communication with surface water and/or the poor-quality, shallow, Allegheny aquifer. Water samples were taken at 24-hour intervals during the test to assess the potential for changing trends in water chemistry with increased duration of pumping. Following the conclusion of the long-term pumping test, water level recovery was monitored in TW1 for a 4-day period.

PUMPING TEST RESULTS

The data generated in the step-drawdown test is presented in Figure 3 as a log of time versus water level plot. Review of this figure shows fairly large decreases in specific capacity with increasing pumping rates. Decreases in specific capacity of this magnitude usually reflect large amounts of turbulent flow in the well bore caused by over-pumping. However, in this case, a large part of the turbulence in the well bore was undoubtedly being caused by the installation of a 6-inch nominal diameter pump inside of the 6-inch diameter well casing, i.e. the water pumped from the well had to be "jammed" through the 3/16-inch

FIGURE 3 Log of Time Versus Water Level Plot
Irvona Municipal Authority Test Well No. 1
April 20, 1990, Step-drawdown Pumping Test



annulus between the 5-foot long pump motor and well casing before reaching the pump intake.

Therefore, it is likely that a fairly large component of the 20% decrease in specific capacity noted between the 50 gpm and 75 gpm step is due to the set-up of the pumping system. However, the large 44% decrease in specific capacity between the 50 gpm and 100 gpm step can not be solely attributed to turbulence caused by the pump/hole restriction. Therefore, based upon the poor apparent performance of the well at 100 gpm, a pumping rate of 80 gpm was selected for the long-term pumping test.

The drawdown data collected at TW1 during the long-term (76-hour) pumping test has been presented as a log of time versus water level plot in Figure 4. Review of this graph shows that TW1 developed a consistent trend of drawdown of 11.5 feet per log cycle of time from 10 minutes since the onset of pumping to some 1200 minutes into the test. At the 1200-minute mark, the trend of drawdown accelerated and then assumed a consistent 22.5 foot per log cycle rate of decline to the end of the test at 4600 minutes. The steepening of the drawdown curve after the 1200 minute-mark reflects the encounter of a "barrier boundary" in the aquifer system. Considering the geologic setting of the well, it is likely that this barrier boundary reflects a decrease in fracture permeability as the cone of depression expands away from the well site.

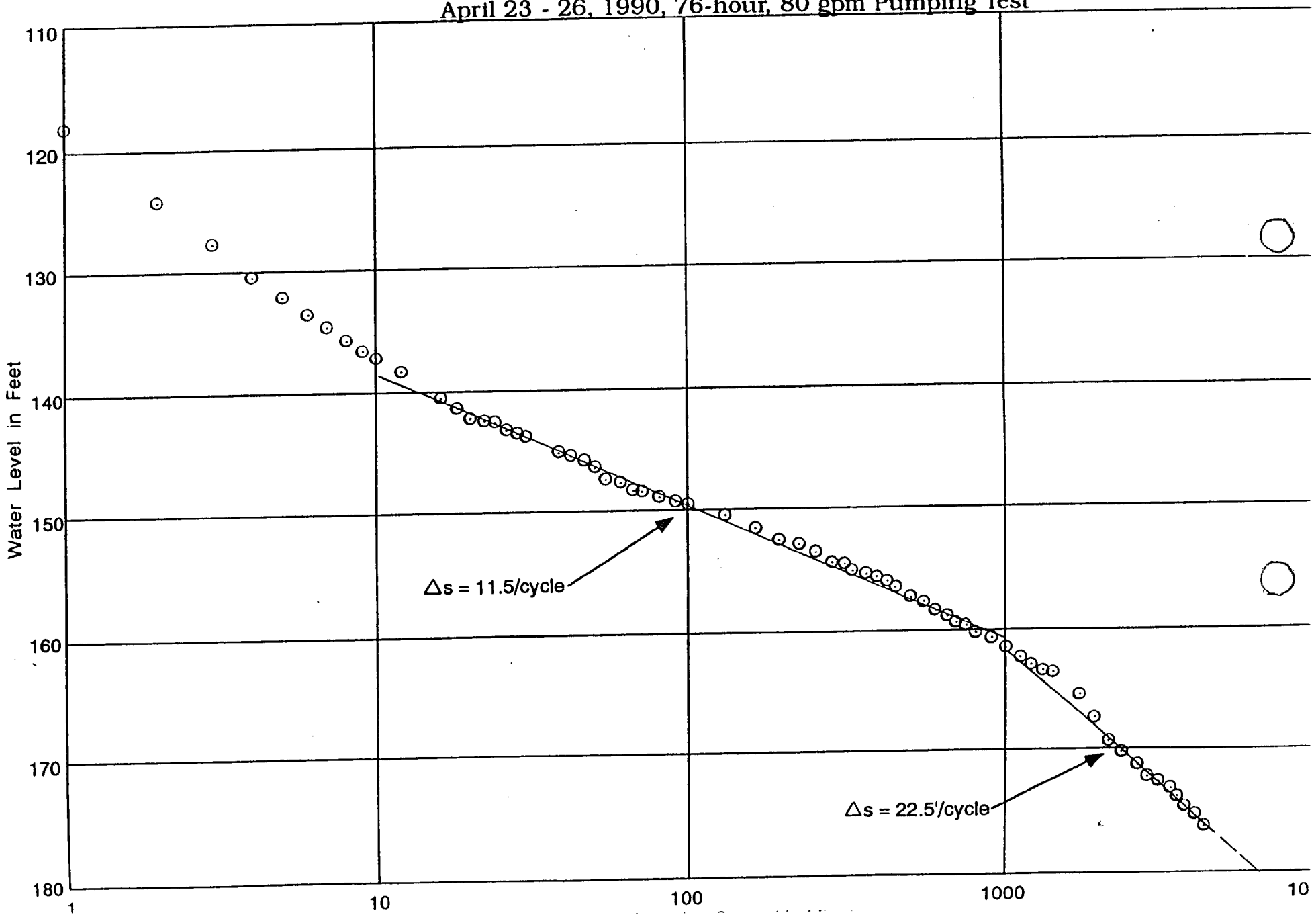
Water level observation at the stream bed piezometers showed that Hockenberry Run adjacent to TW1 remained a gaining stream throughout the pumping test. Water level monitoring of the old, shallow wells tapping the Allegheny Formation adjacent to the reservoir showed a slight rise (0.4 to 0.5 feet) during the pumping test. This information suggests that the aquifer tapped by TW1 has no connection with the Hockenberry Run surface water system or the shallow, poor quality groundwaters of the Allegheny Formation. Considering the extremely deep length of grouted casing in TW1, these conclusions come as no surprise.

Water level recovery at TW1 was monitored for four days following the end of the 76-hour pumping test. This water level recovery monitoring showed that in the same duration of time as the pumping cycle (76 hours) TW1 recovered to 95% of its original, pre-pumping static level. This near complete recovery of TW1 indicates that little water was mined from the aquifer system during pumping and suggests that the aquifer tapped by TW1 is not of limited areal extent.

SUSTAINED YIELD RATING OF TW1

Normally, a fairly accurate estimation of the sustained yield of a supply well can be made by extrapolating the trend of water level decline developed in the latter stages of a long-term, constant-rate pumping test into time. This extrapolation allows the development of long-term projections of pumping levels caused by continuous withdrawal at a given pumping rate in an extended period of no

FIGURE 4 Log of Time Versus Water Level Plot
Irvona Muncipal Authority Test Well No. 1
April 23 - 26, 1990, 76-hour, 80 gpm Pumping Test



recharge (simulated drought conditions). Usually, these projections are used to identify the maximum, sustained pumping rate which will keep the pumping level in the well safely above the elevation of the well's major water-bearing zones during severe drought conditions. These projections assume that the recharge area "feeding" the well is large enough to sustain the continuous withdrawal rate and that the trend developed at the end of the test is representative of long-term aquifer performance.

Extrapolation of the "straight line", 22.5 foot per cycle trend of water level decline established in the last two days of the 76-hour pumping test yields the following pumping level projections:

Pumping Levels Resulting from Continuous 80 gpm Pumping in a Period of No Recharge

Time	Pumping Level
6.9 Days	184.5 feet
1.9 Years	207 feet
19 Years	229.5 feet

Review of the pumping level projections presented in the table above show that after 19 years of continuous, 80 gpm pumping, the water level in TW1 would be some 130 feet above the well's uppermost water-bearing zone (230 foot pumping level versus 345 foot depth of upper-most water-bearing zone). This extrapolation obviously suggests that the sustained yield of TW1 is at least 80 gpm.

However, due to the poor performance of the well at 100 gpm during the step-drawdown testing, I believe that the sustained yield of TW1 is not much in excess of 80 gpm. The extremely long distance between the well site and the recharge area of the aquifer tapped by the well (6 miles to Mauch Chunk outcrop at Thomas Mills) suggest that the well may be slow to respond to recharge events. This potential for slow recharge also lends support to limiting the sustained yield rating of TW1 to some 80 gpm.

WATER QUALITY OF TW1

Review of the analyses of water samples taken at the conclusion of the 76-hour pumping test (see Table 2) indicate that TW1 produces an extremely alkaline, sodium bicarbonate water of excellent quality. This water meets all of the primary and secondary public drinking water MCLs with the exception of the turbidity standard. The turbidity level recorded at the end of the pumping test was 1.2 NTU, which is marginally higher than the MCL of 1.0 NTU.

Tables 3 shows the chemical analyses of water samples taken at the 24-hour and 48-hour marks of the pumping test. Comparison of

TABLE 2 - New Source Sampling of TH1 at the conclusion of 72 hour Pumping Test

GEOCHEMICAL TESTING
ENERGY AND ENVIRONMENTAL ANALYSIS

R.D. 2, BOX 124
Somerset, Pennsylvania 15501
Phone: (814) 445-6666 or 443-1671

REPORT OF ANALYSIS

Client: Jim Casselberry

Lab # 90-E14178

Sampled By: Client

Sampling Date: 04/26/90

Report Printed: 05/30/90

Description: Irvona TH1 72Hour 4/26/90

Inorganic Metals

Analyte	Result	Units	Test
Arsenic	< 0.01	mg/l	EPA 200.7
Barium	0.12	mg/l	EPA 200.7
Cadmium	< 0.001	mg/l	EPA 200.7
Calcium	3.07	mg/l	EPA 200.7
Chromium	< 0.01	mg/l	EPA 200.7
Copper	< 0.01	mg/l	EPA 200.7
Iron	0.06	mg/l	EPA 200.7
Lead	< 0.01	mg/l	EPA 200.7
Manganese	0.01	mg/l	EPA 200.7
Mercury	<0.0002	mg/l	EPA 245.1
Selenium	<0.002	mg/l	EPA 200.7
Silver	< 0.01	mg/l	EPA 200.7
Sodium	72.0	mg/l	EPA 200.7
Zinc	0.01	mg/l	EPA 200.7

Inorganic Non-Metals

Analyte	Result	Units	Test
Alkalinity	135	mg/l as CaCO3	EPA 310.1
Chloride	11	mg/l	EPA 325.2
Fluoride	< 0.20	mg/l	SM 16TH 413B
Nitrate	< 0.05	mg/l as N	EPA 353.1
Sulfate	6	mg/l	EPA 375.4
pH	8.7	su	EPA 150.1

Forrest E. Walker
Director of Technical Services

Table 2 (continued)

GEOCHEMICAL TESTING

ENERGY AND ENVIRONMENTAL ANALYSIS

R.D. 2, BOX 124
Somerset, Pennsylvania 15501
Phone: (814) 445-6666 or 443-1671

REPORT OF ANALYSIS

Client: Jim Casselberry

Lab # 90-E14178

Description: Irvona TH1 72Hour 4/26/90

Physical Tests

Analyte	Result	Units	Test
Color	< 10	Color units	EPA 110.3
Langelier saturation	-0.31		SM 16TH 203
Total dissolved solids	178	mg/l	EPA 160.1
Turbidity	1.2	NTU	EPA 180.1

Indicator Organic Parameters

Analyte	Result	Units	Test
Surfactants	< 0.1	mg/l	EPA 425.1

Volatile Organic Compounds

Analyte	Result	Units	Test
* 1,1,1,2-Tetrachloroethane	<1.0	ug/l	EPA 502.2
* 1,1,1-Trichloroethane	<0.5	ug/l	EPA 502.2
* 1,1,2,2-Tetrachloroethane	<1.0	ug/l	EPA 502.2
* 1,1,2-Trichloroethane	<1.0	ug/l	EPA 502.2
* 1,1-Dichloroethane	<1.0	ug/l	EPA 502.2
* 1,1-Dichloroethene	<0.5	ug/l	EPA 502.2
* 1,1-Dichloropropene	<1.0	ug/l	EPA 502.2
* 1,2,3-Trichloropropane	<1.0	ug/l	EPA 502.2
* 1,2-Dibromoethane	<0.02	ug/l	EPA 502.2
* 1,2-Dichlorobenzene	<1.0	ug/l	EPA 502.2
* 1,2-Dichloroethane	<0.5	ug/l	EPA 502.2
* 1,2-Dichloropropane	<1.0	ug/l	EPA 502.2
* 1,2-Dibromo-3-Chloropropane	<0.02	ug/l	EPA 502.2

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Director of Technical Services

Table 2 (Continued)

GEOCHEMICAL TESTING

ENERGY AND ENVIRONMENTAL ANALYSIS

R.D. 2, BOX 124
Somerset, Pennsylvania 15501
Phone: (814) 445-6666 or 443-1671

REPORT OF ANALYSIS

Client: Jim Casselberry

Lab # 90-E14178

Description: Irvona TH1 72Hour 4/26/90

Volatile Organic Compounds

Analyte	Result	Units	Test
* 1,3-Dichlorobenzene	<1.0	ug/l	EPA 502.2
* 1,3-Dichloropropane	<1.0	ug/l	EPA 502.2
* 1,3-Dichloropropene	<1.0	ug/l	EPA 502.2
* 1,4-Dichlorobenzene	<0.5	ug/l	EPA 502.2
* 2,2-Dichloropropane	<1.0	ug/l	EPA 502.2
* Benzene	<0.5	ug/l	EPA 502.2
* Bromobenzene	<1.0	ug/l	EPA 502.2
* Bromomethane	<1.0	ug/l	EPA 502.2
* Carbon Tetrachloride	<0.5	ug/l	EPA 502.2
* Chlorobenzene	<1.0	ug/l	EPA 502.2
* Chlorodibromomethane	<1.0	ug/l	EPA 502.2
* Chloroethane	<1.0	ug/l	EPA 502.2
* Chloromethane	<1.0	ug/l	EPA 502.2
* Dibromomethane	<1.0	ug/l	EPA 502.2
* Dichlorobromomethane	<1.0	ug/l	EPA 502.2
* Ethylbenzene	<1.0	ug/l	EPA 502.2
* M-Xylene	<1.0	ug/l	EPA 502.2
* Methylene Chloride	<1.0	ug/l	EPA 502.2
* O-Chlorotoluene	<1.0	ug/l	EPA 502.2
* O-Xylene	<1.0	ug/l	EPA 502.2
* P-Chlorotoluene	<1.0	ug/l	EPA 502.2
* P-Xylene	<1.0	ug/l	EPA 502.2
* Styrene	<1.0	ug/l	EPA 502.2
* Tetrachloroethene	<1.0	ug/l	EPA 502.2
* Toluene	<1.0	ug/l	EPA 502.2
* Tribromomethane	<1.0	ug/l	EPA 502.2
* Trichloroethene	<0.5	ug/l	EPA 502.2
* Trichloromethane	<1.0	ug/l	EPA 502.2
* Vinyl Chloride	<0.5	ug/l	EPA 502.2
* cis 1,2-Dichloroethene	<1.0	ug/l	EPA 502.2
* trans 1,2-Dichloroethene	<1.0	ug/l	EPA 502.2

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Director of Technical Services

Table 2 (continued)

GEOCHEMICAL TESTING
ENERGY AND ENVIRONMENTAL ANALYSIS

R.D. 2, BOX 124
Somerset, Pennsylvania 15501
Phone: (814) 445-6666 or 443-1671

REPORT OF ANALYSIS

Lab # 90-E14178

Client: Jim Casselberry

Description: Irvona TH1 72Hour 4/26/90

Herbicides/Pesticides & PCB's

Analyte	Result	Units	Test
2,4-D	< 0.005	mg/l	SM 16TH 509B
Endrin	< 0.00005	mg/l	SM 16TH 509A
Lindane	< 0.0004	mg/l	SM 16TH 509A
Methoxychlor	< 0.01	mg/l	SM 16TH 509A
Silvex	< 0.0005	mg/l	SM 16TH 509B
Toxaphene.	< 0.001	mg/l	SM 16TH 509A

Radiological

Analyte	Result	Units	Test
Gross Alpha	< 1	pCi/liter	EPA 600

Bacteriological Testing

Analyte	Result	Units	Test
Total coliform (rep 1)	<1	#/100 ml	SM 16TH 909A
Total coliform (rep 2)	<1	#/100 ml	SM 16TH 909A
Total coliform (rep 3)	<1	#/100 ml	SM 16TH 909A

* NOTE: Analyzed by Lancaster Laboratories Inc.

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Director of Technical Services

GEOCHEMICAL TESTING

ENERGY AND ENVIRONMENTAL ANALYSIS

R.D. 2, BOX 124
Somerset, Pennsylvania 15501
Phone: (814) 445-6666 or 443-1671

REPORT OF ANALYSIS

Client: Jim Casselberry

Lab # 90-E14176

Sampled by: Client

Sampling date: 04/24/1990

Analysis completed: 05/04/1990

Description : Irvona TH1 24Hour 4/24/90

Analyte	Result	Units	Test Method
pH	8.7	su	EPA 150.1
Total susp. solids	< 5	mg/l	EPA 160.2
Iron	0.09	mg/l	EPA 200.7
Manganese	0.01	mg/l	EPA 200.7
Alkalinity	134	mg/l as CaCO3	EPA 310.1
Acidity	Negative	mg/l as CaCO3	EPA 305.1
Sulfate	6	mg/l	EPA 375.4
Specific conductance	303	micromhos/cm	EPA 120.1
Sodium	67.2	mg/l	EPA 200.7
Turbidity	3.5	NTU	EPA 180.1

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Table 3 (continued)

GEOCHEMICAL TESTING
ENERGY AND ENVIRONMENTAL ANALYSIS

R.D. 2, BOX 124
Somerset, Pennsylvania 15501
Phone: (814) 445-6666 or 443-1671

REPORT OF ANALYSIS

Client: Jim Casselberry

Lab # 90-E14177

Sampled by: Client

Sampling date: 04/25/1990

Analysis completed: 05/04/1990

Description : Irvona TH1 48Hour 4/25/90

Analyte	Result	Units	Test Method
pH	8.7	su	EPA 150.1
Total susp. solids	< 5	mg/l	EPA 160.2
Iron	0.08	mg/l	EPA 200.7
Manganese	0.01	mg/l	EPA 200.7
Alkalinity	134	mg/l as CaCO3	EPA 310.1
Acidity	Negative	mg/l as CaCO3	EPA 305.1
Sulfate	6	mg/l	EPA 375.4
Specific conductance	323	micromhos/cm	EPA 120.1
Sodium	71.9	mg/l	EPA 200.7
Turbidity	2.0	NTU	EPA 180.1

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Director of Technical Servi

these analyses with those from the end of the pumping test show no significant increases in concentration of any chemical parameters with increased duration of pumping. However, these samples do show a sharp decrease in the turbidity of the well with increased pumping (24 hrs. - 3.5 NTU, 48 hrs. - 2.0 NTU, 76 hrs. - 1.2 NTU). Based upon the observed large decrease in turbidity during the course of the test, it is likely that the turbidity of the well will fall below the 1.0 NTU MCL with prolonged pumping.

RECOMMENDATIONS FOR FUTURE WELL DEVELOPMENT

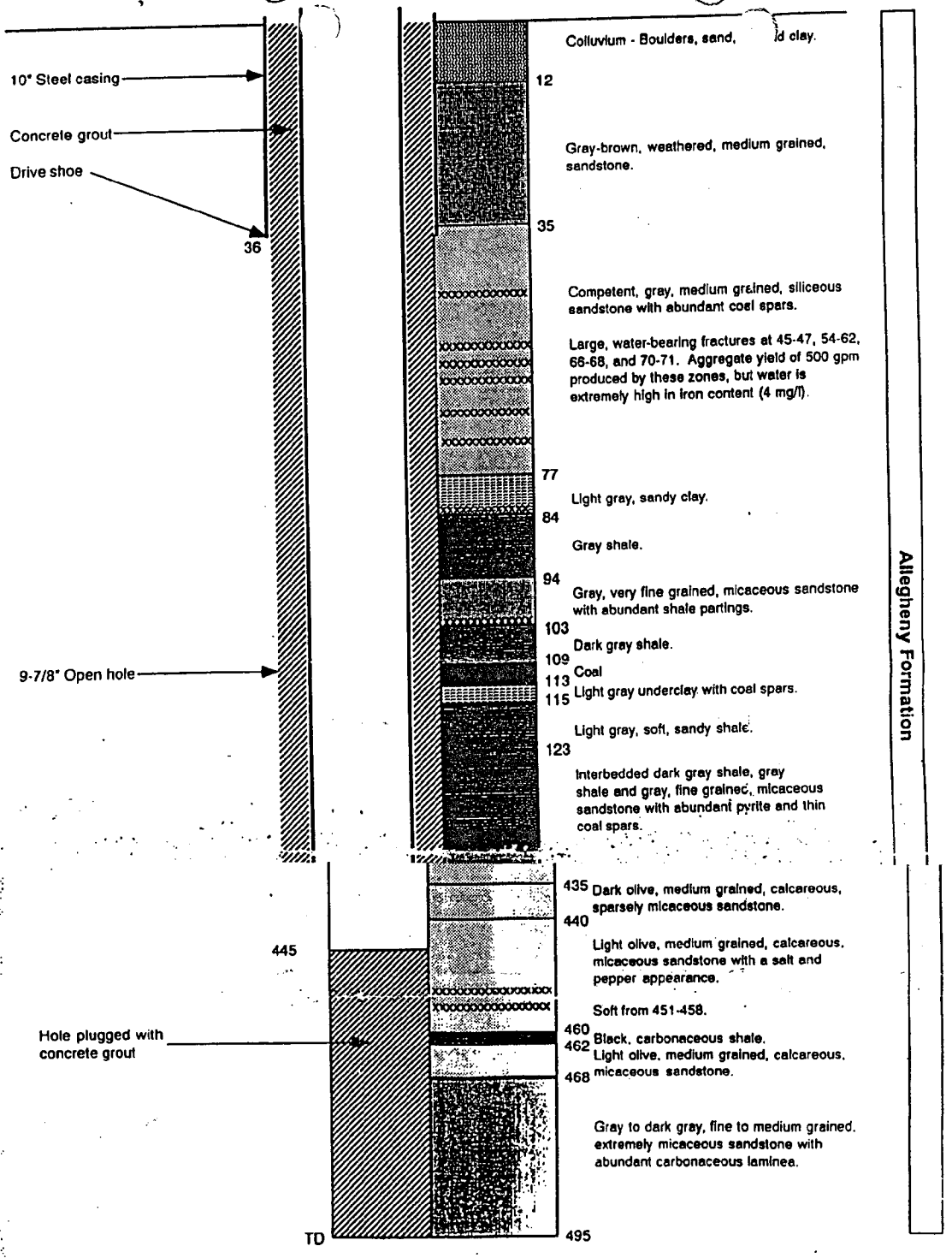
The drilling and testing program conducted at TW1 proved that moderately large yields of excellent quality water can be developed from properly cased wells tapping the deeply-buried Mauch Chunk aquifer in the Irvona area. Based upon this information, it is likely that the development of a small well field tapping the Mauch Chunk could supply all of the Authority's 120,000 gpd demand. The development of TW1 as an 80 gpm source of supply would provide a daily yield of some 115,000 gpd. Therefore, it is likely that only one or two additional wells tapping the Mauch Chunk would have to be constructed to safely provide all of the Authority's water demands.

Well separations as large as some 1500 - 3500 feet would most likely be necessary to avoid problems with excessive well interference in the Mauch Chunk aquifer. Therefore, it makes little sense to develop any additional, primary, pumping wells on the small property owned by the Authority surrounding the Hockenberry Run Reservoirs.

Any future exploration for additional Mauch Chunk supplies should be carried out in the Hockenberry Run or Witmer Run valley-bottoms. Analysis of geologic mapping suggests that the Mauch Chunk lies some 180 to 250 feet closer to the surface in the lower reaches of Hockenberry Run and Witmer Run than it does at the TW1 site. It is quite possible that the Mauch Chunk possesses a larger yield potential in these regional valley-bottoms due to its shallower depth of burial in this setting. The ultimate selection of any test well sites in this area should stem from consideration of both fracture trace mapping and water system design criteria.

The only possibility for developing additional yields of good quality water at the Hockenberry Run Reservoir site would be the investigation of the large water-bearing zone encountered near the base of the Pottsville Formation at the TW1 location. As previously described, it is likely that this water-bearing zone has a large yield potential, but its water chemistry is uncertain. The only way to positively define the yield and chemistry of this basal Pottsville water-bearing zone would be to construct another deeply cased test well at the TW1 location. As review of well records show that the Pottsville commonly produces water with elevated iron concentrations, the chances of obtaining excellent quality water from this strata are most likely "bucking the odds".

Irvona Municipal Authority ... Geologic ... and Construction Details



NOTE. All depths are in feet below ground level.
Vertical scale is 1" = 20'.
X = Water-bearing fracture zone.
Test drilling completed from 3/28-30/90.

James R. Casselberry/Ground-water Geologist
108. East Main Street, P.O. Box 616
Boalsburg, PA 16827 (814) 466-7128

JAMES R. CASSELBERRY
Ground-Water Geologist

108 E. Main Street / P.O. Box [illegible]
Boalsburg, Pennsylvania 16827
(814) 466-7128

RECEIVED
SEP - 5 91
The Neilan Engineers
Somerset, Pa.

August 29, 1991

Scott Rugh
Neilan Engineers
1065 Tayman Avenue/P.O. Box 837
Somerset, PA 16827

Re: Potential for Groundwater Development at Irvona Municipal Authority

Dear Scott:

At your request, I have written this letter report to assess the potential for developing additional groundwater supplies to serve the Irvona Municipal Authority. This topic was covered in my "Groundwater Exploration Report" of June 19, 1990. The exploration report describes in detail the drilling and testing program we conducted at single test well (TW1) site located just downstream of the Authority's Hockenberry Run Reservoir. Based upon the data presented in this June 19, 1991 report, I have come to the following conclusions regarding the feasibility of developing additional groundwater supplies to serve the Authority.

1) The area served by the Authority is underlain by the coal-bearing rocks of the Allegheny, Glenshaw and Pottsville Formations. The Allegheny and Glenshaw have little potential for development of secure water supply wells due to impact from extensive coal mining operations. The Pottsville Formation contains no mineable coals in the Irvona setting and has the potential to produce large yields of water in valley-bottom, fracture-zone settings. However, due to the natural decomposition of the large concentration of pyrite in the Pottsville, this formation almost always produces water with elevated iron and manganese concentrations. Therefore, the Pottsville also presents little opportunity for the development of high-quality water supply wells.

2) I believe Irvona's best option for developing high-quality groundwater supplies lies in tapping the "deeply-buried", Mauch Chunk aquifer. The Mauch Chunk contains no coal strata and normally produces excellent-quality alkaline waters where it lies in the active zone of groundwater circulation.

3) TW1 taps the deeply-buried Mauch Chunk aquifer just downstream of the Hockenberry Run reservoir. Analysis of the drawdown data from a 76-hour, 80 gpm, constant rate pumping test run on TW1 suggest that this well has a sustained yield potential of at least 80 gpm. Chemical analyses of the water samples collected at the end of this pumping test suggest that the Mauch Chunk produces excellent quality water needing no treatment for use as a source of potable water. This Mauch

Chunk water is an alkaline, sodium bicarbonate water with extremely low iron and manganese concentrations (0.06 mg/l iron and 0.01 mg/l manganese).

4) The data from the drilling and testing of TW1 suggest that the Mauch Chunk aquifer could potentially be utilized to provide all of the Authority's potable water supply. Based upon our testing, TW1 appears to be able to produce a sustained yield of 80 gpm (115,000 gpd). According to the Neilan Engineer's, the Authority's current water consumption is some 120,000 gpd. Therefore, it is likely that the successful development of one additional well could create a Mauch Chunk well field capable of supplying the Authority's entire water demand.

5) Well separations as large as 2500 to 4500 feet will most likely be necessary to avoid problems with excessive well interference in the confined, Mauch Chunk aquifer system. Therefore, it makes little sense to develop any additional, primary, pumping wells on the small amount of property the Authority owns surrounding the Hockenberry Run Reservoir.

6) Any future exploration for additional Mauch Chunk supplies should be carried out in the lower reaches of the Hockenberry Run valley or in the Witmer Run valley-bottom (see attached map). Analysis of geologic mapping suggests that the Mauch Chunk lies some 180 to 250 feet closer to the surface in the lower reaches of Hockenberry Run and Witmer Run than it does at the TW1 site. This shallower depth of burial should result in much less complicated and expensive well designs and should also maximize the yield potential of the Mauch Chunk.

7) The largest potential complication in the development of the Mauch Chunk aquifer is maintaining hydraulic isolation between the good quality Mauch Chunk aquifer and the poor quality waters of the overlying Pottsville and Allegheny Formations. Some of the Pottsville and Allegheny waters are extremely aggressive and could potentially "eat through" steel water well casings. Therefore, the use of noncorrosive casing materials should be considered in any wells having a significant thickness of Pottsville and/or Allegheny overlying the Mauch Chunk. The cheapest, non-corrosive application is most likely the use of a PVC well liner and packer assembly installed and grouted inside of the steel water well casing.

8) As previously mentioned, TW1 appears to produce excellent quality water needing no treatment for use as a source of potable water. However, based upon other well development projects I have recently completed tapping the deeply-buried Mauch Chunk aquifer, there are three, potential, water quality problems that can be associated with the development of the Mauch Chunk aquifer. These potential water quality problems are sporadically elevated levels of sodium, radon, and hydrogen sulfide. Special attention should be paid to defining these water quality parameters in any new wells drilled in the Mauch Chunk.

JAMES R. CASSELBERRY
Ground-Water Geologist

108 E. Main Street / P.O. Box 616
Boalsburg, Pennsylvania 16827
(814) 466-7128

9) If the Authority is interested in further pursuing ground water development, the next step should be to conduct a fracture trace and lineament analysis of the lower Hockenberry Run and Witmer Run valley-bottoms to identify potenial, fracture zone test well sites. The ultimate selection of any test well sites for drilling in this area should stem from consideration of both fracture trace mapping and water system design criteria.

If you have any questions regarding the information presented in this letter, please give me a call.

Regards,

James R. Casselberry

JRC/jc
Enclosure

JAMES R. CASSELBERRY
Ground-Water Geologist

108 E. Main Street / P.O. Box 616
Boalsburg, Pennsylvania 16827
(814) 466-7128

Irvona Borough
Groundwater Exploration Report

Yield and Water Quality Characteristics of Test Well #2

Mauch Chunk/Burgoon Aquifer System
Hockenberry Run Watershed,
Clearfield Co., PA

November 2, 1992

CASSELBERRY & ASSOCIATES / GROUND-WATER GEOLOGISTS

LIST OF FIGURES, TABLES, AND APPENDIX

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BACKGROUND, SCOPE AND PURPOSE OF THE GROUNDWATER EXPLORATION PROGRAM

At the request of Neilan Engineers, consulting engineer for Irvona Borough, I have written this report to present the results of the groundwater exploration program our firm carried out for the Borough in the spring and early summer of 1992. This groundwater exploration program culminated in the construction and test pumping of a single well site located in the lower reaches of Hockenberry Run. In the following sections of this report, this well site is referred to as Well #2 (TW2).

In the past, the Borough has relied on an unfiltered surface water reservoir in the headwaters of Hockenberry Run as a potable water source. In 1990, our firm developed a high-yield/excellent-quality water well at the Hockenberry Run reservoir to supplement the Borough's surface water source.

The goal of the 1992 groundwater exploration program was to assess the feasibility of developing another production well to increase the volume of the Borough's groundwater supply. The work we conducted as part of the groundwater exploration project included:

1) Review and analysis of the geologic mapping to identify areas in the Borough's distribution system having the best potential for well development.

2) Location of two test well sites at the intersection of fracture-trace features.

3) Supervision of the drilling and construction of TW2.

4) Performance of an 8-hour step-drawdown pumping test, 48-hour constant-rate pumping test, and a water-level recovery test at TW2.

5) Analysis of the pumping test data to define the sustained yield potential and water quality of TW2.

In the following sections of this report, I have presented a comprehensive summary of the work we have completed as part of the exploration program. At the end of this document, I have set forth recommendations concerning the use of TW2. The information contained in this report includes all of the hydrogeologic data necessary to initiate the permitting of TW2 as a public water supply with the Pennsylvania Department of Environmental Resources (PA DER).

CHARACTERISTICS OF THE TARGET AQUIFERS SELECTED FOR EXPLORATION

The area surrounding Irvona is underlain by the relatively flat-lying, coal-bearing rocks of the Glenshaw Formation (Fm), and the Allegheny and Pottsville Groups (Gps). In general, the hillslopes and ridges are capped by the Allegheny Fm and Glenshaw Gp, and the regional valley bottoms (lower reaches of Witmer Run, Hockenberry Run, and Clearfield Creek) are underlain by the Pennsylvanian Pottsville Gp (see Figure 1).

All of the coal-bearing formations typically produce poor-quality water having elevated iron and manganese concentrations. Therefore, the coal-bearing rock strata which directly underlie the entire Irvona area have little potential for the development of high-quality groundwater supplies.

The Mauch Chunk and Burgoon Fms directly underlie the coal measures. These geologic units contain no coal seams and have completely different hydrogeologic characteristics than the overlying coal-bearing strata.

In many areas of central Pennsylvania, the Mauch Chunk and Burgoon Fms are excellent sources of high-yield/excellent-quality groundwater supplies. Therefore, we selected the Mauch Chunk/Burgoon aquifer system as our target aquifer for this project.

The Mauch Chunk/Burgoon aquifer system has the potential to produce large yields of water in locales where it has a large recharge area and lies close to the surface. In the Irvona area, the Mauch Chunk and Burgoon Fms are deeply buried. The large depth of burial of the aquifer system most likely restricts its yield potential. However, based upon records of wells we have developed in similar geologic settings, I believe sustained yields approaching 100 gallons per minute (gpm) could be developed from the Mauch Chunk/Burgoon aquifer in the Irvona area.

Due to its large depth of burial, groundwater circulation in the Mauch Chunk/Burgoon aquifer system in the Irvona area may be extremely limited. The limited circulation of groundwater may cause the aquifer to contain highly-mineralized water.

In 1990, we explored the Mauch Chunk/Burgoon aquifer at a site just downstream of the Borough's reservoir. This exploration program proved that large yields of excellent quality water could be developed from the upper portion of the Mauch Chunk/Burgoon aquifer system in the Irvona setting. The well drilled as part of our 1990 project

(Well No. 1) has a sustained yield rating of 80 gpm and currently requires no treatment other than disinfection for use as a potable water resource. However, information collected during the drilling of this well suggest that fresh water circulation is limited to the upper 100 to 150 feet of the aquifer in the Irvona setting.

LOCATION AND GEOLOGIC SETTING OF POTENTIAL TEST WELL SITES

The yield potential of the Mauch Chunk/Burgoon aquifer sequence is largest in areas where it lies close to the surface. In the area traversed by the Borough's water lines, the Mauch Chunk and Burgoon Formations (Fms) lie closest to the surface in the lower reaches of the Hockenberry Run valley. Therefore, we concentrated our search for potential well sites in this area.

In order to locate potential well sites in the lower portion of Hockenberry Run, we mapped fracture traces and lineaments on several flights of both high and low altitude aerial photographs. Based upon this mapping, we located two potential test well sites at fracture-trace intersections on the south flank of the Hockenberry Run valley, approximately 2 miles downstream of Well No. 1. These sites are separated by a small distance (105 feet). The upstream location was designated as Site 1, and the downstream location was designated as Site 2. TW2 was constructed at the Site 1 location.

Based upon the geologic mapping of the area, the top of the Mauch Chunk Fm was estimated to be overlain by 120 to 150 feet of Pottsville Gp strata. The Pottsville Gp strata typically produce extremely poor quality acidic water having elevated iron and manganese concentrations. Therefore, we anticipated casing off all of the strata overlying the Mauch Chunk Fm in order to maximize water quality.

TEST WELL CONSTRUCTION AND DEFINITION OF WATER-BEARING ZONES

Test drilling at the TW2 site was performed from August 25-27, 1992 by Eriksen Well Drilling. TW2 was constructed as a double-cased, 6-inch final diameter well meeting all PA DER design specifications for public water supply wells. The geologic log and construction details of TW2 are shown on the attached graphic log (Figure 2) and detailed written log (Table 1).

Review of the geologic log shows that 34 discrete water-bearing fracture zones were encountered at TW2. The large number of fractures at TW2 indicates a successful fracture-zone location.

The bedrock encountered to a depth of 257 feet consisted of light to dark gray siltstone and shale with tan to light gray sandstone and occasional coal and coaly horizons. This lithology is generally typical of the Pottsville Gp. The light gray to green to white sandstone bedrock encountered from 257 feet to the bottom of the well at 430 feet is similar to Mauch Chunk strata encountered in Well No. 1. The gray, green, and white sandstone encountered below the Pottsville Gp at Well No. 1 contained abundant calcareous interbeds. However, the sandstone penetrated below the Pottsville Gp at TW2 contained no calcareous material. The lack of calcareous strata at TW2 may suggest that the Pottsville Gp has eroded the entire Mauch Chunk sequence and rests unconformably on the Burgoon Fm at the TW2 location. This thesis appears to be supported by the unusually large apparent thickness of the Pottsville strata at the TW2 location.

The Pottsville Fm strata had 16 water-bearing fracture zones that produced an aggregate blown yield of greater than 500 gpm during test drilling. Due to the poor-quality acidic nature of groundwater obtained from this strata, we decided to set casing through the "Pottsville Fm" and into the top of the "Mauch Chunk Fm". Six-inch diameter casing was set to a depth of 273 feet, which is 16 feet below what we have tentatively identified as the Pottsville/Mauch Chunk Fm contact.

Eighteen water-bearing fracture zones were encountered in the Mauch Chunk/Burgoon Fm. The shallowest significant water bearing zone in the Mauch Chunk/Burgoon strata was located at a depth of 322 feet and the deepest water bearing zone was located at a depth of 426 feet.

These Mauch Chunk/Burgoon Fm water-bearing zones produced an aggregate blown yield of 180 gpm during test drilling. Though the wellbore was intensely fractured in many intervals, the borehole appeared to be stable at the conclusion of the test drilling process.

PUMPING TEST PROGRAM METHODOLOGY AND BACKGROUND CONDITIONS

The pumping test program at TW2 consisted of:

1) Performance of a day-long step-drawdown pumping test to evaluate TW2's efficiency over a wide range of pumping rates. The data from this step-drawdown pumping test was evaluated to pick a realistic pumping rate for the ensuing 48-hour, constant-rate pumping test.

2) Performance of a 48-hour, constant-rate pumping test followed by a water-level recovery test. TW2 was sampled for PA DER's "New

Source Sampling Matrix" at the conclusion of the 48-hour pumping test. Water samples were also collected after 24 hours during the 48-hour pumping test to determine if TW2's water chemistry changed with increasing duration of pumping.

3) Regular observation of the water levels in Well No. 1, and the old, shallow reservoir well. The response in Well No. 1 to pumping at TW2 was evaluated to provide an indication of communication between Well No. 1 and Well No. 2. The response in the old well was evaluated for an indication of vertical leakage from the coal measures into the Mauch Chunk/Burgoon aquifer.

All water pumped from TW2 during the pumping test activities was discharged via a pipeline into a trench lined with a series of hay bales, and into Hockenberry Run downstream of the well. A datalogger coupled to a down-the-hole electronic pressure transducer was used to measure water levels in TW2. An electronic flow meter installed downstream of a gate valve assembly was used to measure and control the flow of water from TW2 during the pumping tests. A small diameter electronic water level probe was used to measure the water levels in Well No. 1, and in the old, shallow reservoir well.

No significant amount of precipitation occurred immediately prior to or during our pumping test program. The water table conditions during the pumping test program were typical of normal late-summer conditions.

PUMPING TEST RESULTS AND ANALYSIS

Step-drawdown Pumping Test

The step-drawdown pumping test was conducted on September 10, 1992. During the step-drawdown pumping test, TW2 was pumped for three, 60-minute-long steps at pumping rates of 60, 100, and 140 gpm. The highest pumping rate available for testing (140 gpm) was essentially the maximum capacity of the well pump operating at open discharge. The well was allowed to recover between each rate change in the step-test, to within 80 percent of total drawdown in a given step.

At pumping rates of 60,100, and 140 gpm, the rate of drawdown at TW2 was slight and the well appeared to suffer no significant well loss due to turbulent flow. Therefore, based upon the step-test data, we selected a pumping rate of 120 gpm for the ensuing, 48-hour, pumping test. This 120 gpm pumping rate allowed enough "valve-play" to maintain a constant discharge as water levels declined with long-term pumping.

48-hour, Constant-rate, Pumping Test

Drawdown Data

The 48-hour pumping test was conducted from September 28-October 1, 1992. The drawdown data from this pumping test are shown as a log of time versus water level plot on the attached Figure 3. Review of this graph shows that from 20 minutes since the onset of pumping to 300 minutes, the well established a consistent 2 foot per log cycle trend of water-level decline. At 300 minutes into the test, the trend of water-level decline increased to 8 feet per log cycle. The steepening of the drawdown curve after 300 minutes of pumping indicates the existence of a barrier boundary in the portion of the aquifer tapped by TW2. Considering the geologic setting of the well, I believe this barrier boundary is due to a decrease in fracture permeability as the cone of depression spreads away from the well.

Water-Level Recovery Data

Immediately following the 48-hour drawdown test, a water-level recovery test was conducted. Water-level recovery was monitored for one day after pumping had ceased. The recovery data is presented as a log of time versus water-level plot in Figure 4. The data showed that in one day, TW2 had recovered to within 75% of its original, pre-pumping static level. A projection of the 6 feet per log cycle trend in recovery indicates that the well should be fully recovered at 2.5 days after pumping stopped, i.e. slightly longer than the duration of the 48-hour drawdown test. This projection, coupled with the slight discrepancy between the rate of drawdown (8 feet/cycle) and the rate of recovery (6 feet/cycle), may indicate that a small amount of water was "mined" from the aquifer system during pumping.

Observation Well Data

The data collected at Well No. 1 (located approximately 2 miles upstream of TW2) showed very little water level change during the course of the 48-hour pumping test. The levels at Well No. 1 fluctuated in a narrow range of 0.16 feet and showed no systematic trend of increase or decrease. Therefore, even though TW2 and Well No. 1 tap the same aquifer. They do not appear to communicate significantly. Considering their large 2 mile separation, the lack of communication is not surprising.

The old, shallow well located near the Borough reservoir taps water-bearing zones in the Allegheny Fm which were cased-off in the construction of TW1 and TW2. This shallow, old well also showed no significant amount of water-level change. The lack of response of this shallow well to pumping at TW2 suggests that there is no significant

leakage of water from the Allegheny Fm strata into the Mauch Chunk/Burgoon Fms water-bearing zones tapped by TW1 and TW2.

TW2 Water Quality

The analyses of the water samples collected during the pumping test program are shown on the attached Tables 2, 3, and 4. Review of these tables show that TW2 produces alkaline, moderately-soft water of excellent quality. Based upon samples collected at the conclusion of the pumping test, TW2 appears to produce water meeting all of the primary and secondary drinking water standards. However, the iron and manganese concentrations recorded during the testing are quite close to the maximum concentration limits set for these parameters.

To assess the stability of TW2's water chemistry, I have tabulated the key water quality parameters which we tracked during the pumping test in the table below. All values listed in the table are in mg/l.

	Iron	*Manganese*	*TDS*	*Alkalinity*	*Sodium*
Step Test	*0.27*	*0.06*	*132*	*150*	*32.1*
24 hours	*0.33*	*0.06*	*180*	*160*	*34.8*
48 hours	*0.22*	*0.05*	*181*	*100*	*33.4*

Review of the water sample data above shows that the chemistry of the water produced by the well was stable during the pumping test. This suggests that the chemical characteristics of TW2 will not change dramatically with long-term use.

Based upon the water sampling performed at TW2, this supply requires no treatment other than disinfection for use as a potable water supply. However, I recommend that the Borough consider using a sequestering agent to control the slightly elevated iron and manganese concentrations at the well.

Sustained Yield Rating of TW2

Normally, a fairly accurate estimation of the sustained yield of a supply well can be made by extrapolating the trend of water-level decline developed in the latter stages of a long-term, constant-rate pumping test into time. This extrapolation allows the development of long-term projections of pumping levels caused by continuous withdrawal at a given pumping rate in an extended period of no

recharge (simulated drought conditions). Usually, these projections are used to identify the maximum, sustained pumping rate which will keep the pumping level in the well safely above the elevation of the well's major water-bearing zones during severe drought conditions.

This method of analysis by projection of a drawdown trend from a semi-log plot (Jacob Straight-line Method) assumes that the recharge area "feeding" the well is large enough to sustain the continuous withdrawal rate and that the trend developed at the end of the test is representative of long-term aquifer performance. For my analysis I use a 1.9-year (sixth log cycle), zero recharge, pumping level projection as a benchmark for acceptability. If the 1.9-year pumping level is above the well's drawdown limit, I believe a sustained yield rating as large as the testing rate is justified. The use of this 1.9-year pumping level projection as a benchmark for acceptability is based upon my belief that the effect of 1.9 years of continuous pumping in a period of no recharge is large enough to emulate a severe drought event (or cumulative effects of several drought cycles) in central Pennsylvania.

The following drawdown projections have been developed for 120 gpm continuous pumping at TW2 by extrapolation of the 8 foot per cycle trend of water level decline established during the long-term pumping test:

Pumping Levels Resulting from Continuous 120 gpm Pumping in a Period of Zero Recharge

Time	*Pumping Level*
6.9 days	*74 feet*
69 days	*82 feet*
1.9 years	*90 feet*

Based upon my analysis of the geologic log, TW2's upper-most, major, water-bearing zone lies at a depth of 322 feet. The 1.9 year, 120 gpm pumping level projection of 90 feet is 234 feet above the elevation of TW2's upper-most, major, water-bearing zone. Therefore, extrapolation of the drawdown data suggest that TW2 should easily be capable of supporting a continuous 120 gpm withdrawal.

It is possible that the performance of TW2 could worsen radically if the pumping level is drawn down below the level of the confining bed for the well's major water-bearing zone. Based upon the geologic log of the well, the most conservative placement of the confining bed for TW2's major water-bearing zones would be at a depth of 152 feet.

The 120 gpm pumping level projection of 88 feet is comfortably higher than the shallowest possible position of the confining bed at TW2. Therefore, even adopting a worst-case viewpoint, the pumping test data still support a sustained yield rating in excess of the 120 gpm testing rate.

POTENTIAL FOR SURFACE WATER INFLUENCE AT TW2

PA DER recently enacted a new program titled "Surface Water Identification Protocol" (SWIP). The goal of this program is to identify any "groundwater sources" that are unduly influenced by surface water. Well or spring sources that show large fluctuations in water chemistry related to surface water events will be classified as "groundwater under the influence of surface water". Water sources classified as "surface water influenced" will require treatment via filtration.

Based upon PA DER's current evaluation criteria, TW2 is not a candidate for inclusion in the SWIP program (see PA DER Appendix B form attached as Appendix 1). The deep confined nature of the aquifer tapped by TW2 give this well a minimal chance of being directly influenced by surface water.

SUMMARY AND RECOMMENDATIONS FOR WELL FIELD DEVELOPMENT

1) Based upon the results of our pumping test program, TW2 appears to be capable of producing a sustained yield at least as large as the September 1992 testing rate of 120 gpm. Therefore, if pumped continuously at 120 gpm, this well could sustain a withdrawal of 172,800 gpd.

2) The 120 gpm drawdown projections from our September 1992 pumping test are extremely favorable and suggest that the sustained yield of TW2 could be significantly larger than 120 gpm. Unfortunately, testing the aquifer at a rate higher than 120 gpm would require construction of an 8-inch diameter well.

3) The water quality of TW2 is excellent. Based upon the results of the samples collected during our pumping test program, this well should require no treatment other than disinfection and sequestering for use as a potable water supply.

4) If TW2 is developed as a 120 gpm supply well, it should be equipped with a submersible pumping system capable of producing 120 gpm from a pumping level of 160 feet. The pump intake should be set at a depth of 200 feet.

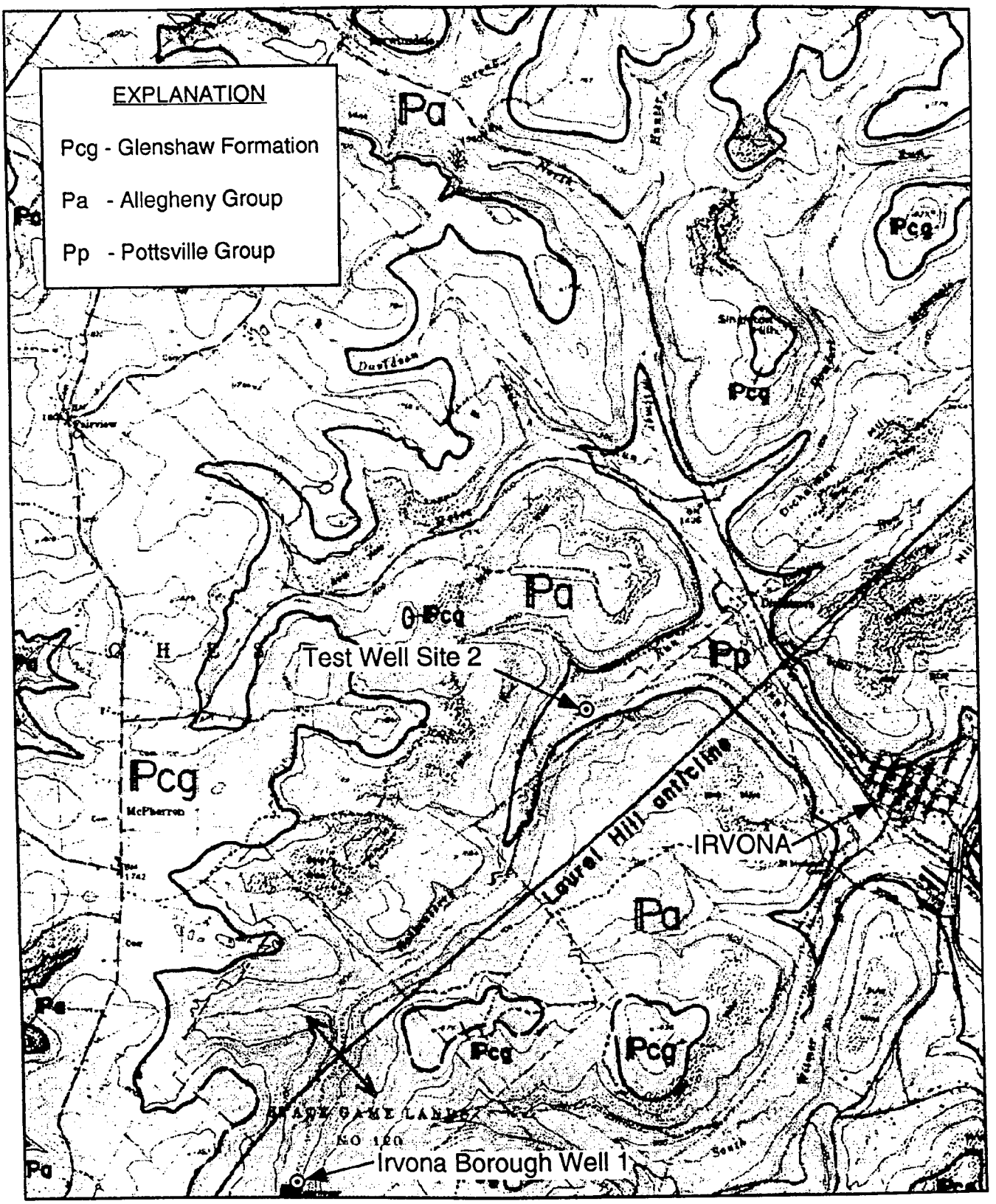
5) Based upon our analysis of the drilling and testing data, it appears that Well No. 1 and TW2 could be developed into a well field having a sustained yield potential far in excess of the Borough's 120,000 gallons per day (gpd) demand. If TW2 and Well No. 1 are pumped simultaneously at their full sustained yield ratings, they would produce approximately 290,000 gpd. Therefore, the development of these two wells could potentially allow the Borough to abandon their unfiltered surface water supply.

6) The Mauch Chunk/Burgoon aquifer has no long-term production record in the deeply-buried, southwestern Clearfield County setting. Therefore, I urge the Borough to put these wells into production so that their apparent high yield and excellent water quality can be substantiated. Accurate data collection for a full-year period should allow a final determination of the aquifer's yield and water-quality characteristics. This data collection should include:

- daily flow
- daily pumping level
- monthly water samples analyzed for pH, total dissolved solids, iron, manganese, alkalinity, sodium, chloride, and barium.

7) The geologic conditions in the lower Hockenberry Run valley appear to be quite favorable for the development of additional high-capacity wells. Therefore, this area may present an opportunity for the development of a large regional water supply source.

Figure 1 - Geologic Map Showing the Location of Irvona Borough Well No. 1 and Test Well No. 2



Base Map Adapted From Glover, 1977

Scale: 1" = 3000'

N

Casselberry & Assoc./Ground-Water Geologists
108 East Main Street, P.O. Box 616
Boalsburg, PA 16827 814-466-7128

Figure 2 - Irvona Municipal Authority Test Well #2
Geologic Log and Construction Details

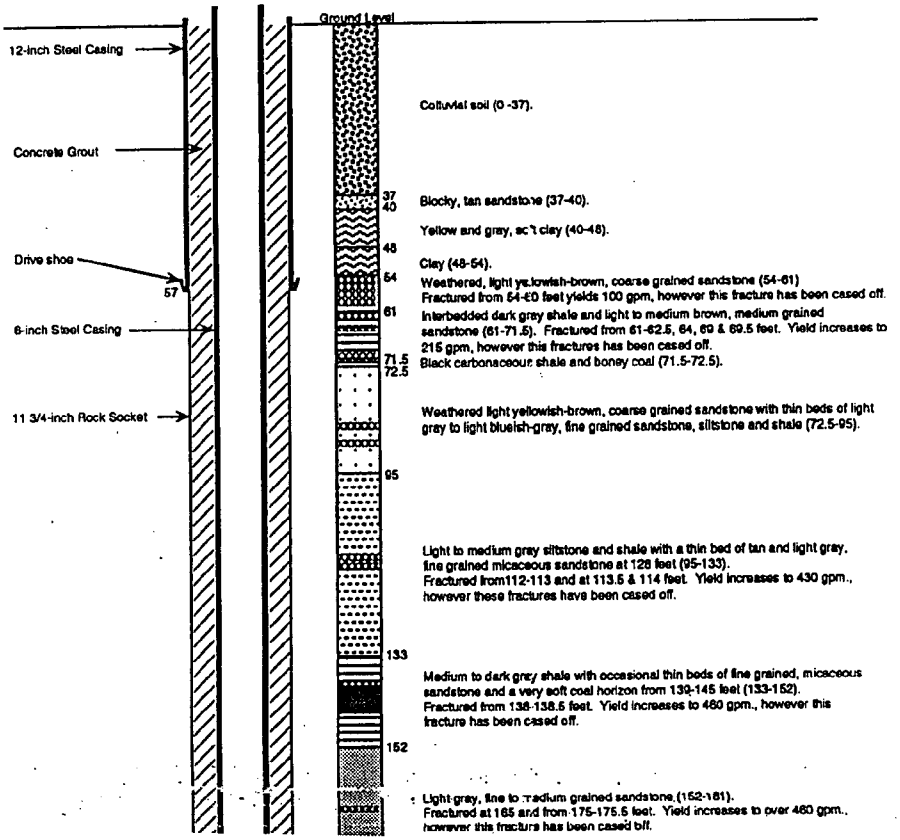


Figure 3 - Irvona Borough Municipal Authority TW # 2, September 28-30, 1992, 48 hour, 120 gpm Pumping Test
Log of Time Versus Water Level Plot

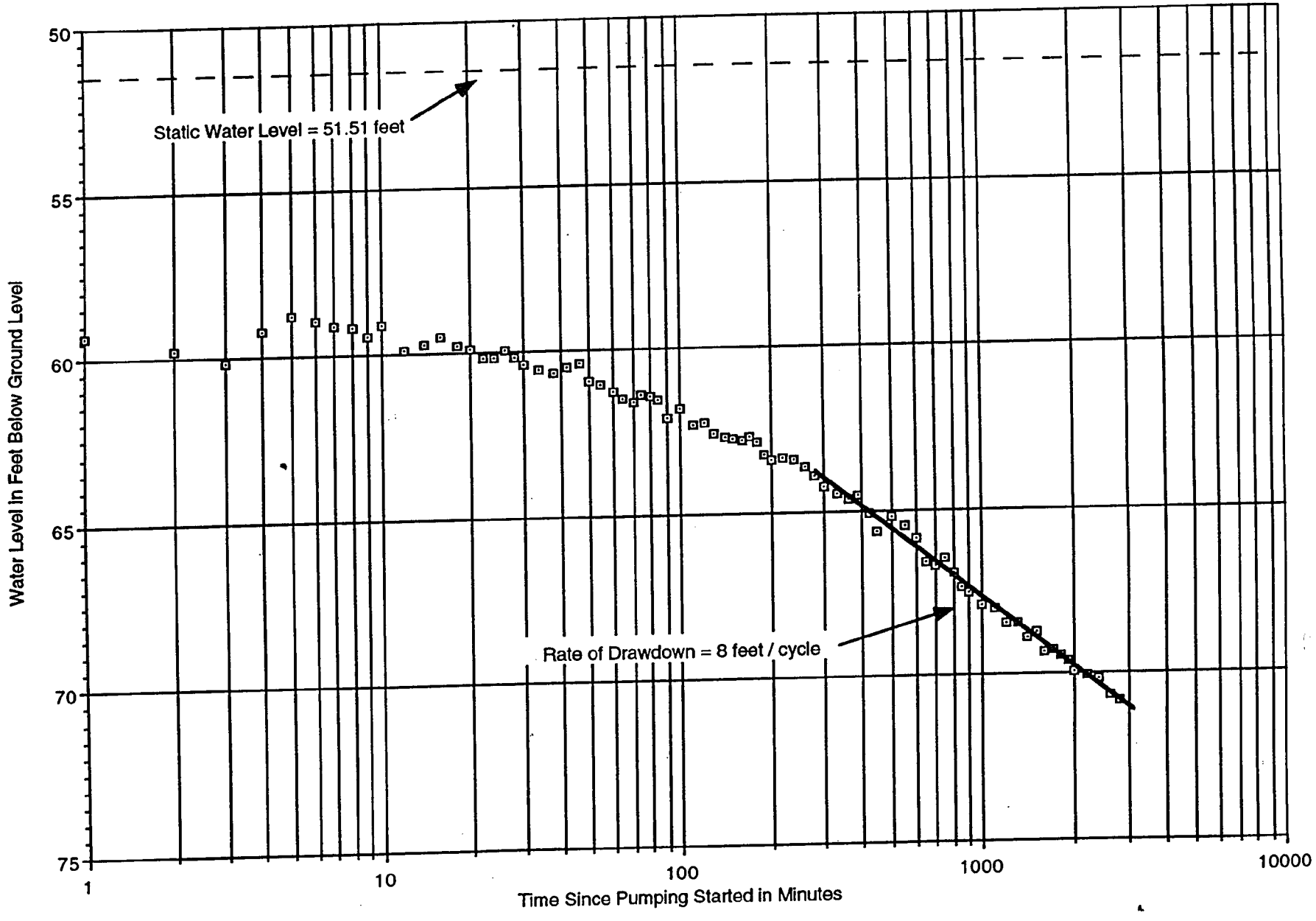


Figure 4 - Irvona Borough Municipal Authority TW #2, September 30 - October 1, 1992
24 hour Water Level Recovery Test
Log of Time Versus Water Level Plot

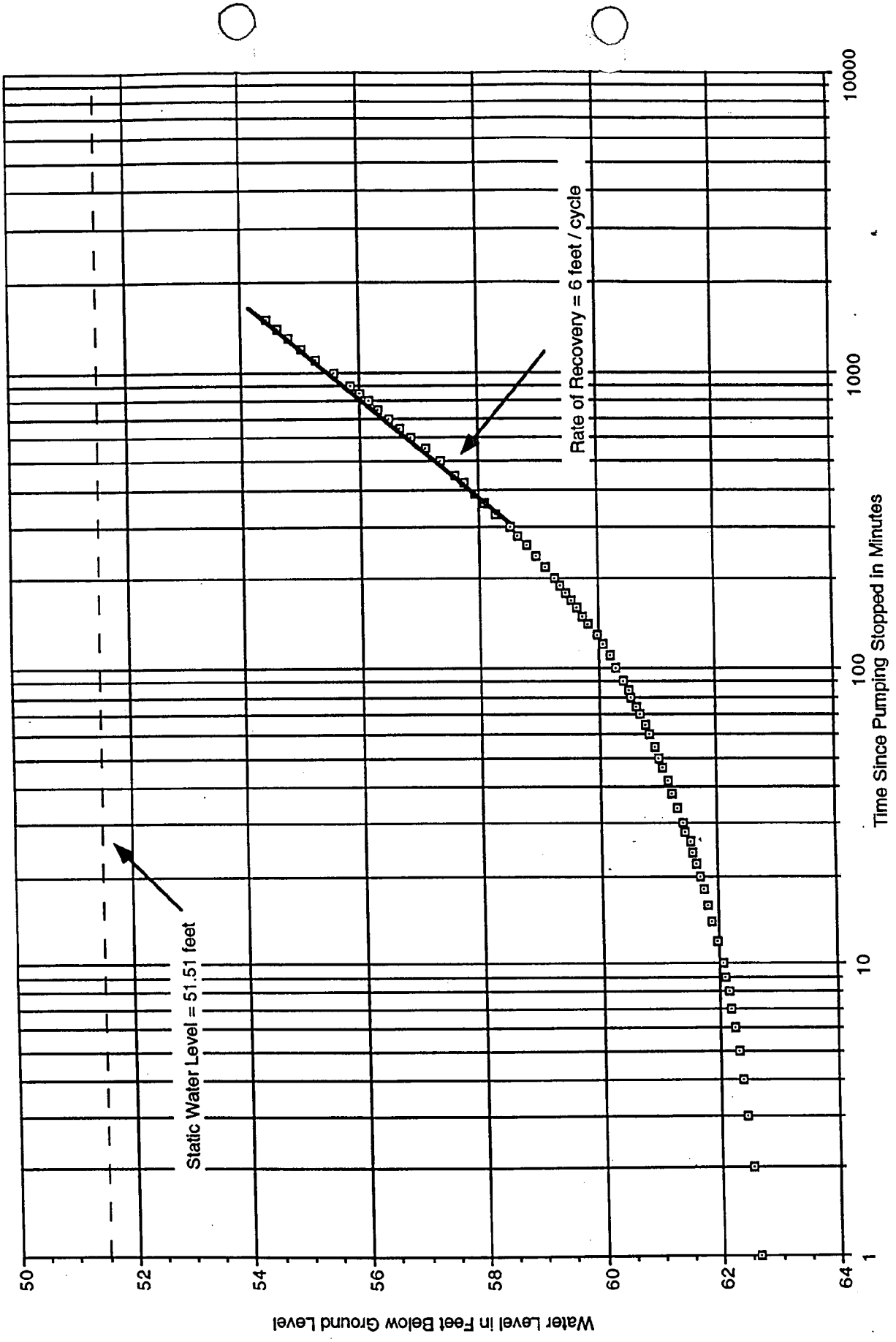


Table 1 - Irvona Municipal Authority
Geologic Log of Test Well #2

Drilled August 27, 1992

Interval (feet below ground surface)	Lithologic Description
0-37	Colluvial soil.
37-40	Blocky, tan sandstone.
40-48	Yellow and gray, soft clay.
48-54	Clay.
54-61	Weathered, light yellowish-brown, coarse grained sandstone, and light gray to light blueish-gray, fine grained sandstone, siltstone, and shale. 12-inch casing set at 57 feet. Fractured from 54-60 feet yields 100 gpm, however this fracture has been cased off.
61-70.5	Interbeddded dark gray shale and light to medium brown and yellowish-brown, medium grained sandstone. Fractured zone from 61-62.5, and at 64, 69 and 69.5 feet. Yield increases to 215 gpm, however these fractures have been cased off.
70.5-72.5	Black carbonaceous shale and "boney coal". Lost some return in coal horizon.
72.5-95	Weathered light yellowish-brown, coarse grained sandstone, with thin beds of light gray to light blueish-gray, fine grained sandstone, siltstone, and shale. Fractured zones from 84 and 88-89 feet with no increases in yield.
95-133	Light to medium gray siltstone and shale with a thin bed of tan and light gray, fine grained, micaceous sandstone at 128 feet.

	Fractured from 112-113, 113.5, and 114 feet. Yield increases to 430 gpm, however these fractures have been cased off.
133-152	Medium to dark gray shale with occasional thin beds of fine grained micaceous sandstone and a very soft, coal horizon from 139-145 feet.
	Fractured from 138-138.5 feet. Yield increases to 460 gpm, however these fractures have been cased off.
152-181	Light gray, fine to medium grained sandstone.
	Fractured from 165, and 175-175.5 feet. Yields increases to over 460 gpm, however these fractures have been cased off.
181-198	Dark gray to black shale and some weathered light yellowish-brown, fine grained sandstone and a coal horizon from 190-192 feet.
	Fractured at 185 and 188 feet, but with no increase in yield, however these fractures have been cased off.
198-210	Light to medium gray, fine grained sandstone and siltstone.
210-221	Dark gray to black carbonaceous shale with a soft, coal horizon from 210-213 feet.
221-257	Light gray, medium grained sandstone having a salt and pepper appearance with black carbonaceous shale interbeds from 235-240 feet.
257-307	Light gray to white, medium to coarse grained sandstone. 6-inch casing set at 273 feet.
	Fractured at 281, 287, 297, and 300-301 feet yields 3 gpm.
307-325	Light gray to green to olive and white, medium to coarse grained micaceous sandstone.
	Fractured at 318-319, and 321.5-322 feet. Yield increases to 76 gpm.
325-335	White, coarse grained, micaceous sandstone.

335-348	Light gray to green to olive and white, medium to coarse grained micaceous sandstone. Fractured at 337 and 342 feet. Yield increases to 92 gpm.
348-354	Light green to olive, fine grained, micaceous sandstone.
354-369	Light gray to green to olive, medium to coarse grained, micaceous sandstone having a salt and pepper appearance. Fractured at 363 feet, but with no increase in yield.
369-375	White and light gray to green to olive, medium to coarse grained, micaceous sandstone having a salt and pepper appearance.
375-401	Light gray to green to olive, medium to coarse grained, micaceous sandstone having a salt and pepper appearance. Fractured at 388 feet and 398-399 feet. Yield increases to 128 gpm.
401-415	Olive to light gray to green and white, medium to coarse grained, micaceous sandstone. Fractured at 408.5 feet and 415 feet, but with no increases in yield.
415-420	White, coarse-grained, slightly micaceous sandstone with light green to olive siltstone.
420-425	Light green to olive siltstone with white, coarse grained, slightly micaceous sandstone. Fractured at 421.5 feet. Yield increases to 150 gpm.
425-430	Light green, medium grained, slightly micaceous sandstone with occasional light green to olive siltstone interbeds. Fractured at 426.5 feet. Yield increases to 180 gpm. Well was completed at a depth of 430 feet with a total blown yield of 180 gpm.

TABLE 2

Analysis of Water Samples Collected at the End of the TW2 Step-drawdown Pumping Test

Centre Analytical Laboratories, Inc.
3048 Research Drive
State College, PA 16801
Phone: (814) 231-8032
Facsimile: (814) 231-1253

ANALYSIS REPORT

Client: Casselberry & Associates
108 E. Main Street
Boalsburg, PA 16827

RECEIVED: 09/10/92
REPORTED: 09/17/92

Contact: J. Casselberry

Sample Matrix: Water

Sample No.: TW1

Lab Id No.: 929991

PARAMETER	RESULT	DETECTION LIMIT	METHOD
Chloride	12.4 mg/L	0.5 mg/L	EPA 300
Iron	0.27 mg/L	0.03 mg/L	EPA 200.7
Sodium	32.1 mg/L	0.7 mg/L	EPA 200.7
pH	8.04	N/A	EPA 9045
Total Dissolved Solids	132 mg/L	1.0 mg/L	SM 209B
Alkalinity	150 mg/L	1.0 mg/L	EPA 310.3
Manganese	0.06 mg/L	0.01 mg/L	EPA 200.7
Magnesium	4.98 mg/L	0.05 mg/L	EPA 200.7
Barium	0.72 mg/L	0.01 mg/L	EPA 200.7

Centre Analytical Labs, Inc.
Reviewed and Approved by:

Kevin J. Lloyd
Laboratory Supervisor

TABLE 3

Analysis of Water Samples Collected at the 24-hour Point of the TW2, 48-Hour Pumping Test

Centre Analytical Laboratories, Inc.
3048 Research Drive
State College, PA 16801
Phone: (814) 231-8032
Facsimile: (814) 231-1253

ANALYSIS REPORT

Client: Casselberry & Associates
108 E. Main Street
Boalsburg, PA 16827

RECEIVED: 09/30/92
REPORTED: 10/16/92

Contact: J. Casselberry

Sample Matrix: Water

Sample No.: IRV TW 1

Lab Id No.: 9210610

PARAMETER	RESULT		DETECTION LIMIT		METHOD
pH	7.74		N/A		EPA 9040
Manganese	0.07	mg/L	0.01	mg/L	EPA 200.7
Total Dissolved Solids	180	mg/L	1.0	mg/L	SM 209B
Sodium	34.8	mg/L	0.7	mg/L	EPA 200.7
Chloride	22	mg/L	0.5	mg/L	EPA 300.0
Iron	0.33	mg/L	0.03	mg/L	EPA 200.7
Alkalinity	160	mg/L	1.0	mg/L	EPA 310.3
Turbidity	1.20	NTU	0.1	NTU	EPA 180.1

Centre Analytical Labs, Inc.
Reviewed and Approved by:

Kevin J. Lloyd
Laboratory Supervisor

TABLE 4

Analysis of Water Samples Collected at the End of the TW2, 48-hour Pumping Test

Centre Analytical Laboratories, Inc.
3048 Research Drive
Phone: (814) 231-8032
State College, PA 16801
Facsimile: (814) 231-1253

ANALYSIS REPORT

Client: Casselberry & Associates
108 E. Main St.
PO Box 616
Boalsburg, PA 16827

RECEIVED: 09/30/92

REPORTED: 10/16/92

Contact: Jim Casselberry

Sample No.: IRV TW 1 Lab Id No.: 9210609

PARAMETER	RESULT (mg/L)	DETECTION LIMIT (mg/L)	METHOD
Arsenic	< 0.05	0.05	EPA 206.2
Barium	0.64	0.01	EPA 200.7
Cadmium	< 0.01	0.01	EPA 213.2
Chromium	< 0.005	0.005	EPA 218.2
Fluoride	< 0.4	0.4	EPA 340.2
Lead	< 0.005	0.005	EPA 239.2
Mercury	< 0.0002	0.0002	EPA 245.1
Nitrate-N	< 0.1	0.1	EPA 300.0
Selenium	< 0.005	0.005	EPA 270.2
Silver	< 0.003	0.003	EPA 272.2
Sodium	33.4	0.7	EPA 200.7
Turbidity, N.T.U.	2.40	0.00	EPA 180.1
Alkalinity,mg/L CaCO3	100	1.00	EPA 310.1
Calcium	19.0	0.06	EPA 200.7
Chloride	22.0	0.5	EPA 300.0
Color, C.U.	5.0	2.5	EPA 110.2
Copper	< 0.01	0.01	EPA 200.7
Corrosivity	- 0.6	± 0.1	SM 16-203
Foaming Agents, MBAS	< 0.01	0.01	SM 512B

Sample ID: IRV TW 1 Lab ID: 9210609

PARAMETER	RESULT (mg/L)	DETECTION LIMIT (mg/L)	METHOD
Iron	0.22	0.03	EPA 200.7
Manganese	0.05	0.01	EPA 200.7
pH	7.52	N/A	EPA 150.1
Sulfate	3.0	1.00	EPA 300.0
Total Diss. Solids	181	1.00	EPA 160.1
Zinc	0.054	0.005	EPA 200.7

D.E.R. Certification # 14-347.

Reviewed and Approved by:

Kevin J. Lloyd
Laboratory Supervisor

Centre Analytical Laboratories, Inc.
3048 Research Drive
Phone: (814) 231-8032
State College, PA 16801
Facsimile: (814) 231-1253

ANALYSIS REPORT

Client: Casselberry & Associates
108 E. Main St.
PO Box 616
Boalsburg, PA 16827

RECEIVED: 09/30/92
REPORTED: 10/16/92

Contact: Jim Casselberry

Sample No.: IRV TW 1 Lab Id No.: 9210609

TOTAL COLIFORM BACTERIA

Date-Time Sampled	Result
09/30/92 - 1045	< 1 colonies/100 ml
09/30/92 - 1100	< 1 colonies/100 ml
09/30/92 - 1115	< 1 colonies/100 ml

PA D.E.R. Certification # 14-347
Method: membrane filter

Reviewed and Approved by:

Kevin J. Lloyd
Laboratory Supervisor

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3048 Research Drive
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ANALYSIS REPORT

Client: Casselberry & Associates
108 E. Main St.
PO Box 616
Boalsburg, PA 16827

RECIEVED: 09/30/92

REPORTED: 10/16/92

Contact: Jim Casselberry

Sample No.: IRV TW 1 Lab Id No.: 9210609

CAS NO.	Compound	Detection Limit (ug/L)	Result (ug/L)
108-86-1	Bromobenzene	0.5	< 0.5
75-27-4	Bromodichloromethane	0.5	< 0.5
75-25-2	Bromoform	0.5	< 0.5
74-83-9	Bromomethane	0.5	< 0.5
108-90-7	Chlorobenzene	0.5	< 0.5
124-48-1	Chlorodibromomethane	0.5	< 0.5
75-00-3	Chloroethane	0.5	< 0.5
67-66-3	Chloroform	0.5	< 0.5
74-87-35	Chloromethane	0.5	< 0.5
95-49-8	o-Chlorotoluene	0.5	< 0.5
106-43-4	p-Chlorotoluene	0.5	< 0.5
74-95-3	Dibromomethane	0.5	< 0.5
541-73-1	m-Dichlorobenzene	0.5	< 0.5
95-50-1	o-Dichlorobenzene	0.5	< 0.5
156-59-2	cis-1,2-Dichloroethylene	0.5	< 0.5
156-60-5	trans-1,2-Dichloroethylene	0.5	< 0.5
75-09-2	Dichloromethane	0.5	< 0.5
75-34-3	1,1-Dichloroethane	0.5	< 0.5

Sample No.: IRV TW 1 Lab ID No.: 9210609

CAS No.	Compound	Detection Limit (ug/L)	Result (ug/L)
563-58-6	1,1-Dichloropropene	0.5	< 0.5
10061-02-6	1,3-Dichloropropene	0.5	< 0.5
78-87-5	1,2-Dichloropropane	0.5	< 0.5
142-28-9	1,3-Dichloropropane	0.5	< 0.5
594-20-7	2,2-Dichloropropane	0.5	< 0.5
100-41-4	Ethylbenzene	0.5	< 0.5
100-42-5	Styrene	0.5	< 0.5
79-00-5	1,1,2-Trichloroethane	0.5	< 0.5
630-20-6	1,1,1,2-Tetrachloroethane	0.5	< 0.5
79-34-5	1,1,2,2-Tetrachloroethane	0.5	< 0.5
127-18-4	Tetrachloroethylene	0.5	< 0.5
96-18-4	1,2,3-Trichloropropane	0.5	< 0.5
108-88-3	Toluene	0.5	< 0.5
108-38-3	m-Xylene	0.5	< 0.5
95-47-6	o-Xylene	0.5	< 0.5
106-42-3	p-Xylene	0.5	< 0.5

Method = EPA Methods 502.2: Unregulated VOCs.

D.E.R. Certification # 14-347.

Reviewed and Approved by:

Kevin J. Lloyd
Laboratory Supervisor

Centre Analytical Laboratories, Inc.
3048 Research Drive
Phone: (814) 231-8032
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Facsimile: (814) 231-1253

ANALYSIS REPORT

Client: Casselberry & Associates
108 E. Main St.
PO Box 616
Boalsburg, PA 16827

RECEIVED: 09/30/92
REPORTED: 10/16/92

Contact: Jim Casselberry

Sample No.: IRV TW 1 Lab Id No.: 9210609

CAS NO.	Compound	Detection Limit (ug/L)	Result (ug/L)
71-43-2	Benzene	0.5	< 0.5
56-23-5	Carbon Tetrachloride	0.5	< 0.5
106-46-7	para-Dichlorobenzene	0.5	< 0.5
107-06-2	1,2-Dichloroethane	0.5	< 0.5
75-34-3	1,1-Dichloroethylene	0.5	< 0.5
71-55-6	1,1,1-Trichlroethane	0.5	< 0.5
79-01-6	Trichloroethylene	0.5	< 0.5
75-01-4	Vinyl Chloride	0.5	< 0.5

Method = EPA Method 502.2: Regulated VOCs.

D.E.R. Certification # 14-347.

Reviewed and Approved by:

Kevin J. Lloyd
Laboratory Supervisor

page 1 of 1

Centre Analytical Laboratories, Inc.
3048 Research Drive
Phone: (814) 231-8032
State College, PA 16801
Facsimile: (814) 231-1253

ANALYSIS REPORT

Client: Casselberry & Associates
108 E. Main St.
PO Box 616
Boalsburg, PA 16827

RECEIVED: 09/30/92
REPORTED: 10/16/92

Contact: Jim Casselberry

Sample No.: IRV TW 1 Lab Id No.: 9210609

CAS NO.	Compound	Detection Limit (ug/L)	Result (ug/L)
94-75-7	2,4-D	10	< 10
93-72-1	2,4,5-TP (Silvex)	1	< 1
58-89-9	gamma-BHC (Lindane)	1	< 1
72-20-8	Endrin	0.2	< 0.2
72-43-5	Methoxychlor	1	< 1
8001-35-2	Toxaphene	5	< 5

D.E.R. Certification # 14-347.

Methods = EPA Method 508.

"Methods for Organochlorine Pesticides and Chlorophenoxy Acid Herbicides in Drinking Water and Raw Source Water." EPA 600/4-81-053.

Reviewed and Approved by:

Kevin J. Lloyd
Laboratory Supervisor

page 1 of 1

Centre Analytical Laboratories, Inc.
3048 Research Drive
Phone: (814) 231-8032
ate College, PA 16801
simile: (814) 231-1253

ANALYSIS REPORT

Client: Casselberry & Associates
108 E. Main St.
PO Box 616
Boalsburg, PA 16827

RECEIVED: 09/30/92

REPORTED: 10/16/92

Contact: Jim Casselberry

Sample No.: IRV TW 1 Lab Id No.: 9210609

CAS NO.	Compound	Detection Limit (ug/L)	Result (ug/L)
106-93-4	Ethylene Dibromide (EDB)	0.02	< 0.02
96-12-8	1,2-Dibromo-3-Chloropropane (DBCP)	0.02	< 0.02

Method = EPA Method 504.

D.E.R. Certification # 14-347.

Reviewed and Approved by:

Kevin J. Lloyd
Laboratory Supervisor

page 1 of 1

Centre Analytical Laboratories, Inc.
3048 Research Drive
State College, PA 16801
Phone: (814) 231-8032
Facsimile: (814) 231-1253

ANALYSIS REPORT

Client: Casselberry & Associates
108 E. Main St.
PO Box 616
Boalsburg, PA 16827

RECEIVED: 09/30/92
REPORTED: 11/02/92

Contact: Jim Casselberry

Sample No.: IRV TW1 Lab Id No.: 9210609

PARAMETER	RESULT
Gross Alpha, picocuries/L	3.5 ± 0.8
Gross Beta, picocuries/L	3.5 ± 0.7

Method = Interim Radiochemical Methodology for Drinking Water (EPA 600/4-75-008).

Reviewed and Approved by:

Kevin J. Lloyd
Laboratory Supervisor

Centre Analytical Laboratories, Inc.
3048 Research Drive
Phone: (814) 231-8032
ite College, PA 16801
Facsimile: (814) 231-1253

ANALYSIS REPORT

Client: Casselberry & Associates
108 E. Main St.
PO Box 616
Boalsburg, PA 16827

RECEIVED: 09/30/92
REPORTED: 11/02/92

Contact: Jim Casselberry

Sample No.: IRV TW1 Lab Id No.: 9210609

PARAMETER	RESULT (picocuries per liter)
Radon-222, dissolved	250 ± 25

Method = Syringe Method.

Reviewed and Approved by:

Kevin J. Lloyd
Laboratory Supervisor

APPENDIX 1

Surface Water Identification Protocol for Community Water System Permits Groundwater Source Applicability Form Appendix B

BCEC:rev. 8/91

Appendix B

SURFACE WATER IDENTIFICATION PROTOCOL FOR COMMUNITY WATER SYSTEM PERMITS -- GROUNDWATER SOURCE APPLICABILITY --

Chapter 109.1 of the Departments Rules and Regulations defines surface water as including groundwater under the direct influence of surface water. The following checklist is to be used to determine the applicability of the groundwater source to further evaluation for the potential of being under the direct influence of surface water. The completed checklist must be submitted with a permit application for a groundwater source with a discussion of the vulnerability of the source to the direct influence of surface water. Upon a full review of the permit information, The department may require, at its' discretion, evaluation of any ground water source for the direct influence of surface water.

IS SOURCE A ....

[ ] YES [✓] NO Spring ?
If YES, the source must be monitored before the application is submitted.
see MONITORING ---------->

] YES [✓] NO Infiltration Gallery, Ranney Well, Crib Intake ?
If free flowing, the source must be monitored before the application is submitted.
see MONITORING ---------->
If non-flowing, the source must be sampled for microscopic particulate analysis during new source sampling.
see PERMITTING ---------->

FOR A WELL:

IS THE WELL LOCATED....

] YES [✓] NO < or = 200 feet from a surface water body ?

YES [✓] NO in a c onate aquifer with static water elevation < or =) feet below ground level ?

[ ] YES [✓] NO in a unconfined aquifer with static water elevation < or = 50 feet below ground level ?

[ ] YES [✓] NO in a confined aquifer which is located < or = 50 feet below ground level ?

If the answer to any of the above questions on wells is YES, the source must be sampled for microscopic particulate analysis during new source sampling.
see PERMITTING ---------->

If the answer to all of the above questions on wells is NO, further evaluation is normally not necessary.

IRVONA MUNICIPAL AUTHORITY
Irvona Municipal Building
Berwind Street
Irvona, Pennsylvania 16656

CONTRACT DOCUMENTS
FOR
CONTRACT 89-01 - WATER WELL DEVELOPMENT
CONTRACT 89-02 - ACCESS ROAD IMPROVEMENTS AND WATERLINE REPLACEMENT

November 1989

Prepared by:

NEILAN ENGINEERS DIVISION
The EADS Group
1065 Tayman Avenue
Somerset, Pennsylvania 15501

IRVONA MUNICIPAL AUTHORITY
CONTRACT 89-01 - WATER WELL DEVELOPMENT
CONTRACT 89-02 - ACCESS ROAD IMPROVEMENTS AND WATERLINE REPLACEMENT

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IRVONA MUNICIPAL AUTHORITY
CONTRACT 89-01 - WATER WELL DEVELOPMENT
CONTRACT 89-02 - ACCESS ROAD IMPROVEMENTS AND
WATERLINE REPLACEMENT

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INVITATION FOR BIDS

The Irvona Municipal Authority will receive bids for Contract No. 89-01 and Contract 89-02 until 7:00 P.M., Standard Time on the 18th day of December, 1989 at the Borough Building, Berwind Street, Irvona, PA 16656, at which time and place, all bids will be publicly opened and read aloud.

Bids are invited upon the following:

Contract 89-01 - Water Well Development - consisting of but not limited to mobilization, drilling, casing, grouting, demobilization, pump installation, pump testing and electrical required to provide an operational water well as shown on Contract Documents.

Contract 89-02 - Access Road Improvements and Waterline Replacement- consisting of approximately 450 LF of 6" waterline installation, 380 LF of 2" waterline installation, fittings, valves and appurtenances. Also included is approximately 6,000 LF of access road improvements consisting of drainage, grading and gravel placement.

Copies of the Contract Documents may be obtained at the Authority Office and at the Office of the Neilan Engineers Division, The EADS Group, 1065 Tayman Avenue, P.O. Box 837, Somerset, PA 15501-0837, upon deposit of Twenty-Five Dollars ($25.00), which price includes 6% Pennsylvania Sales Tax for each set. NO REFUND WILL BE MADE. Contract Documents are on file both at the office of The Neilan Engineers Division and the office of the Owner for viewing by interested bidders during normal business hours.

A certified check or bank draft, payable to the Owner, or negotiable U.S. Government Bonds (at par value), or a satisfactory Bid Bond executed by the Bidder and an acceptable surety, in an amount equal to ten percent (10%) of the total of the Bid shall be submitted with each bid.

Attention is called to the fact that not less than the minimum salaries and wages as set forth in the Contract Documents must be paid on this project; that the Contractor must ensure that employees and applicants for employment are not discriminated against because of their race, age, color, religion, sex, national origin, or handicap; that a mandatory ratio of apprentices and trainees to journeymen is required in each craft and the Contractor (and any subcontractors) is obliged to make a "diligent effort" to achieve these ratios; and that to the greatest extent feasible, opportunities for training and employment be given lower income of the project area and must to the greatest extent feasible utilize project area businesses located in or owned in substantial part by project area residents.

In addition to the Equal Employment requirements of Executive Order 11246, the Contractor must also establish a 6.9% goal for female participation and a 3% goal for minority participation in his aggregate on-site construction work force, for contracts in excess of, $10,000 whether or not part of that work force is performing work on a federal or federally assisted construction contract or subcontract.

The Contractor, in accordance with Executive Orders 11625 and 12138, must utilize to the greatest extent feasible minority and/or women owned business concerns which are located within the municipality, county, or the general trade area.

The Owner reserves the right to reject any or all bids or to waive any informalities in the bidding.

Bids may be held by the Owner for a period not to exceed 60 days from the date of opening bids for the purpose of reviewing the bids and investigating the qualifications of bidders, prior to awarding the contract.

IRVONA MUNICIPAL AUTHORITY

Donna Morrison, Secretary-Treasurer

INSTRUCTIONS TO BIDDERS

1. USE OF SEPARATE BID FORMS

These Contract Documents include a complete set of bidding and Contract forms which are for the convenience of Bidders and are not to be detached from the Contract Documents, filled out, or executed. Separate copies of Bid Forms are furnished for that purpose.

2. INTERPRETATIONS OF ADDENDA

No oral interpretation will be made to any Bidder as to the meaning of the Contract Documents or any part thereof. Every request for such an interpretation shall be made in writing to the Local Public Agency. Any inquiry received seven (7) or more days prior to the date fixed for opening of Bids will be given consideration. Every interpretation made to a Bidder will be in the form of an Addendum to the Contract Documents, and when issued, will be on file in the office of the Local Public Agency and the office of the Engineer at least five (5) days before Bids are opened. In addition, all Addenda will be mailed to each person holding Contract Documents, but it shall be the Bidder's responsibility to make inquiry as to the Addenda issued. All such Addenda shall become part of the Contract and all Bidders shall be bound by such Addenda, whether or not received by the Bidders.

3. INSPECTION OF SITE

Each Bidder should visit the site of the proposed work and fully acquaint himself with the existing conditions there relating to construction and labor, and should fully inform himself as to the facilities involved, the difficulties and restrictions attending the performance of the Contract. The Bidder should thoroughly examine and familiarize himself with the Drawings, Technical Specifications, and all other Contract Documents. The Contractor by the execution of the Contract shall in no way be relieved of any obligation under it due to his failure to receive or examine any form or legal instrument or to visit the site and acquaint himself with the conditions there existing and the Local Public Agency will be justified in rejecting any claim based on facts regarding which he should have been on notice as a result thereof.

4. ALTERNATIVE BIDS

No alternative bids will be considered unless alternative bids are specifically requested.

5. BIDS

a. All Bids must be submitted on forms supplied by the Local Public Agency and shall be subject to all requirements of the Contract Documents, including the Drawings, and these INSTRUCTIONS TO BIDDERS. All Bids must be regular in every respect and no interlineations, excisions or special conditions shall be made or included in the Bid Form by the Bidder.

b. Bid Documents including the Bid, the Bid Guaranty, the Non-Collusion Affidavit and the Statement of Bidder's Qualifications (if requested) shall be enclosed in envelopes (outer and inner), both of which shall be sealed and clearly labeled with the words BIDS FOR IRVONA MUNICIPAL AUTHORITY, CONTRACT NUMBER, name of Bidder, and date and time of bid opening in order to guard against premature opening of the bid.

c. The Local Public Agency may consider irregular any Bid on which there is an alteration of or departure from the Bid Form hereto attached and at its option may reject the same.

d. If the Contract is awarded, it will be awarded by the Local Public Agency to a responsible Bidder on the basis of the lowest Bid and the selected Alternative Bid items, if any. The Contract will require the completion of the work according to the Contract Documents.

e. Each Bidder shall include in his Bid the following information:

Principals

Names
Social Security Numbers
Home addresses, including City, State and Zip Code

Firm

Name
Treasury Number
Address
City, State and Zip Code

6. BID GUARANTY

a. The bid must be accompanied by a Bid Guaranty which shall not be less than ten percent (10%) of the amount of the Bid. At the option of the Bidder, the guaranty may be a certified check, bank draft, negotiable U.S. Government Bonds (at par value), or a Bid Bond in the form attached. The Bid Bond shall be secured by a guaranty or a surety company listed in the latest issue of U.S. Treasury Circular 570. The amount of such Bid Bond shall be within the maximum amount specified for such Company in said Circular 570. No Bid will be considered unless it is accompanied by the required guaranty. Certified Check or Bank Draft must be payable to the Owner. Cash deposits will not be accepted. The Bid Guaranty shall insure the execution of the Agreement and the furnishing of the Surety Bond or Bonds by the successful Bidder, all as required by the Contract Documents.

b. Revised Bids submitted before the opening of Bids, whether forwarded by mail or telegram, if representing an increase in excess of two percent (2%) of the original Bid, must have the Bid Guaranty adjusted accordingly; otherwise the Bid will not be considered.

c. Certified Checks or Bank Drafts, or the amount thereof, Bid Bonds, and negotiable U.S. Government Bonds of unsuccessful Bidders will be returned

as soon as practical after the opening of the Bids.

7. COLLUSIVE AGREEMENTS

a. Each Bidder submitting a Bid to the Local Public Agency for any portion of the work contemplated by the documents on which bidding is based shall execute and attach thereto, an affidavit substantially in the form herein provided, to the effect that he has not colluded with any other person, firm, or corporation in regard to any Bid submitted.

b. Before executing any subcontract the successful Bidder shall submit the name of any proposed subcontractor for prior approval and an affidavit substantially in the form provided in Section 103 - Subcontracts.

8. STATEMENT OF BIDDER'S QUALIFICATIONS

Each Bidder shall submit on the form furnished for that purpose (a copy of which is included in the Contract Documents), a statement of the Bidder's qualifications, his experience record in constructing the type of improvements embraced in the Site Preparation, and his organization and equipment available for the work contemplated; and, when specifically requested by the Local Public Agency, a detailed financial statement. The Local Public Agency shall have the right to take such steps as it deems necessary to determine the ability of the Bidder to perform his obligations, under the Contract and the Bidder shall furnish the Local Public Agency all such information and data for this purpose as it may request. The right is reserved to reject any Bid where an investigation of the available evidence or information does not satisfy the Local Public Agency that the Bidder is qualified to carry out properly the terms of the Contract.

9. UNIT PRICES -

The unit price for each of the several items in the proposal of each Bidder shall include its prorata share of overhead so that the sum of the products obtained by multiplying the quality shown for each item by the unit price bid represents the Total Bid. Any Bid not conforming to this requirement may be rejected as informal. The special attention of all Bidders is called to this provision, for should conditions make it necessary to revise the quantities, no limit will be fixed for such increased or decreased quantities no extra compensation allowed, provided the net monetary value of all such additive and subtractive changes in quantities of such items of work (i.e., difference in cost) shall not increase or decrease the original contract price by more than twenty-five percent (25%), except for work not covered in the Drawings and Technical Specifications as provided for in the Section 109 - Changes in the Work.

10. CORRECTIONS

Erasures or other changes in the Bids must be explained or noted over the signature of the Bidder, and initialed.

11. TIME FOR RECEIVING BIDS

a. Bids received prior to the advertised hour of opening will be securely kept, sealed. The officer whose duty it is to open them will decide when the specified time has arrived, and no Bid received thereafter will be considered, except that when a Bid arrives by mail after the time fixed for opening, but before the reading of all other Bids is completed, and it is shown to the satisfaction of the Local Public Agency that the non-arrival on time was due solely to delay in the mails for which the Bidder was not responsible, such Bid will be received and considered.

b. Bidders are cautioned that, while telegraphic modifications of Bids may be received as provided above, such modifications, if not explicit and if in any sense subject to misinterpretation, shall make the Bid so modified or amended, subject to rejection.

12. OPENING OF BIDS

At the time and place fixed for the opening of Bids, the Local Public Agency will cause to be opened and publicly read aloud every Bid received within the time set for receiving Bids, irrespective of any irregularities therein. Bidders and other persons properly interested may be present, in person or by representative.

13. WITHDRAWAL OF BIDS

Bids may be withdrawn on written or telegraphic request dispatched by the Bidder in time for delivery in the normal course of business to the time fixed for opening; provided, that written confirmation of any telegraphic withdrawal over the signature of the Bidder is placed in the mail and postmarked prior to the time set for Bid opening. The Bid guaranty of any Bidder withdrawing his Bid in accordance with the foregoing conditions will be returned promptly.

14. AWARD OF CONTRACT: REJECTION OF BIDS

a. The Contract will be awarded to the responsible Bidder submitting the lowest Bid complying with the conditions of the Invitation for Bids. The Bidder to whom the award is made will be notified at the earliest possible date. The Local Public Agency, however, reserves the right to reject any and all Bids and to waive any informality in Bids received whenever such rejection or waiver is in its interest.

b. The Local Public Agency reserves the right to consider as unqualified to do the work of general construction any Bidder who does not habitually perform with his own forces the major portions of the work involved in construction of the Improvements embraced in this Site Preparation Contract.

15. EXECUTION OF AGREEMENT: PERFORMANCE AND PAYMENT BOND

a. Subsequent to the award and within ten (10) days after the prescribed forms are presented for signature, the successful Bidder shall execute and deliver to the Local Public Agency an Agreement in the form included in the Contract Documents in such number of copies as the Local Public Agency

may require.

b. Having satisfied all conditions of award as set forth elsewhere in these documents, the successful Bidder shall, within the period specified in paragraph "a." above, furnish a surety bond in a penal sum not less than the amount of the Contract as awarded, as security for the faithful performance of the Contract, and for the payment of all persons, firms or corporations to whom the Contractor may become legally indebted for labor, materials, tools, equipment, or services of any nature including utility and transportation services, employed or used by him in performing the work. Such bond shall be in the form as that included in the Contract Documents and shall bear the same date as, or a date subsequent to that of the Agreement. The current power of attorney for the person who signs for any surety company shall be attached to such bond. This bond shall be signed by a guaranty or surety company listed in the latest issue of the U.S. Treasury Circular 570 and the penal sum shall be within the maximum specified for such company in said Circular 570.

c. The failure of the successful Bidder to execute such Agreement and to supply the required bond or bonds within ten (10) days after the prescribed forms are presented for signature, or within such extended period as the Local Public Agency may grant, based upon reasons determined sufficient by the Local Public Agency may either award the Contract to the next lowest responsible Bidder or readvertise for Bids, and may charge against the Bidder the difference between the amount of the Bid and the amount for which a Contract for the work is subsequently executed, irrespective of whether the amount thus done exceeds the amount of the Bid Bond. If a more favorable Bid is received by readvertising the defaulting Bidder shall have no claim against the Local Public Agency for a refund.

16. WAGES AND SALARIES

a. Attention of Bidders is particularly called to the requirement concerning the payment of not less than the prevailing wage and salary rates specified in the Contract Documents and the conditions of employment with respect to certain categories and classifications of employees. See General Conditions Part II .

b. The rates of pay set forth under GENERAL CONDITIONS, PART II are the minimum to be paid during the life of the Contract. It is therefore the responsibility of Bidders to inform themselves as to local labor conditions, such as the length of work day and work week, overtime compensation, health and welfare contributions, labor supply and prospective changes or adjustments of rates.

17. EQUAL EMPLOYMENT OPPORTUNITY

Attention of Bidders is particularly called to the requirement for ensuring that employees and applicants for employment are not discriminated against because of their race, sex, color, national origin, or religion.

(See General Conditions Part II .)
Each bidder must submit a completed Certification of Bidder Regarding Equal Employment Opportunity.

18. EMPLOYMENT OF LOWER INCOME RESIDENTS AND BUSINESS UTILIZATION

Attention of Bidders is particularly called to special requirements regarding employment of lower income residents of, and utilization of businesses in the locality where the work is to be done. (See General Conditions Part II .)

19. COMPLIANCE WITH FEDERAL, STATE AND LOCAL LAWS

Attention of Bidders is particularly called to the necessity of complying with all Federal, State and Local laws and regulations including but not limited to the following: Act 247-1972; Act 287-1974; Federal Occupational Safety and Health Act of 1970.

20. Time of Completion and Liquidated Damages

A. The successful bidder shall commence work under the contract on a date to be specified in a written Notice to Proceed from the Engineer or Owner, and shall complete same within time specified in the Form of Proposal. The successful bidder must agree to pay the liquidated damages in the amount stipulated in the Form of Proposal for each consecutive calendar day thereafter that the work remains incomplete and unaccepted, as provided by the General Conditions.

21. Bidder Qualifications

A. Owner may make such investigations as he deems necessary to determine the ability of the bidder to perform the work, and bidder shall furnish the Owner all such information and data for this purpose as the Owner may request. Owner reserves the right to reject any bid if the evidence submitted by, or investigation of, such bidder fails to satisfy the Owner that such bidder is properly qualified to carry out the obligations of the Agreement, and to complete the work contemplated therein.

B. A conditional or qualified bid will not be accepted. Award will be made as a whole to one bidder.

22. Certificate of Insurance

A. Successful bidder shall submit certificate or other documentary evidence to the Owner for approval covering Workmen's Compensation insurance and public liability and property damage insurance, as well as any other insurance required by the Contract Documents.

23. Limitation of Liability

A. Bidder is skilled and experienced in the use and interpretation of plans and specifications. He has carefully reviewed the plans and specifications for this project and found them free of ambiguities and sufficient for bid purposes. Further, he has carefully examined the site of the work and, from his own observations, has satisfied himself as to the nature and location of the work, the character, quality and quantity of materials, and the difficulties likely to be encountered and other items which may affect the performance of the work. He has based his bid solely on these documents and observations and has not relied in any way on any explanation or interpretation, oral or written, from any other source; therefore, bidder agrees to limit the liability of the Consulting Engineer for his professional negligence, errors or omissions, to a total aggregated liability to him of $50,000. However, Bidder in no way assumes liability for the negligence, errors, or omissions of the Consulting Engineer.

IRVONA MUNICIPAL AUTHORITY
Irvona Municipal Building
Berwind Street
Irvona, Pennsylvania 16656

FORM OF PROPOSAL

CONTRACT 89-01 - WATER WELL DEVELOPMENT

Bid Date: December 18, 1989

Time: 7:00 P.M. (Prevailing Time)

NEILAN ENGINEERS DIVISION
The EADS Group
1065 Tayman Avenue
P.O. Box 837
Somerset, Pennsylvania 15501

BID FOR SITE PREPARATION

To the Irvona Municipal Authority, Municipal Building, Berwind Street, Irvona, PA 1665

Gentlemen:

1. The undersigned, having familiarized (himself) (themselves) with the existing conditions on the project area affecting the cost of the work, and with the Contract Documents (including the Invitation for Bids, Instructions to Bidders, the form of Bid, the form of the Bid Bond, the form of Contract, the form of Non-Collusion Affidavit, the form of Surety Bond or Bonds, the General Conditions, Special Conditions, Technical Specifications, and Addenda, is any thereto, as prepared by Neilan Engineers Division 1065 Taymap Avenue, Somerset, PA 15501, and on file in the office of the Owner, Irvona Irvona, PA 16656 hereby proposes to furnish all supervision, technical personnel, labor, materials, machinery, tools, appurtenances, equipment, and services, including utility and transportation services required to construct and complete Contract 89-01 - Water Well Development all in accordance with the above listed documents for the bid price stated on the Bid Schedule.

2. In submitting this bid, the Bidder understands that the right is reserved by the Owner to reject any and all Bids. If written notice of the acceptance of this Bid is mailed, telegraphed, or delivered to the undersigned within sixty (60) days after the opening thereof, or at any time thereafter before this Bid is withdrawn, the undersigned agrees to execute and deliver an agreement in the prescribed form and furnish the required bond or bonds within ten (10) days after the Agreement is presented to him for signature.

3. Security in the sum of _____ dollars ($_____), in the form of _____, is submitted herewith in accordance with the Instructions to Bidders.

4. Attached hereto is an affidavit in proof that the undersigned has not entered into a collusive agreement with any person in respect to this Bid or any other Bid or the submitting of Bids for the Contract for which this Bid is submitted.

5. The Bidder is prepared to submit a financial and experience statement upon request.

6. The undersigned represents that he is in receipt of the following number of Addenda. (If no Addenda are issued insert the word "none" in the following space.)_____

IRVONA MUNICIPAL AUTHORITY
CONTRACT 89-01 - WATER WELL DEVELOPMENT

BID SCHEDULE

Item	Description	Quantity/ Unit	Unit Price	Total Price
1.	Mob. & Demob.	LS	_____	_____
TEST DRILLING - "MAUCH CHUNK" PRODUCTION WELL - (See Technical Specifications Section 15E)				
2.	Drill. to Set 10-Inch Casing	40 LF	_____	_____
3.	Furnish 10-Inch Drive Shoe	LS	_____	_____
4.	Fur. & Install 10-Inch Cas.	40 LF	_____	_____
5.	Drill 9-7/8" Open Hole to Set 6-Inch Permanent Casing	250 LF	_____	_____
6.	Installing 6-Inch, Permanent Casing, Equipped with Drive Shoe	290 LF	_____	_____
7.	Grout 6-Inch Casing	80 BAGS	_____	_____
8.	Drill 6-Inch Open Bedrock Hole (290 - 400 ft)	110 LF	_____	_____
9.	Development Time to Measure Yield of Water-Bearing Zones	4 HRS	_____	_____
PUMPING TEST - "MAUCH CHUNK" WELL				
10.	Furnish, Install, Wire and Remove Submersible Pump and Power Source Capable of 90 gpm at a Head of 200 Feet	LS	_____	_____
11.	Step-Drawdown and 48-Hour Constant Rate Pumping Test	54 HRS	_____	_____
12.	Well Disinfection	LS	_____	_____

IRVONA MUNICIPAL AUTHORITY
CONTRACT 89-01 - WATER WELL DEVELOPMENT

BID SCHEDULE - Continued

Item	Description	Quantity/ Unit	Unit Price	Total Price
WELL PUMP INSTALLATION				
13.	Furnish and Install Permanent 4-Inch Submersible Pump 95 gpm at 190 ft.	1 EA	_____	_____
14.	Furnish and Install 2-Inch Galvanized Delivery Pipe	250 LF	_____	_____
15.	Furnish and Install Pitless Adapter	1 EA	_____	_____
16.	Develop Production Well	2 HRS	_____	_____
17.	Furnish and Install Locking Well Cap	LS	_____	_____
18.	Furnish and Install Well Pump Electrical Control Panel, Disconnect Switch and Electrodes	LS	_____	_____
TEST DRILLING - "ALLEGHENY PRODUCTION WELL				
19.	Drilling to Set 10-Inch Cas.	40 LF	_____	_____
20.	Furnish 10-Inch Drive Shoe	LS	_____	_____
21.	Fur. and Install 10-Inch Cas.	40 LF	_____	_____
22.	Drill 9-7/8" Open Hole to Set 6-Inch Permanent Casing	5 LF	_____	_____
23.	Install 6-Inch, Permanent Cas., Equipped with Dr. Shoe	45 LF	_____	_____
24.	Drill 6-Inch Open Bedrock Hole (45 - 145 ft.)	100 LF	_____	_____
25.	Development Time to Measure Yield of Water-Bearing Zones	4 HRS	_____	_____

IRVONA MUNICIPAL AUTHORITY
CONTRACT 89-01 - WATER WELL DEVELOPMENT

BID SCHEDULE - Continued

Item	Description	Quantity/ Unit	Unit Price	Total Price
26.	Grout 6-Inch Casing	20 BAGS	_____	_____
27.	Develop Production Well	2 HRS	_____	_____
PUMPING TEST - "ALLEGHENY" WELL				
28.	Furnish, Install, Wire and Remove Submersible Pump and Power Source Capable of 100 gpm at a head of 80 feet	LS	_____	_____
29.	Step-Drawdown and 48-Hour Constant Rate Pumping Test	54 HRS	_____	_____
30.	Well Disinfection	LS	_____	_____
31.	Furnish and Install Locking Well Cap	LS	_____	_____
32.	Utility Electrical Power Service Fee, United Electrical Coop	LS	-----	$18,000
33.	Set 30 Foot Utility Pole	2 EA	_____	_____

TOTAL BID PRICE CONTRACT 89-01 $_____

SIGNATURES

When the bidder is an individual:

_____ _____(SEAL)
Witness Contractor-Individual

- - - - - - - - -

When the bidder is a partnership:

WITNESS: _____(SEAL)
Contractor-Partnership

_____ _____(SEAL)
Partner

_____ _____(SEAL)
Partner

_____ _____(SEAL)
Partner

_____ _____(SEAL)
Partner

- - - - - - - - -

When the bidder is a corporation:

(CORPORATE SEAL) _____(SEAL)
Contractor-Corporation

By _____
President

ATTEST:

_____
Secretary

The _____is a corporation organized and existing under the laws of _____ and has (has not) been granted certificate of authority to do business in Pennsylvania as required by the business corporation law, approved May 5, 1933, PL 364, as amended.

The _____is an individual or partnership trading under a fictitious or assumed name and has (has not) registered under the Fictitious Name Act of Pennsylvania; namely, the Act of May 24, 1945, Pl 967.

CERTIFICATION OF NON SEGREGATED FACILITIES

The Bidder certifies that he does not maintain or provide for his employees any segregated facilities at any of his establishemnts, and that he does not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The Bidder certifies further that he will not maintain or provide for his employees any segregated facilities at any of his establishments, and that he will not permit his employees to perform their services at any location under his control where segregated facilities are maintained. The Bidder agrees that a breach of this certification will be a violation of the Equal Opportunity clause in any contract resulting from acceptance of this bid. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, timeclocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicity directive or are in fact segregated on the basis of race, color, religion, or national origin, becuase of habit, local custom, or otherwise. The Bidder agrees that (except where he has obtained identical certification from proposed subcontractors for specific time periods) he will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity clause, and that he will retain such certifications in his files.

Note: The penalty for making false statements in offers is prescribed in 18 U.S.C. § 1001.

Date_____, 19___ _____
(Name of Bidder)

Official Address
(including ZIP CODE):

By_____

_____ _____
(Title)

_____

NONCOLLUSION AFFIDAVIT OF PRIME BIDDER

State of _____)
)
County of _____)

_____, being first duly sworn, deposes and says that:

(1) He is _____ (Owner, partner, officer, representative or agent) of _____, the Bidder that has submitted the attached Bid:

(2) He is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid;

(3) Such Bid is genuine and is not a collusive or sham Bid;

(4) Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly with any other Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted or to refrain from bidding in connection with such Contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Bidder, firm or person to fix the price or prices in the attached Bid or of any other Bidder, or to fix any overhead, profit or cost element for the Bid prices or the Bid price of any Bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the _____ or any person interested in the proposed Contract; and

(5) The price or prices quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affiant.

(Signed)_____

_____
(Title)

Subscribed and sworn to before me

this_____ day of _____, 19____

_____

_____
Title

My commission expires_____

PA DEPARTMENT OF COMMUNITY AFFAIRS
BUREAU OF HOUSING AND DEVELOPMENT
SMALL COMMUNITIES PROGRAM DIVISION

CERTIFICATION OF BIDDER REGARDING EQUAL EMPLOYMENT OPPORTUNITY

INSTRUCTIONS

This certification is required pursuant to Executive Order 11246 (30 F.R. 12319-25). The implementing rules and regulations provide that any bidder or prospective contractor, or any of their proposed subcontractors, shall state as an initial part of the bid or negotiations of the contract whether it has participated in any previous contract or subcontract subject to the equal opportunity clause; and, if so, whether it has filed all compliance reports due under applicable instructions.

Where the certification indicates that the bidder has not filed a compliance report due under applicable instructions, such bidder shall be required to submit a compliance report within seven calendar days after bid opening. No contract shall be awarded unless such report is submitted.

CERTIFICATION BY BIDDER

NAME AND ADDRESS OF BIDDER (Include ZIP Code)

1. Bidder has participated in a previous contract or subcontract subject to the Equal Opportunity Clause.

   ☐ Yes ☐ No

2. Compliance reports were required to be filed in connection with such contract or subcontract.

   ☐ Yes ☐ No

3. Bidder has filed all compliance reports due under applicable instructions, including SF-100.

   ☐ Yes ☐ No None Required ☐

4. Have you ever been or are you being considered for sanction due to violation of Executive Order 11246, as amended?

☐ Yes ☐ No

NAME AND TITLE OF SIGNER (Please type)

SIGNATURE	DATE

BID BOND

KNOWN ALL MEN BY THESE PRESENTS, that we the undersigned

(Name of Principal)

as PRINCIPAL, and (Name of Surety),

as SURETY are held and firmly bound unto

(Local Public Agency), hereinafter called the "Local Public Agency", in the penal sum of
Dollars ($)

lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severly, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the Principal has submitted the accompany bid, dated , 19 , for

.

NOW, THEREFORE, if the Principal shall not withdraw said Bid within the period specified therein after the opening of the same, or, if no period be specified, within thirty (30) days after the said opening, and shall within the period specified therefore, or if no period be specified, with ten (10) days after the prescribed forms are presented to him for signature, enter into a written Contract with the Local Public Agency in accordance with the Bid as accepted, and give bond with good and sufficient surety or sureties, as may be required, for the faithful performance and proper fulfillment of such Contract; or in the event of the withdrawal of said Bid within the period specified, or the failure to enter into such Contract and give such bond within the time specified, if the Principal shall pay the Local Public Agency may procure the required work or supplies or both, if the latter be in excess of the former, then the above obligation shall be void and of no effect, otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above-bounded parties have executed this instrument under their several seals this day of , 19 , the name and corporate seal of each corporate party being hereto affixed and these presents signed by its undersigned representative, pursuant to authority of its governing body.

INDIVIDUAL OR PARTNERSHIP PRINCIPALS

_____(SEAL)

In the presence of: _____(SEAL)

_____(SEAL)

_____ _____(SEAL)

CORPORATE PRINCIPAL

ATTEST:

_____

_____

By: _____(SEAL)

SURETY

ATTEST:

_____

_____

By: _____(SEAL)

Countersigned:

By: _____

Attorney-in-Fact,
State of _____

CERTIFICATE AS TO CORPORATE PRINCIPAL

I, _____, certify that I am the _____ of the Corporation named as Principal in the within bond; that _____, Secretary of said Corporation; that I know his signature, and who signed the said bond on behalf of the Principal was then _____, his signature thereto is genuine; and that said bond was duly signed, sealed and attested to for and in behalf of said corporation by authority of his governing body.

_____

Title: _____

(CORPORATE SEAL)

STATEMENT OF BIDDER'S QUALIFICATIONS

All questions must be answered and the date given must be clear and comprehensive. This statement must be notarized. If necessary, questions may be answered on separate attached sheets. The Bidder may submit any additional information he desires.

1. Name of Bidder.

2. Permanent main office address.

3. When organized.

4. If a corporation, where incorporated.

5. How many years have you been engaged in the contracting business under your present firm or trade name?

6. Contracts on hand: (Schedule these, showing amount of each contract and the appropriate anticipated dates of completion.)

7. General character of work performed by your company.

8. Have you ever failed to complete any work awarded to you? If so, where and why?

9. Have you ever defaulted on a contract? If so, where and why?

10. List the more important projects recently completed by your company, stating the approximate cost for each, and the month and year completed.

11. List your major equipment available for this contract.

12. Experience in construction work similar in importance to this project.

13. Background and experience of the principal members of your organization, including the officers.

14. Credit Available: $_____

15. Give bank reference: _____

16. Will you, upon request, fill out a detailed financial statement and furnish any other information that may be required by the (Local Public Agency)?

17. The undersigned hereby authorizes and requests any person, firm, or corporation to furnish any information requested by the (Local Public Agency) in verification of the recitals comprising this statement of Bidder's Qualifications.

Dated at_____ this _____ day of _____, 19_____.

(Name of Bidder) _____

By: _____

Title: _____

State of _____)
)
County of _____)

_____ being duly sworn deposes and says that he is _____ of (Name of Organization) and that the answers to the foregoing questions and all statements therein contained are true and correct.

Subscribed and sworn to before me this _____ day of _____, 19_____.

_____ Notary Public

My commission expires _____, 19_____.

IRVONA MUNICIPAL AUTHORITY
Irvona Municipal Building
Berwind Street
Irvona, Pennsylvania 16656

FORM OF PROPOSAL

CONTRACT 89-02 - ACCESS ROAD IMPROVEMENTS AND WATERLINE REPLACEMENT

Bid Date: December 18, 1989

Time: 7:00 P.M. (Prevailing Time)

NEILAN ENGINEERS DIVISION
The EADS Group
1065 Tayman Avenue
P.O. Box 837
Somerset, Pennsylvania 15501

BID FOR SITE PREPARATION

To the Irvona Municipal Authority, Municipal Building, Berwind Street, Irvona, PA 1665

Gentlemen:

1. The undersigned, having familiarized (himself) (themselves) with the existing conditions on the project area affecting the cost of the work, and with the Contract Documents (including the Invitation for Bids, Instructions to Bidders, the form of Bid, the form of the Bid Bond, the form of Contract, the form of Non-Collusion Affidavit, the form of Surety Bond or Bonds, the General Conditions, Special Conditions, Technical Specifications, and Addenda, is any thereto, as prepared by Neilan Engineers Division 1065 Tayman Avenue, and on file in the office of the Owner Somerset, PA 15501 hereby proposes to furnish all supervision, technical personnel, labor, materials, machinery, tools, appurtenances, equipment, and services, including utility and transportation services required to construct and complete Contract 89-02 - Access Road Improvements all in accordance with the above listed documents for the bid price stated on the Bid Schedule.

2. In submitting this bid, the Bidder understands that the right is reserved by the Owner to reject any and all Bids. If written notice of the acceptance of this Bid is mailed, telegraphed, or delivered to the undersigned within sixty (60) days after the opening thereof, or at any time thereafter before this Bid is withdrawn, the undersigned agrees to execute and deliver an agreement in the prescribed form and furnish the required bond or bonds within ten (10) days after the Agreement is presented to him for signature.

3. Security in the sum of _____ dollars ($_____), in the form of _____, is submitted herewith in accordance with the Instructions to Bidders.

4. Attached hereto is an affidavit in proof that the undersigned has not entered into a collusive agreement with any person in respect to this Bid or any other Bid or the submitting of Bids for the Contract for which this Bid is submitted.

5. The Bidder is prepared to submit a financial and experience statement upon request.

6. The undersigned represents that he is in receipt of the following number of Addenda. (If no Addenda are issued insert the word "none" in the following space.)_____

BID SCHEDULE

RESERVOIR ACCESS ROAD IMPROVEMENTS

Item	Description	Quantity/ Unit	Unit Price	Total Price
1.	Aggregate			
	a. No. 4	1,200 TON	_____	_____
	b. No. 2RC	300 TON	_____	_____
2.	Corrugated Drain Pipe, PE			
	a. 12"	240 LF	_____	_____
	b. 15"	80 LF	_____	_____
3.	Geotextile Material	2,000 SY	_____	_____
4.	Construct Ditch Along Roadway	1,000 LF	_____	_____
5.	Grade Roadway	40 HRS	_____	_____

TOTAL BASE BID PRICE $_____

IRVONA MUNICIPAL AUTHORITY
CONTRACT 89-02 - ACCESS ROAD IMPROVEMENTS AND WATERLINE REPLACEMENT

BID SCHEDULE

ADDITIVE ALTERNATE NO. 1 - LYNNWOOD STREET, BLAINE CITY

Item	Description	Quantity/ Unit	Unit Price	Total Price
1.	Water Line Installation Including Excavation and Pipe Bedding, Township Road			
	a. 6"	450 LF	_____	_____
2.	Gate Valve & Box, Complete (Refer Typical Detail)			
	a. 6"	1 EA	_____	_____
3.	Fittings	500 LBS	_____	_____
4.	Blow-Off Installation, Complete (Refer Typical Detail)			
	a. 2"	1 EA	_____	_____
5.	Miscellaneous Concrete	1 CY	_____	_____
6.	Water Service Connections			
	a. Type A	5 EA	_____	_____
	b. Type B	5 EA	_____	_____
7.	Restoration, Including Backfill			
	a. Municipal Highway Pavement (Refer Typ. Detail)	30 LF	_____	_____
	b. Municipal Highway Shoulder, Unpaved (Refer Typ. Detail)	30 LF	_____	_____
	c. Unpaved (Refer Typical Detail)	380 LF	_____	_____
	d. Concrete Driveway	10 LF	_____	_____
8.	Highway Borings, Complete (Includes boring, carrier pipe, casing, installation, excavation, etc.) (Refer Typical Detail)			
	a. Route 53 Boring No. 1	LS	_____	_____
9.	Photographs	8 EA	_____	_____

TOTAL ADDITIVE ALTERNATE NO. 1 $_____

IRVONA MUNICIPAL AUTHORITY
CONTRACT 89-02 - ACCESS ROAD IMPROVEMENTS AND
WATERLINE REPLACEMENT

ADDITIVE ALTERNATE NO. 2 - FIRE HYDRANT REPLACEMENT

Item	Description	Quantity/ Unit	Unit Price	Total Price
1.	Fire Hydrant Replacement	2 EA	_____	_____

TOTAL ADDITIVE ALTERNATE NO. 2 $_____

IRVONA MUNICIPAL AUTHORITY
CONTRACT 89-02 - ACCESS ROAD IMPROVEMENTS AND WATERLINE REPLACEMENT

ADDITIVE ALTERNATE NO. 3 - WASHINGTON STREET, ROSEBUD

Item	Description	Quantity/ Unit	Unit Price	Total Price
1.	Waterline Installation Including Excavation and Pipe Bedding			
	a. 2"	380 LF	_____	_____
2.	Gate Valve and Box, Complete (Refer to Typical Detail)			
	a. 2"	1 EA	_____	_____
3.	Flexible Couplings	1 EA	_____	_____
4.	Restoration, Including Backfill			
	a. Municipal Highway Shoulder, Unpaved (Refer to Typical Detail)	295 LF	_____	_____
	b. Municipal Highway Shoulder, Paved	85 LF	_____	_____
5.	Service Connections			
	a. Type A	6 EA	_____	_____
	b. Type B	1 EA	_____	_____
6.	Photographs	5 EA	_____	_____

TOTAL ADDITIVE ALTERNATE NO. 3 $_____

ADDITIVE ALTERNATE NO. 4 - ALLEY, IRVONA BOROUGH

Item	Description	Quantity/ Unit	Unit Price	Total Price
1.	Waterline Installation Including Excavation and Pipe Bedding			
	a. 2"	280 LF	_____	_____
2.	Flexible Couplings	2 EA	_____	_____
3.	Restoration, Including Backfill			
	a. Municipal Highway Shoulder, Unpaved	280 LF	_____	_____
4.	Service Connections			
	a. Type A	5 EA	_____	_____
5.	Photographs	4 EA	_____	_____

TOTAL ADDITIVE ALTERNATE NO. 4 $_____

IRVONA MUNICIPAL AUTHORITY

CONTRACT 89-02 - ACCESS ROAD IMPROVEMENTS AND WATERLINE REPLACEMENT

BID RECAP

TOTAL BASE BID PRICE	$_____
TOTAL ADDITIVE ALTERNATE NO. 1 LYNNWOOD STREET	$_____
TOTAL ADDITIVE ALTERNATE NO. 2 FIRE HYDRANT REPLACEMENT	$_____
TOTAL ADDITIVE ALTERNATE NO. 3 WASHINGTON STREET	$_____
TOTAL ADDITIVE ALTERNATE NO. 4 ALLEY, IRVONA BOROUGH	$_____

SIGNATURES

When the bidder is an individual:

_____ _____(SEAL)
Witness Contractor-Individual

- - - - - - - - - -

When the bidder is a partnership:

WITNESS: _____(SEAL)
Contractor-Partnership

_____ _____(SEAL)
Partner

_____ _____(SEAL)
Partner

_____ _____(SEAL)
Partner

_____ _____(SEAL)
Partner

- - - - - - - - - -

When the bidder is a corporation:

(CORPORATE SEAL) _____(SEAL)
Contractor-Corporation

By _____
President

ATTEST:

_____
Secretary

The _____is a corporation organized and existing under the laws of _____ and has (has not) been granted certificate of authority to do business in Pennsylvania as required by the business corporation law, approved May 5, 1933, PL 364, as amended.

The _____is an individual or partnership trading under a fictitious or assumed name and has (has not) registered under the Fictitious Name Act of Pennsylvania; namely, the Act of May 24, 1945, Pl 967.

CERTIFICATION OF NON SEGREGATED FACILITIES

The Bidder certifies that he does not maintain or provide for his employees any segregated facilities at any of his establishemnts, and that he does not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The Bidder certifies further that he will not maintain or provide for his employees any segregated facilities at any of his establishments, and that he will not permit his employees to perform their services at any location under his control where segregated facilities are maintained. The Bidder agrees that a breach of this certification will be a violation of the Equal Opportunity clause in any contract resulting from acceptance of this bid. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, timeclocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicity directive or are in fact segregated on the basis of race, color, religion, or national origin, becuase of habit, local custom, or otherwise. The Bidder agrees that (except where he has obtained identical certification from proposed subcontractors for specific time periods) he will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity clause, and that he will retain such certifications in his files.

Note: The penalty for making false statements in offers is prescribed in 18 U.S.C. § 1001.

Date_____, 19___ _____
(Name of Bidder)

Official Address
(including ZIP CODE): By_____

_____ _____
(Title)

_____

NONCOLLUSION AFFIDAVIT OF PRIME BIDDER

State of _____)
)
County of _____)

_____, being first duly sworn, deposes and says that:

(1) He is _____ (Owner, partner, officer, representative or agent) of _____, the Bidder that has submitted the attached Bid:

(2) He is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid;

(3) Such Bid is genuine and is not a collusive or sham Bid;

(4) Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly with any other Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted or to refrain from bidding in connection with such Contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Bidder, firm or person to fix the price or prices in the attached Bid or of any other Bidder, or to fix any overhead, profit or cost element for the Bid prices or the Bid price of any Bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the _____ or any person interested in the proposed Contract; and

(5) The price or prices quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affiant.

(Signed)_____

_____
(Title)

Subscribed and sworn to before me

this_____ day of _____, 19____

_____

_____
Title

My commission expires_____

PA DEPARTMENT OF COMMUNITY AFFAIRS
BUREAU OF HOUSING AND DEVELOPMENT
SMALL COMMUNITIES PROGRAM DIVISION

CERTIFICATION OF BIDDER REGARDING EQUAL EMPLOYMENT OPPORTUNITY

INSTRUCTIONS

This certification is required pursuant to Executive Order 11246 (30 F.R. 12319-25). The implementing rules and regulations provide that any bidder or prospective contractor, or any of their proposed subcontractors, shall state as an initial part of the bid or negotiations of the contract whether it has participated in any previous contract or subcontract subject to the equal opportunity clause; and, if so, whether it has filed all compliance reports due under applicable instructions.

Where the certification indicates that the bidder has not filed a compliance report due under applicable instructions, such bidder shall be required to submit a compliance report within seven calendar days after bid opening. No contract shall be awarded unless such report is submitted.

CERTIFICATION BY BIDDER

NAME AND ADDRESS OF BIDDER (Include ZIP Code)

1. Bidder has participated in a previous contract or subcontract subject to the Equal Opportunity Clause.

   ☐ Yes ☐ No

2. Compliance reports were required to be filed in connection with such contract or subcontract.

   ☐ Yes ☐ No

3. Bidder has filed all compliance reports due under applicable instructions, including SF-100.

   ☐ Yes ☐ No None Required ☐

4. Have you ever been or are you being considered for sanction due to violation of Executive Order 11246, as amended?

☐ Yes ☐ No

NAME AND TITLE OF SIGNER (Please type)

SIGNATURE	DATE

BID BOND

KNOWN ALL MEN BY THESE PRESENTS, that we the undersigned

(Name of Principal)

as PRINCIPAL, and (Name of Surety),

as SURETY are held and firmly bound unto

(Local Public Agency), hereinafter called the "Local Public Agency", in the penal sum of
Dollars ($)

lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severly, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the Principal has submitted the accompany bid, dated , 19 , for .

NOW, THEREFORE, if the Principal shall not withdraw said Bid within the period specified therein after the opening of the same, or, if no period be specified, within thirty (30) days after the said opening, and shall within the period specified therefore, or if no period be specified, with ten days after the prescribed forms are presented to him for signature, enter into a written Contract with the Local Public Agency in accordance with the Bid as accepted, and give bond with good and sufficient surety or sureties, as may be required, for the faithful performance and proper fulfillment of such Contract; or in the event of the withdrawal of said Bid within the period specified, or the failure to enter into such Contract and give such bond within the time specified, if the Principal shall pay the Local Public Agency may procure the required work or supplies or both, if the latter be in excess of the former, then the above obligation shall be void and of no effect, otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above-bounded parties have executed this instrument under their several seals this day of , 19 , the name and corporate seal of each corporate party being hereto affixed and these presents signed by its undersigned representative, pursuant to authority of its governing body.

INDIVIDUAL OR PARTNERSHIP PRINCIPALS

_____(SEAL)

_____(SEAL)

In the presence of: _____(SEAL)

_____ _____(SEAL)

CORPORATE PRINCIPAL

ATTEST: _____

_____ By:_____(SEAL)

SURETY

ATTEST: _____

_____ By:_____(SEAL)

Countersigned:

By:_____

Attorney-in-Fact,
State of_____

CERTIFICATE AS TO CORPORATE PRINCIPAL

I, _____, certify that I am the _____ _____, Secretary of the Corporation named as Principal in the within bond; that_____, who signed the said bond on behalf of the Principal was then _____ _____ of said Corporation; that I know his signature, and his signature thereto is genuine; and that said bond was duly signed, sealed and attested to for and in behalf of said corporation by authority of his governing body.

_____

Title:_____

(CORPORATE SEAL)

STATEMENT OF BIDDER'S QUALIFICATIONS

All questions must be answered and the date given must be clear and comprehensive. This statement must be notarized. If necessary, questions may be answered on separate attached sheets. The Bidder may submit any additional information he desires.

1. Name of Bidder.
2. Permanent main office address.
3. When organized.
4. If a corporation, where incorporated.
5. How many years have you been engaged in the contracting business under your present firm or trade name?
6. Contracts on hand: (Schedule these, showing amount of each contract and the appropriate anticipated dates of completion.)
7. General character of work performed by your company.
8. Have you ever failed to complete any work awarded to you? If so, where and why?
9. Have you ever defaulted on a contract? If so, where and why?
10. List the more important projects recently completed by your company, stating the approximate cost for each, and the month and year completed.
11. List your major equipment available for this contract.
12. Experience in construction work similar in importance to this project.
13. Background and experience of the principal members of your organization, including the officers.
14. Credit Available: $_____
15. Give bank reference: _____
16. Will you, upon request, fill out a detailed financial statement and furnish any other information that may be required by the (Local Public Agency)?
17. The undersigned hereby authorizes and requests any person, firm, or corporation to furnish any information requested by the (Local Public Agency) in verification of the recitals comprising this statement of Bidder's Qualifications.

Dated at_____ this _____ day of _____, 19_____.

(Name of Bidder) _____

By: _____

Title: _____

State of _____)
)
County of _____)

_____ being duly sworn deposes and says that he is _____ of (Name of Organization) and that the answers to the foregoing questions and all statements therein contained are true and correct.

Subscribed and sworn to before me this _____ day of _____, 19_____.

_____ Notary Public

My commission expires _____, 19_____.

AGREEMENT FOR SITE PREPARATION

THIS AGREEMENT, made this _____ day of _____, 19____, by and between _____ (a corporation organized and existing under the laws of the State of _____); (a partnership consisting of _____); (an individual trading as _____); hereinafter called the "Contractor", and the (Corporate Name of Owner), hereinafter called the "Local Public Agency".

WITNESSETH, that the Contractor and the Local Public Agency for the considerations stated herein mutually agree as follows:

ARTICLE 1. Statement of Work: The Contractor shall furnish all supervision, technical personnel, labor, materials, machinery, tools, equipment and services, including utility and transportation services, and perform and complete all work required for the construction of the Improvements embraced in the Site Preparation; namely, _____ [2] and other work incidental thereto, all in strict accordance with the Contract Documents for Site Preparation, including all addenda thereto, numbered _____, dated _____ and _____, dated _____, all as prepared by _____, acting and in these Contract Documents for Site Preparation, referred to as the "Engineer".

ARTICLE 2. The Contract Price: The Local Public Agency will pay the Contractor for the performance of the Contract in current funds, for the total quantities of work performed at the unit prices stipulated in the Bid for the several respective items of work completed subject to additions and deductions as provided in Section 109 hereof.[3] The contract price shall be the total bid price of _____ ($_____).

ARTICLE 3. Contract: The executed contract documents shall consist of the following:

a. This Agreement
b. Addenda
c. Invitation for Bids
d. Instructions to Bidders
e. Signed Copy of Bid
f. General Conditions Parts I and II
g. Special Conditions
h. Technical Specifications
i. Drawings (as listed in the Schedule of Drawings)

This Agreement, together with other documents enumerated in this ARTICLE 3, which said other documents are as fully a part of the contract, as if hereto attached or herein repeated, forms the contract between the parties hereto. In the event that any provision in any component part of this contract conflicts with any provision of any other component part, the provision of component part first enumerated in this ARTICLE 3 shall govern, except as otherwise specifically stated.

IN WITNESS WHEREOF, the parties hereto have caused this AGREEMENT

to be executed in _____ original copies on the day and year first above written.

ATTEST:

_____ _____
(Contractor)

_____
(Owner, partnership, or corporation)

By: _____

Title: _____

(Business Address _____

including _____

zip code) _____

_____
(Local Public Agency)

ATTEST:

_____ By: _____

Title: _____

---

1. Strike out the two terms not applicable.

2. Supply principal items of Contract such as Grading, Paving, Sidewalks, Sewers, etc.

3. In the event the statutory provisions require the Contract Price to be a fixed sum, in the absence of a local approved form, the following text should be substituted for Article 2:

> "ARTICLE 2. The Contract Price. The Local Public Agency shall pay the Contractor for the performance of the Contract, in current funds, subject to additions and deductions as provided in Section 109 hereof, the sum of _____ Dollars ($_____)."

4. The number of copies to be executed by the parties must be stated in the Agreement in the space provided. No fewer than two copies are required, to be distributed one each to the Contractor and to the Local Public Agency.

Certifications:

I, _____, certify that I am the _____ of the Corporation named as Contractor herein; that _____ who signed this Agreement on behalf of the Contractor, was the _____ of said Corporation; that said Agreement was duly signed for and in behalf of said Corporation by authority of its governing body, and is within the scope of its corporate powers.

_____

Title: _____

(Corporate Seal)

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS, that we_____

_____

as principal, and_____,

as sureties are held and firmly bound unto _____

(Local Public Agency)_____, its certain attorney, successors,

or assigns (hereinafter called the Obligee), in the full and just sum of

_____

Dollars ($_____) lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents:

WHEREAS, said principal has entered into a certain contract with said Obligee, dated _____, 19____, (hereinafter called the Contract) for_____

_____

which Contract and the Specifications for said work shall be deemed a part hereof as fully as if set out herein:

NOW, therefore, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the principal shall faithfully perform the contract on his part as of the time and in the manner therein provided and satisfy all claims and demands incurred in or for the same, or growing out of the same, or for injury or damages to persons or property in the performance thereof, and shall fully indemnify and save harmless the said Obligee from any and all cost and damage which the said Obligee may suffer by reason of the principal's failure to do so, and shall fully reimburse and repay the said Obligee any and all outlay and expense shall be null and void, otherwise it shall remain in full force and virtue.

The said surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to terms of the Contract or to the work to be performed thereunder or the Specifications accompanying the same in any wise affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the work or to the Specifications.

SIGNED, SEALED AND DELIVERED IN _____ ORIGINAL COUNTERPARTS THIS _____, 19____.

(Individual Principals sign here)

_____(SEAL)

In the presence of: _____(SEAL)

_____ _____(SEAL)

_____ _____(SEAL)

(Corporate Principal sign here)

_____

By_____

Attest: (Surety sign here)

_____ _____

_____ _____

The rate of premium charged is $_____ per thousand.

The total amount of premium charged is $_____.

(The above must be filled in by the Corporate Surety.)

It is hereby further stipulated and agreed that if the Principal is a non-Pennsylvania corporation neither Principal nor the Surety shall be discharged from liability on this bond, nor the bond surrendered, until such Principal files with the obligee a certificate from the Pennsylvania Department of Revenue evidencing the payment in full of all taxes, penalties and interest, and a certificate from the Bureau of Employment and Unemployment Compensation of the Pennsylvania Department of Labor and Industry, evidencing the payment of all unemployment compensation contributions, penalties and interest due the Commonwealth of Pennsylvania from the said Principal, or any non-Pennsylvania corporation subcontractor thereunder, or for which liability has accrued, but the time for payment has not arrived as required by the Act of June 10, 1947, P.L. 493, 8 P.S. Sec. 23, amended.

LABOR AND MATERIALMEN'S BOND

KNOWN ALL MEN BY THESE PRESENTS, that we, _____

_____, as principal, and _____

_____,

as surety, are held and firmly bound unto _____

(Local Public Agency), its certain attorney, successors,

or assigns (hereinafter called the Obligee in the sum of _____

_____ Dollars ($_____) lawful money of the United

States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, personal representatives, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, said principal has entered into a certain contract with said Obligee, dated _____, 19____, (hereinafter called the Contract) for _____

_____

_____

which Contract and the Specifications for said work shall be deemed a part thereof as fully as if set out herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH that if said Principal and all subcontractors to whom any portion of the work provided for in said contract is sublet and all assignees of said principal and of such subcontractors shall promptly make payment for all material furnished, labor supplied or performed, rental for equipment employed, and services rendered by public utilities in or in connection with the prosecution of the work, whether or not the said material, labor, equipment or services enter into and become component parts of the work or improvement contemplated in said contract, or in any amendment or extension of or addition to said Contract, then the above obligation shall be void; otherwise to remain in full force and effect. PROVIDED, however, that this bond is subject to the following conditions and limitations.

(a) All persons who have performed labor, rendered services or furnished materials or machinery, shall have a direct right of action against the principal and surety on this bond, which right of action shall be asserted in proceedings instituted in the State in which such labor was performed, services rendered or materials furnished (or where labor has been performed, services rendered or materials furnished under said Contract in more than one state, then in any such state). Insofar as permitted by the laws of such state, such right of action shall be asserted in a proceeding instituted in the name of the Obligee to the use and benefit

of the person instituting such action and any or all other persons having claims hereunder, and any other person having a claim hereunder shall have the right to be made a party to such proceeding (but not later than two years after the complete performance of said Contract and final settlement thereof) and to have such claim adjudicated in such action and judgment rendered thereon.

(b) The surety shall not be liable hereunder for any damages or compensation recoverable under any workmen's compensation or employer's liability statute.

(c) In no event shall the surety be liable for a greater sum than the penalty of this bond, or subject to any suit, action or proceeding thereon that is instituted later than two years after the complete performance of said Contract and final settlement thereof.

(d) As used herein: The term "person" refers to any individual, firm or corporation who have furnished materials or machinery or public utility services to be used on or incorporated in the work or the prosecution thereof provided for in said Contract or in any amendment or extension of or addition to said Contract, and/or to any person engaged in the prosecution of the work provided for in said Contract or in any amendment or extension of or addition to said Contract who is an agent, servant or employee of the principal or of any subcontractor, or of any assignee of said principal or of any subcontractor and also anyone so engaged who performs the work of a laborer or of a mechanic regardless of any contractual relationship between the principal, or any subcontractor, or any assignee of said principal or of said subcontractor, and such laborer or mechanic, but shall not include office employees not regularly stationed at the site of the work.

The said surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract, or to the work to be performed thereunder or the Specifications accompanying the same, shall in any wise affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time alteration or addition to the terms of the Contract or to the work or to the Specifications.

SIGNED, SEALED AND DELIVERED IN _____

ORIGINAL COUNTERPARTS this _____ day of _____, 19_____.

Witness: (Individual Principals sign here)

_____ _____

Title:_____(SEAL)

_____ _____

Title:_____(SEAL)

_____ _____

Title:_____(SEAL)

_____

Title:_____(SEAL)

(Corporate Principal sign here)

Attest:

By_____ _____

Title:_____ By:_____

Title:_____(SEAL)

(Surety sign here)

_____

By:_____

Title:_____(SEAL)

The rate of the premium charged is $_____ per thousand.

The total amount of the premium charged is $_____.

(The above must be filled in by the Corporate Surety.)

It is hereby further stipulated and agreed that if the Principal is a non-Pennsylvania corporation neither Principal nor the Surety shall be discharged from liability on this bond, nor the bond surrendered, until such Principal files with the obligee a certificate from the Pennsylvania Department of Revenue evidencing the payment in full of all taxes, penalties and interest, and a certificate from the Bureau of Employment and Unemployment Compensation of the Pennsylvania Department of Labor and Industry, evidencing the payment of all unemployment compensation contributions, penalties and interest due the Commonwealth of Pennsylvania from the said Principal, or any non-Pennsylvania corporation subcontractor thereunder, or for which liability has accured, but the time for payment has not arrived as required by the Act of June 10, 1947, P. O. 493, 8 P. S. Sec. 23, amended.

THE MINORITY BUSINESS ENTERPRISE PROGRAM IN

CONNECTION WITH SCP PROJECTS

IN COMPLIANCE WITH EXECUTIVE ORDER 11625

AFFIRMATIVE ACTION PLAN FOR UTILIZATION OF MINORITY BUSINESS

PROJECT NAME: PROJECT NO.:

DEVELOPER: GENERAL CONTRACTOR:

CONTRACTING

Prior to the signing of contracts, between the _____ _____ and the General Contractor, the General Contractor shall provide to the _____ a preliminary statement of Minority Business Utilization where known; where not known, such information shall be supplied prior to the signing of any contract between the General Contractor and subcontractor(s).

UTILIZATION OF BUSINESSES

Each General Contractor undertaking work on this project shall assure that to the greatest extent feasible, contracts for work to be performed in connection with the project are awarded to minority business concerns.

The General Contractor shall, to the greatest extent feasible, utilize minority business concerns for procurement (materials, supplies, services) to be performed in connection with this project. To this end the General Contractor projects a Utilization Goal of $_____ _____, (%).

CATEGORY	Amount Available in Dollars	GOAL ALLOCATION Amount Projected in Dollars
A. Minority Contractors	$_____	$_____
B. Minority Procurement	$_____	$_____

GOOD FAITH EFFORT

The following minority business referral agencies will be contacted; SBA, State OMBE, and Others: (List)_____

_____

This is to certify that _____ will abide by and initiate in all our contracts, to the greatest extent feasible, the requirements of Executive Order 11625.

_____
Signature

_____
Title Date

SUBCONTRACTOR'S

CERTIFICATION OF COMPLIANCE

SECTION 3

CERTIFICATION OF COMPLIANCE WITH REGULATIONS TO SECTION 3 OF THE HOUSING AND URBAN DEVELOPMENT ACT OF 1968 AS REQUIRED FOR PARTICIPATION IN THE SMALL COMMUNITIES PROGRAM, PURSUANT TO THE HOUSING AND COMMUNITY DEVELOPMENT ACT OF 1974, P.L. 93-383, AS AMENDED.

PURPOSE, AUTHORITY AND RESPONSIBILITY

Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u (hereinafter Section 3) requires that to the greatest extent feasible, opportunities for training and employment in a Section 3 covered project be given lower income residents of the project area and that contracts for work in connection with the project be awarded to business concerns which are located in, or owned in substantial part by persons residing in the area of the project.

_____
(hereinafter called the Subcontractor)
upon being awarded a contract for_____

_____
in the area of the Local Public Agency to the extent feasible, will make a good faith effort to utilize the services of businesses located in or substantially owned by persons who live within the project boundaries.

The Contractor has been informed by the Local Public Agency, that the Department of Community Affairs has determined that the project area boundaries for the Small Communities Program are the municipal limits.

To complete the project it is also estimated that the Subcontractor will be subcontracting for supplies and services for which certain business concerns eligible under Section 3 could provide. In order to comply with the regulations for utilization of businesses under Section 3, the Subcontractor will adopt an Affirmative Action Plan.

CONTRACTOR'S
AFFIRMATIVE ACTION PLAN FOR BUSINESS UTILIZATION
SECTION 3

A. The Contractor shall utilize, to the maximum extent feasible, eligible, Section 3 business concerns located in the _____ and contracting for work to be performed in connection with the completion of the contract. Eligible Section 3 businesses are those which qualify as "small" under the Small Business Administration size standards and which are socially and economically disadvantaged.

B. The Contractor has established a goal of _____% of the total contract amount which he expects to award to eligible Section 3 business concerns. The Contractor's Business Utilization Report sets forth the classification of subcontracts, the estimate of each subcontractor dollar amount, whether a Section 3 business is intended to be utilized and the dollar amount of proposed subcontracts to Section 3 businesses.

C. To achieve the goal specified in paragraph "B", the Contractor shall:

1. Make full use of minority business listings made available by the DCA Regional Office, Small Business Administration and the Pennsylvania Department of Commerce OMBE.

2. Take steps to insure that subcontract which are typically let on a bid rather than a negotiated basis are also let on a negotiated basis, whenever feasible.

3. Where competitive bids are solicited, include as part of the bid documents the contractor's goal for Section 3 as it relates to the work for which bids are being solicited, require each bidder to submit their Utilization Goals and Affirmative Action Plan for achieving Section 3 Business Utilization.

4. Insert the Section 3 contract language required by 24 CFR 135.20(b) in all subcontracts; and require to be executed by the subcontractor a certification of compliance with Section 3, and an Affirmative Action Plan for Business Utilization.

D. The Contractor will report to the _____ on a monthly, quarterly, or per project basis, the results of the affirmative efforts undertaken per paragraphs A, B, and C above, including the efforts of its subcontractors.

_____ _____
Signature/Contractor Date

_____ _____
Approved/(City/County) Date

SUBCONTRACTOR'S

AFFIRMATIVE ACTION PLAN FOR BUSINESS UTILIZATION

SECTION 3

A. The Subcontractor shall utilize, to the maximum extent feasible, eligible Section 3 business concerns located in the area of the Local Public Agency contracting for work to be performed in connection with the completion of the contract. Eligible Section 3 businesses are those which qualify as "small" under the Small Business Administration's size standards and which are socially and economically disadvantaged.

B. The Subcontractor has established a goal of _____% of the total subcontract amount which he expects to award to eligible Section 3 business concerns. The Subcontractor's Business Utilization Table, sets forth the classification of subcontracts, the estimate of each subcontractor dollar amount, whether a Section 3 business is intended to be utilized and the dollar amount of proposed subcontracts to Section 3 businesses.

C. To achieve the goal specified in paragraph "B", the Subcontractor shall:

1. Make full use of minority business listings made available by the Small Business Administration and the Pennsylvania Department of Commerce OMBE.

2. Take steps to insure that subcontracts which are typically let on a bid rather than a negotiated basis are also let on a negotiated basis, whenever feasible.

3. Where competitive bids are solicited, include as part of the bid documents the subcontractor's goal for Section 3 as it relates to the work for which the bids are being solicited, require each bidder to submit their Utilization Goals and Affirmative Action Plan for achieving Section 3 Business Utilization.

4. Insert the Section 3 contract language required by 24 CFR 135.20(b) in all subcontracts; and require to be executed by the subcontractor a Certification of Compliance with Section 3, similar to the Contractor's Certification of Compliance, and an Affirmative Action Plan for Business Utilization.

_____ _____

Signature/Subcontractor Date

_____ _____

Approved/Local Public Agency Date

CONTRACTOR'S

CERTIFICATION OF COMPLIANCE

SECTION 3

CERTIFICATION OF COMPLIANCE WITH REGULATIONS TO SECTION 3 OF THE HOUSING AND URBAN DEVELOPMENT ACT OF 1968 AS REQUIRED FOR PARTICIPATION IN THE SMALL COMMUNITIES PROGRAM, PURSUANT TO THE HOUSING AND COMMUNITY DEVELOPMENT ACT OF 1974, P.L. 93-383, AS AMENDED.

PURPOSE, AUTHORITY AND RESPONSIBILITY

Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u (hereinafter Section 3) requires that to the greatest extent feasible, opportunities for training and employment in a Section 3 covered project be given lower income residents of the project area and that contracts for work in connection with the project be awarded to business concerns which are located in, or owned in substantial part by persons residing is the area of the project.

_____
(hereinafter called the Contractor)
upon being awarded a contract for _____

_____
in the area of the Section 3 covered project, will, to the greatest extent feasible, make a good faith effort to utilize the services of businesses located in or substantially owned by persons who live within the project boundaries.

The Contractor has been informed by the Local Public Agency, that the Department of Community Affairs has determined that the project area boundaries for the Small Communities Program are the municipal limits.

To complete the project it is also estimated that the Contractor will be subcontracting for supplies and services for which certain business concerns eligible under Section 3 could provide. In order to comply with the regulations for utilization of businesses under Section 3, the Contractor will adopt an Affirmative Action Plan. The Contractor will also require each subcontractor, if any, to adopt an Affirmative Action Plan.

WORK FORCE NEEDS TABLE

EMPLOYEES

Occupation Category 1/	Approximate Number of Skilled Employees Required	Total Number of Skilled Employees Presently on Payroll	Total Number of Skilled Employees to be Hired	Total Number of Lower Income Residents to be Hired

1/ The following are the occupational category classifications that should be inserted in the Table:

1. Asbestos Workers
2. Bricklayers
3. Carpenters
4. Cement Masons
5. Electricians
6. Elevator Constructors
7. Glaziers
8. Iron Workers
9. Lathers
10. Machinists
11. Operating Engineers
12. Painters
13. Plasterers
14. Plumbers
15. Roofers
16. Sheet Metal
17. Tile Setters
18. Others (Specify)

EMPLOYMENT CERTIFICATION

A. The Contractor hereby certifies that the above table represents the approximate number of employee positions that are needed and which are not presently filled by regular and permanent employees, and which new employees will be required in the execution of the _____ contract and also represents the number of lower income project area residents that the contractor proposes to make a good faith effort to employ.

B. The Contractor certifies that it will make a good faith effort to employ the number of lower income employees stated above by contacting such organizations as the Bureau of Employment Security, in addition to advertising through the local news media and erecting signs on the project site contractor's employment posters.

C. The Contractor, prior to subcontracting any portion of the work covered by this contract will require a Manpower Utilization Table to be prepared and certification similar to paragraph A, B, and C to be executed.

MANPOWER UTILIZATION TRAINING TABLE

TRAINEES

Occupation Category 1/	Approximate Number of Trainees Required	Total Number of Trainees Presently On Payroll	Total Number of Trainees to Be Hired	Total Number of Lower Income Trainees To be Hired

1/ The following are the occupational category classifications that should be inserted in the Table:

1. Asbestos Workers
2. Bricklayers
3. Carpenters
4. Cement Masons
5. Electricians
6. Elevator Constructors
7. Glaziers
8. Iron Workers
9. Lathers
10. Machinists
11. Operating Engineers
12. Painters
13. Plasterers
14. Plumbers
15. Roofers
16. Sheet Metal
17. Tile Setters
18. Others (Specify)

MANPOWER UTILIZATION TRAINING TABLE - TRAINEES - CONTINUED

TRAINEE CERTIFICATION

A. The Contractor hereby certifies that the above table represents the approximate number of trainee positions required in the execution of the _____ contract and also represents the number of lower income project area residents that the Contractor proposes to utilize in filling Trainee positions.

B. The Contractor certifies that it will make a good faith effort to fulfill the number of lower income trainees stated above by utilizing such organizations as the Bureau of Employment Security.

C. The Contractor certifies that the trainees to be utilized on this project in no event is less than the number of Trainees determined by the Secretary of Labor for each building construction occupation.

D. The Contractor, prior to subcontracting any portion of the work covered by this contract will require a Manpower Utilization Table to be prepared and certification similar to Paragraphs A, B, and C to be executed.

REPORTING

The Contractor will report to the _____ on a monthly, quarterly or per project basis the results of employee and trainee employment of lower income residents of the _____. The Contractor reports will include not only his efforts, but the efforts of subcontractors, if any. The Contractor will, to the greatest extent feasible, abide by the requirements of Section 3 of the Housing and Urban Development Act of 1968, 12, U.S.C. 170lu, in carrying out its contract.

Date_____

_____
Contractor

_____
Project Name

CONTRACTOR'S SECTION 3 BUSINESS UTILIZATION REPORT

Contractor:_____
Date:_____
Section 3 Goals: Percent_____

Project Name:_____
Project Number:_____
$_____

Proposed Suppliers[1] and/or Subcontractors	Estimated Dollar Amount	Use of Section 3 Businesses		Proposed Dollar Amount to Section 3 Businesses
		YES	NO	
TOTALS	$			$

1/ The following are the examples of services which may be required by Suppliers and these classifications should be inserted if applicable:

1. Selling bricks
2. Selling lumber
3. Selling cement, sand and gravel
4. Making steel cast
5. Selling electrical supplies
6. Selling kitchen appliances
7. Selling bathroom fixtures
8. Window-installation
9. Air conditioning sales and/or installation
10. Floor tile sales and/or installations
11. Door sales and/or installations
12. Landscaping
13. Carpeting
14. Stationery and/or advertising
15. Other (Specify)

This list should also include professional services, and all of the construction trades, i.e., plumbing, electrical, drywall, carpenters, etc. which are intended to be subcontracted.

LOCAL PUBLIC AGENCY	BUSINESS UTILIZATION REPORT	COVERED AREA CONTRACTOR'S ID NO.	ESTABLISHED GOALS PERCENT: AMOUNT:	REPORTING PERIOD

NAME AND LOCATION OF CONTRACTOR

PROJECT NAME AND TYPE OF CONSTRUCTION

NAME AND ADDRESS OF SUBCONTRACTORS	TYPE OF SUBCONTRACT 1/	OWNERS 50% + LIVE IN COUNTY YES	OWNERS 50% + LIVE IN COUNTY NO	DATE OF AWARD	SUBCONTRACTS AWARDED DOLLAR AMOUNTS REPORT PERIOD	SUBCONTRACTS AWARDED DOLLAR AMOUNTS CUMULATIVE	SECTION 3 SUBCONTRACTS AWARDED - DOLLAR AMOUNTS REPORT PERIOD	SECTION 3 SUBCONTRACTS AWARDED - DOLLAR AMOUNTS CUMULATIVE
CUMULATIVE TOTALS								

SIGNATURE AND TITLE OF PERSON PREPARING REPORT	TELEPHONE NUMBER	DATE SIGNED	PAGE ____ OF ____
		\ /	

1/ Use appropriate letters for classification of subcontracts
C - Construction
S - Supplies

NOTICE OF INTENT TO AWARD

TO _____
Contractor

_____
Address

(This notice is subject to completion of satisfactory financing.)

It appears that you are the low bidder on Contract _____

_____

for the construction of _____

_____

Pursuant to the Specifications under which your Proposal was submitted, you are hereby notified that the OWNER represented by the undersigned intends to award a Contract to you for the aforesaid work. The Contract Price is computed to be

_____

on the basis of the acceptance of your Proposal. You are required by the Information for Bidders to furnish the required Contractor's Performance Bond and Payment Bond within ten (10) days from the date of this Notice to you.

Dated this _____ day of _____, 19_____.

_____
OWNER

By _____
Name

_____
Title

ACCEPTANCE OF NOTICE

Receipt of the above Intent to Award is hereby acknowledged this _____ day of _____, 19_____.

_____

By _____

Title _____

NOTICE OF AWARD

TO:

PROJECT DESCRIPTION;

The OWNER has considered the BID submitted by you for the above-described work in response to its Advertisement for Bids dated _____, 19____ and Information for Bidders.

You are hereby notified that your BID has been accepted for items in the amount of $_____.

You are required by the Information for Bidders to execute the Agreement and deliver it to the Owner within ten (10) calendar days from the date of this Notice to you.

If you fail to execute said Agreement within ten (10) days from the date of this Notice, said OWNER will be entitled to consider all your rights arising out of the OWNER'S acceptance of your BID as abandoned and as a forfeiture of your Bid Bond. The OWNER will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of this NOTICE OF AWARD to the OWNER.

Dated this _____day of _____, 19____.

_____
Owner

By_____

Title_____

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE OF AWARD is hereby acknowledged by

_____

this _____ day of _____, 19___.

By_____

Title_____

(2) Notice of the cause of the delay was given within the time and in the manner prescribed by the contract; and

(3) The causes of the delay justify and require an extension of the time as herein provided as a matter of legal right without the assertion of a claim by the owner for (actual) (liquidated) damages because of the contractor's failure to complete the work within the number of days specified by the contract.

Subject to conditions hereinafter set forth, an equitable adjustment of the contract price and the contract time is established, as follows:

THE CONTRACT PRICE IS (INCREASED) (DECREASED) TO _____ AND _____/100 DOLLARS ($_____) AND THE CONTRACT TIME IS (NOT CHANGED)(EXTENDED _____ CALENDAR DAYS) TO (ENDING DATE).

The conditions last above referred to are as follows:

A. The aforementioned change(s), and work affected thereby, are subject to all contract stipulations and covenants; and

B. The rights of the Local Public Agency are not prejudiced; and

C. All claims against the Local Public Agency which are incidental to or as a consequence of the aforementioned change(s) are satisfied.

Accepted:

_____	_____
Contractor	Local Public Agency
By_____	By_____
Title_____	Title_____
Date_____	Date_____

GENERAL SPECIFICATIONS

GENERAL CONDITIONS

PART I

101. DEFINITIONS

Whenever used in any of the Contract Documents, the following meanings shall be given to the terms herein defined:

a. The term "Contract" means the contract executed by the Local Public Agency and the Contractor, of which these GENERAL CONDITIONS, PARTS I, II and III form a part.

b. The term "Local Public Agency" means the Irvona Municipal Auth. which is authorized to undertake this Contract.

c. The term "Contractor" means the person, firm, or corporation entering into the Contract with Local Public Agency to construct and install the Improvements embraced in this Site Preparation Contract.

d. The term "Project Area" means the site of the Construction of Contracts 89-01 & 89-02 - Irvona Municipal Authority within which are the specified Contract limits of the Improvements contemplated to be constructed in whole or in part under this Contract.

e. The term "Engineer" means Neilan Engineers Div., engineer in charge, serving the Local Public Agency with Architectural or Engineering Services, his successor, or any person or persons, employed by said Local Public Agency for the purpose of directing or having in charge the work of Site Preparation embraced in this Contract, the said Engineer acting directly or indirectly through any assistant having immediate charge of a portion thereof limited by the particular duties intrusted to him.

f. The term "Local Government" means the City (town, borough, or political subdivision) of Irvona, Irvona, Pennsylvania, within which the Project Area is situated.

g. The term "Contract Documents" means and shall include the following: Executed Agreement, Addenda (if any), Invitation for Bids, Instructions to Bidders, Signed Copy of Bid, General Conditions, Parts I, II and III, Special Conditions, Technical Specifications, and Drawings (as listed in the Schedule of Drawings).

h. The term "Drawings" means the drawings listed in the Schedule of Drawings.

i. The term "Technical Specifications" means that part of the Contract Documents which describes outlines and stipulates: the quality of the materials to be furnished; the quality of workmanship required; and the methods to be used in carrying out the construction work to be performed under this Contract.

j. The term "Addendum" or "Addenda" means any changes, revisions or clarifications of the Contract Documents which have been duly issued by the Local Public Agency to prospective bidders prior to the time of receiving bids.

102. SUPERINTENDENCE BY CONTRACTOR

At the site of the work the Contractor shall provide a superintendent or foreman who shall have full authority to act for the Contractor, except where the Contractor is an individual and gives his personal superintendence to the work. It is understood that such representative shall be acceptable to the Engineer. The Contractor shall also provide an adequate staff for the proper coordination and expediting of his work.

103. SUBCONTRACTS

a. The Contractor shall not award any work to any subcontractor until each has completed and submitted a Non-Collusion Affidavit and a Certification by Proposed Subcontractor Regarding Equal Employment Opportunity to the Contractor. It shall also be the responsibility of the Contractor to employ only subcontractors who have certified their eligibility in written contracts containing Federal Labor Standards Provisions.

b. Should any subcontractor be found ineligible after award of a contract, its contract shall be terminated.

c. The Contractor shall be as fully responsible to the Local Public Agency for the acts and omissions of his subcontractors, and of persons either directly or indirectly employed by them, as he is for the acts and omissions of persons directly employed by him.

d. The Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the work to require compliance by each subcontractor with the applicable provisions of the Contract for the Improvements embraced in the Site Preparation.

e. Nothing contained in the Contract shall create any contractual relation between any subcontractor and the Local Public Agency.

104. SEPARATE CONTRACTS

The Local Public Agency may award, or may have awarded other contracts for additional work, and the Contractor shall coordinate his operations with those of other Contractors. The Contractor shall not commit or permit any act which will interfere with the performance of work by any other Contractor as scheduled.

105. FITTING AND COORDINATION OF THE WORK

The Contractor shall be responsible for the proper fitting of all work and for the coordination of the operations of all trades, subcontractors

or materialmen engaged upon this Contract. He shall be prepared to guarantee to each of his subcontractors the locations and measurements which they may require for the fitting of their work to all surrounding work.

NON-COLLUSION AFFIDAVIT OF SUBCONTRACTOR

State Of_____)
)ss.
County Of_____)

_____, being first duly sworn, deposes and says that:

(1) He is (Owner, partner, officer, representative or agent) of _____ hereinafter referred to as the "Subcontractor";

(2) He is fully informed respecting the preparation and contents of the subcontractor's Proposal submitted the subcontractor to_____, the Contractor for certain work in connection with the _____ Contract pertaining to the Project in _____ (City or County and State);

(3) Such subcontractor's proposal is genuine and is not a collusive or sham proposal;

(4) Neither the subcontractor nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived, or agreed, directly or indirectly with any other Bidder, firm or person to submit a collusive or sham Proposal in connection with such Contract or to refrain from submitting a Proposal in connection with such Contract, or has in any manner, directly or indirectly sought by unlawful agreement or connivance with any other Bidder, firm or person to fix the price or prices in said subcontractor's Proposal, or to secure through collusion, conspiracy connivance, or unlawful agreement any advantage against the _____ (Local Public Agency) or any person interested in the proposed Contract; and

(5) The price or prices quoted in the subcontractor's Proposal are fair and proper and are not tainted by any collusion, conspiracy, connivance, or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affiant.

(Signed) _____

_____
(Title)

Subscribed and sworn to before me
this _____ day of _____,
19____.

_____

_____
(Title)

My commission expires _____

PA DEPARTMENT OF COMMUNITY AFFAIRS
BUREAU OF HOUSING AND DEVELOPMENT
SMALL COMMUNITIES PROGRAM DIVISION

CERTIFICATION BY PROPOSED SUBCONTRACTOR REGARDING EQUAL EMPLOYMENT OPPORTUNITY

NAME OF PRIME CONTRACTOR PROJECT NO.

INSTRUCTIONS

This certification is required pursuant to Executive Order 11246 (30 F.R. 12319-25). The implementing rules and regulations provide that any bidder or prospective contractor, or any of their proposed subcontractors, shall state as an initial part of the bid or negotiations of the contract whether it has participated in any previous contract or subcontract subject of the equal opportunity clause; and, if so, whether it has filed all compliance reports due under applicable instructions.

Where the certification indicates that the subcontractor has not filed a compliance report due under applicable instructions, such subcontractor shall be required to submit a compliance report before the owner approves the subcontract or permits work to begin under the subcontract.

SUBCONTRACTOR'S CERTIFICATION

Subcontractor's Name: _____

Address: _____

_____

1. Bidder has participated in a previous contract or subcontract to the Equal Opportunity Clause.

   ☐ Yes ☐ No

2. Compliance reports were required to be filed in connection with such contract or subcontract.

   ☐ Yes ☐ No

3. Bidder has filed all compliance reports due under applicable instructions, including SF-100.

   ☐ Yes ☐ No None Required ☐

4. If the answer to item 3 is "No," please explain in detail on reverse side of this certification.

Certification - The information above is true and complete to the best of my knowledge and belief.

NAME AND TITLE OF SIGNER (Please Type)

SIGNATURE

DATE

106. MUTUAL RESPONSIBILITY OF CONTRACTORS

If, through acts of neglect on the part of the Contractor, any other Contractor or any subcontractor shall suffer loss or damage on the work, the Contractor shall settle with such other Contractor or Subcontractor by agreement or arbitration, if such other Contractor or Subcontractor will so settle. If such other Contractor or Subcontractor shall assert any claim against the Local Public Agency on account of any damage alleged to have been so sustained, the Local Public Agency will notify this Contractor, who shall defend at his own expense any suit based upon such claim, and, if any judgment or claims against the Local Public Agency shall be allowed, the Contractor shall pay or satisfy such judgment or claim and pay all costs and expenses in connection therewith.

107. CONSTRUCTION SCHEDULE

a. Immediately after execution and delivery of the Contract, the Contractor shall submit to the Local Public Agency an estimated construction progress schedule, showing the proposed dates of commencement and completion of each of the various sections of work required under the Contract, the anticipated amount of each monthly payment to become due to the Contractor and the accumulated percent of progress each month.

b. Cost Breakdown: The Contractor shall submit to the Local Public Agency a breakdown of his estimated cost of all Site Preparation work, so arranged and itemized as to meet the approval of the Local Public Agency. This breakdown shall be submitted promptly after execution of the agreement and before any payment is made to the Contractor for the work performed under the Contract. After approval by the Local Public Agency the unit prices established in the breakdown shall be used in estimating the amount of partial payments to be made to the Contractor. (Note: This paragraph B is to be used only with a lump sum Contract.)

108. PAYMENTS TO CONTRACTOR

a. Partial Payments

The Contractor shall prepare his requisition for partial payment as of the last day of the month and submit it, with the required number of copies, to the Engineer for his approval. The amount of the payment due the Contractor shall be determined by adding to the total value of work completed to date, the value of materials properly stored on the site and deducting (1) ten percent (10%) of the total amount, to be retained until final payment and (2) the amount of all previous payments. If the Contract is for a lump sum, the total value of work completed to date shall be based upon the estimated quantities of work completed to date on each item and the unit prices established in the Cost Breakdown and adjusted in accordance with the value of work completed to date on approved change orders.

b. Final Payment

1. After final inspection and acceptance by the Local Public Agency of all work under the Contract, the Contractor shall prepare his requisition

for final payment which shall be based upon the carefully measured or computed quantity of each item of work at the applicable unit prices stipulated in the Agreement. The total amount of the final payment due the Contractor under this Contract shall be the amount computed as described above less all previous payments. Final payment to the Contractor shall be made subject to his furnishing the Local Public Agency with a release in satisfactory form of all claims against the Local Public Agency arising under and by virtue of his contract, other than such claims, if any, as may be specifically excepted by the Contractor from the operation of the release as provided under the section Disputes under General Conditions, Part I.

2. The Local Public Agency, before paying the final estimate, may require the Contractor to furnish releases or receipts from all subcontractors having performed any work and all persons having supplied materials, equipment (installed on the Project) and services to the Contractor, if the Local Public Agency deems the same necessary in order to protect its interest. The Local Public Agency, however, may if it deems such action advisable make payment in part or in full to the Contractor without requiring the furnishing of such releases or receipts and any payments so made shall in no way impair the obligations of any surety or sureties furnished under this Contract.

3. Withholding of any amount due the Local Public Agency under the Section entitled "Liquidated Damages" under SPECIAL CONDITIONS, shall be deducted from the final payment due the Contractor.

c. Withholding Payments

The Local Public Agency may from any payment otherwise due the Contractor so much as may be necessary to protect the Local Public Agency and if it so elects may also withhold any amounts due from the Contractor to any subcontractors or material dealers, for work performed or material furnished by them. The foregoing provisions shall be construed solely for the benefit of the Local Public Agency and will not require the Local Public Agency to determine or adjust any claims or disputes between the Contractor and his subcontractors or material dealers, or to withhold any moneys for their protection unless the Local Public Agency elects to do so. The failure or refusal of the Local Public Agency to withhold any moneys from the Contractor shall in nowise impair the obligations of any surety or sureties under any bond or bonds furnished under this Contract.

d. Payments Subject to Submission of Certificates

Each payment to the Contractor by the Local Public Agency shall be made subject to submission by the Contractor of all written certifications required of him and his subcontractors by the Section entitled CONTRACTOR'S CERTIFICATES under GENERAL CONDITIONS.

109. CHANGES IN THE WORK

a. The Local Public Agency may make changes in the scope of the work required to be performed by the Contractor under the Contract or making additions thereto, or by omitting work therefrom, without invalidating the Contract, and without relieving or releasing the Contractor from any of his obligations under the Contract or any guarantee given by him pursuant to the Contract provisions, and without affecting the validity of the guaranty bonds, and without relieving or releasing the surety or sureties of said bonds. All such work shall be executed under the terms of the original Contract unless it is expressly provided otherwise.

b. Except for the purpose of affording protection against any emergency endangering life or property, the Contractor shall make no change in the materials used or in the specified manner of constructing and/or installing the improvements or supply additional labor, services or materials beyond that actually required for the execution of the Contract, unless in pursuance of a written order from the Local Public Agency authorizing the Contractor to proceed with the change. No claim for an adjustment of the Contract Price, will be valid unless so ordered.

c. If applicable unit prices are contained in the Agreement (established as a result of either a unit price bid or a Supplemental Schedule of Unit Prices) the Local Public Agency may order the Contractor to proceed with desired changes in the work, the value of such changes to be determined by the measured quantities involved and the applicable unit prices specified in the Contract; provided that in case of a unit price contract the net value of all changes does not increase or decrease the original total amount shown in Agreement by more than twenty-five percent (25%) in accordance with the section entitled UNIT PRICES under INSTRUCTIONS TO BIDDERS.

d. If applicable unit prices are not contained in the Agreement or if the total net change increases or decreases the total Contract Price more than twenty-five percent (25%) the Local Public Agency shall, before ordering the Contractor to proceed with desired changes, request an itemized proposal from him covering the work involved in the change after which the procedure shall be as follows:

(1) If the proposal is acceptable the Local Public Agency will prepare the change order in accordance therewith for acceptance by the Contractor and

(2) If the proposal is not acceptable and prompt agreement between the two parties cannot be reached, the Local Public Agency may order the Contractor to proceed with the work on a cost-plus-limited basis. A cost-plus-limited basis is defined as the net cost of the Contractor's labor, materials and insurance plus fifteen percent (15%) of said net cost to cover overhead and profit, the total cost not to exceed a specified limit.

e. Each change order shall include in its final form:

(1) A detailed description of the change in the work.

(2) The Contractor's proposal (if any) or a conformed copy thereof.

(3) A definite statement as to the resulting change in the contract price and/or time.

(4) The statement that all work involved in the change shall be performed in accordance with contract requirements except as modified by the change order.

110. CLAIMS FOR EXTRA COST

a. If the Contractor claims that any instructions by Drawings or otherwise involve extra cost or extension of time, he shall, within ten days after the receipt of such instructions, and in any event before proceeding to execute thework, submit his protest thereto in writing to the Local Public Agency, stating clearly and in detail the basis of his objections. No such claim will be considered unless so made.

b. Claims for additional compensation for extra work, due to alleged errors in ground elevations, contour lines, or bench marks, will not be recognized unless accompanied by certified survey data, made prior to the time the original ground was disturbed, clearly showing that errors exist which resulted, or would result, in handling more material, or performing more work, than would be reasonable estimated from the Drawings and map issued.

c. Any discrepancies which may be discovered between actual conditions and those represented by the Drawings and maps shall at once be reported to the Local Public Agency and work shall not proceed except at the Contractor's risk, until written instructions have been received by him from the Local Public Agency.

d. If, on the basis of the available evidence, the Local Public Agency determines that an adjustment of the Contract Price and/or Time is justifiable, the procedure shall be as provided in Section - CHANGES IN THE WORK under GENERAL CONDITIONS, PART I.

111. TERMINATION: DELAYS: AND LIQUIDATED DAMAGES

a. Termination of Contract. If the Contractor refuses or fails to prosecute the work with such diligence as will insure its completion within the time specified in these Contract Documents, or as modified as provided in these Contract Documents, the Local Public Agency, by written notice to the Contractor, may terminate the Contractor's right to proceed with the work. Upon such termination, the Local Public Agency may take over the work and prosecute the same to completion, by contract or otherwise, and the Contractor and his sureties shall be liable to the Local Public Agency for liquidated damages for any delay in the completion of the work as provided below. If the contractor's right to proceed is so terminated, the Local Public Agency may take possession of and utilize in completing the work such materials, tools, equipment, and plant as

as may be on the site of the work and necessary therefore.

b Liquidated Damages for Delays. If the work be not completed within the time stipulated in Section 302 - Time for Completion including any extensions of time for excusable delays as herein provided, the Contractor shall pay to the Local Public Agency as fixed, agreed, and liquidated damages (it being impossible to determine the actual damages occasioned by the delay) for each calendar day of delay, until the work is completed, the amount as set forth in Section 303 - Liquidated Damages and the Contractor and his sureties shall be liable to the Local Public Agency for the amount thereof.

c. Excusable Delays. The right of the Contractor to proceed shall not be terminated nor shall the Contractor be charged with liquidated damages for any delays in the completion of the work due:

(1) To any acts of the Government, including controls or restrictions upon or requisitioning of materials, equipment, tools, or labor by reason of war, National Defense, or any other national emergency;

(2) To any acts of the Local Public Agency;

(3) To causes not reasonably foreseeable by the parties to the Contract at the time of the execution of the Contract which are beyond the control and without the fault or negligence of the Contractor, including, but not restricted to, acts of God or the public enemy, acts of another Contractor in the performance of some other contract with the Local Public Agency, fires, floods, epidemics, quarantine, restrictions, strikes, freight embargoes, and weather of unusual severity such as hurricanes, tornadoes, cyclones and other extreme weather conditions; and

(4) To any delay of any subcontractor occasioned by any of the causes specified in subparagraphs (1), (2) and (3) of this paragraph "c".

Provided, however, that the Contractor promptly notify the Local Public Agency within ten (10) days in writing of the cause of the delay. Upon receipt of such notification the Local Public Agency shall ascertain the facts and the cause and extent of delay. If, upon the basis of the facts and the terms of this contract, the delay is properly excusable, the Local Public Agency shall extend the time for completing the work for a period of time commensurate with the period of excusable delay.

112. ASSIGNMENT OR NOVATION

The Contractor shall not assign or transfer, whether by an assignment or novation, any of its rights, duties, benefits, obligations, liabilities, or responsibilities under this Contract without the written consent of the Local Public Agency; provided, however, that assignments to banks, trust companies, or other financial institutions may be made without the consent of the Local Public Agency. No assignment or novation

of this Contract shall be valid unless the assignment or novation expressly provides that the assignment of any of the Contractor's rights or benefits under the Contract is subject to a prior lien for labor performed, services rendered, and materials, tools, and equipment supplied for the performance of the work under this Contract in favor of all persons, firms, or corporations rendering such labor or services or supplying such materials, tools, or equipment.

113. DISPUTES

a. All disputes arising under this Contract or its interpretation except those disputes covered by FEDERAL LABOR STANDARDS PROVISIONS General Conditions Part II, whether involving law or fact or both, or extra work, and all claims for alleged breach of contract shall within ten (10) days of commencement of the dispute be presented by the Contractor to the Local Public Agency for decision. All papers pertaining to claims shall be filed in quadruplicate. Such notice need not detail the amount of the claim but shall state the facts surrounding in the claim in sufficient detail to identify the claim, together with its character and scope. In the meantime the Contractor shall proceed with the work as directed. Any claim not presented within the time limit specified this paragraph shall be deemed to have been waived, except that if the claim is of a continuing character and notice of the claim is not given within ten days of its commencement, the claim will be considered only for a period commencing ten (10) days prior to the receipt by the Local Public Agency of notice thereof.

b. The Contractor shall submit in detail his claim and his proof thereof. Each decision by the governing body of the Local Public Agency will be in writing and will be mailed to the Contractor by registered mail, return receipt requested.

c. If the Contractor does not agree with any decision of the Local Public Agency, he shall in no case allow the dispute to delay the work but shall notify the Local Public Agency promptly that he is proceeding with the work under protest and he may then except the matter in question from the final release.

114. TECHNICAL SPECIFICATIONS AND DRAWINGS

Anything mentioned in the Technical Specifications and not shown on the Drawings or shown on the Drawings and not mentioned in the Technical Specifications, shall be of like effect as if shown on or mentioned in both. In case of difference between Drawings and Technical Specification, the Technical Specifications shall govern. In case of any discrepancy in Drawings, or Technical Specifications, the matter shall be immediately submitted to the Local Public Agency, without whose decision, said discrepancy shall not be adjusted by the Contractor, save only at his own risk and expense.

115. SHOP DRAWINGS

a. All required show drawings, machinery details, layout drawings, etc., shall be submitted to the Engineer in two copies for approval

sufficiently in advance of requirements to afford ample time for checking, including time for correcting, resubmitting and re-checking if necessary. The Contractor may proceed, only at his own risk, with manufacture or installation of any equipment or work covered by said show drawings, et. until they are approved and no claim, by the Contractor, for extension of the contract time will be granted by reason of his failurre in this respect.

b. Any drawings submitted without the Contractor's stamp of approval will not be considered and will be returned to him for proper resubmission. If any drawings show variations from the requirements of the Contract because of standard shop practice or other reason, the Contractor shall make specific mention of such variation in his letter of transmittal in order that, if acceptable, suitable action may be taken for proper adjustment of contract price and/or time otherwise the Contractor will not be relieved of the responsibility for executing the work in accordance with the Contract even though the drawings have been approved.

c. If a shop drawing is in accord with the contract or involves only a minor adjustment in the interest of the Local Public Agency not involving a change in contract price or time, the Engineer may approve the drawing. The approval shall be general, shall not relieve the Contractor, from his responsibility for adherence to the contract or for any error in the drawing and shall contain in substance the following:

"The modification shown on the attached drawing is approved in the interest of the Local Public Agency to effect an improvement for the Project and is ordered with the understanding that it does not involve any change in the Contract Price or time; that it is subject generally to all Contract stipulation and covenants; and that it is without prejudice to any and all rights of the Local Public Agency under the Contract and surety bond or bonds."

116. REQUESTS FOR SUPPLEMENTARY INFORMATION

It shall be the responsibility of the contractor to make timely requests of the Local Public Agency for any additional information not already in his possession which should be furnised by the Local Public Agency under the terms of this Contract, and which he will require in the planning and execution of the work. Such requests may be submitted from time to time as the need is approached, but each shall be filed in ample time to permit appropriate action to be taken by all parties involved so as to avoid delay. Each request shall be in writing, and list the various items and the latest date by which each will be required by the Contractor. The first list shall be submitted within two weeks after Contract award and shall be as complete as possible at that time. The Contractor shall, if requested, furnish promptly any assistance and information the Engineer may require in responding to these requests of the Contractor. The Contractor shall be fully responsible for any delay in his work or to others arising from his failure to comply fully with the provisions of this Section.

117. MATERIALS AND WORKMANSHIP

a. Unless otherwise specifically provided for in the Technical

Specifications, all workmanship, equipment, materials and articles incorporated in the work shall be new and the best grade of the respective kinds for the purpose. Where equipment, materials, articles or workmanship are referred to in the Technical Specifications as "equal to" any particular standard, the Engineer shall decide the question of equality.

b. The Contractor shall furnish to the Local Public Agency for approval the manufacturer's detailed specifications for all machinery, mechanical and other special equipment, which he contemplates installing together with full information as to type, performance characteristics, and all other pertinent information as required, and shall likewise submit for approval as required full information concerning all other materials or articles which he proposes to incorporate in the work. (See Section - SAMPLES, CERTIFICATES AND TESTS under GENERAL CONDITIONS, PART I.)

c. Machinery, mechanical and other equipment, materials or articles installed or used without such prior approval shall be at the risk of subsequent rejection.

d. Materials specified by reference to the number or symbol of specific standard, such as an A.S.T.M. Standard, a Federal Specification or other similar standard, shall comply with requirements in the latest revision thereof and any amendment or supplement thereto in effect on the date of the Invitation for Bids, except as limited to type, class or grade, or modified in such reference. The standards referred to, except as modified in the Technical Specifications shall have full force and effect as though printed therein.

e. The Local Public Agency may require the Contractor to dismiss from the work such employee or employees as the Local Public Agency or the Engineer may deem incompetent, or careless, or insubordinate.

118. SAMPLES, CERTIFICATES AND TESTS

a. The Contractor shall submit all material or equipment samples, certificates, affidavits, etc., as called for in the contract documents or required by the Engineer, promptly after award of the contract and acceptance of the Contractor's bond. No such material or equipment shall be manufactured or delivered to the site, except at the Contractor's own risk, until the required samples or certificates have been approved in writing by the Engineer. Any delay in the work caused by late or improper submission of samples or certificates for approval shall not be considered just cause for an extension of the contract time.

Each sample submitted by the Contractor shall carry a label giving the name of the Contractor, the project for which it is intended, and the name of the producer. The accompanying certificate or letter from the Contractor shall state that the sample complies with contract requirements, the name and brand of the product, its place of origin, the name and address of the producer and all specifications or other detailed information which will assist the Engineer in passing upon the acceptability of the sample promptly. It shall also include the statement that all materials or equipment furnished for use in the project will comply with the samples and/or certified statements.

b. Approval of any materials shall be general only and shall not constitute a waiver of the Local Public Agency's right to demand full compliance with Contract requirements. After actual deliveries, the Engineer will have such check tests made as he deems necessary in each instance and may reject materials and equipment and accessories for cause, even though such materials and articles have been given general approval. If materials, equipment or accessories which fail to meet check tests have been incorporated in the work, the Engineer will have the right to cause their removal and replacement by proper materials or to demand and secure such reparation by the Contractor as is equitable.

c. Except as otherwise specifically stated in the Contract, the costs of sampling and testing will be divided as follows:

(1) The Contractor shall furnish without extra cost, including packing and delivery charges, all samples required for testing purposes, except those samples taken on the project by the Engineer;

(2) The Contractor shall assume all costs of re-testing materials which fail to meet contract requirements;

(3) The Contractor shall assume all costs of testing materials offered in substitution for those found dificient; and

(4) The Local Public Agency will pay all other expenses.

119. PERMITS AND CODES

a. The Contractor shall give all notices required by and comply with all applicable laws, ordinances, and codes of the Local Government. All construction work and/or utility installations shall comply with all applicable ordinances, and codes including all written waivers. Before installing any work, the Contractor shall examine the Drawings and Technical Specifications for compliance with applicable ordinances and codes and shall immediately report any discrepancy to the Local Public Agency. Where the requirements of the Drawings and Technical Specifications fail to comply with such applicable ordinances or codes, the Local Public Agency will adjust the Contract by Change Order to conform to such ordinances or codes (unless waivers in writing covering the difference have been granted by the governing body or department) and make appropriate adjustment in the Contract Price or stipulated unit prices.

Should the Contractor fail to observe the foregoing provisions and proceed with the construction and/or install any utility at variance with any applicable ordinance or code, including any written waivers (notwithstanding the fact that such installation is in compliance with the Drawings and Technical Specifications), the Contractor shall remove such work without cost to the Local Public Agency, but a Change Order will be issued to cover only the excess cost the Contractor would have been entitled to receive if the change had been made before the Contractor commenced work on the items involved.

b. The Contractor shall at his own expense, secure and pay to the appropriate department of the Local Government the fees or charges for all permits for street pavement, sidewalks, sheds, removal of abandoned water taps, sealing of house connection drains, pavements cuts, buildings, electrical, plumbing, water, gas and sewer permits required by the local regulatory body or any of its agencies.

c. The Contractor shall comply with applicable local laws and ordinances governing the disposal of surplus excavation, materials debris and rubbish on or off the Project Area and commit no trespass on any public or private property in any operation due to or connected with the Improvements embraced in this Contract.

120. CARE OF WORK

a. The Contractor shall be responsible for all damages to person or property that occur as a result of his default or negligence in connection with the prosecution of the work and shall be responsible for the proper care and protection of all materials delivered and work performed until completion and final acceptance, whether or not the same has been covered in whole or in part by payments made by the Local Public Agency.

b. The Contractor shall provide sufficient competent watchmen, both day and night, including Saturdays, Sundays and holidays, from the time the work is commenced until final completion and acceptance.

c. In an emergency affecting the safety of life or property, including adjoining property, the Contractor, without special instructions or authorization from the Local Public Agency, is authorized to act at his discretion to prevent such threatened loss or injury, and he shall so act. He shall likewise act if instructed to do so by the Local Public Agency. Any compensation claimed by the Contractor on account of such emergency work will be determined by the Local Public Agency as provided in the Section - CHANGES IN THE WORK under GENERAL CONDITIONS, PART I.

d. The Contractor shall avoid damage as a result of his operations to existing sidewalks, streets, curbs, pavements, utilities (except those which are to be replaced or removed), adjoining property, etc., and he shall at his own expense completely repair any damage thereto caused by his operations.

e. The Contractor shall shore up, brace, underpin, secure, and protect as may be necessary, all foundations and other parts of existing structures adjacent to, adjoining, and in the vicinity of the site, which may be in any way affected by the excavations or other operations connected with the construction of the Improvements embraced in this Contract. The Contractor shall be responsible for the giving of any and all required notices to any adjoining or adjacent property owner or other party before the commencement of any work. The Contractor shall indemnify and save harmless the Local Public Agency from any damages on account of settlements or the loss of lateral support of adjoining property and from all loss or expense and all damages for which the Local Public Agency may become liable in consequence of such injury or damage to adjoining and adjacent structures and their premises.

121. ACCIDENT PREVENTION

a. The Contractor shall exercise proper precaution at all times for the protection of persons and property and shall be responsible for all damages to persons or property, either on or off the site, which occur as a result of his prosecution of the work. The safety provisions of applicable laws and building and construction codes shall be observed and the Contractor shall take or cause to be taken such additional safety and health measures as the Local Public Agency may determine to be reasonably necessary. Machinery, equipment and all hazards shall be guarded in accordance with the safety provisions of the "Manual of Accident Prevention in Construction" published by the Associated General Contractors of America, Inc., to the extent that such provisions are not in conflict with applicable local laws.

b. The Contractor shall maintain an accurate record of all cases of death, occupational disease, and injury requiring medical attention or causing loss of time from work, arising out of and in the course of employment on work under the Contract. The Contractor shall promptly furnish the Local Public Agency with reports concerning these matters.

c. The Contractor shall indemnify and save harmless the Local Public Agency from any claims for damages resulting from personal injury and/or death suffered or alleged to have been suffered by any person as a result of any work conducted under this contract.

122. SANITARY FACILITIES

The Contractor shall furnish, install, and maintain ample sanitary facilities for the workmen. As the needs arise, a sufficient number of enclosed temporary toilets shall be conveniently placed as required by the sanitary codes of the State and Local Government. Drinking water shall be provided from an approved source, so piped or transported as to keep it safe and fresh and served from single service containers or satisfactory types of sanitary drinking stands or fountains. All such facilities and services shall be furnished in strict accordance with existing and governing health regulations.

123. USE OF PREMISES

a. The Contractor shall confine his equipment, storage of materials, and construction operations to the Contract Limits as shown on the Drawings and as prescribed by ordinances or permits, or as may be desired by the Local Public Agency, and shall not unreasonably encumber the site or public rights of way with his materials and construction equipment.

b. The Contractor shall comply with all reasonable instructions of the Local Public Agency and the ordinances and codes of the Local Government, regarding signs, advertising, traffic, fires, explosives, danger signals, and barricades.

124. REMOVAL OF DEBRIS, CLEANING, ETC.

The Contractor shall, periodically or as directed during the progress

of the work, remove and legally dispose of all surplus excavated material and debris, and keep the Project Area and public rights of way reasonably clear. Upon completion of the work, he shall remove all temporary construction facilities, debris and unused materials provided for the work, and put the whole site of the work and public rights of way in a neat and clean condition. Trash burning on the site of the work will be subject to prior approval of the Local Public Agency and existing State and Local regulations.

125. INSPECTION

a. All materials and workmanship shall be subject to inspection, examination, or test by the Local Public Agency and the Engineer at any and all times during manufacture or construction and at any and all places where such manufacture or construction is carried on. The Local Public Agency shall have the right to reject defective material and workmanship or require its coorection. Unacceptable workmanship shall be satisfactorily corrected. Rejected material shall be promptly segregated and removed from the Project Area and replaced with material of specified quality without charge therefor. If the Contractor fails to proceed at once with the correction of rejected workmanship or defective material, the Local Public Agency may be contract or otherwise have the defects remedied or rejected materials removed from the Project Area and charge the cost of the same against any moneys which may be due the Contractor, without prejudice to any other rights or remedies of the Local Public Agency.

b. The Contractor shall furnish promptly all materials reasonably necessary for any tests which may be required. (See Section - SAMPLES, CERTIFICATES AND TESTS, under the GENERAL CONDITIONS, PART I.) All tests by the Local Public Agency will be performed in such manner as not to delay the work unnecessarily and shall be made in the Technical Specifications.

c. The Contractor shall notify the Local Public Agency sufficiently in advance of backfilling or concealing any facilities to permit proper inspection. If any facilities are concealed without approval or consent of the Local Public Agency, the Contractor shall uncover for inspection and recover such facilities all at his own expense, when so requested by the Local Public Agency.

Should it be considered necessary or advisable by the Local Public Agency at any time before final acceptance of the entire work to make an examination of work already completed, by uncovering the same, the Contractor shall on request promptly furnish all necessary facilities, labor, and material. If such work is found to be defective in any important or essential respect, due to fault of the Contractor or his subcontractors the Contractor shall defray all the expenses of such examination and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the Contract, the actual cost of labor and material necessarily involved in the examination and replacement, plus 15 percent of such costs to cover superintendence, general expenses and profit, shall be allowed the Contractor and he shall, in addition if completion of the

work of the entire Contract has been delayed thereby, be granted a suitable extension of time on account of the additional work involved.

d. Inspection of materials and appurtenances to be incorporated in the Improvements embraced in this Contract may be made at the place of production, manufacture or shipment, whenever the quantity justifies it, and such inspection and acceptance, unless otherwise stated in the Technical Specifications, shall be final except as regards (1) latent defects, (2) departures from specific requirements of the Contract, (3) damage or loss in transit, or (4) fraud or such gross mistakes as amount to fraud. Subject to the requirements contained in the preceding sentence, the inspection of materials as a whole or in part will be made at the Project Site.

e. Neither inspection, testing, approval nor acceptance of the work in whole or in part, by the Local Public Agency or its agents shall relieve the Contractor or his sureties of full responsibility for material furnished or work performed not in strict accordance with the Contract.

f. Any work performed within the right-of-way of any Pennsylvania Department of Transportation highway, roadway or travelway shall be subject to inspection by a representative of the Pennsylvania Department of Transportation. It shall be the responsibility of the Local Government to reimburse the Pennsylvania Department of Transportation for any and all such inspection services.

126. REVIEW BY LOCAL PUBLIC AGENCY

The Local Public Agency, its authorized representatives and agents and the DCA Representative for the Administrator (as defined under General Conditions Part II) shall, at all times have access to and be permitted to observe and review all work, materials, equipment, payrolls. personnel records, employment conditions, material invoices, and other relevant data and records pertaining to this Contract, provided, however, that all instructions and approval with respect to the work will be given to the Contractor only by the Local Public Agency through its authorized representatives or agents.

127. FINAL INSPECTION

When the Improvements embraced in this Contract are substantially completed, the Contracotr shall notify the Local Public Agency in writing that the work will be ready for final inspection on a definite date which shall be stated in the notice. The notice will be given at least ten (10) days prior to the date stated for final inspection, and bear the signed concurrence of the representative of the Local Public Agency having charge of inspection. If the Local Public Agency determines that the status of the Improvements is as represented, it will make the arrangements necessary to have final inspection commenced on the date stated in the notice, or as soon thereafter as is practicable. The inspection party may also include the DCA Representative and representatives of each department of the Local Government having in charge improvements of like character when such Improvements are later to be accepted by the Local Government.

128. DEDUCTION FOR UNCORRECTED WORK

If the Local Public Agency deems it not expedient to require the Contractor to correct work not done in accordance with the Contract Documents, an equitable deduction from the Contract Price will be made by agreement between the Contractor and the Local Public Agency and subject to settlement, in case of dispute, as herein provided.

129. INSURANCE

a. The Contractor shall carry or require that there be carried Workmen's Compensation Insurance for all his employees and those of his subcontractors engated in work at the site, in accordance with State or Territorial Workmen's Compensation Laws.

b. The Contractor shall carry or require that there be carried Manufacturer's and Contractor's Public Liability Insurance with limits of not less that $50,000 bodily injury each person - $50,000 each occurance to protect the Contractor and his subcontractors against claims for injury to or death of one, or more than one, person, because of accidents which may occur or result from operations under the Contract; such insurance shall cover the use of all equipment, including but not limited to excavating machinery, trenching machines, cranes, hoists, rollers, concrete mixers, and motor vehicles, in the construction of the Improvements embraced in this contract.

c. The Contractor shall carry, during the life of the Contract, Property Damage Insurance in an amount not less than $20,000 to protect him and his subcontractors from claims for property damage which might arise from operations under the contract.

d. Before commencing work, the Contractor shall submit evidence of the coverage required above to the Local Public Agency for review and approval. The Local Public Agency will, in writing, identify the policies and indicate its approval or disapproval. New policies from other companies shall be provided in place of those disapproved. Such insurance shall be carried with financially responsible insurance companies, licensed in the State and approved by the Local Public Agency, and shall be kept in force until the Contractor's work is accepted by the Local Public Agency. Contracts of insurance (covering all operations under this Contract) which expire before the Contractor's work is accepted by the Local Public Agency shall be renewed and evidence submitted to the Local Public Agency for its approval.

130. PATENTS

The Contractor shall hold and save the Local Public Agency, its officers, and employees, harmless from liability of any nature or kind, including costs and expenses for or on account of, any patented or unpatented invention, process, article, or applicance manufactured or used in the performance of the Contract, including its use by the Local Public Agency, unless otherwise specifically stipulated in the Technical Specifications.

131. WARRANTY OF TITLE

No material, supplies, or equipment for the work shall be purchased subject to any chattel mortgage or under a conditional sale or other agreement by which an interest therein or in any part thereof is retained by the seller or supplier. The Contractor shall warrant good title to all materials, supplies, and equipment installed or incorporated in the work and upon completion of all work, shall deliver the same together with all improvements and appurtenances constructed or placed thereon by him to the Local Public Agency free from any claims, liens, or charges. Neither the Contractor nor any person, firm or corporation furnishing any material or labor for any work covered by this Contract shall have any right to a lien upon any improvement or appurtenance thereon. Nothing contained in this paragraph, however, shall defeat or impair the right of persons furnishing materials or labor to recover under any bond given by the Contractor for their protection or any rights under any law permitting such persons to look to funds due the Contractor in the hands of the Local Public Agency. The provisions of this paragraph shall be inserted in all subcontracts and material contracts and notice of its provisions shall be given to all persons furnishing materials for the work when no formal contract is entered into for such materials.

132. GENERAL GUARANTY

Neither the final certificate of payment nor any provision in the Contract nor partial or entire use of the Improvements embraced in this Contract by the Local Public Agency or the public shall constitute an acceptance of work not done in accordance with the Contract or relieve the Contractor of liability in respect to any express warranties or responsibility for faulty materials or workmanship. The Contractor shall promptly remedy any defects in the work and pay for any damage to other work, resulting therefrom which shall appear within a period of 12 months[1] from the date of final acceptance of the work. The Local Public Agency will give notice of defective materials and work with reasonable promptness.

133. EXPLOSIVES AND BLASTING

Blasting shall not be allowed.

134. PRECONSTRUCTION CONFERENCE

A preconstruction conference is to be held by the Local Public Agency with the contractor and his subcontractors. The purpose of the conference is to assure that the contractor and his subcontractors understand and accept their contract obligations under Executive Order 11246 and understand the Local Public Agency's role in the enforcement of those contract obligations.

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1. Supply in this section, the number of calendar months over which the guaranty will extend. This period of time should be determined in line with the character of the improvements and local practice in this respect.

The Contractor shall be represented by officials who will be directly responsible for the selection of the work force and for supervision over construction workers.

Executive Order 11246 requires that the Contractor provides equal employment opportunity in all aspects of his employment.

135. INTEREST OF MEMBERS OF THE COMMONWEALTH AND OTHERS

a. No officer, member, or employee of the Commonwealth and no member of its governing body who exercises any functions or responsibilities in the review or approval of services being performed under this Contract shall participate in any decision relating to this Contract, which affects his personal interest or the interest of any corporation, partnership, or association in which he is directly or indirectly interested; nor shall any such officer, member, or employee of the Commonwealth and no member of its governing body have any interest, direct or indirect, in this Contract or the proceeds thereof.

b. No member of the governing body of the Local Public Agency who exercises any functions or responsibilities in connection with the carrying out of the Project to which this Contract pertains, and no other officer or employee of the Local Public Agency who exercises any such functions or responsibilities, shall have any private interest, direct or indirect, in this Contract which is incompatible or in conflict with the discharge or fulfillment of his functions and responsibilities in connection with the carrying out of the Project to which this Contract pertains.

136. PROHIBITION AGAINST PAYMENTS OF BONUS OR COMMISSION

The assistance provided under this Agreement shall not be used in the payment of any bonus or commission for the purpose of obtaining DCA approval of the application for additional assistance, or any other approval or concurrence of DCA required under this Agreement, Title I of the Housing and Community Development Act of 1974 or DCA regulations with respect thereto: Provided, however, that reasonable fees or bona fide technical consultant managerial or other such services, other than actual solicitation, are not hereby prohibited if otherwise eligible as program costs.

137. CERTIFICATION OF ELIGIBILITY

By entering into this contract, the Contractor certifies that neither it (nor he or she) nor any person of firm who has an interest in the Contractor's firm is a person or firm ineligible to be awarded Government Contracts.

GENERAL CONDITIONS

PART II

FEDERAL REQUIREMENTS

All bidders must comply with the following Federal requirements:

1. Title VI of the Civil Rights Act of 1964 (P.L. 88-352) as stated in 24 CFR 570.496.

   "No person in the United States shall on the grounds of race, color, national origin, or sex be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity funded in whole or in part with funds made available under this Title."

2. Executive Order 11063, as amended.

   "No person in the United States shall on the basis of race, color, religion, sex, or national origin, be discriminated against in housing (and related facilities) provided with Federal assistance and in lending practices with respect to residential property when such practices are connected with loans insured or guaranteed by the Federal Government."

3. Executive Order 11246.

   A. If the contract amount is less than $10,000 the following conditions shall apply:

      During the performance of this contract, the Contractor agrees as follows:

      (1) The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, or national origin. Such actions shall include, but not be limited to, the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Local Public Agency setting forth the provisions of this nondiscrimination clause.

      (2) The Contractor will, in all solicitation or advertisements for

employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.

(3) The Contractor will cause the foregoing provisions to be inserted in all subcontracts for any work covered by this contract so that such provisions will be binding upon each subcontractor, provided that the foregoing provisions shall not apply to contracts or subcontracts for standard commercial supplies or raw materials.

B. If the contract amount exceeds $10,000 the following conditions shall apply:

(1) The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

(2) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.

(3) The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or worker's representatives of the Contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(4) The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965; and the rules, regulations and relevant orders of the Secretary of Labor.

(5) The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and rules, regulations and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and

accounts by the Contracting Agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations and orders.

(6) In the event of the Contractor's noncompliance with the non-discrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulations, or order of the Secretary of Labor, or as otherwise provided by law.

(7) The Contractor will include the portion of the sentence immediately preceding paragraph (b-1) and the provisions of paragraphs (b-1) through (b-7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the Contracting Agency may direct as a means of enforcing such provisions, including sanctions for noncompliance: Provided, however, that in the event a Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the Contracting Agency, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (EXECUTIVE ORDER 11246)

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

Goals and Timetables for Minority Participation for Each Trade	Goals and Timetables for Female Participation in Each Trade
3%	6.9%

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or Federally assisted) performed in the covered area.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals established for the geographical area where the contract resulting from this solicitation is to be performed. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address, and telephone number of the subcontractor; employer identification number; estimated dollar amount of the subcontractor; estimated starting and completion dates of the subcontract; and the geographical area in which the contract is to be performed.

4. As used in this Notice, and in the contract resulting from this solicitation, the "covered area" is (insert description of the geographical areas where the contract is to be performed giving the state, county and city, if any).

STANDARD FEDERAL EQUAL EMPLOYMENT

OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS

(EXECUTIVE ORDER 11246)

1. As used in these specifications:

   a. "Covered area" means the geographical area described in the solicitation from which this contract resulted;

   b. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;

   c. "Employer Identification Number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.

   d. "Minority" includes:

      (i) Black (all persons having origins in any of the Black African

racial groups not of Hispanic origin);

(ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);

(iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, and the Indian Subcontinent, or the Pacific Islands); and

(iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North American and maintaining identifiable affiliations through membership and participation or community identification).

2. Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of $10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO Clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization, the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. The Contractor is expected to make substantially uniform progress toward its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

6. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

   a. Ensure and maintain a working environment free of harrassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

   b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

   c. Maintain a current file of names, addresses and telephone numbers of each minority and female offstreet applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or referred, not employed by the Contractor, this shall be documented in the file with the reason thereafter, along with whatever additional actions the Contractor may have taken.

   d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligation.

   e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs,

especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under 7b above.

f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layofff, termination or other employment decisions including specific review of these items with onsite supervisory personnel such as Superintendents, General Foreman, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and in disposition of the subject matter.

h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.

i. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment sources, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women, and where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's workforce.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through

appropriate training, etc. such opportunities.

m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitation of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the Contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through p of these Specifications provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and nonminority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

11. The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including, suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246 as amended, and its implementing regulations by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4-8.

14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation, if any, employee identification number when assigned, social security number, race, sex, status (e.g. mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application or requirements for the hiring of local or other area residents (e.g. those under the Public Works Employment Act of 1977 and the Small Communities Program).

4. Contract Work Hours and Safety Standards Act (40 U.S.C. 327 et.seq.)

The Contractor, if the contract is in excess of $2,000, and any of his subcontractors, shall comply with Section 103 and 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 327-330) as supplemented by Department of Labor Regulations contained in 29 CFR Part 5.

Under Section 103 of the Act, the Contractor and any of his subcontractors, shall be required to compute the wages of every mechanic and laborer on the basis of standard work day of eight hours and a standard work week of forty hours. Work in excess of the standard work week is permissible, provided the worker is compensated at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in any week. Section 5 of the Federal Labor Standards Provisions, as shown below, sets forth in detail the Section 103 requirements.

Section 107 of the Act provides that no laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous or dangerous to his health and safety, as determined under construction, safe and health standards promulgated by the Secretary of Labor. These requirements do not apply to the purchase of supplies or materials or articles ordinarily available on the open market.

5. Federal Labor Standards Provisions.

Pennsylvania Department of Community Affairs Small Communities Program.

1. Applicability

The Project or Program to which the work covered by this Contract pertains is being assisted by the Pennsylvania Small Communities Program and the following Federal Labor Standards Provisions are included in this Contract pursuant to the provisions applicable to such Federal assistance.

2. Minimum Wage Rates for Laborers and Mechanics

A. Minimum Wages.

(1) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics. Contributions made or costs

reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR 5.5(a)(1)(iv); also, regular contributions made or costs incurred for more than a weekly period (but not less than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period.

Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR Part 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under 29 CFR Part 5.5(a)(1)(ii)) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the Contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

(2) (a) Any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. DCA shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(b) If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and DCA or its designee agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate)

a report of the action taken shall be sent by DCA or its designee to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise DCA or its designee within the 30-day period that additional time is necessary.

(c) In the event the Contractor, the laborers or mechanics to be employed in the classification or their representatives, and DCA or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), DCA or its designee shall refer the questions, including the views of all interested parties and the recommendations of DCA or its designee, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise DCA or its designee within the 30-day period that additional time is necessary.

(d) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(b) or (c) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(3) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the Contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(4) If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, provided that the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

B. Withholding.

DCA or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the Contractor under this contract or any other Federal contract with the same prime Contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime Contractor so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees and helpers, employed by the Contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee or helper, employed or working on the site of the work, all or part of the wages required by the contract, DCA or its designee may, after written notice to the Contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased. DCA or its designee may, after written notice to the Contractor, disburse such amounts withheld for and on account of the contractor or subcontractor to the respective employees to whom they are due.

C. Payrolls and Basic Records

(1) Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the work preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5 (a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section 1(b)(2)(B) of the Davis-Bacon Act, the Contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(2) (a) The Contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to DCA or its designee if the agency is a party to the contract, but if the agency is not such a party, the Contractor will submit the payrolls to the applicant, sponsor, or owner, as the case may be, for transmission to DCA or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR Part 5.5(a)(3)(i). This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal Stock Number 029-005-00014-1), U.S. Government Printing Office, Washington, D.C. 20402. The prime Contractor is responsible for the submission of copies of payrolls by all subcontractors.

(b) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be maintained under 29 CFR Part 5.5(a)(3)(i) and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissable deductions as set forth in 29 CFR Part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(c) The weekly submission of properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph A.3(ii)(b) of this section.

(d) The falsification of any of the above certification may subject the Contractor or subcontractor to civil or or criminal prosecution under Section 1001 of Title

18 and Section 231 of Title 31 of the United States Code.

(3) The Contractor or subcontractor shall make the records required under paragraph A.3(i) of this section available for inspection, copying, or transcription by authorized representatives of DCA or its designee or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the Contractor or subcontractor fails to submit the required records or to make them available, DCA or its designee may, after written notice to the Contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR Part 5.12.

D. Apprentices and Trainees.

(1) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the Contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a Contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in

the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(2) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(3) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

E. Compliance with Copeland Act requirements. The Contractor shall comply with the requirements of 29 CFR Part 3 which are incorporated by reference in the contract.

F. Subcontracts. The Contractor or subcontractor will insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as DCA or its designee may by appropriate instruction require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all contract clauses in 29 CFR Part 5.5.

G. Contract termination; debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a Contractor and a subcontractor as provided in 29 CFR 5.12.

H. Compliance with Davis-Bacon and Related Act Requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract.

I. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the Contractor (or any of its subcontractors) and DCA or its designee, the U.S. Department of Labor, or the employees or their representatives.

J. Certification of Eligibility.

(1) By entering into this contract, the Contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the Contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(2) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(3) The penalty for making false statements is prescribed

in the U.S. Criminal Code, 18 U.S.C. 1001. Additionally, U.S. Criminal Code, Section 1010, Title 18, U.S.C., "Federal Housing Administration transaction", provides in part: "Whoever, for the purpose of . . . influencing in any way the action of such Administration . . . makes, utters or publishes any statement, knowing the same to be false . . . shall be fined not more than $5,000 or imprisoned not more than two years, or both."

K. Complaints, Proceedings, or Testimony by Employees. No laborer or mechanic to whom the wage, salary, or other labor standards provisions of this Contract are applicable shall be discharged or in any other manner discriminated against by the Contractor or any subcontractor because such employee has filed any complaint or instituted or caused to be instituted any proceeding or has testified or is about to testify in any proceeding under or relating to the labor standards applicable under this Contract to his employer.

3. Contract Work Hours and Safety Standards Act. As used in this paragraph, the terms "laborers" and "mechanics" include watchmen and guards.

A. Overtime requirements. No Contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any work week in which he or she is employed on such work to work in excess of forty hours in such work week unless such laborer or mechanic received compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such work week.

B. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in subparagraph (A) of this paragraph, the Contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such Contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in subparagraph (A) of this paragraph, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard work week of forty hours without payment of the overtime wages required by the clause set forth in subparagraph (A) of this paragraph.

C. Withholding for unpaid wages and liquidated damages. DCA or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the Contractor or subcontractor under any such contract or any other Federal contract with the same prime contract, or any other Federally assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor such sums as may be determined to be necessary to satisfy any liabilities of such Contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in subparagraph (B) of this paragraph.

D. Subcontracts. The Contractor or subcontractor shall insert in any subcontracts the clauses set forth in subparagraph (A) through (D) of this paragraph and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in subparagraphs (A) through (D) of this paragraph.

4. Health and Safety

A. No laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his health and safety as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation.

B. The Contractor shall comply with all regulations issued by the Secretary of Labor pursuant to Title 29 Part 1926 (formerly part 1518) and failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act (Public Law 91-54, 83 Stat. 96).

C. The Contractor shall include the provisions of this Article in every subcontract so that such provisions will be binding on each subcontractor. The Contractor shall take such action with respect to any subcontract as the Secretary of the Department of Community Affairs or the Secretary of Labor shall direct as a means of enforcing such provisions.

6. Section 3 of the Housing and Urban Development Act of 1968 (12 U.S.C. 1701 u).

1. This Agreement is subject to the requirements of Section 3 of the Housing and Urban Development Act of 1968 (12 U.S.C. 1701 u) as amended, the regulations issued at 24 CFR Part 135, and any applicable rules and orders of DCA issued thereunder prior to the execution of this Agreement. The Section 3 clause, set forth in 24 CFR Part 135.20(b) provides:

"Every applicant, recipient, contracting party, contractor, and subcontractor shall incorporate, or cause to be incorporated in all contracts for work in connection with a Section 3 covered project, the following clause (referred to as a Section 3 clause):

A. The work to be performed under this contract is on a project assisted under the State's Small Communities program which provides Federal financial assistance from the Department of Housing and Urban Development and is subject to the requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701 u. Section 3 requires that to the greatest extent feasible opportunities from training and employment be given lower income residents of the project area and contracts for work in connection with the project to be awarded to business concerns which are located in, or owned in substantial part by persons residing in the area of the project.

B. The parties to the contract will comply with the provisions of said Section 3. The parties to the contract certify and agree that they are under no contractual or other disability which would prevent them from complying with these requirements.

C. The Contractor will send to each labor organization or representative of workers with which he has a collective bargaining agreement or other contract or understanding, if any, a notice advising the said labor organization or workers' representative of his commitments under this Section 3 clause and shall post copies of the notice in conspicuous places available to employees and applicants for employment training.

D. The Contractor will include this Section 3 clause in every subcontract for work in connection with the project and will, at the direction of the applicant for or recipient of Federal financial assistance, take appropriate action pursuant to the subcontract upon a finding that the subcontractor is in violation of these regulations. The Contractor will not subcontract with any subcontractor where it has notice or knowledge that the latter has been found in violation of these regulations under 24 CFR Part 135 and will not let any subcontract unless the subcontractor has first provided it with a preliminary statement of ability to comply with the requirements of these regulations.

E. Compliance with the provisions of Section 3 and the regulations set forth in 24 CFR Part 135, shall be a condition of the Federal financial assistance provided to the project, binding upon the applicant or recipient for such assistance, its successors and assigns. Failure to fulfill these requirements shall subject the applicant or recipient, its contractors and subcontractors, its successors and assigns to those sanctions specified by the grant or loan agreement or contract through which Federal assistance is provided, and to such sanctions as are specified by 24 CFR Part 135.

2. The Contractor agrees to abide by the Section 3 clause set for above and will also cause this Section clause to be inserted in any subcontracts entered into with third parties for work covered by this agreement.

3. Prior to the signing of the Contract, the Contractor shall prepare and submit to the Local Public Agency a preliminary statement of work force needs and identify targets for employment of trainees and regular work force, and for business utilization. Each subcontractor shall be required by the Contractor to prepare and submit to the same documents as are required of the Contractor. Forms of statement and target identification, and the Contractor's Certification of Compliance meeting the requirements of this Section are attached hereto and incorporated herein by reference.

7. Lead Based Paint Requirements.

Title IV of the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. 4831) prohibits the use of lead-based paint in residential structures constructed or rehabilitated with Federal assistance in any form.

8. Clean Air and Clean Water Acts.

This Agreement is subject to the requirements of the Clean Air Act, as amended, 42 U.S.C. 1857 et. seq., and the regulations of the Environmental Protection Agency with respect thereto, at 40 CFR Part 15, as amended from time to time.

The Contractor and any of its subcontractors for work funded under the Agreement which is excess of $100,000 agree to the following requirements:

(1) A stipulation by the Contractor or subcontractors that any facility to be utilized in the performance of any non-exempt contract or subcontract is not listed on the List of Violating Facilities issued by the Environmental Protection Agency (EPA) pursuant to 40 CFR 15.20.

(2) Agreement by the Contractor to comply with all the requirements of Section 114 of the Clean Air Act, as Amended (42 U.S.C. 1857c-8) and Section 308 of the Federal Water Pollution Control Act, as amended. (33 U.S.C. 1318) relating to the inspection, monitoring, entry, reports and information, as well as all other requirements specified in said Section 114 and Section 308, and all regulations, and guidelines issued thereunder.

(3) A stipulation that as a condition for the award of the contract prompt notice will be given of any notification received from the Director, Office of Federal Activities, EPA, indicating that a facility utilized or to be utilized for the contract is under consideration to be listed on the EPA List of Violating Facilities.

(4) Agreement by the Contractor that he will include or cause to be included the criteria and requirements in paragraph (1) through

(4) of this section in every nonexempt subcontract and requiring that the Contractor will take such action as the Government may direct as a means of enforcing such provision.

9. Energy Conservation Provisions.

Contractors must recognize mandatory standards and policies relating to energy efficiency contained in the Cost Effective Energy Conservation Measures.

10. Section 109 of the Housing and Community Development Act of 1974.

"No person in the United States shall on the grounds of race, color, national origin, or sex be excluded from participation in, be denied the benefits, or be subjected to discrimination under any program or activity funded in whole or in part with funds made available under this Title."

11. Executive Order 11625 - Minority Business Enterprise

A. It is the policy of the Local Public Agency to take positive steps to maximize the utilization of minority business enterprises in all contract activity administered by the Local Government.

B. The Contractor will utilize his best efforts to carry out this policy in the award of his subcontracts to the fullest extent consistent with the efficient performance of this contract.

As used in this contract, the term "minority business enterprise" means a business, at least 50 percent of which is owned by minority group members, or in the case of publicly owned businesses, at least 51 percent of the stock is owned by minority group members. For the purpose of this definition, minority groups are members of Blacks, Hispanics, Asians, Native Americans, Alaskans or Pacific Islanders.

12. Executive Order 12138 - Women's Business Enterprise

A. It is the policy of the Local Public Agency to take positive steps to maximize the utilization of women business enterprises in all contracts administered by the Local Government.

B. The Contractor will utilize his best efforts to carry out this policy in the award of his subcontracts to the fullest extent consistent with the efficient performance of this contract.

As used in this contract, the term "women business enterprise" means a business that is at least 51 percent owned by a woman or women who also control and operate it. "Control" in this context means exercising the power to make policy decisions. "Operate" in this context means being actively involved in the day-to-day management.

13. Age Discrimination Act of 1975

No person in the United States shall, on the basis of age, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under, any program or activity receiving Federal financial assistance.

14. Section 504 Handicapped (if $2,500 or over)

Affirmative Action for Handicapped Workers

A. The Contractor will not discriminate against any employee or applicant for employment because of physical or mental handicap in regard to any position for which the employee or applicant for employment is qualified. The Contractor agrees to take affirmative action to employ, advance in employment and otherwise treat qualified handicapped individuals without discrimination based upon their physical or mental handicap in all employment practices such as the following: Employment upgrading, demotion or transfer, recruitment, advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship.

B. The Contractor agrees to comply with the rules, regulations, and relevant orders of the Secretary of Labor issued pursuant to the Act.

C. In the event of the Contractor's noncompliance with the requirements of this clause, actions for noncompliance may be taken in accordance with the rules, regulations, and relevant orders of the Secretary of Labor issued pursuant to the Act.

D. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices in a form to be prescribed by the Director, provided by or through the contracting officer. Such notices shall state the Contractor's obligation under the law to take affirmative action to employ and advance in employment qualified handicapped employees and applicants for employment, and the rights of applicants and employees.

E. The Contractor will notify each labor union or representative or workers with which it has a collective bargaining agreement or other contract understanding, that the Contractor is bound by the terms of Section 503 of the Rehabilitation Act of 1973, and is committed to take affirmative action to employ and advance in employment physically and mentally handicapped individuals.

F. The Contractor will include the provisions of this clause in every subcontract or purchase order of $2,500 or more unless exempted by rules, regulations, or orders of the Secretary issued pursuant to Section 503 of the Act, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as

the Director of the Office of Federal Contract Compliance Programs may direct to enforce such provisions, including action for non-compliance.

STATE REQUIREMENTS

All Bidders must also comply with the following State requirements:

15. Pennsylvania Steel Products Procurement Act (No. 178-3).

If any steel products are to be used or supplied in the performance of the Contract, only steel products produced in the United States shall be used or supplied in the performance of the Contract or any subcontracts thereunder. This provision shall not apply in any case where the head of the public agency, in writing, determines that the type of steel products necessary to the performance of the Contract are not produced in the United States in sufficient quantities to meet the requirements of the Contract.

16. Pennsylvania Human Relations Act, as amended.

A. CONTRACTOR shall not discriminate against any employee, applicant for employment, independent contractor or any other person because of race, color, religious creed, ancestry, national origin, age or sex.

CONTRACTOR shall take affirmative action to ensure that applicants are employed, and that employees or agents are treated during employment, without regard to their race, color, religious creed, ancestry, national origin, age or sex. Such affirmative action shall include but is not limited to the following: Employment, upgrading, demotion, or transfer; recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training.

CONTRACTOR shall post in conspicuous places, available to employees, agents, applicants for employment, and other persons a notice to be provided by the contracting agency setting forth the provisions of this nondiscrimination clause.

B. CONTRACTOR shall in advertisements or requests for employment placed by it or on its behalf state all qualified applicants will receive consideration for employment without regard to race, color, religious creed, ancestry, national origin, age or sex.

C. CONTRACTOR shall send each labor union or workers' representative with which it has a collective bargaining agreement or other contract or understanding, a notice advising said labor union or workers' representative of its commitment to this non-discrimination clause. Similar notice shall be sent to every other source of recruitment regularly utilized by CONTRACTOR.

D. It shall be no defense to a finding of non-compliance with the Contract Compliance Regulations issued by the Pennsylvania Human Relations Commission of this non-discrimination clause that CONTRACTOR had delegated some of its employment practices to any union, training program or other source of recruitment which prevents it from meeting its obligations. However, if the evidence indicates that the CONTRACTOR was not on notice of the third-party discrimination or made a good faith effort to correct it, such factor shall be considered in mitigation in determining appropriate sanctions.

E. Where the practices of a union or of any training program or other source of recruitment will result in the exclusion of minority group persons, so that CONTRACTOR will be unable to meet its obligations under the Contract Compliance Regulations issued by the Pennsylvania Human Relations Commission, or this non-discrimination clause, CONTRACTOR shall then employ and fill vacancies through other non-discriminatory employment procedures.

F. CONTRACTOR shall comply with the Contract Compliance Regulations of the Pennsylvania Human Relations Commission, 16 PA Code Chapter 49 and with all laws prohibiting discrimination in hiring or employment opportunities. In the event of CONTRACTOR's non-compliance with the non-discrimination clause of this CONTRACT or with any such laws, this CONTRACT may, after hearing and adjudication, be terminated or suspended, in whole or in part, and CONTRACTOR may be declared temporarily ineligible for further COMMONWEALTH contracts, and such other sanctions may be imposed and remedies invoked as provided by the Contract Compliance Regulations.

G. CONTRACTOR shall furnish all necessary employment documents and records to, and permit access to its books, records and accounts by, the contracting agency and the Human Relations Commission, for purposes of investigation to ascertain compliance with the provisions of the Contract Compliance Regulations, pursuant to §49.35 of these Regulations. If CONTRACTOR does not possess documents or records reflecting the necessary information requested, it shall furnish such information on reporting forms supplied by the contracting agency or the Commission.

H. CONTRACTOR shall actively recruit minority subcontractors or subcontractors with substantial minority representation among their employees.

I. CONTRACTOR shall include the provisions of this non-discrimination clause in every subcontract, so that provisions will be binding upon each subcontractor.

J. The terms used in this non-discrimination clause shall have the same meaning as in the Contract Compliance Regulations issued by the Pennsylvania Human Relations Commission, 16 PA Code Ch. 49.

K. CONTRACTOR's obligations under this clause are limited to the CONTRACTOR's facilities within Pennsylvania, or where the contract is for purchase of goods manufactured outside of Pennsylvania, the facilities at which such goods are actually produced.

ATTACHMENTS TO

GENERAL CONDITIONS

PART II

(Include in this Section Davis-Bacon Wage Determination)

Commonwealth of Pennsylvania
Department of Community Affairs
Bureau of Housing and Development
Small Communities Program Division

SCP-CDBG REQUEST FOR WAGE DETERMINATION AND RESPONSE

TO:

Compliance Section
Small Communities Program Division
Bureau of Housing and Development
Department of Community Affairs
Room 513 Forum Building
Harrisburg, PA 17120

Send Determination To:

Neilan Engineers
1065 Tayman Avenue
P.O. Box 837
Somerset, PA 15501 Attn: John Larimer

Telephone Number: (814) - 445-6551

GRANTEE: Irvona Municipal Authority

John Larimer (Requesting Officer's Name)

John Larimer (Signature)

PROJECT NUMBER:

DATE OF REQUEST: November 17, 1989

Estimated Advertising Date: November 20, 1989

Estimated Bid Opening Date: December 18, 1989

Estimated $ Value of Contract: $160,000

TYPE OF WORK:
- [ ] Building
- [ ] Residential
- [ ] Highway
- [X] Heavy

Previous Decision Number (if any): N/A

LOCATION OF WORK (include municipality):

Irvona Borough
Chess Township
Beccaria Township

COUNTY: Clearfield

STATE: Pennsylvania

DESCRIPTION OF WORK (be specific, print or type):

Waterline replacement consisting of approximately 1000 LF of 6" DIA and 600 LF of 2" DIA with appurtenances, well source development and approximately 6,000 LF of resesrvoir access road improvements.

INSTRUCTIONS

In response to your request the Wage Decision(s) noted below is/are being sent to you.

Grantees should satisfy themselves that the attached Wage Decision is the correct Decision for their Project Activities. As they are available, modifications or other changes affecting this Decision will be sent. Grantees, however, are responsible for assuring that current and correct wage rate information is being used in CDBG Projects.

The request for a Wage Determination is to be made on this form. Inquiries to determine if Wage Decision information still is current may be made by use of this form, or by telephone if necessary. Allow a reasonable period of time to notify prospective bidders of any changes or modifications.

GRANTEES MUST NOTIFY THIS OFFICE OF CHANGES IN ESTIMATED BID OPENING DATES.

Grantees must notify this office of the date of Start of Construction and Contract Award Date, using form DCA-BHD-135.

Grantees must request Verification of Contractor Eligibility for contractors selected, using form DCA-BHD-118.

If your project activities are not covered by a general Wage Decision a request will be made by this office for an appropriate Project Wage Determination. You will be advised that this action was necessary. Responses to such requests take a minimum of four weeks and the response period can be longer. Grantees are advised to request wage determinations early if project activities are unusual or not covered by General Wage Decisions.

Grantees should be throughly familiar with the information in the SCP Labor Standards Enforcement Handbook. If you have any questions please contact this office.

For SCP Use Only

RECEIVED: NOV 20 1989

WAGE DECISION: PA89-4 MODS

ACTION:

COMPLIANCE OFFICER: Gary R. Thomas (Signature) 11/21/89 (Date)

TYPE OR PRINT CLEARLY

	Basic Hourly Rates	Fringe Benefits
BRICKLAYERS (Allegheny County Only)	17.55	5.24
CARPENTERS		
Zone I	15.92	32.5%
Zone II	15.74	32.5%
CARPENTER - WELDER		
Zone I	16.29	32.5%
Zone II	16.11	32.5%
CARPENTER - BURNER		
Zone I	16.11	32.5%
Zone II	15.92	32.5%
CEMENT MASONS	16.23	30%
DIVERS	30.00	30%
DIVERS TENDERS	16.30	30%
PILEDRIVERMEN	17.06	30%
PILEDRIVERMEN - WELDER	17.29	30%
*IRONWORKERS		
Reinforcing		
Zone 1	13.56	5.18
*Structural, Ornamental & Reinforcing		
*Zone 2	19.265	5.26
Zone 3	16.87	7.75
Zone 4	16.21	6.42
LABORERS		
Class I		
Zone I	13.51	28.9%
Zone II	13.40	28.9%
Class II		
Zone I	13.66	28.9%
Zone II	13.57	28.9%
Class III		
Zone I	14.06	28.9%
Zone II	14.06	28.9%
Class IV		
Zone I	14.94	28.9%
Zone II	14.94	28.9%
Class V (Flaggers):		
Zone 1	9.89	28.9%
Zone 2	9.89	28.9%
*LANDSCAPING		
Zone 1		
Class 1	11.98	29%
Class 2	12.40	29%
*Zone 2		
Class 1	13.80	23%+ .10
LINE CONSTRUCTION		
Class 1		
Zone 1	19.04	1.50+ 3-3/8%
Zone 2	15.75	.80+ 12.5%
Class 2		
Zone 1	13.33	1.50+ 3-3/8%
Zone 2	11.03	.80+ 12.5%
Class 3		
Zone 1	12.38	1.50+ 3-3/8%

GENERAL WAGE DECISION NO. PA89-4

Supersedes General Wage Decision No. PA88-4

State: PENNSYLVANIA

County(ies): ALLEGHENY, ARMSTRONG, BEAVER, BEDFORD, BLAIR, BUTLER, CAMBRIA, CAMERON, CENTRE, CLARION, CLEARFIELD, CLINTON, CRAWFORD, ELK, ERIE, FAYETTE, FOREST, FRANKLIN, FULTON, GREENE, HUNTINGDON, INDIANA, JEFFERSON, LAWRENCE, MCKEAN, MERCER, MIFFLIN, POTTER, SOMERSET, VENANGO, WARREN, WASHINGTON, WESTMORELAND.

Construction Type: Heavy & Highway

Construction Description: Heavy and Highway Construction, excluding Sewer grouting projects and excluding Sewage and Water Treatment Plant Projects.

Modification Record:

No.	Publication Date	Page No.(s)
1	Jan. 27, 1989	870
2	Mar. 24, 1989	873-874
3	May 19, 1989	870-871
4	June 2, 1989	870-871
5	June 9, 1989	870
6	June 16, 1989	871-872
7	Sept. 15, 1989	870

*PA89-4

AREA COVERED BY CARPENTERS ZONES

ZONE I - Allegheny, Armstrong, Beaver, Butler, Erie, Fayette, Greene, Lawrence, Mercer, Washington and Westmoreland
ZONE II - Bedford, Blair, Cambria, Cameron, Centre, Clarion, Clinton, Clearfield, Crawford, Elk, Forest, Franklin, Fulton, Huntingdon, Indiana, Jefferson, McKean, Mifflin, Potter, Somerset, Venango and Warren

AREA COVERED BY IRONWORKERS ZONES

ZONE 1 - Butler, Cambria, Erie, Fayette, Mercer, Washington, Westmoreland, Lawrence, Somerset, Allegheny, Beaver, Armstrong, Blair, Cameron, Centre, Clarion, Clearfield, Crawford, Forest, Greene, Indiana, McKean, Venango, Warren, Bedford, Jefferson, Clinton, Elk, Fulton and Potter Counties

ZONE 2 - Franklin, Huntingdon and Mifflin Counties

ZONE 3 - Allegheny, Armstrong, Beaver, Butler, Cambria, Clarion, Fayette, Indiana, Washington & Westmoreland Counties

ZONE 4 - Clearfield, Blair, Cameron, Centre, Elk, Jefferson, Mckean, Clinton & Potter.

AREA COVERED BY LABORERS ZONES

ZONE I - Allegheny, Armstrong, Beaver, Blair, Butler, Cambria, Clarion, Clearfield, Elk, Erie, Fayette, Greene, Indiana, Lawrence, McKean, Mercer, Somerset, Venango, Warren, Washington, Westmoreland

ZONE II - Bedford, Cameron, Centre, Clinton, Crawford, Forest, Franklin, Fulton, Huntingdon, Jefferson, Mifflin, Potter

AREA COVERED BY LANDSCAPE LABORERS ZONES

ZONE 1 - Allegheny, Armstrong, Beaver, Butler, Clarion, Crawford, Fayette, Greene, Indiana, Jefferson, Lawrence, Mercer, Venango, Washington, Westmoreland, Bedford, Blair, Cambria, Centre, Clearfield, Clinton, Erie, Franklin, Fulton, Huntingdon, Mifflin, Somerset

ZONE 2 - Cameron, Elk, Forest, McKean, Potter, Warren

AREA COVERED BY LINE CONSTRUCTION ZONES

ZONE 1 - Allegheny, Armstrong, Beaver, Bedford, Blair, Cambria, Centre, Clarion, Clearfield, Fayette, Fulton, Greene, Huntingdon, Indiana, Jefferson, Somerset, Washington & Westmoreland Counties

ZONE 2 - Franklin & Mifflin Counties

Zone 2	10.24	.80+	12.5%
Class 4			
Zone 1	11.42	1.50+	3-3/8%
Zone 2	9.45	.80+	12.5%
Zone 3			
Class 1	17.29	1.75+	3-4/4%
Class 2	12.20	1.75+	3-3/4%
Class 3	12.03	1.75+	3-3/4%
Class 4	10.80	1.75+	3-3/4%
LINE CONSTRUCTION (Railroad Only)			
Zone 1			
Class 1	12.34	.60+	6%+ a
Class 2	12.34	.60+	6%+ a
Class 3	10.78	.60+	6%+ a
PLUMBERS (Bridge - Drain pipe)			
Zone 1	17.49	6.17	
POWER EQUIPMENT OPERATORS			
Class I			
Zone I	17.04	5.18	
Zone II	16.75	5.18	
Class II			
Zone I	16.78	5.18	
Zone II	16.47	5.18	
Class III			
Zone I	13.13	5.18	
Zone II	12.83	5.18	
Class IV			
Zone I	12.67	5.18	
Zone II	12.34	5.18	
Class V			
Zone I	12.42	5.18	
Zone II	12.13	5.18	
TRUCK DRIVERS:			
Class 1			
Zone 1	14.37	19%	
Zone 2	14.15	19%	
Class 2			
Zone 1	14.54	19%	
Zone 2	14.36	19%	
Class 3			
Zone 1	15.17	19%	
Zone 2	14.99	19%	
Zone 3 - Allegheny, Beaver and Butler Counties:			
Class 1			
Trucks hauling concrete from off-site Commercial batch plants	9.60	1.65	
WELDERS - Rate for craft to which welding is incidental			

FOOTNOTE:

a. Paid Holidays: New Year's Day; Declaration Day; Independence Day; Labor Day; Thanksgiving Day; Christmas Day and Good Friday.

CLASS II - Air Tool Operator (all types); Asphalt, Eaton & Concrete Plant Operator (manually operated) asphalt Rakers; Burner; Caisson Man (open air); Carryable Pumps; Chain Saw Operator (including attachments); Cribbing (Concrete or steel); Curb Machine Operator (asphalt or concrete - walk behind); Diamond Head Core Driller; Drill Runner's Helper (Tunnel); Fork Lift (walk behind); Form Setter (Road Forms Line Man); Highway Slab Reinforcement Placers (Including Joint and Basket Setters); Hydraulic Pipe Pusher; Liner Plates (Tile or Vitrified Clay); Mechanical Compacting Equipment Operators; Mechanical Joint Sealer, Dope Pot and Tar Kettle; Mortar Mixer (hand or machine); Muckers, Brakemen & All Other Labor (Includes installation of Utility Lines); Pipe Layers (Regardless of material); Portable Single Unit Conveyor; Post Hole Auger (2 or 4 cycle-hand operated); Power Wheelbarrows and Buggies; Rail Porter or Similar; Sand Blaster; Vibrator Operator, All Rail Road Track Work to Include The Following: Adzing Machine, Ballast Router; Bolting Machine; Power Jacks; Rail Drill; Railroad Brakeman; Rail Saw; Spike Drivers (Manually or handheld tool); Spike Pullers; Tamping Machine; Thermitweld; signal man; toxic or hazardous waste removal (including asbestos)

CLASS III - Blacksmith, blaster, brick stone and block layers and block cutters (wood, belgian and asphalt), cement mortar lining car pusher, cement mortar mixer (pipe relining), cement mortar pipe relliners, concrete saw operator (walk behind), curb cutters and setters, elevated roadway drainage construction, form-setter (road forms-lead man), grout machine operator, gunite or dry pack gun (nozzle and machine man), manhole or catch basin (brick, block, concrete or any prefabrication), Miners and drillers (including lining, supporting and form workmen, setting of shields, miscellaneous equipment and jumbos), multi-plate pipe (aligning and securing), placing wire mesh on gunite projects, wagon drill operators (air track or similar), walk behind ditching machine (trencher or similar), welder

CLASS IV - Welder (pipeline); High Burner (any burning not done from deck

LANDSCAPE LABORERS CLASSIFICATIONS DEFINITIONS

CLASS 1 - Landscape laborer to include general landscaping work and the driving of trucks for the distribution of materials on the job site but not to include dump trucks used to transport supplies to the job

CLASS 2 - Landscape tractor operator to operate small industrial rubber tire tractor equipped with front end loader and back hoe attachment used for the sole purpose of landscape work including soil spreading, but not for heavy and highway

LINE CONSTRUCTION CLASSIFICATIONS DEFINITIONS

ZONE 1 & 2
CLASS 1 - Linemen
Class 2 - Winch truck operators

ZONE 3 - Butler, Cameron, Clinton, Crawford, Elk, Erie, Forest, Lawrence McKean, Mercer, Venango, Warren & Potter Counties

AREA COVERD BY LINE CONSTRUCTION
(Railroad Only)

ZONE 1 - Armstrong, Bedford, Blair, Cambria, Centre, Clarion, Clearfield, Fayette, Franklin, Fulton, Greene, Huntingdon, Indiana, Jefferson, Indiana, Jefferson, Somerset, Washington, Westmoreland Counties:

AREA COVERD BY PLUMBERS (Bridge - Drain Pipe)

ZONE 1 - Allegheny, Washington, Greene, Armstrong Counties.

AREA COVERED BY POWER EQUIPMENT OPERATORS ZONES

ZONE I - Allegheny, Armstrong, Beaver, Blair, Butler, Cambria, Centre, Clarion, Clearfield, Crawford, Erie, Elk, Fayette, Greene, Indiana, Jefferson, Lawrence, McKean, Mercer, Somerset, Venango, Warren, Washington & Westmoreland, Counties

ZONE II - Bedford, Cameron, Clinton, Forest, Franklin, Fulton, Huntingdon, Mifflin, Potter

AREAS COVERED BY TRUCK DRIVERS ZONES

ZONE I - Allegheny, Armstrong, Beaver, Blair, Butler, Cambria, Centre, Clearfield, Crawford, Erie, Fayette, Greene, Indiana, Jefferson, Lawrence, McKean, Mercer, Somerset, Venango, Warren, Washington, and Westmoreland

ZONE II - Bedford, Cameron, Clarion, Clinton, Elk, Forest, Franklin, Fulton, Huntingdon, Mifflin, and Potter

*LABORERS CLASSIFICATION DEFINITIONS

CLASS I - Railroad Construction Laborers (Including Craft Tenders, handling Salamancers L. P. Gas Heaters or similar etc.); Asphalt Curb Sealer; Asphalt Tamper; Batchman (weigh); Blaster's Helper; Boatman; Brakeman; Change House Attendant; Coffer Dam; Concrete Curing Pitman; Puddler; Drill Runner's Helper, (Including Drill Mounted on Truck, Track, or similar and Davey Drill - Spots-clean-up & Helps to maintain); Electric Brush and or Grinder; Fence Construction (including Fence Machine Operator); Form Stripper and Mover; Gabion (Erectors and Placers); Hydro Jet Claster Nozzlemen; Manually moved Emulsion Sprayer; Radio Actuated Traffic Control Operator; Rip Rap Work, Scaffolds and Runways; Sheeters and Shorers; Structural Concrete Top Surfacer; Walk Behind Street Sweeper; Welder's Helper (pipeline); Wood Chipper, reinforcing steel .olacers (bending aligning and securing and cadweld

Class 3 - Truck Driver
Class 4 - Groundman
ZONE 3
Class 1 - Lineman, Dynamite man, Heavy Equipment Operator
Class 2 - Winch truck operator
Class 3 - Truck Driver
Class 4 - Groundman

CLASSIFICATION DEFINITIONS FOR LINE CONSTRUCTION
(RAILROAD ONLY)

ZONE 1
CLASS 1 - Lineman

CLASS 2:
"A" Equipment Operators:

1. Hoisting equipment - when erecting complete towers, erecting framed structures, erecting steel transmission poles, erecting railroad pole extensions and crossbeams and when operating personnel lift baskets.

2. Tension pulling equipment under energized conditions - paralled with other energized circuits or above energized circuits on the same structure, not to include crossovers. Bunled conductor stringing, including static conductors on bundled conductor lines.

3. Excavating augures 36" inches in diameter or larger, 3/4 cubic yard backhoe and larger, trencher over four feet in depth, bulldozer D-6 (caterpillar) or larger, and blade on finish grade work

CLASS 3:

"B" Equipment Operators:
Operators of all other equipment

POWER EQUIPMENT OPERATORS CLASSIFICATION DEFINITIONS

CLASS I - Autograde (C.M.I. & similar); Backfiller; Backhoe - 360o Swing; Cableway; Caisson Drill (similar to Hugh Williams); Central Mix Plant; Cooling Plant; Concrete Paving Mixer; Concrete Pump (self-propelled); Cranes; Cranes (Boom or mast 101 ft. or over up to & including 150 ft. inclusive of job + $.25; Boom or mast over 150 ft. up to & including 200 ft. inclusive of jib + $.50; Boom or mast over 200 ft. inclusive of jib + $.75; Tower-Stationary- Climbing Tower Crane); Derrick; Derrick Boat; Dozer (D-6 & over); Dragline; Dredge; Dredge Hydraulic; Elevating Grader; Frankl Pile Machine; Gradall (Remote control or other-wise); Gracer (Power-Fine Grade); Helicopter; Hillift (4 cy. and over); Hoist 2 Drums or more (in one unit); Hydraulic Boom Truck (with pivotal cab) (single motor-Pitman or similar); Kocal; Locomotive (std. Gauge); Metro-chip Harvester or similar; Milling Machine (Roto Mill or Similar); Mix Mobile; Mucking Machine (Tunnel); Pile Driver Machine; Pipe Extrusion Machine; Presplter Drill (Self contained); Refrigeration Plant (Soil

GENERAL SPECIFICATIONS

SPECIAL CONDITIONS FOR SITE PREPARATION[1]

301. PROJECT SITE

The Project Area of the Site Preparation Contracts consists of the following general area: Irvona Borough, Beccaria and Chest Townships in Clearfield County, all as shown on the Construction Drawings.

302. TIME FOR COMPLETION

The work which the Contractor is required to perform under this Contract shall be commenced at the time stipulated by the Local Public Agency in the Notice to Proceed to the Contractor and shall be fully completed within 150 consecutive calendar days thereafter.

303. LIQUIDATED DAMAGES[2]

As actual damages for any delay in completion of the work which the Contractor is required to perform under this Contract are impossible for determination, the Contractor and his Sureties shall be liable for and shall pay to the Local Public Agency the sum of $100.00 as fixed, agreed and liquidated damages for each calendar day of delay from the above stipulated for completion, or as modified in accordance with Section 109 - CHANGES IN WORK under GENERAL CONDITIONS - PART I, until such work is satisfactorily completed and accepted.

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1. The "SPECIAL CONDITIONS" provide a flexible Division of the Contract Documents in which to place provisions which contain elements that vary from one project to another, and which covers situations peculiar to the Project involved. The Conditions outlined may require modification to fit the local situation or it may be necessary to include additional provisions to amplify the Contract requirements.

2. The minimum amount of the liquidated damages per calendar day should be sufficient to reimburse the Local Public Agency for all salaries for inspectors, the DCA Site Representative, and overhead expense due to the Contractor having failed to complete the Improvements embraced in this Contract within the time stipulated for completion.

304. RESPONSIBILITES OF CONTRACTOR

Except as otherwise specifically stated in the Contract Documents and Technical Specifications, the Contractor shall provide and pay for all materials, labor, tools, equipment, water, light, heat, power, transportation, superintendence, temporary construction of every nature, charges, levies, fee or other expenses and all other services and facilities of every nature whatsoever necessary for the performance of the Contract and to deliver all Improvements embraced in this Contract for Site Preparation complete in every respect within the specified time.

305. COMMUNICATIONS

a. All notices, demands requests, instructions, approvals, oroposals and claims must be in writing.

b. Any notice to or demand upon the Contractor shall be sufficiently given if delivered at the office of the Contractor stated on the signature page of the Agreement (or at such other office as the Contractor may from time to time designate in writing to the Local Public Agency), or if deposited in the United States mail in a sealed, postage prepaid envelope, or delivered with charges prepaid to any telegraph company for transmission, in each case addressed to such office.

c. All papers required to be delivered to the Local Public Agency shall, unless otherwise specified in writing to the Contractor, be delivered to the Local Public Agency at (Address), and any notice to or demand upon the Local Public Agency shall be sufficiently given if so delivered, or if deposited in the United States mail in a sealed, postage prepaid envelope, or delivered with charges prepaid to any telegraph company for transmission to said Local Public Agency at such address, or to such other representatives of the Local Public Agency or to such other address as the Local Public Agency may subsequently specify in writing to the Contractor for such purpose.

d. Any such notice shall be deemed to have been given as of the time of actual delivery or (in case of mailing) when the same should have been received in due course of post, or in the case of telegrams, at the time of actual receipt, as the case may be.

306. JOB OFFICES

a. The Contractor and his subcontractors may maintain such office and storage facilities on the Site as are necessary for the proper conduct of the work. These shall be located so as to cause no interference to any work to be performed on the Site. The Local Public Agency shall be consulted with regard to locations.

b. If no office is maintained, a suitable place for posting required notices, with adequate protection from the weather, shall be provided.

c. Upon completion of the Improvements, or as directed by the Local Public Agency the Contractor shall remove all such temporary structures and facilities from the Site, same to become his property and leave the Site of the work in the condition required by the Contract.

307. PARTIAL USE OF SITE IMPROVEMENTS

The Local Public Agency, at its election, may give notice to the Contractor and place in use those sections of the Improvements which have been completed, inspected and can be accepted as complying with the Technical Specifications and if in its opinion, each such section is reasonably safe, fit and convenient, for the use and accommodation for which it was intended, provided;

a. The use of such sections of the Improvements shall in no way impede the completion of the remainder of the work by the Contractor.

b. The Contractor shall not be responsible for any damages or maintenance costs due directly to the use of such sections.

c. The use of such sections shall in no way relieve the Contractor of his liability due to having used defective materials or to poor workmanship.

d. The period of guarantee stipulated in the Section 132 - GENERAL GUARANTY under GENERAL CONDITIONS, PART I, shall not begin to run until the date of the final acceptance of all work which the Contractor is required to construct under this Contract.

308. WORK BY OTHERS[3]

The following work will be done by others:

a. At no expense to the Contractor:

(1) On-Site:

(a)_____
(b)_____, etc.

(2) Off-Site:

(a)_____
(b)_____, etc.

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3. It may be that local ordinances or regulations require connections, or disconnections, from utilities or sewers to be made by designated departments or companies. These facts should be obtained and inserted in this Section. The costs, if any, to the Contractor should be stated in paragraph "b". Delete such items not applicable.

b. At the expe[illegible] of the Contractor for Contract 89-01:

(1) On-Site:

(a)_____
(b)_____, etc.

(2) Off-Site:

(a) Extend electric power service to Hockenberry Run Reservoir
(b)_____, etc.

309. CONTRACT DOCUMENTS AND DRAWINGS

The Local Public Agency will furnish the Contractor without charge 4[4] copies of the Contract Documents, including Technical Specifications and Drawings. Additional copies requested by the Contractor will be furnished at cost.

310. PROGRESS SCHEDULE

The Contractor shall prepare a Progress Schedule in accordance with Section 107 of the GENERAL CONDITIONS and, in addition to the information required therein, the Progress Schedule shall show graphically:

a. Any pre-determined times allotted to the utility companies or utilities authorities for their work.

b. Practical time limits for the successful completion of the various types and phases of work encompassed in this Contract in accordance with the requirements of the specifications.

c. Any other type of delay or time consuming process of which the Contractor may be aware.

All of the above shall be shown to be accomplished within the time limits as stated in Section 302, TIME FOR COMPLETION. As the work progresses the Contractor shall revise and maintain current the Progress Schedule for the uncompleted portions of the work, regardless of the cause of such revisions, at the direction of the Local Public Agency or the Engineer.

311. SUBSTITUTION

Wherever in the following specifications, a catalog number, trade designation, the name of any individual or system of construction has been used, the same has been done with the intention of indicating only the character, class, quality or kind of material or fixture that is desired and any or all of said fixtures, materials, or construction may be provided equal in every respect in quality and purpose to those named in the specification,

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4. Insert number to be supplied without cost to the Contractor which should be determined by the magnitude of the Contract and probable number of subcontracts.

regardless of the name and designation used, which are for convenience in specifying only. But before any Contractor may use any fixture, material, or system of construction other than that specified, he shall first notify the Local Public Agency and secure permission to do so, and if required, shall submit a sample for inspection and approval.

312. SIGNS, BARRICADES, LIGHTS

Contractor shall, at his own cost and expense, erect and maintain any necessary warning lights, barricades and signs as ordered by the Engineer in a manner acceptable to the Local Public Agency.

313. PROTECTION OF EXISTING SITE CONDITIONS

The Contractor shall locate existing buildings, plantings, paving, utility services (both overhead and underground), etc., and shall protect same from damage during this construction operation. Should damage occur repairs shall be made in a manner satisfactory to the Owner and Landscape Architect at the Contractor's expense.

314. REDUCTION IN WORK

The Local Public Agency reserves the right to increase or decrease the quantity of any bid item by any amount without adjustment to any of the unit bid prices.

315. ENGINEER'S RESPONSIBILITY AND AUTHORITY

The Engineer shall perform the following work and assume certain authorities during the life of this Contract.

a. The work shall be subject at all times to the inspection of the Engineer or his authorized assistants, who shall have free access to every facility at all times for inspecting the materials and work. This work shall not in any way guarantee the Contractor's work. The presence of the Engineer or his authorized assistants shall not lessen the responsibility of the Contractor.

b. Approve or disapprove any materials, and equipment used by the Contractor.

c. Sample and test any materials as the Engineer deems necessary.

d. Any doubt as to the meaning of these technical specifications and/or drawings, or any obscurity as to the wording or intent of them, will be explained by the Engineer. All directions and explanations required or necessary to complete, explain or make definite any section of the specifications and/or drawings and give them due effect will be given by the Engineer in writing whose decision thereon will be final.

e. The Engineer will have authority to reject materials and suspend work in case of any dispute which may arise between the Engineer and the Contractor due to defective materials or substandard performance

of work until the question or questions at issue can be referred to and decided by the Local Public Agency.

Additional responsibilities and authorities invested in the Engineer will be found in GENERAL CONDITIONS, PART I.

316. TEMPORARY SUSPENSION OF CONSTRUCTION

The Engineer shall have the authority to suspend the construction, wholly or in part, for such period or periods as he may deem necessary, due to unsuitable weather, or such other conditions as are considered unfavorable for the suitable prosecution of the construction, or for such times as is necessary, due to the failure on the part of the Contractor to carry out orders given or perform any or all provisions of the Contract.

If the Engineer suspends the construction in part, he will have the authority to direct the Contractor to perform such other parts or items of construction which, in his opinion, may be performed with favorable results and advantageously for the time of completion of the project, and shall notify the Contractor accordingly in writing.

If it should become necessary to stop construction for an indefinite period, the Contractor shall store all materials in such a manner that they will not obstruct or impede the traveling public nor become damaged in any way. He shall take every precaution to prevent damage or deterioration of the construction performed; provide suitable drainage, etc.

317. INTENT OF PLANS AND SPECIFICATIONS

All work done and materials furnished under this Contract shall be in accordance with the Contract Plans; the Instructions to the Bidders; the General Conditions; Parts I and II, the Special Conditions, Technical Specifications, and Form 408 referenced sections of the Commonwealth of Pennsylvania Department of Transportation Specifications, latest edition with the supplements thereto and revisions thereof included in these specifications. When a section and/or sections of the Commonwealth of Pennsylvania Department of Transportation Specifications is referred to, it shall become a part of these specifications and shall be as binding as if the section and/or sections referred to were written completely in these specifications except that, in the event, any contradiction exists between the Commonwealth of Pennsylvania Department of Transportation Specifications and any part of the Contract Documents, the Contract Documents shall govern and the conditions thereof adhered to.

The intent of the specifications and drawings is to prescribe a complete work which the Contractor undertakes to do in full compliance with the Contract Documents. If there is any apparent contradiction or ambiguity between the drawings and specifications, the Contractor shall bring the fact to the attention of the Engineer and shall obtain his decision as to the true meaning or intention before proceeding with the portion of the work affected. Wherever in the specifications or drawings "directed", "required", "ordered" or words of similar import are used, it shall be understood that directed, required, order, by the Engineer is intended.

In like manner when "as shown", "as indicated", "as detailed", or words of similar import are used in the specifications, reference to the Contract Drawings listed in the Schedule of Drawings is intended.

318. WORK INCIDENTAL TO CONTRACT ITEMS

Where connection is made to existing facilities the new construction shall be modified or adjusted to meet the existing construction, as directed by the Engineer, and the cost of this work will be included in the Contract Lump Sum Price; therefore, no separate or additional compensation will be allowed.

319. CONSTRUCTION RESERVATION

It shall be the Contractor's responsibility to investigate the location and elevation of all surface or subsurface utilities or other obstructions affecting his work before preparing his bid.

Any additional expense resulting from such obstructions shall be included in the Contractor's unit bid prices for various items of work and no extra payment will be allowed.

320. DAMAGE TO EXISTING CONSTRUCTION

The Contractor shall be held responsible for any and all damages outside the limits of construction indicated on the drawings or designated by the Engineer. This includes damage to adjacent curb gutter, existing tennis courts, drainage structures, gas and water mains, electric or telephone facilities, pavements, buildings, walls, etc. Any such damage shall be satisfactorily repaired or replaced by the Contractor at his own expense.

321. DISPOSAL OF EXISTING MATERIALS

Any existing debris, except those materials noted in the Contract Documents for re-use or storage at the direction of the Local Public Agency, which is removed during construction shall become the property of the Contractor and it shall be his responsibility to dispose of off the site.

322. PUBLIC CONVENIENCE AND SAFETY

The Contractor shall not cause any infringement or damage to property within or adjacent to the project area, and will be required to cooperate with the persons involved with respect to reasonable requests pertaining to access and protection of their property.

323. STORAGE OF MATERIALS

The Contractor shall remove and store, as directed, materials removed from the site to be used in new construction in a manner which will provide a stock pile free of debris and other materials. Materials shall be placed on wooden platforms or other clean surfaces, not on the ground, and placed under cover when directed by the Local Public Agency or the Engineer.

324. INSURANCE

A. This condition supplements the insurance requirements set forth in the General Conditions.

B. Insurance company or companies shall be licensed to conduct business in the Commonwealth of Pennsylvania.

C. Liability insurance shall include all major divisions of coverage and be on a comprehensive basis including:

1. Premises - Operations including explosion-collapse-underground (X-C-U)
2. Completed Operations
3. Contractual - including specified provision for Contractor's obligations under the General Conditions.
4. Owned, non-owned, and hired motor vehicles
5. Broad form coverage for property damage

D. Required insurance shall be written for not less than the following limits of liability or as required by law, whichever is greater.

1. Workmen's compensation - Statutory
2. Employer's liability - $100,000
3. Comprehensive general liability

a. Bodily injury - $500,000 each person; $1,000,000 each occurrence
b. Personal injury - $500,000 each person; $1,000,000 aggregate; $1,000,000 general aggregate
c. Property damage - $200,000 each occurrence; $200,000 aggregate
d. Completed operations - same limits as above

(1) Completed operations insurance shall remain in force for at least ninety days following final acceptance of work by Owner.

4. Automobile Liability

a. Bodily injury - $500,000 each person; $1,000,000 each occurrence
b. Property damage - $500,000 each occurrence

5. Contractual liability - same limits as above

E. Contractor shall purchase and maintain Builders Risk Insurance upon the entire work at the site as required under the General Conditions.

F. Owner's protective liability and all-risk insurance shall name the Owner as co-insured.

G. Public liability, property damage and Workmen's Compensation Insurance shall also name the Commonwealth of Pennsylvania, Department of Commerce as named insured on such policies of insurance.

325. CHANGE IN CONTRACT TIME

A. Contract time may only be changed by a change order. All claims for an extension in the contract time shall be in writing delivered to the Owner and Engineer at least ten days prior to termination date of the contract. All claims for adjustment in the contract time shall be determined by Engineer if Owner and Contractor cannot otherwise agree. Any change in contract time resulting from any such claims shall be incorporated in a change order.

B. Contract time will be extended in an amount equal to time lost due to delays beyond the control of the Contractor as set forth in Section 111 of the General Conditions, provided he makes a claim therefore as provided. All claims for an extension of contract time shall be accompanied by sufficient data to justify the claim.

C. All time limits stated in the Contract Documents are of the essence of the Agreement. Provisions of this Article shall not exclude recovery for damages for delay by either party.

326. MISCELLANEOUS

A. All moneys not paid when due hereunder shall bear interest at the legal rate of 6% per annum as stipulated in Pa. State Act 317.

B. All specifications, drawings and copies thereof furnished by Engineer shall remain his property. They shall not be used on another project and, with the exception of those sets which have been signed in connection with the execution of the Agreement, shall be returned to him on request upon completion of the project.

C. Duties and obligations imposed by these General Conditions and the rights and remedies available hereunder and, in particular but without limitations, the warranties, guarantees, and obligations imposed upon the Contractor by Sections 131 and 132 and the rights and remedies available to Owner and Engineer thereunder, shall be in addition to and not a limitation of any otherwise imposed or available by law, by special guarantee or other provisions of the Contract Documents.

D. Contract Documents shall be governed by the law of the place of the project. This shall include, but not be limited to, Pa. Act #317 regulating the award and execution of public contracts.

E. Unless otherwise provided in the Contract Documents, all materials and equipment shall be new.

327. CONTRACTOR'S SCHEDULE

A. Unless given written authorization to the Contractor or required by an unforeseen circumstance, the Contractor shall set and maintain a regular work schedule not to exceed 40 working hours per week.

B. Failure to maintain a regular schedule may result in back charging of the Contractor for additional administrative or inspection expense caused by his irregular working hours.

328. CONTRACT PROVISIONS FOR RETAINAGE (Supplement to Article 19 of the General Conditions)

A. The Owner will retain a portion of the amount due the Contractor to insure the proper performance of the Contract. The sum or sums withheld by the Owner will be 10 percent of the amount due the Contractor until 50 percent of the Contract is satisfactorily completed. Once the Contract is 50 percent completed, one-half of the amount retained will be returned to the Contractor. The sum or sums withheld by the Owner from the Contractor after the Contract is 50 percent completed and satisfactory to the Engineer will not exceed 5 percent of the amount due the Contractor on the work. Subsequently, by the time the work is substantially completed, the Owner will hold no more than 5 percent of the original contract amount.

B. In the event a dispute arises between the Owner and any Prime Contractor, which dispute is based upon increased costs claimed by one Prime Contractor occasioned by delays or other actions of another Prime Contractor, additional retainage in the sum of one and one-half times the amount of any possible liability may be withheld until such time as a final resolution is agreed to by all parties directly or indirectly involved, unless the Contractor causing the additional claim furnished a bond satisfactory to the Owner to indemnify the Owner against the claim.

DETAILED TECHNICAL SPECIFICATIONS

SECTION 1A - SUMMARY OF WORK

1A.1 Scope

A. This project consists of two (2) separate contracts. Contract 89-01 consists of water well drilling, testing and development of a proposed public water supply in accordance with Department of Environmental Resource regulations governing potable public water supply development.

Contract 89-02 consists of access road improvements to include grading, base material, fill and drainage. This Contract also includes additive alternates, water line replacement and related improvements at several locations within the Owner's service area. Work includes the construction of new 6-inch and 2-inch water lines, appurtenances, fire hydrant replacements, connections to existing water lines and surface restoration, all as shown on the Drawings and as specified herein.

B. All materials shall be new.

C. The specifications for this Contract and Standard Typical Details are bound in one (1) book of Contract Specifications, and the Drawings are bound in one (1) set of Contract Drawings.

1A.2 Work Under These Contracts

A. Under these contracts, the Contractors shall furnish all plant materials, equipment, appliances, supplies and labor required to perform all operations in connection with the complete construction of the project in strict accordance with the Contract Documents.

1A.3 Work By Others - Contract 89-01

A. Electric utility service is proposed to the Hockenberry Run Reservoir Well sites. The utility service fee is included in the contract. This fee is to be paid to United Electric Cooperative, P.O. Box 688, Dubois, PA 15801, ATTN: David McCracken. The Electric Coop will be responsible for extending power service to the Reservoir.

1A.4 Operation During Construction

A. The Contractor shall note that a portion of the work to be done under Contract 89-02 involves connections and additions to existing water lines. If interruption becomes absolutely necessary, Contractor shall notify the Owner and Engineer of initial start and duration of interruption at least two (2) working days in advance, and shall receive approval for interruption before actual work so that the Owner can make arrangements to operate valves as required. Under no circumstances except an emergency shall the Contractor operate existing valves or equipment without prior permission from either the Engineer or Owner.

1A.5 Salvage

A. All existing materials not reused in the completion of the contract or in restoration shall become the property of the Contractor except the following:

1. Valves
2. Fittings
3. Fire Hydrants
4. Appurtenances

These items and any other items identified by the Owner or Engineer shall remain the property of the Owner and shall be delivered by the Contractor to an area designated by the Authority.

1A.6 Construction Schedule

A. Since access to the reservoir for Contract 89-01 depends upon the road improvements under Contract 89-02, the following schedule is meant to coordinate the work. Based on a Notice to Proceed issued January 15, 1990.

Contract 89-02 - completion of access road drainage and improvements-completed February 15, 1990.

Contract 89-01 - complete test drilling by March 2, 1990.

This schedule does not change the overall contract time.

1A.7 Permits Required

A. Contract 89-01 - to drive into the Hockenberry Run Reservoir on a Game Commission Road, a special road use permit must be obtained from the Pennsylvania Game Commission. Contact Dennis Jones, Regional Land Manager at 412-238-9523.

SECTION 1B - ABBREVIATIONS AND SYMBOLS

1B.1 Description

A. Abbreviations and symbols used in the specifications shall be assumed to have the following meanings:

AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
AIA	American Institute of Architects
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
ANSI	American National Standards Institute (formerly USAS)
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWS	American Welding Society
AWWA	American Water Works Associations
BF	Board Feet
CS	Commercial Standard, US Dept. of Commerce
CSI	Construction Specification Institute
DER	Pennsylvania Department of Environmental Resources
FS	Federal Specification
HUD	US Dept. of Housing and Urban Development
MS	Military Specifications
NBS	National Bureau of Standards
NEC	National Electric Code
NEMA	National Electric Manufacturers Association
PennDOT	Pennsylvania Department of Transportation
UL	Underwriters' Laboratories
'	feet
"	inches
psi	pounds per square inch
psf	pounds per square foot
# or lb.	pound
LF	lineal feet
CY	cubic yard
SY	square yard
MBF	thousand board feet
SF	square feet
CF	cubic feet
SDR	standard dimension ratio
AC	asbestos cement
CI	cash iron
DI	ductile iron
R/W	right-of-way
RCCP	reinforced cement concrete pipe
CMP	corrugated metal pipe
bit.	bituminous
PVC	Poly vinyl chloride
LS	Lump Sum

1B.2 Definitions

A. Publication 408 shall mean the Pennsylvania Department of Transportation Specifications, Publication 408, latest edition.

SECTION 1C - CUTTING AND PATCHING

1C.1 Scope

A. This section covers the conditions under which cutting and patching of material is permitted and the requirements of such work.

1C.2 Materials

A. The following materials may be cut without prior approval of the Engineer:

1. Cast Iron
2. Steel
3. PVC
4. Copper
5. Ductile Iron
6. Aluminum
7. Reinforced Cement Concrete Pipe
8. ABS Truss Pipe

B. All other materials may not be cut without written consent of the Engineer.

C. All cutting and patching shall be in accordance with the recommendations of the specified material supplier.

1. If no specific recommendations are available from the manufacturer, cutting and patching shall be as directed by Engineer.

1D.1 Transportation and Handling

A. Materials, products and equipment shall be properly containerized, packaged, boxed, stored and protected to prevent damage during transportation and handling. Damaged material will not be used in the work.

1D.2 Identifying Markings

A. All major manufactured articles, equipment and materials shall bear identifying markings signifying pertinent class, capacity or type.

1D.3 Product Approval Standards

A. Definitions

1. The term "product" shall include material, equipment, assembly methods, manufacturer, brand, trade name or other description.

2. References to "equal" or similar terms mean that approval of Engineer is required.

B. Proof of Compliance

1. Whenever the contract documents require that a product be in accordance with federal specifications, ASTM designation, ANSI specifications or other association standard, vendor shall present an affidavit from the manufacturer certifying that the product complies therewith. Where requested or specified, submit supporting test data to substantiate compliance.

1E.1 Scope

A. Contractors shall furnish samples and testing services necessary to ensure job control as specified.

1E.2 Samples and Certification

A. Contractors shall submit samples and data to Engineer for approval prior to ordering materials. Additional samples not listed may be required by Engineer. Additional samples shall be supplied by contractors when requested.

B. Submit the following for approval:

1. Site Improvements

a. Selected backfill material - sample
b. Seeding materials - certification
c. Plant mix formulas for bituminous paving & patching

2. Concrete - Plain and Reinforced

a. Cement - material certification only
b. Fine aggregate - material certification only
c. Coarse aggregate - material certification only
d. Reinforcing steel and wire mesh - material certification only
e. Admixtures - certification

3. Mechanical Equipment

a. Pipe - Certificate of Compliance (with specified standards). Submit one certificate for every class and size of pipe incorporated in the project.

b. Gaskets - sample.

c. Valves - Certificate of Compliance (with specified tests and standards).

d. Fire and Flushing Hydrants - Certificate of Compliance

e. Air Relief and Vacuum Valves - Certificate of Compliance (with specified tests and standards).

f. Miscellaneous Valves - Certificate of Compliance (with specified tests and standards).

g. Fittings - Hydrostatic - Certificate of Compliance (with specified tests and standards).

h. Pumps - Certified Pump Curves for every different pump furnished.

1E.3 Testing

A. Contractors shall engage at his cost and expense and retain an independent testing laboratory for materials testing. Laboratory retained shall be subject to approval of Engineer.

B. Contractors shall be responsible for furnishing samples of materials to be tested. Samples shall be delivered to job site for pick up by testing laboratory.

C. Contractors shall pay all expenses incurred in collecting, packing and delivering samples to testing laboratory or its representative along with the cost of all tests performed.

D. Contractors shall submit to Engineer for consideration all existing satisfactory test results for tests required. If acceptable, testing of that material may be waived. For example, if concrete source is from a plant approved by PennDOT, Engineer may waive tests that would duplicate testing performed by PennDOT. This does not apply to users tests listed in 1E.4.

1E.4 Testing List

Material to be Tested	Type of Method of Test Required
Concrete Cylinder Test 7th & 28th Day Compressive 4 Cylinders per Test	ASTM C 39 and ASTM C 617
Slump Test	ASTM C 143
Entrained Air Content	ASTM C 231
Bituminous Pavement	Extraction and 4" Coring of Pavement
Water Line	Hydrostatic as per Applicable Standards and Specifications
Bacteriological Tests	AWWA Standard Methods Fecal and Total Coliform

A. The number of tests required will not exceed five (5) for each material to be tested, provided tested material meet specification requirements.

B. No more than five (5) pavement extractions of bituminous pavement will be made at locations designated by the Engineer. If more than 20 percent of the test fail, the Engineer can order additional tests at no additional cost to the Owner.

C. Two (2) copies of test reports shall be submitted directly to Engineer by testing laboratory. All field tests shall be witnessed by the Engineer.

D. Location and sequence of tests shall be determined by the Engineer.

1E.5 Inspection

A. General project inspection services shall be furnished by the Owner.

1. Contractors shall be responsible for the cost of inspection services required by PennDOT, if applicable, at no additional cost to the Owner.

1F.1 Temporary Guardrails and Barricades

A. Furnish, erect and maintain barricades and flashing warning lights at all exposed excavations when work is not progressing.

1. Barricades and lights shall be continuously maintained around exposed excavations at pedestrian or traffic crossings, urbanized areas, or as otherwise directed by the Engineer.

2. Lights shall operate from dusk until dawn.

1F.2 Temporary Access Road

A. Owner will obtain temporary construction easements to all work areas on property not owned by Owner, as required.

B. Contractor will be permitted to construct access and haul roads within limits of construction easements provided locations of such roads is approved by Engineer in writing before road is constructed.

C. Upon completion of construction all lands utilized for access and haul roads shall be restored to as good as, or better than, their original condition.

1F.3 Temporary Pollution Control

A. Provide sufficient sanitary facilities at all construction areas for the use of all employees on the project.

1. Use of these facilities by employees shall be mandatory.

a. Contractor shall dismiss all employees who fail to use sanitary facilities and commit nuisances at the site.

2. Contractor shall maintain sanitary facilities in a clean and odor free condition.

B. A separate Soil Erosion and Sedimentation Control Plan has been developed for this project and is bound at the end of these specifications. Requirements of this plan are hereby made a part of this contract and shall be strictly adhered to.

1. Implementation of the Soil Erosion and Sedimentation Control Plan shall not relieve Contractor of his obligation or liability under the Act of June 22, 1937, PL 1987 as amended, governing soil erosion and sedimentation control.

C. Other Anti-Pollution Measures

1. Contractor shall thoroughly acquaint himself with the terms of all Federal and state statues, rules and regulations dealing with the prevention of environmental pollution and the preservation of public natural resources that apply to this project. Contractor's attention is directed specifically to the following requirements:

   a. Control of dust and airborne particulate matter.

   b. Removal of earth and other material from streets and roads that has been deposited either directly or indirectly as a result of construction operations.

   c. Use of "low noise" and properly muffled equipment.

   d. Operation of construction equipment only during normal workday hours.

2. Contractor shall include in his bid all costs of complying with the terms of the listed statutes, rules and regulations. In the event that these are amended, or if new statutes, rules and regulations become effective which cause Contractor to perform additional work, Owner will issue a change order setting forth any additional work that must be undertaken. This change order will not invalidate the Contract. Change order will specify the amount of additional payment, if any, that will be made to the Contractor. If the Owner and Contractor cannot arrive at a mutually agreeable price of the extra work, payment will be made in accordance with Article 14 of the General Conditions. No payment will be made for work performed without written authorization to do so.

3. Bidder shall determine what, if any, local ordinances, codes and regulations apply to his work, and shall comply with all such ordinances, codes and regulations. Contractor will be required to comply with acts and regulations of local, state and federal agencies having jurisdiction over the entire project, or any part of the project.

4. Contractor's failure to comply with existing laws and regulations may result in prosecution of the Contractor by local, state or federal agencies.

1F.4 Temporary Field Office

A. Contractor may erect a temporary field office for his use.

B. Off-site location of temporary field office will be the sole responsibility of the Contractor.

1F.5 Project Signing

A. No signs or advertisements will be allowed to be displayed at the project site without the written approval of the Engineer.

1F.6 Removal of Tempor[illegible] Facilities

A. All temporar[illegible] acilities shall be removed fr[illegible] the project site prior to job closeout.

1F.7 Construction Photographs

A. Construction photographs shall be taken prior to any work.

1. No construction shall be permitted in a areas not photographed.

B. All pictures shall be color 4" x 5" minimum size, or larger if needed to properly show the work.

C. One print of each photograph shall be mailed to the Owner and one print to the Engineer. Photographs shall be neatly labeled, dated and identified in a title box in the lower right-hand corner showing the date of exposure, project name and locations, and direction of view. Appropriate comments may be legibly entered on the back of the photograph.

D. All negatives shall be retained by the photographer until completion of the work, at which time they shall become the property of the Owner. Contractor shall obtain and deliver the negatives to the Owner.

1F.8 Engineer's Field Office

A. An Engineer's field office is NOT required under this Contract.

1F.9 Traffic Control

A. Contractor shall be responsible for maintaining and protecting the flow of traffic within the project work areas at all times. Cost of flagman, inspectors, traffic control, signs, etc. required for highway work shall be paid for by the Contractor.

B. Contractor shall furnish, erect, place and maintain all traffic control signs and devices within construction area at all times during project construction to provide the safe movement of vehicular and pedestrian traffic through and around the work areas.

C. Traffic control on roads and streets shall be the Contractor's responsibility, and shall be in accordance with the requirements of the governing municipality. Traffic control for PennDOT roads and other roads and streets where no specific requirements exist, the following shall be used as a guide:

1. PennDOT Publication #203, Work Zone Traffic Control, latest revision.

2. Figure 10a of Publication #203 as applicable for the construction operation anticipated.

3. Steel plates shall be used to cover excavation and protect pavement during curing.

   a. Plates shall be secured against movement.

4. PennDOT Publication "Regulations Governing Design, Locations and Creation of Traffic Signs, Signals and Marking".

5. Section 901 of PennDOT Publication 408, latest Edition.

D. Immediately upon completion of the work, Contractor shall remove all traffic control devices erected by him.

E. Traffic control devices so removed shall remain the property of the Contractor.

1G.1 Submittals

A. Progress Schedules

1. Progress schedules shall be in the form of a progress chart of suitable scale to indicate the percentage of work scheduled for completion at all times. Contractor shall enter on his chart the actual progress at the end of every week, or as directed by the Engineer. Three (3) copies of the completed schedule shall be delivered to Engineer within ten (10) days after the initial job conference.

2. Progress schedules shall be revised and updated by the Contractor to reflect changes in the rate of progress or time of completion.

B. Progress Reports

1. Contractor shall prepare and submit to the Engineer no later than the tenth day of every month a written progress report summarizing the progress of the various parts of the work, giving the existing status, rate of progress, estimated time of completion, and causes of delays, if any.

C. Survey Data

1. Contractor shall be responsible for properly laying out the work for lines and measurements for the work executed under the Contract Documents. Contractor shall verify the figures shown on the Drawings before laying out the work, and report errors or inaccuracies in writing to Engineer before commencing work. Engineer, or his representative, shall in no case assume responsibility for laying out the work.

2. Contractor shall be responsible for the proper location and level of work and for maintenance of reference lines and bench marks. Engineer will provide reference points and bench marks.

D. Shop Drawings, Data and Submittals

1. After award of the Contract, Contractor shall submit five (5) copies of shop drawings and/or catalog data, setting, fabrication, and/or equipment drawings, of all architectural, structural, mechanical, electrical, piping, equipment and other component material and facilities proposed to be furnished under each Contract. Contractor shall submit shop drawings accompanied by a "Shop Drawing Transmittal" Form.

2. Shop drawings shall be submitted on the following:

   a. Gate Valves and Boxes
   b. Plugs and Caps
   c. Pipe (All Types)
   d. Fittings
   e. Couplings
   f. Fire Hydrants
   g. Pumps

3. Resubmissions

   a. Resubmittal procedure shall follow procedure of initial submittal.

4. Engineer's Action on Transmittal Form

   a. Incomplete or erroneous transmittals will be returned without action.

   b. Remainder of transmittal will be filled out by Engineer.

5. Submittal Procedures by Contractor

   a. Submit Shop Drawings and samples in accordance with General Conditions. All items shall bear the Contractor's name, approval date, and Contractor's initial. Submittals shall clearly indicate the items being considered.

6. Engineer's Review

   a. Engineer will process submission and indicate appropriate action on submission or transmittal.

1G.2 As-Built Records

A. The Contractor shall maintain project record "as-built" documents on a daily basis.

   1. Engineer will provide two (2) sets of documents for this purpose.

B. Records shall note all significant deviations from contract documents. All fittings and appurtenant items shall be located by measurements from at least two (2) fixed reference points. If necessary, the Contractor shall perform field surveys to conform invert elevations, line locations and line lengths.

C. The record set of drawings, shop drawings and specifications shall be kept at the job site for inspection by the Engineer and Owner. The record set shall correctly show changes and be maintained clearly and neatly with appropriate supplementary notes.

SECTION 1H - PROJECT MEETINGS

1H.1 Scope

A. Project meetings and conferences necessary to ensure the prompt, orderly completion of work are included in this section.

B. A preconstruction job conference will be held at a time and location designated by the Engineer prior to the start of construction. The successful bidder and their superintendents shall attend this conference.

1H.2 Progress Meetings

A. Contractors and any subcontractors, material men or vendors whose presence is requested shall attend meetings (hereinafter referred to as progress meetings) when called by the Engineer or his representative for the purpose of discussing the execution of the work. Each of such meetings will be held at the time and place designated by the Engineer or his representative. All decisions, instructions and interpretations given by the Engineer, or his representative, at these meetings shall be binding and conclusive on the contractors. The proceedings of these meetings will be recorded and the contractors will be furnished a reasonable number of copies for their use and for distribution to various subcontractors, material men and vendors involved.

B. Progress meetings may also be called by each contractor for the purpose of coordinating, expediting and scheduling the work of each contract. Other contractors and their subcontractors, material men or vendors whose presence is requested and deemed necessary by the Engineer are required to attend.

SECTION 1I - PROJECT CLOSEOUT

1I.1 Documents Required Prior to Final Payment

A. Prior to final payment and before issuance of final certificate for payment, in accordance with provisions of General Conditions, file the following documents with Engineer:

1. Guarantees and Warranties - those required by General Conditions and any other extended guarantees stated in the technical sections of the specifications.

2. Release or Waiver of Liens - as required by General Conditions.

3. As-Built Drawings:

a. Furnish two (2) sets of "as-built" prints showing in a clear, legible fashion the location of all piping, equipment and facilities.

Division 2 - Site Work

SECTION 2A- SUBSURFACE INFORMATION

2A.1 Subsurface Information

A. No subsurface information was obtained for this project.

2A.2 Subsurface Exploration

A. Contractors, during the bidding period, may be permitted to conduct subsurface explorations for their own information in the preparation of their bids, provided Contractors obtain approval of property owners, PennDOT, Conemaugh Township Supervisors, or the Owner to conduct subsurface explorations upon their respective properties.

B. Requests to conduct subsurface explorations shall be addressed to both Owner and Engineer in writing providing the following data:

1. Person or firm to conduct subsurface exploration.

2. Detailed location of all proposed bore holes or excavation trenches.

3. Insurance certificates for liability against claims due to damage to both public and private property and buried public utility lines.

4. Waiver holding Owner and Engineer harmless in all claims arising from damages to property, bodily injury, or public utilities as a result of subsurface explorations.

5. Every request for permission to conduct subsurface explorations shall be acted upon within five (5) days from date of receipt.

6. In no case will either Owner or Engineer assume responsibility for claims or inaccurate or incomplete bids due to insufficient subsurface information.

SECTION 2B - EXISTING UTILITIES AND UNDERGROUND STRUCTURES

2B.1 General

A. Contractors shall comply with requirements of Pa. Act 287 and its revision and update by Act 172, regulating excavation operations around underground utility lines. A listing of the utilities in Beccaria Township, Clearfield County, are inserted at the end of this section.

B. The Contractor is required by Act 172 to make a toll free call to the Pennsylvania One Call System (1-800-242-1776) to notify them that digging will take place. No subsurface excavation will be permitted under this contract until the Contractor furnished the Engineer with the serial number he obtained when he made the One Call telephone call.

C. A utility line shall be deemed to include all plant, equipment, controls, transmission and distribution lines, including services to individual customers, both above and below ground, owned, operated, or leased by a public, semi-public, or private utility.

2B.2 Existing Utilities

A. Location and extent of all known utility lines are indicated on the drawings. Information presented on the drawings is not guaranteed to be either complete or correct. Each Contractor shall be responsible for contacting all utilities to determine the precise location and depth of underground utility lines within the project area.

B. Protect all existing utility lines from damage. Follow individual utility's recommendations for utility line protection.

C. Contractors shall immediately report all damage to utility lines to both utility and Engineer

D. All damage caused to existing utility lines by Contractor's operations shall be repaired by Contractor to complete satisfaction of utility at no additional cost to the Owner.

E. Contractors shall assume all liability for damages filed by a utility arising from loss of utility service due to Contractor's operations.

F. Contractors shall notify individual utilities of intent to commence construction around existing utility lines at least seven (7) calendar days before construction is to commence. Notification shall be in writing.

G. Should uncharted or incorrectly charted piping or other utilities be encountered during excavation, consult Engineer immediately for directions as to how to proceed.

H. Contractor shall not interrupt existing utility's service unless written permission to do so is obtained from utility affected.

2B.4 Other Underground Structures

A. Any other pipe or structure encountered shall be protected from damage.

B. Contractor shall be responsible for any damage caused by his work and shall repair, to the satisfaction of the Authority and Engineer, at no additional cost.

C. Pipe underdrains which, in the opinion of the Owner and Engineer, must be removed to permit the construction to proceed, will be replaced and paid for as indicated in Section 20A.

D. All repairs or replacements of pipe underdrains shall be in accordance with PennDOT Form 408, Section 610 - Pipe Underdrain and Pavement Base Drain.

2B.4 Emergency Action

A. In the event damage to an existing utility line would result in potential loss of life or extensive property damage, Contractors shall immediately proceed with whatever means are at their disposal to remove the hazard.

B. Immediately upon removal of the hazard, Contractors shall notify both the utility and the Engineer.

SECTION 2C - CLEARING AND GRUBBING

2C.1 Scope

A. The work covered by this section consists of furnishing all labor, equipment and appliances necessary to complete all site preparation as shown on the drawings and specified herein:

1. Necessary protection for trees that are to remain.
2. Obstructions interfering with the proposed work.
3. Topsoil removal, clearing and grubbing.

2C.2 Precautions

A. Perform the work in a manner to prevent damage or injury to property or to the public. Provide barriers, warning lights and other protection as required and protect as necessary existing monuments, bench marks or utilities that are to remain in service. Restore all damage to original condition or repair as directed by Engineer at no additional cost to the Owner.

B. Before starting work, protect any trees or shrubs shown, designated or adjacent to the work to be saved by boxing or wire fencing staked securely in place or other approved means, maintain until completion of work or until removal may be directed by Engineer. Any trees cut or damaged during construction shall have the damaged portion covered with black asphalt paint.

2C.3 Disposition of Utilities

A. Owner will make all necessary arrangements for relocating active utilities in the way of new work that must be moved and for shutting off and disconnecting utilities that are to be abandoned.

2C.4 Clearing and Grubbing

A. Clearing

1. Contractor shall remove all trees, snags, shrubs, brush and other materials extending above the surface of the ground unless otherwise specified.

2. Clearing shall be flush with the existing ground surface or extend below the surface of the ground.

3. Limits of clearing shall be as follows:

a. Pipelines and conduits - to limits of trench excavation unless otherwise approved by Owner or Engineer.

b. Trees and shrubs that are to be removed will be marked by the Engineer

3. Grubbing

1. Grubbing shall consist of removing all stumps, roots, rubbish, junk, down timber, rotten wood and other objectionable material.

2. Removal of grubbed material by blasting will not be permitted. Limits of grubbing shall be the same as clearing limits.

2C.5 Disposal of Cleared and Grubbed Material

A. All material removed under this section shall become the property of the Contractor unless otherwise specified.

B. Contractor shall dispose of all waste material not designated for salvage and shall obtain all necessary waste areas for disposal of material off the site.

C. Permits for disposal of waste material on private property shall be in writing by the owner of the property. If property is in the name of more than one owner, all must sign. Two copies of the permit shall be submitted to the Engineer designating the disposal areas and conditions for such disposal.

2C.6 General

A. Clearing and grubbing operations shall maintain a sufficient distance ahead of excavating operation to avoid work slowdown or interference.

B. Clearing and grubbing beyond the construction right-of-way limits will not be permitted.

C. Engineer will locate right-of-way limits in all questionable areas before clearing and grubbing operations commence.

2C.7 Topsoil Removal

A. Contractor shall remove all topsoil to its full depth from within all areas to be excavated. Topsoil shall be stockpiled and stored as directed by Engineer for reuse in final grading.

SECTION 2D - DIVERSIONS AND CARE OF WATER

2D.1 Scope

A. The Contractor shall construct and maintain diversions and/or such other works necessary to permit construction in the dry and to protect all permanent work under this Contract.

B. The requirements of this section shall apply to all sources of water whether from flowing streams, ground water, or surface water.

C. Unless otherwise specifically authorized in writing, all permanent structures shall be constructed in areas free from water. The necessary means of dewatering permanent work areas shall be maintained by the Contractor until such permanent work is complete and accepted.

2D.2 Plan of Operations

A. The Contractor, upon request from the Engineer, shall submit for approval, drawing and/or a description of the plan of operation that the Contractor proposes to use. No work under this section shall commence prior to approval of the plan, if requested. However, such approval will not relieve the Contractor of full responsibility for the adequacy and successful functioning of the works.

2D.3 Removal of Temporary Works

A. After completion of the permanent works, temporary works shall be completely removed and the area left in good condition, satisfactory to the Engineer.

2D.4 Damage to Work

A. Loss of any permanent works or loss of any temporary works will not be reason for claim against the Owner. Any such losses or damage to any part of the work, permanent or temporary, shall be the responsibility of the Contractor, who shall replace or repair, as required, to the satisfaction of the Engineer.

2D.5 Excavation Protection

A. Contractor shall prevent surface water and subsurface ground water flowing into excavations from flooding project site and surrounding area. Do not allow water to accumulate in excavations. Remove water to prevent softening of foundation bottoms, undercutting footings and soil changes detrimental to stability of subgrades and foundations. Provide and maintain pumps, sumps, suction and discharge lines and other dewatering system components necessary to convey water away from excavations.

1. Convey both water removed from excavations and rainwater to collection or runoff areas. Provide and maintain temporary drainage ditches and other diversions outside excavation limits. Do not use trench excavations as temporary drainage ditches.

2. Dispose water so as not to cause a p health nuisance, or injure perty. Where points of dra ge discharge are in question, aproval shall be obtained from Engineer before such discharge is made.

3. Subgrades for thrust blocks and other structures shall be free from excess water during concrete placement and shall be maintained free from all excess surface and ground water for a period of at least 24 hours after concrete is placed.

Section 2E - Excavation

2E.1 General

A. Excavation shall consist of removing, hauling, and disposing of all material encountered, regardless of character, at any location indicated on the drawings, as specified herein or as directed by the Engineer.

B. All excavation is unclassified. For the purpose of describing and establishing limits, excavation work will be defined as follows:

1. General Excavation shall include all excavation required for roadway, ditches, channels, impoundments, structure foundations, etc.

2. Pipe Trench Excavation shall include excavation for pipe culverts, storm sewers, sanitary sewers, underdrains, water lines and other piping.

2E.2 Explosives

A. No blasting shall be done without first notifying the Owner and Engineer. The Owner reserves the right to prohibit blasting where, in their opinion, it is not warranted.

B. When blasting is permitted by the Owner, such operations shall be in charge of experienced and licensed blasters only; and be carried out in strict accordance with the existing ordinances of the Federal, State, county or municipality governing the same, and in accordance with Federal blasting regulations. Care shall be taken to protect from injury all persons, pipes, railway tracks, all underground structures encountered, and all buildings along the lines of the work. Blasts shall be fired at such times a may be fixed by the Engineer or Owner. Such control, however, shall not relieve Contractor of his responsibility for damage done when blasting. Where special blasting bonds are required, Contractor shall obtain and maintain these bonds at his cost, even though such bonds shall be in the name of the Owner. Cost of these bonds shall be considered incidental to other items of work. Required bonds and insurance covering blasting shall be obtained by Contractor from the same carrier. All other costs associated with the blasting operation, such as, but not limited to, bonds, surveys, insurance, etc., shall be at Contractor's expense.

2E.3 Rights-of-Way and Easements

A. Owner will require and pay for all rights-of-way and easements and permits required for this work.

1. The Contractor shall be responsible for obtaining from the Owner and complying with the requirement of all easements and rights-of-way.

2E.4 Miscellaneous

A. The Contractor shall protect structures, facilities, sidewalks, pavements and other facilities from damage caused by settlement, lateral movement, undermining, washout and other hazards created by earthwork operations.

1. Equipment having rubber runners or tires shall be utilized exclusively on permanent pavement.

a. Equipment having outriggers shall utilize wood or rubber blocking to protect pavement from damage.

2. The Contractor shall excavate by hand in areas where deemed necessary by the Engineer or where available space is too limited to permit use of equipment.

B. Adequate provisions shall be made for the flow of sewers, drains, culverts, and water courses encountered during construction.

1. All such structures disturbed or damaged during the work shall be repaired to the satisfaction of the Engineer at no additional cost to the Owner.

C. The Contractor shall perform earthwork operations in such a manner as to keep the job site free of ponded water and the subgrade at proper moisture content required for compaction. Diversion and care of water and dewatering shall be as specified in Section 2D or as directed by the Engineer.

D. Excavated material shall be deposited in such a manner as to interfere as little as possible with the execution of the work.

E. Earthwork operations shall be conducted so as to maintain safe pedestrian and vehicular traffic unless provisions for detours or disruption of traffic are set forth herein or are approved by the Engineer prior to start of construction.

1. Access to all existing valve pit covers, valve boxes, curb stop boxes, fire and police call boxes or other utility controls shall be maintained at all times.

F. All materials encountered, regardless of types or hardness and including existing foundations and other underground installations, shall be removed to required lines and depths. No claims for extra compensation or extension of time due to subsurface conditions encountered will be considered.

G. The Contractor shall remove all street and sidewalk pavements, curbing, drains, riprap, barriers, walls and other such obstacles as required for proper execution of the work and shall store and protect all materials that can be used in restoring the site to its original condition.

H. Pavements or road surfaces shall be removed as part of the excavation. Pavement shall be removed 12 inches beyond the limit of excavation by sawing to a neat straight line. The face of the remaining pavement shall be approximately vertical.

I. Excavate all ashes, cinders, refuse, organic material and other unsatisfactory subgrade materials that extend below required elevations to additional depth required by the Engineer. Replace unsuitable material with approved backfill material. Compact and grade backfill to required density and tolerance.

1. Such additional excavation and backfill shall be considered incidental to the work of the project.

2. Unsuitable excavated material shall be removed from site of work and wasted in approved areas.

J. If the bottom of an excavation at subgrade consists of material which, in the opinion of the Engineer, is unstable such that it cannot be removed and replaced with approved backfill material, the Contractor shall construct a foundation consisting of piling timbers or other materials in accordance with plans prepared by the Engineer.

1. Such additional foundation construction will be paid for as a change in work. Unit bid prices furnished by the Contractor for applicable items will be used as a basis for determining the price of the additional work.

K. The Contractor shall give two days' notice to the Engineer when excavations will be completed, so that an inspection of the bearing stratum can be made prior to the placement of concrete.

L. The Contractor shall protect the bottom of all excavations from freezing.

M. Provide and place all timberwork, sheeting, shoring, bracing and other classes of timberwork to adequately protect the work from earth pressure as required by federal and state laws and municipal ordinances. All sheeting, bracing, shoring or other supports not ordered left in place by the Engineer shall be removed after excavation is refilled in such a manner to prevent caving in. Upon removal, all voids shall be carefully backfilled and compacted. Where sheeting and bracing are required, excavation width shall be increased accordingly. Trench sheeting shall remain in place until pipe has been laid and earth around pipe compacted to a depth of two feet over top of pipe. Sheeting and shoring at concrete structure excavations shall remain in place until the concrete has cured to 70% of the specified 28-day strength.

1. The decision as to whether or not sheeting and shoring are necessary, and the design of such sheeting and shoring, will be made by the Contractor who shall assume sole responsibility for the safety of the work and adjacent structures and properties during and following the excavation operation.

N. Removal of materials beyond indicated grade elevations or dimensions without specific directions of the Engineer is prohibited.

1. Unauthorized excavation beneath footings, foundation bases, or concrete anchors shall be corrected by extending indicated bottom elevation to the excavation bottom without altering the required top elevation.

a. Type C concrete fill as specified in Division 3 may be used to bring elevations to proper position only when approved by Engineer.

2. All other unauthorized excavations shall be backfilled and compacted to indicated grade as specified for authorized excavations of the same type.

3. No claims or extra compensation due to unauthorized excavations will be allowed.

O. Contractor shall protect excavation bottoms against freezing when atmospheric temperature is less than 35°F.

2E.5 General Excavation

A. General excavation shall be to the limits shown on the drawings, as specified herein or as directed by the Engineer.

1. Excavation for structures shall conform to the elevations and tolerances shown within plus or minus one-tenth of a foot (0.10'). Extend excavations a sufficient distance from footings and foundations to permit placing and removal of concrete formwork and inspection of structure surfaces.

2E.6 Pipe Trench Excavation

A. Pipe trenches shall be excavated so that the pipe can be laid to the proper alignment and to avoid obstacles. Trench shall be excavated only as far in advance of pipe laying as permitted either by statute or the Engineer. Trenches shall be laid to the lines and grades shown on the drawings.

B. Width of pipe trench shall be kept to a minimum. Excavation of the pipe zone shall be confined to the limits of the trench width, as indicated on the drawings, measured at the pipe for the size and type of pipe being installed.

1. Bedding shall be as indicated on the drawings or as specified in Section 2F.

2. Bell holes of sufficient size shall be excavated at each joint in order to insure proper making of the joints, inspection of the work, and placing and compaction of the backfill, but not so large that undue stress is placed on the pipe when the trench is backfilled. Trench shall be widened only at the location of bells.

3. Trench for ductile and cast iron pipe installation shall be excavated to depth required to provide uniform and continuous bearing and support for the pipe on solid, undisturbed ground at every point between bell holes. It will be permissible to disturb the finished subgrade over a maximum length of 18 inches near the middle of each length of pipe by the withdrawal of pipe slings or other lifting tackle. All parts of the bottom of the trench excavated below specified grade shall be corrected with approved material and thoroughly compacted as specified. Finished subgrade shall be prepared accurately by means of hand tools.

   a. Trench for PVC pipe installation shall be excavated to a depth sufficient to permit installation of required bedding material beneath the pipe.

   b. Subgrade beneath centerline of pipe shall be finished to within 0.03 foot of a straight line between pipe joints or batterboards unless otherwise specified. All tolerances shall be above specified grade.

C. Ledge rock, boulders, and large stones shall be removed to provide a clearance of at least 6" below and on each side of all pipes for pipes 24" in diameter or less and 9" for pipe larger than 24" in diameter.

SECTION 2F - COMPACTED BACKFILL, FILL AND SUBGRADE

2F.1 General

A. Compacted backfill shall be used for filling pipe trenches and all excavated areas around structures when indicated. Compacted backfill shall also be used for replacing unsatisfactory foundation material for structures and for replacing caved-in material and for replacing materials excavated beyond established limits. Compacted backfill shall be placed to the original ground surface or to the lines and grades shown on the drawings, as specified herein, or as directed by the Engineer.

B. Fill shall consist of the placement of suitable materials in designated areas in accordance with these specifications and to the lines and grades shown on the drawings, including roadway embankments.

C. Subgrade shall consist of the preparation of the top surface of the roadbed or ground to accommodate the placement of pavements, slabs, structures, shoulders, curbs, gutters, etc. in accordance with these specifications and to the lines and grades as shown on the drawings.

D. Also included in this section is pipe zone bedding material as required for pipe installation. Bedding is defined as that material occupying the entire pipe zone, below, beside and over the pipe as shown on the details.

2F.2 Materials

A. Backfill material shall be secured from required excavations or borrow areas shown on the drawings or approved by the Engineer. Backfill material shall be free of ashes, rock or gravel larger than 3" in any dimension, debris, waste, frozen materials, organics or other deleterious matter.

B. Pipe trench backfill material above pipe zone in pavement and shoulder areas shall be as shown on the drawings. All other areas, material shall be suitable backfill material as specified previously.

C. Fill shall be secured from required excavations or approved borrow areas as shown on the drawings or as specified by the Engineer. The material shall be free from large rocks, broken concrete, roots, brush, other organic matter, trash, and frozen and other objectionable materials. It shall be reasonably well graded from coarse to fine. Unless otherwise specified, the material shall be granular and pervious in nature. If obtained from required excavation, the material may require sorting to remove objectionable material and also require stockpiling for later use. No separate payment will be made for sorting or stockpiling.

1. Borrow fill, if required, shall be obtained from off-site source at no additional cost to the Owner.

D. Pipe zone bedding material shall be as follo

1. Cast iron or ductile iron pipe - "backfill material" as specified in Section 2F.2.A; however, bedding shall be free of rock or gravel larger than 1" in any dimension.

2. PVC pipe - crushed stone or gravel meeting the approval requirements of PennDOT Form 408, for No. 1 coarse aggregate; No. 2S modified or No. 2RC aggregate.

3. Cement concrete and reinforced cement concrete pipe - crushed stone or gravel meeting the requirements of PennDOT Form 408 (1976 Edition) Section 703.2 for No. 2A coarse aggregate.

4. Service lines - fine aggregate (sand) meeting the requirements of PennDOT Form 408, Section 703.1 for Type A sand.

2F.3 Placement and Compaction

A. Backfilling of pipe trenches shall take place as soon as possible. Backfilling operations shall be so conducted that permanent structures will not be disturbed and that the lines and grades of pipes will be maintained. Backfill shall be placed in the dry and shall not be frozen or placed on frozen ground.

B. No backfill shall be placed against nor on top of concrete surfaces until the earlier condition stated below has been attained, unless otherwise directed by the Engineer.

1. The concrete has developed at least seventy percent (70%) of the specified 28-day strength.

2. The time elapsed since placement of concrete is at least:

Walls and vertical faces	10 days
Conduit (inside forms in place)	7 days
Footings, cradles or bedding	2 days

C. Backfill around structures and pipe trench backfill shall be placed in four (4) inch layers and each layer shall be compacted with approved tampers. Where the material is granular in nature, vibratory-type power tampers will be required. Compaction shall be to a minimum density of 120 pounds per cubic foot.

D. Backfill material around structures and in pipe trenches shall be moistened or dried as necessary to bring it to the optimum moisture for compaction. Special care shall be taken to insure a thorough compaction of the pipe zone backfill material on each side and for a depth of twelve (12) inches above pipes and culverts. Backfill shall be brought up equally on opposite sides of pipe lines, culverts, wall stems, and similar structures. Backfill material having such a high water content as to prevent good compaction shall not be used. Backfill layers shall be evenly spread before compaction. Prior to operating equipment over pipes and other structures, backfill material shall be uniformly compacted to a depth of at least two (2) feet over the top of pipes and structures and to a greater depth, if necessary, to prevent damage to the pipes or structures.

E. Pipe zone bedding for pipes shall be as shown on the drawings for the type of pipe specified.

F. Fill shall be placed in accordance with the requirements of PennDOT Form 408 Section 206, "Embankment."

G. Subgrade shall be prepared in accordance with the requirements of PennDOT Form 408 Section 210, "Subgrade."

2F.4 Maintenance

A. Protect newly graded areas from traffic and erosion and keep free of trash and debris. Repair and re-establish grades in settled, eroded and rutted areas to specified tolerance.

SECTION 2G - UNPAVED AREA RESTORATION
(Turfing)

2G.1 General

A. This Section covers the replacement of topsoil and re-establishment of a vegetative ground cover in unpaved areas. Backfill above the pipe zone shall be as specified in Section 2F of these specifications. Unpaved area restoration shall be as shown on typical standard detail appended to these specifications.

B. All areas disturbed by the work and not receiving another surface finish shall be treated as turf, unless otherwise directed by Engineer. Borrow topsoil, if required, shall be obtained from off-site borrow areas at no extra cost to Owner. Borrow areas shall be approved by Engineer. Fertilizers and seed shall be delivered and stored in original, unopened containers, kept dry and not opened until needed for use. Faulty or damaged containers shall not be used.

C. This item will be considered incidental to the work. No separate pay item will be included.

2G.2 Materials

A. Topsoil shall be friable loam, reasonably free of subsoil, clay lumps, brush, roots, weeds, and other objectionable organic material, stones and other inorganic material larger than 2" in any dimension, litter, and all materials harmful to plant growth.

B. Lime shall be pulverized agricultural limestone containing a minimum of 85% total carbonates ground so that at least 90% passes a No. 20 sieve and at least 50% passes a No. 100 sieve.

C. Fertilizer shall be standard 5-10-5 commercial product in bags showing weight and analysis and manufacturer's name. Availability of the various elements shall conform to standards of the Association of Official Agricultural Chemists.

D. Grass seed shall be clean and fresh, packed in sealed bags showing net weight, composition of mix, date of germination tests and supplier's name.

E. Grass seed formula shall be as follows:

1. Composite of mix shall be PennDOT Formula "D" for all areas except Formula "B" shall be used for lawn replacement. Lawn areas determined by Engineer as not compatible with Formula "B", shall be seeded with a mix equivalent to adjacent grassed areas.

F. Mulch shall be clean wheat or oats straw.

2G.3 Application

A. Topsoil

1. Apply topsoil to all areas to receive turf except slopes 2:1 or greater. Compact topsoil to a depth of 3".

2. Excess topsoil, if any, shall become property of Owner. Contractor shall stockpile and stabilize as directed by Engineer.

B. Lime and Fertilizer

1. Apply lime at rate of fifty pounds per one thousand square feet.

2. Apply fertilizer at the rate of thirty pounds per one thousand square feet.

3. Work lime and fertilizer into soil to a depth of at least 2" by raking, discing or harrowing.

C. Seeding

1. Apply seed uniformly at rate of three pounds per one thousand square feet. Use suitable mechanical spreader or sow by hand. Hydroseeding will be permitted.

2. Contractor shall have choice of time during which he will seed, and shall be responsible for obtaining a satisfactory catch of grass as hereinafter specified.

D. Mulching

1. Apply mulch within 48 hours after seeding, and at minimum rate of one hundred thirty pounds per one thousand square feet. Mechanical blower will be allowed to apply mulch provided machine is specifically designed and approved for this purpose. Machines that cut mulch into short pieces will not be permitted.

2. Anchor mulch by use of twine and stakes, wire staples, paper or plastic nets, or other means approved by Engineer. Emulsified asphalt will be allowed provided it is applied uniformly at a rate of three and four-tenths (3.4) gallons per one thousand square feet.

2G.4 Maintenance

A. All areas and spots not showing a catch of grass shall be re-seeded. This operation shall be repeated until a complete coverage is obtained. Seeded areas shall be kept moist until a satisfactory catch of grass is established.

SECTION 2H - PAVED AREA RESTORATION

2H.1 General

A. This section includes requirements for paved area restoration. Paved areas shall consist of concrete pavement, bituminous pavement and stabilized surfaces located in municipal and PennDOT shoulders and highways; walks and private driveways. Cost of flagmen and inspectors required for all work on highways shall be paid by the Contractor. Work under this Contract will be performed entirely within municipal or PennDOT right-of-ways. Some of the following paragraphs that cover restoration in other areas do not apply to this contract.

B. Unless specifically stated to the contrary, paving and surfacing placed shall correspond to that removed during construction, i.e., concrete paving shall be replaced by concrete paving.

C. Pavement materials for State roads shall conform to requirements of Publication Title 67 Pennsylvania Code, Chapter 459, latest revision. Pavement materials shall be as follows:

1. Bituminous Concrete Base Course - Conform to PennDOT Form 408, Section 305.

2. Bituminous Surface Course - Type ID-2 wearing course, conforming to PennDOT Form 408, Section 420.

3. Bituminous Binder Course - Type ID-2, conforming to PennDOT Form 408, Section 421.

4. Bituminous Surface Treatment - shall conform to PennDOT Form 408, Section 408.

5. Cement Concrete

   a. Roadway Replacement - High early strength conforming to PennDOT Form 408, Section 704.

   b. All Others - Type B conforming to Division 3 of these specifications.

6. Reinforcement - Deformed bars and steel wire fabric conforming to PennDOT Form 408, Section 709.

7. Bituminous Penetrate - shall conform to PennDOT Form 408, Section 461.2.

8. Tack Coat - E-1 Emulsified Asphalt conforming to PennDOT Bulletin 25 and PennDOT Form 408, Section 460.2(a).

9. Joint Sealer - shall conform to PennDOT Form 408, Section 470.2(a).

D. 2RC aggregate (select granular material) be as specified in PennDOT Form 408, Section 703.3.

E. Reference: Made to PennDOT Form 408 shall be the latest edition.

2H.2 Municipal Highway Shoulder Restoration (Local Roads)

A. Municipal highway shoulder restoration shall be as shown on the typical standard details appended to these specifications to the lines and grades that existed prior to the work.

1. Municipal shoulder restoration shall be a stabilized type.

2. Existing turf shoulders shall be restored in kind.

3. The restoration of dirt, stone or gravel private driveways shall use this item as a minimum standard.

4. This item will be considered incidental to the work. No separate pay item will be included.

2H.3 Municipal Highway Restoration (Local Roads)

A. As shown on the typical details, bituminous pavement for municipal highway restoration and other pavement restoration shall be to the lines and grades that existed prior to the work and as follows:

1. Prior to restoration, the existing pavement edge along the trench shall be cut or sawed in a neat straight line to the bottom elevation of the existing base course. Drilling will not be permitted. All existing pavement damaged by the work shall be removed and replaced.

2. Bituminous concrete base course applied as per PennDOT Form 408, Section 305.

a. Depth of pavement shall be as shown on the drawings attached.

3. Bituminous binder course applied as per PennDOT Form 408, Section 421.

a. Depth of pavement shall be as shown on the drawings attached.

4. Bituminous surface course applied as per PennDOT Form 408, Section 420.

a. Depth of pavement shall be as shown on the drawings attached.

5. Cement Concrete - as per Division 3 as herein specified.

a. Roads and Driveways - 6" thick reinforced with steel wire fabric, 6" X 6" 10 gauge.

b. Sidewalks and other concrete paved areas - 4" thick reinforced with steel wire fabric, 6" X 6" 10 gauge.

B. Sealing of Joints

1. After the bituminous wearing course has been placed and compacted flush with the existing adjacent pavement, the joint between the new and existing pavement shall be sealed with a joint sealer placed in a minimum 4 inch strip (maximum 6" width) and sprinkled with sand to prevent pickup by traffic.

2. The joint between new concrete paving and old concrete shall be sealed by constructing a sealant reservoir, 1/2" wide and 1/2" deep along the joint by sawing, forming or tooling. The reservoir shall be sealed with joint sealing material meeting the requirements of PennDOT Form 408, Section 705.5(a).

C. Stabilized surface for municipal highway restoration and other stabilized restoration shall be as shown on the Typical Details to the lines and grades that existed prior to the work and as follows:

1. This work shall be in accordance with PennDOT Form 408, Section 677.

2H.4 State Highway Shoulder Restoration

A. All work shall conform to Publication Title 67 Pennsylvania Code, Chapter 459, latest revision.

B. Paved and stabilized shoulders shall be reconstructed and restored to a serviceable condition, of the same type as existed before the start of work.

C. Other state highway shoulder restoration shall be as shown on the typical detail standard appended to the rear of these specifications. Backfill above the pipe zone shall be PennDOT select granular material:

1. If the length of the work exceeds 50 feet, the shoulder shall be graded, rolled and penetrated with RT-2C or MC-30 bituminous material at a minimum rate of .25 gallon per square yard and chipped or lightly sanded to prevent tracking of oil onto pavement.

ZH.5 State Highway Restoration

A. State highway restoration shall be as shown on the applicable typical standard detail and as required by PennDOT Regulation 67 Pa. Code... Chapter 459 latest edition. The Contractor shall utilize one of the two restoration methods listed below:

1. Final paving, RIGID BASE RESTORATION METHOD - Prior to replacement of the base course, one foot from each edge of the trench shall be sawed or cut, in a neat straight line to the bottom elevation of the existing base course, and the detached material shall be removed. Drilling will not be permitted.

   a. The base course shall be replaced with a minimum of eight inch, high early strength concrete to the elevation of the existing crushed aggregate base course. The high early strength concrete shall then be cured in accordance with Section 501.3(n), Form 408. If a trench exceeds four feet in width, No. 6 reinforcing bars shall be installed in the concrete base course, placed at six-inch centers measured longitudinally in the direction of the trench with a two inch clearance on each and a three inch clearance on the bottom.

   b. Following the concrete curing, a tack coat of E-1 bituminous material shall be applied in accordance with Section 460, Form 408.

   c. After the tack coat has cured, the bituminous binder and/or wearing course shall be placed so as to conform to the existing type of road binder and wearing course.

2. Final paving, FLEXIBLE BASE RESTORATION METHOD - Prior to making the permanent restoration, one foot from each edge of the trench shall be sawed or cut, in a neat straight line, to the bottom elevation of the existing base course, and the detached material shall be removed. Drilling shall not be permitted.

   a. Temporary restoration shall be made and kept in place for a minimum of 90 days. The base material shall consist of either a minimum eight-inch stone base, a minimum five-inch aggregate bituminous base, a minimum five-inch aggregate lime pozzolan or a minimum four-inch bituminous concrete, with a surface of two-inch bituminous material. Where the existing pavement structure includes a course of subbase material, it shall be placed to a depth equal to the existing course depth with material meeting the requirements of Section 350, Form 408.

   b. After the minimum 90 day period, but before 210 days, the temporary restoration shall be removed and permanent restoration made.

   c. The permanent base course shall consist of bituminous concrete meeting the requirements of Section 305, Form 408 and having a minimum depth of five inches or a depth equal to the existing base course, whichever is greater.

   d. The permanent binder and surface course shall be placed in accordance with the depths of the existing bituminous surface, but in no case shall the binder course be less than one and one-half inch ID-2 and the wearing course be less than one inch ID-2 or FJ-1.

2I.1 Scope

A. This section covers the requirements for railroad and highway borings and/or encasements.

B. Railroad and highway borings and/or encasements shall be constructed at the locations and to the lines and grades shown on the drawings. Boring equipment shall be approved by Engineer.

C. All pipeline installations to be installed by borings beneath railroad or highways shall be encased in a casing pipe.

D. As directed by the Engineer, to facilitate carrier pipe removal, casing pipes may also be required when boring is not required.

2I.2 Materials

A. Carrier pipes under highways shall be mechanical joint ductile iron and class as specified in Section 15A. Carrier pipes under railroads shall be mechanical joint ductile iron Class 56. Size shall be as shown on the drawings.

B. Casing pipe shall be of steel construction, conforming to ASTM A106, Grade B, complete with welded joints and bitumastic waterproofing compound coating on the interior of the pipe. Casing pipe shall conform to the following schedule:

Casing Pipe

Carrier Pipe Diameter	Nominal Size	Pipe Schedule
4"	12"	20
6"	14"	20
8"	18"	20
10"	20"	20
12"	22"	20

1. Size as indicated on the drawing.
2. The interior of the pipe shall be bitumastic coated.

C. Gravel seal on each end of casing pipe shall be AASHTO #57 aggregate as specified in PennDOT Form 408, Section 703.3 (1983 Edition).

2I.3 Method of Installation

A. Boring shall consist of pushing the pipe into the earth with a boring auger rotating within the pipe to remove the spoil. When augers, or similar devices are used for pipe emplacement, the front of the pipe shall be provided with mechanical arrangements or devices that will positively prevent the auger and cutting head from leading the pipe so that there will be no unsupported excavation ahead of the pipe.

The auger and cutting head arrangement shall be removeable from within the pipe in the event an obstruction is encountered. The over-cut by the cutting head shall not exceed the outside diameter of the pipe by more than one-half inch. The face of the cutting head shall be arranged to provide reasonable obstruction to the free flow of soft or poor material.

B. If an obstruction is encountered during installation to stop the forward action of the pipe, and it becomes evident that it is impossible to advance the pipe, operations will cease and the pipe shall be abandoned in place and filled completely with cement grout.

C. The carrier pipe shall be installed in the casing pipe by winch-drawn cable or by jacking.

1. Care must be exercised to avoid damage to pipe or pipe joints.

D. Chocks or skids should be placed and banded on the carrier pipe to ensure approximate centering within the casing pipe and to prevent damage during installation. Care must be exercised in order to prevent metal-to-metal contact.

1. Lubricants may be used between skids to ease installation; however, petroleum products (oil, grease, etc.) shall NOT be used.

E. Upon completion of carrier pipe insertion, place gravel seals at each end of casing pipe and backfill as specified.

SECTION 2J - ACCESS ROAD

2J.1 Scope

A. This section covers the improvements to the existing Hockenberry Reservoir Access Road. The road location is shown on the Drawings. The improvements generally include adding stone base, drainage cross drains, side ditches and grading the existing surface. The location of the improvements are shown on the Drawings.

2J.2 Materials

A. All materials supplied for this project shall be PennDOT approved, and shall meet the requirements of the referenced section of PennDOT Specifications Form 408, latest edition. Required materials are as follows:

1. Coarse Aggregate, Section 203.2 and 203.3:

   a. No. 4 Aggregate (AASHTO No. 1)
   b. No. 2RC Aggregate, Select Granular Material

2. Corrugated Polyethylene (PE) Drain Pipe, Section 601.2(a).

3. Geotextile Fabric Section 735 - Fabric shall be Type 2B for roadway stabilization. The fabric shall be equal to Mirafi 500X manufactured by Mirafi, Inc., Belton 790 from Belton Industries and Typar 3341 from Remay, Inc.

2J.3 Construction

A. Subgrade and Grading - The existing roadway shall be graded, shaped after drainage pipes are installed. Equipment needed for this work are graders or dozers and rollers.

B. Drainage Dips - Broad based drainage dips as shown on the Drawings shall be graded at the locations directed by the Engineer. Each dip shall have a free flowing drainage outlet.

C. Geotextile Fabric - Fabric of the type specified shall be rolled over the prepared subgrade as directed by the Engineer. Care shall be taken not to run equipment over the fabric or drop any stones from higher than 12".

D. Crushed Aggregate Base Course - The base course shall be constructed as directed by the Engineer. The depth and width of the base course is shown on the Drawings. The stone shall be spread and compacted in no more than 8" lifts.

SECTION 3A - CONCRETE, GROUT, REINFORCEMENT AND SPECIALS

3A.1 Scope

A. This section covers materials, mixing, forming, placing and curing of all cast-in-place concrete, including reinforcement.

3A.2 General Requirements

A. Coordinate work with work of other trades to provide anchors, sleeves, conduits and other openings or materials to be installed prior to concrete placement.

1. Should equipment or pipe not be delivered to the site in sufficient time for incorporation into concrete, Contractor may provide opening for later incorporation of such equipment, provided written permission is obtained from Engineer at time of request.

B. Shop Drawings showing all dimensions necessary for fabrication and placing of reinforcing steel and accessories, without reference to Project Drawings, shall be submitted for approval in accordance with these specifications.

1. At the discretion of Engineer, additional Shop Drawings for formwork may be required when safety considerations are involved.

C. Contractor shall adhere to ACI 304-73, "Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete" and ACI 318-83, "Building Code Requirements for Reinforced Concrete," in executing requirements of this section.

3A.3 Storage of Materials

A. Cement shall be stored in weathertight bins or building that will protect it from dampness and in such manner as to permit easy access for suitable inspection and identification of each carload or equivalent. Cement shall not be stored in excess of eight bags high and shall be covered with tarpaulins. When permission is given by the Engineer to store temporarily in the open, a platform and adequate waterproof covering shall be provided.

B. Aggregate stockpiles shall be arranged and used in a manner to avoid excessive segregation or contamination with other materials or with other sizes of like aggregates. To insure that this condition is met, any test for determining conformation to requirements for cleanliness and grading shall be performed on samples secured from the aggregates at the point of batching. Stockpiles shall be built in successive horizontal layers not exceeding four feet in thickness, with each layer completed before the next one is started. Frozen or partially frozen aggregates shall not be used.

C. Sand shall be allowed to drain until it has reached a uniform moisture content before it is used.

D. Admixtures shall be stored in such a manner as to avoid contamination or damage. For those used in the form of suspensions or nonstable solutions, suitable agitating equipment shall be provided to assure uniform distribution of the ingredients. Liquid admixtures shall be protected from freezing and other temperature changes which would adversely affect their characteristics.

3A.4 Materials

A. Cement

1. Portland Cement Type I or Type III conforming to ASTM Designation C-150.

2. Cement shall be delivered only in approved bags or barrels with the brand, type and name of manufacturer clearly marked thereon or may be delivered in bulk in a manner approved by Engineer. A bag of cement shall contain 94 pounds net. A barrel of cement shall contain 376 lbs. net. Information as to brand, type and manufacturer must be provided in shipping invoices accompanying bulk cement. Cement shall not be used which has been retrieved or reclaimed from used bags.

B. Aggregate

1. Concrete aggregate shall conform to the specifications for Concrete Aggregate, ASTM Designation C-33.

a. Fine Aggregate - natural sand, artificial or manufactured sand will be acceptable.

b. Coarse Aggregate - coarse aggregate shall be crushed stone or gravel.

1. Maximum size of aggregate shall be no larger than 1/5 of the narrowest dimension between sides of forms within which the concrete is to be cast, nor larger than 3/4 of the minimum clear spacing between reinforcing bars and forms. For unreinforced slabs, maximum size of aggregate shall not be larger than 1/3 the slab thickness. These requirements may be waived if, in the opinion of the Engineer, the mixture possesses sufficient workability that the concrete can be placed without honeycombs or voids.

2. In general, the maximum size of aggregate to be used in the various items of concrete work shall be in accordance with the following table, but shall not exceed the limitations of the above paragraph:

RANGE FOR MAXIMUM SIZE OF AGGREGATES* INCHES

Minimum Dimensions of Section in "	Reinforced Walls, Beams and Columns	Unre-Inforced Walls	Heavily Reinforced Slabs	Lightly Reinforced or Unre-inforced Slabs	All Other Construction
2-1/2 to 5	1/2 to 3/4	3/4	3/4 to 1	3/4 to 1-1/2	3/4 to 1
6 to 1	3/4 to 1-1/2	1-1/2	1-1/2	1-1/2 to 3	1-1/2
12 to 29	1-1/2 to 3	3	1-1/2 to 3	3	3
30 or more	1-1/2 to 3	6	1-1/2 to 3	3 to 6	3 to 6

*Based on square sieve openings.

C. Water

1. Water shall be tasteless, odorless, colorless, free from injurious amounts of sewage, oil, acid, alkali, organic matter and other deleterious substances and shall be suitable for human consumption.

D. Admixtures

1. Water-Reducing - "Eucon WR 75" by the Euclid Chemical Company, "Poxzzlith 200N" by Master Builders or "Plastocrete 160" by Sika Chemical Corporation. The admixture shall conform to ASTM C-494, Type A and contain not more than 1% chloride ions.

2. High-Range Water Reducing (Super Placticizer) - "Eucon Super 37" by the Euclid Chemical Company or "Sikament" by Sika Chemical Corporation. The admixture shall conform to ASTM C-494, Type F or G, and contain not more than 1% chloride ions.

3. Non-Corrosive Accelerator - "Accelguard" by The Euclid Chemical Company or "Darex Set Accelerator" by W. R. Grace & Company. The admixture shall conform to ASTM C-494, Type C or E, and have long term test data proving its noncorrosive effect on metal deck and reinforcing steel.

4. Water Reducing, Retarding - "Eucon Retarder 75" by the Euclid Chemical Company, "Pozzolith 100R" by Master Builders or "Plastiment" by Sika Chemical Corporation. The admixture shall conform to ASTM C-494, Type D, and not contain more than 1% chloride ions.

5. Air Entraining - Conform to ASTM C260.

6. Calcium Chloride - Not permitted.

3A.5 Mixes

A. All mix designs shall be proportioned in accordance with Section 4.3 (Field Experience and/or Trial Mixtures) of ACI 318-83.

B. Concrete for all parts of the work shall be homogeneous and, when hardened, shall have the required strength, resistance to deterioration, durability and other specified properties. The types of concrete are designated as follows:

1. Type A: (Air entrainment is optional) - For interior slabs on grade, footings, foundations and thrust blocks protected against cyclical freezing and thawing.

2. Type B: (Air entrainment is required) - For exterior slabs on grade, stream encasements, endwalls, headwalls, basement walls, retaining walls and beams subjected to cyclical freezing and thawing and placement in very wet conditions.

3. Type C: (Air entrainment is optional) - For all other concrete used.

C. Required concrete strength, f_c' shall be as follows:

Type	Compressive (psi)			Flextural (psi)		
	3-day	7-day	28-day	3-day	7-day	28-day
A	---	2750	3300	---	500	600
B	---	3330	4000	---	500	600
C	---	1500	2000	---	350	400

High Early Strength - Concrete shall achieve 7 and 28-day strengths for type intended at 3 and 7 days respectively.

D. Concrete subject to destructive exposure, such as freezing and thawing, severe weathering or chemicals, shall contain entrained air as required by these specifications. For all such concrete the water-cement ratio shall not exceed 0.53 (6.0 gallons per sack of cement). Concrete subjected to deicers, the water-cement ratio shall not exceed 0.45 (5.1 gallons per sack of cement).

E. Slump of concrete of normal weight, as determined by "Method of test for Slump of Portland Cement Concrete" (ASTM C-143), shall be in accordance with Table 1 unless the HRWR admixture (Super Plasticizer) is used. Water, in excess of that included in the approved mix design, may not be added at the plant or in the field.

TABLE 1

Type of Construction	Slump in Inches	
	Hand Placed	Vibrator Used
Reinforced Footings	2 to 5	1 to 3
Plain Footings and Substructure Walls	1 to 4	1 to 3
Slabs, Beams and Reinforced Walls	2 to 5	1 to 4
All Other Placements	1 to 3	1 to 2

The maximum slump of concrete containing the HRWR admixture (Super Plasticizer) shall be 8" unless otherwise approved by the Engineer.

F. Air content of air-entrained concrete shall conform to Table 2. Air content shall be determined in accordance with ASTM C173 (Volumetric Method) or ASTM C231 (Pressure Method).

TABLE 2: TOTAL AIR CONTENT FOR VARIOUS SIZES OF COARSE AGGREGATES

Nominal Maximum Size of Coarse Aggregate in "	Total Air Content Percent by Volume
1/2 or smaller	5 to 9
3/4	4 to 8
1	3.5 to 6.5
1-1/2 or larger	3 to 6

G. Admixtures shall be used as follows:

1. Any concrete may contain the specified water-reducing admixture (Type A) or the specified HRWR admixture (Super Plasticizer, Type F or G) when approved by the Engineer.

2. When increased workability, pumpability, lower water-cement ratio, or higher ultimate and/or early strengths are required, the HRWR admixture (Super Plasticizer) may be used when approved by the Engineer.

3. All thin slabs (8" thick or less) placed below 50° F shall contain the specified noncorrosive accelerator when approved by the Engineer.

4. When high temperatures, humidity and/or placing conditions dictate, the Engineer may require a change to the specified water-reducing, retarding formulation (Type D) in lieu of the water-reducing admixture (Type A).

5. All concrete required to be air entrained shall contain an approved air-entraining admixture.

6. All Class B Concrete shall contain a water reducing, retarding admixture as specified in Section 3A.4.D.4.

H. Calcium chloride shall <u>not</u> be permitted.

I. Proportion of ingredients shall be selected to produce:

1. Proper placeability, durability, strength and other required properties.

2. A mixture of which will work readily into corners and angles of the forms and around reinforcements by methods of placing and consolidation employed on the work, but without permitting materials to segregate or excessive free water to collect on the surface.

J. The mix designs shall be proportioned in accordance with Section 4.3 (Field Experience and/or Trial Mixtures) of ACI 318-83. If the proposed mix is based on previous field experience, the mix and supporting data shall be submitted to the Engineer for approval. Otherwise, the mix design shall be prepared in accordance with trial batches (Section 4.3) by an independent laboratory engaged by the Contractor. Tests shall be made in accordance with the following procedures:

1. Concrete trial mixtures having proportions and consistency suitable for the work shall be made using at least three different water-cement ratios which will produce a range of strengths encompassing those required for the work. Trial mixes shall be designed to produce the maximum allowable slump.

2. Proportions of ingredients shall be determined and tests conducted in accordance with the basic relationships and procedures outlined in "Recommended Practice for Selecting Proportions for Normal and Heavyweight Concrete," ACI 211.1.

3. For each water-cement ratio, at least three (3) specimens for each age to be tested shall be made and cured in accordance with "Method of Making and Curing Concrete Test Specimens in the Laboratory" ASTM C-192, and tested for strength at 28 days, or at any earlier or later age specified. Tests shall be conducted in accordance with "Method of Test for Compressive Strength of Cylindrical Concrete Specimens." ASTM C-39.

4. From results of these tests, a curve shall be plotted showing relationship between water-cement ratio and compressive strength. The water-cement ratio to be used in the proposed mix design shall be that which achieves an average strength 1200 psi above the specified strength, f_c'.

MAXIMUM PERMISSIBLE WATER-CEMENT RATIOS

Maximum Permissible Water-Cement Ratios, By Weight

Type	Specified 28-Day Compressive Strength in psi	Non-Air Entrained Concrete	Air Entrained Concrete
A	3300	0.55	0.44
B	4000	----	0.35
C	2000	0.76	0.62

Concrete subjected to deicers shall have a maximum water-cement ratio of 0.45. If concrete is designed to be watertight, concrete shall have a maximum water-cement ratio of 0.48.

K. Contractor shall submit for approval supporting data for his proposed mix designs.

3A.6 Mixing Concrete

A. General - Ready-mixed concrete shall be mixed and delivered in accordance with ASTM C-94, "Standard Specification for Ready-Mixed Concrete" modified as follows:

1. During a continuous placement the interval between loads shall not exceed 20 minutes, or be so great that concrete in place becomes partially hardened.

2. Water used to flush mixer or agitator between loads shall not become a part of concrete in the work.

3. Truck mixers shall be revolving drum type equipped with water mixing tank. Place only prescribed amount of mixing water in tank for batch type and size unless tank is equipped with device to allow Engineer to read amount of water added and his approval is given.

4. Prepare delivery tickets for every ready-mixed concrete load delivered. If a laboratory representative is inspecting batching operation, he shall prepare the ticket. Otherwise batch plant operator shall prepare the ticket. Truck drivers shall deliver tickets to Engineer at the site at the time of delivery. Tickets shall contain the following information:

   a. Number of yards delivered on this truck.
   b. Quantities of materials in the batch.
   c. Time at which the truck left the batching plant.
   d. Time at which the cement was added.
   e. Outdoor temperature in the shade.
   f. Numerical sequence of the delivery.
   g. Date.

B. Batch Mixing at the Site

1. Concrete shall be mixed in a batch mixer conforming to requirements of the Mixer Manufacturers Bureau of the Associated General Contractors of America. Mixer shall bear a manufacturer's rating plate indicating the rated capacity and the recommended revolutions per minute and shall be operated in accordance with these recommendations. It shall be equipped with a suitable charging hopper, water storage tank and a water-measuring device and be capable of thoroughly mixing the aggregates, admixtures, cement and water into a uniform mass with specified mixing time and of discharging the mix without segregation.

2. All liquid admixtures shall be dispensed by means of an automatic dispenser or similar metering device. Powdered admixtures shall be weighed or measured by volume as recommended by manufacturer. Accuracy of measurement of any admixture shall be within ±3% of the quantity used.

3. The batch shall be so charged into the mixer that some water will enter in advance of the cement and aggregate. Water shall continue to flow for a period which may extend to the end of the first 25% of the specified mixing time. Controls shall be provided to insure that no additional water may be added during mixing. Entire batch shall be discharged before mixer is recharged.

4. Each batch of two cubic yards or less shall be mixed for not less than 1-1/2 minutes. Mixing time shall be increased 15 seconds for each additional cubic yard or fraction thereof.

5. Mixer shall be clean and the pick-up and throw-over blades in the drum shall be replaced when they have lost 10% of their original depth.

C. Retempering and Changing Slump

1. Concrete shall be mixed only in quantities for immediate use. Concrete which has set shall not be retempered but shall be discarded.

2. Addition of water to increase slump shall be prohibited. Ingredients shall be cooled before mixing, or well-crushed ice may be substituted for all or part of the mixing water if, due to high temperature, deemed necessary by the Engineer.

D. Cold Weather

1. To maintain the temperature of the concrete above minimum placing temperature, the as-mixed temperature shall not be less than 55°F when the mean temperature falls below 40°F.

2. If water or aggregate has been heated, water shall be combined with the aggregate in the mixer before cement is added. Cement shall not be added to mixtures of water and aggregate when temperature of mixture is greater than 100°F.

E. Hot Weather

1. Ingredients shall be cooled before mixing, if necessary, to maintain temperature of concrete below the maximum placing temperature of 90°F.

3A.7 Placing Concrete

A. General

1. Placing of concrete shall be done in accordance with ACI 304, "Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete," except as modified or revised by these specifications.

B. Preparation Before Placing

1. Hardened concrete and foreign materials shall be removed from inner surfaces of the conveying equipment.

2. Chutes shall be of metal or metal-lined.

3. If two or more lengths of chute are used, they shall have approximately the same slope. Slopes shall neither exceed one vertical to two horizontal, or be less than one vertical to three horizontal.

4. If the distance of the discharge end of the chute above the surface of the concrete is more than three times the thickness of the layer being deposited, or more than four feet total, a spout shall be used and the lower end maintained as near to the surface of deposit as practical. When operation is intermittent, the chute shall discharge into a hopper.

5. The chute shall be thoroughly cleaned before and after each run and the debris from any water used shall be discharged outside the forms.

D. Placing

1. Concrete shall be deposited continuously or in layers of such thickness that no concrete will be deposited on concrete which has hardened sufficiently to cause the formatin of seams or places of weakness within the section.

2. If a section cannot be placed continuously, construction joints shall be located at approved points.

3. Placing shall be carried on at such a rate that concrete which is being integrated with fresh concrete is still plastic. Concrete which has partially hardened, or has been contaminated by foreign materials, shall not be deposited.

4. Concrete shall be deposited in the forms as nearly as practical in its final position to avoid rehandling.

5. Temporary spreaders in forms shall be removed when concrete placing has reached an elevation rendering their service unnecessary. They may remain embedded in the concrete only if made of metal or concrete and if prior approval is obtained.

6. Forms for walls or thin sections of considerable height shall be provided with openings or other devices that will prevent segregation and accumulation of hardened concrete on the forms or on the metal reinforcement above the level of the concrete.

7. Before depositing new concrete on or against concrete which has hardened and to which it is to bond, the fo[illegible] shall be retightened. Surf[illegible] of hardened concrete shall be [illegible]ghened in a manner that will not leave loosened particles of aggregate or damaged concrete at the surface. It shall be thoroughly cleaned of foreign matter and laitance, and dampened with water. New concrete shall be placed after the bonding compound has dried.

8. Where a smooth finish is required, the concrete shall be carefully placed and consolidated to assure a full surface of mortar against the form without formation of excessive surface voids.

9. Mechanical vibrators shall have a minimum frequency of 8,000 vibrations per minute and be operated by competent workmen. Over vibration and use of vibrators to transport concrete within forms shall not be allowed. Vibrators shall be inserted and withdrawn (approximately vertical) at many points from 18 inches to 30 inches apart for five to ten seconds duration. A spare vibrator shall be kept on the job site during all concrete placing operations.

10. Accumulation of water on the surface of the concrete due to water gain, segregation or other causes during placement and consolidation shall be prevented as far as possible by adjustments in the mixture. Provision shall be made for the removal of such accumulated water so that under no circumstances will concrete be finished with such "bleed water" on the surface.

11. Unless adequate protection is provided, or prior approval is obtained from the Engineer, concrete shall not be placed during rain, sleet or snow.

12. Rainwater shall not be allowed to increase the mixing water, nor to damage the surface finish.

E. Cold Weather Placing

1. Concrete shall be placed in cold weather in accordance with ACI 306, "Recommended Practice for Cold Weather Concrete" except as modified or revised below:

   a. Before placing concrete during cold weather, forms shall be free from frost and ice.

   b. During those seasons of the year (after the first frost in the fall and until daily mean temperature in the spring reaches 40°F for three successive days) when freezing temperatures can be anticipated, Contractor shall maintain facilities to keep concrete from freezing for at least 48 hours after placing.

c. When daily mean temperature drops below 40°F for more than one day, concrete shall be maintained at a temperature of 55°F for a minimum of five days. During this period concrete and adjacent form surfaces shall be kept moist at all times. When heating enclosures are to be provided, care shall be taken to provide adequate space around outer edges and top of concrete structure to permit circulation of the heater air so that neither freezing nor excessive heating of these extremities can occur. Method proposed for protection must have the approval of the Engineer and all facilities for protection and heating must be on hand before concrete is placed.

d. The specified noncorrosive accelerator may be used when approved by the Engineer.

e. After required protection period is over, heat shall be removed gradually so that a temperature differential of no more than 40°F will occur over the first 24 hours.

f. Forms shall not be removed from concrete surfaces during protection period stipulated above, nor shall forms be removed for a period of three days during those seasons of the year previously specified when the difference between daily high and low temperatures may reasonably be expected to exceed 40°F.

F. Hot Weather Placing

1. Concrete shall be placed in hot weather in accordance with ACI 305, "Recommended Practice for Hot Weather Concreting," except as modified below:

a. At air temperature of 90°F or above, concrete shall be kept as cool as possible during placing. Exposed concrete surfaces shall be kept continuously moist by wet-curing for at least 24 hours after concrete has been placed. After the period of wet-curing, a suitable heat-reflecting plastic membrane or white-pigmented curing compound may be used.

3A.8 Repair of Surface Defects

A. After forms have been removed, any concrete not formed as shown, or which shows a defective surface which cannot be properly repaired or patched, shall be removed. Adequacy of surfaces will be governed by the judgment of the Engineer.

B. All tie holes and repairable defective areas shall be patched immediately after form removal.

C. All honeycombed and other defective concrete shall be removed to sound concrete, but in no case to a depth of less than one inch. Area to be patched, and an area at least six inches wide surrounding it, shall be dampened to prevent absorption of water from patching mortar. The bonding compound, "Euco Weld" by the Euclid Chemical Company or "Weldcrete" by Larson Products, or approved equal, shall be applied. The patching mortar shall be placed after the bonding compund has dried.

D. Patching mixture shall be made of same materials of approximately same proportions as used for concrete, except that coarse aggregate shall be omitted and mortar shall consist of not more than one part cement to 2-1/2 parts sand by damp, loose volume.

E. Quantity of mixing water shall be no more than necessary for handling and placing. Patching mortar shall be mixed in advance and allowed to stand with frequent manipulation with a trowel, without addition of water, until it has reached the stiffest consistency that will permit placing.

F. Tie holes shall be cleaned, dampened and filled solid with patching mortar.

G. With prior approval of the Engineer as to method and procedures, the compounds used for all structural repairs shall be "Euco Epoxy #456, #460 or #463" by the Euclid Chemical Company; "Colma Dur Mortar," "Sikadur Hi-Mod L.V." or "Sikadur Hi-Mod" by Sika Chemical Corporation, or approved equal.

3A.9 Flatwork

A. Edge forms and intermediate screed strips shall be set accurately to produce designed elevations and contours in the finished surface, and shall be sufficiently strong to support vibrating bridge screeds or roller pipe screeds if the nature of finish specified requires the use of such equipment. Concrete surface shall be aligned to contours of screed strips by use of strike-off templates or approved compacting type screeds.

B. Concrete in slabs shall be thoroughly consolidated. Internal vibration shall be used along bulkheads of slabs on grade. Consolidation of slabs shall be obtained with vibrating bridge screeds, roller pipe screeds or other approved means. Concrete to be consolidated shall be as dry as practicable and surfaces shall not be manipulated prior to finishing operations.

3A.10 Concrete Finish

A. All concrete surfaces shall be finished as specified as soon after placing the concrete as conditions will permit. Placing of concrete and removal of forms shall be scheduled so that finishing surfaces can be completed as soon as possible without jeopardizing the structure. No cement plaster or cement brush coats will be accpetable.

B. Formed concrete surfaces which are not exposed to view in the finished work shall be finished by removing the form ties below surface of concrete, pointing up and rubbing down to remove fins and irregularities and leaving a reasonable smooth surface.

C. Formed concrete surfaces exposed to view in the finished work shall be finished by removing the forms as early as is practical, immediately removing the fins and projections to a depth of at least 1/4-inch beneath the surface and pointing up the holes and filling all cavities and depressions with a cement mortar similar to that in concrete, and finishing flush with a wood float or trowel.

D. Cement mortar shall not be applied except to fill holes or cavities.

E. Fins, form marks, projections and uneven spots shall be removed by rubbing or grinding the surfaces. Entire surface of concrete shall then be thoroughly drenched with water and rubbed with a carborundum brick or other approved abrasive until all fins, joint marks and mortar spots have been eliminated and a smooth finish of uniform texture and appearance has been produced.

F. Similar finishes on exterior exposed walls shall be carried one foot below finished grade. All exposed concrete surfaces shall be required to present a smooth and uniform surface.

G. Concrete for slabs shall be placed, consolidated, struck off and leveled to established grade. After the surface has stiffened sufficiently to permit the operation and the water sheen has disappeared, float the surface at least twice to a uniform sandy texture. Where required, the surface shall then be troweled, at least twice, to a smooth, hard, dense finish. The floating operation shall not begin until all excess water has been removed or evaporated.

H. All interior floors and platforms exposed to view shall receive a steel trowel finish.

I. All exterior slabs, sidewalks, etc. shall receive a broomed finish after the surface has received a float finish. Texture shall be as directed by the Engineer.

3A.11 Curing and Protection

A. Freshly deposited concrete shall be protected from premature drying and excessively hot or cold temperatures and maintained without drying at a relatively constant temperature for a period of seven days or for a longer time if necessary for hydration of the cement and proper strength gain.

B. Initial curings shall immediately follow finish operation. Concrete shall be kept continously moist at least 24 hours.

C. Immediately following initial curing and before concrete has dried, additional curing shall be accomplished by one of the following materials or methods:

1. Continuing the method used in initial curing.

2. Building paper or polyethylene sheeting as specified.

3. Liquid membrane-curing compound except on surfaces to receive coatings or additional lifts of concrete. Curing compounds conforming to Specifications for Liquid Membrane-Forming Compounds for Curing Concrete" (ASTM C-309). Such compounds shall be applied in accordance with recommendations of the manufacturer and shall not be used on any surfaces against which additional concrete or other cementitious finishing materials are to be bonded, not on surfaces on which such curing is prohibited by these specifications.

D. Final curing shall continue until cumulative number of days during which temperature of the air in contact with concrete is above 50°F has totaled seven days.

E. If high early strength concrete has been used, these temperatures need only to be maintained for three (3) days.

F. Rapid drying at the end of the curing period shall be prevented.

G. During curing period, concrete shall be protected from damaging mechanical disturbances, particularly load stresses, heavy shock and excessive vibration. All finished concrete surfaces shall be protected from damage caused by constuction equipment, materials or methods and by rain or running water. Self-supporting structures shall not be loaded in such a way to overstress concrete.

3A.12 Formwork

A. All formwork shall be as required in ACI 347, "Recommended Practice for Concrete Formwork" except as modified below:

1. Forms shall conform to shape, lines, grades and dimensions of the concrete as called for in the drawings. All lumber used for forms shall be thoroughly cleaned and treated with an approved form oil. Lumber used in forms for exposed surfaces shall be dressed to a uniform thickness and free from loose knots or other defects. For unexposed surfaces and rough work, undressed lumber free of nails and clean of hardened concrete or other foreign material may be used. Lumber once used in forms shall have nails withdrawn and surfaces to be in contact with concrete shall be thoroughly cleaned before being used again. Forms for all exposed concrete shall be carefully built to produce contour and design indicated. Care shall be taken to assure that all form joints are vertical or horizontal. No sloping joints will be accepted.

B. Form sheathing for exposed surfaces shall be composed of tongue and groove lumber, shiplap, plywood, concrete form board or steel.

C. Steel lining of wood lagging will not be permitted. Tongue and groove shiplap when used shall conform to American Lumber Standards for No. 2 boards.

D. Plywood used for sheathing or lining shall be Grade B-B, exterior or better, as described in the Commercial Standards of the Douglas Fir Plywood Association.

E. Forms used shall produce a concrete surface with no "abrupt" irregularities less than 1/4" and gradual irregularities less than 1/2" in five feet.

F. Where circular or curved surfaces greater than 10'0" radius will be exposed to view, forms may be constructed of panels with a maximum width of 12".

G. For small radius curves of 10'0" or less, forms shall be circular, conforming to the true shape of the structure.

H. Forms shall be sufficiently tight to prevent leakage of mortar. They shall be properly braced or tied together to maintain the desired position and shape during and after placing concrete, and so they will not tremble or distort in a high wind.

I. Temporary openings shall be provided at base of wall forms and other points where necessary to facilitate cleaning and inspection immediately before depositing concrete.

J. Embedded metal rods of a design approved by Engineer shall be used for internal form-ties. They shall be so designed and arranged that when the forms are removed no metal shall be with 3/4-inch of any concrete surface. Ties used shall be manufactured in such a way that installation will not necessitate a hole in the form larger than the tierod. Ordinary wire ties and ties that require removal from concrete will not be permitted. Wall ties shall be submitted to Engineer for approval prior to use on the job.

K. Form surfaces shall be prepared as follows:

1. Forms shall be sufficiently tight to prevent leakage of grout or cement paste. Board forms having joints opened by shrinkage of wood shall be swelled until closed by wetting before concrete is placed.

2. Plywood and other wood surfaces not subject to shrinkage shall be sealed against absorption of moisture from concrete by either:

   a. A field-applied commercial form oil or sealer.

   b. A factory-applied nonabsorptive liner. Excess oil or sealers shall be removed prior to placing of concrete.

3. When steel forms are coated to prevent bond with concrete, it shall be done prior to placing of reinforcing steel. Excess material shall not be allowed to stand in puddles in the forms, nor allowed to come in contact with concrete or reinforcing against which fresh concrete will be placed.

4. Where as-cast finishes are required, materials which will impart a stain to the concrete shall not be applied to form surfaces. Where finished surface is required to be painted, material applied to form surfaces shall be compatible with type of paint to be used. All form surfaces shall be cleaned before reuse.

L. No form or form support shall be removed from formed surface for at least 24 hours. Exposed surfaces shall receive moisture curing as soon as the fresh concrete will accept it without damage. Forms shall be removed in such manner as to insure complete safety of structure. Responsibility for removal of forms shall be with Contractor. However, the following minimum requirements shall be adhered to:

1. In cold or inclement weather, requirement for removal of forms shall be as stated in the article under "Placing Concrete in Cold Weather."

2. Forms for supporting reinforced concrete roofs or floors shall not be removed nor form supports slackened for a period of 28 days unless Contractor can produce satisfactory evidence that concrete has attained the specified 28-day strength characteristic.

3. Portions of the structure subjected to construction loads or backfill shall have attained sufficient strength to withstand these loads, and Contractor will be required to produce evidence that such strength has been attained.

4. No construction loads exceeding structural design loads shall be supported upon any unshored portion of the structure under construction.

M. Evidence that concrete has attained a strength sufficient for the above conditions shall consist of reports of compression tests made on job-cured cylinders. Cost of such tests shall be borne by Contractor.

N. In case Contractor shall remove any form or slacken any supports before above conditions have been met, concrete elements may be condemned even though there is not an apparent defect.

3A.13 Reinforcement

A. Reinforcing bars shall conform to requirements of ASTM A 615, "Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement." All reinforcing bars shall be Grade 60 unless otherwise noted on the drawings.

B. Welded wire fabric for concrete reinforcement shall be electrically-welded wire fabric of cold-drawn wire conforming to ASTM A-185, "Specification for Welded Steel Wire Fabric for Concrete Reinforcement."

C. Reinforcement shall be accurately formed to the dimensions indicated on the drawings. Stirrups and tie bars shall be bent around a pin having a diameter not less than two times the minimum thickness of the bar except for hooks. Bends for other bars shall be made around a pin having a diameter not less than six times the minimum thickness, except for bars larger than one inch, in which case the bend shall be made around a pin of eight bar diameters. All bars shall be bent cold.

D. Bars use for c[illegible]ete reinforcement shall meet [illegible] following requirements for fabri[illegible]ing tolerances:

1. Sheared length: ±1 inch
2. Depth of truss bars: +0. -1/2 inch
3. Stirrups, ties and spirals: ±1/2 inch
4. All other bends: ±1/2 inch

E. Metal reinforcement shall not be straightened or rebent in a manner that will injure the material. Bars with kinks or bends not shown on the drawings shall not be used. Heating the reinforcement will not be permitted.

F. Metal reinforcement shall be accurately positioned in accordance with information on the drawings and secured against displacement by using annealed iron wire ties or suitable clips at intersections, and shall be supported by concrete or metal supports, spacers or metal hangers.

G. Bars shall be placed to the following tolerances:

1. Concrete cover to formed surfaces: ±1/4 inch
2. Minimum spacing between bars: -1/4 inch
3. Top bars in slabs and beams:

   a. Members 3 inches deep or less: ±1/4 inch
   b. Members more than 8 inches but not over 2 feet deep: ±1/2 inch

4. Crosswise of members: Spaced evenly with 2 inches
5. Lengthwise of members: ±2 inches
6. 3-inch members more than 2 feet deep: ±1 inch

H. Bars may be moved as necessary to avoid interference with other reinforcing steel, conduits or embedded items. If bars are moved more than one bar diameter, or enough to exceed the above tolerances, the resulting arrangement of bars shall be subject to approval.

I. If it is necessary to splice reinforcement at points other than shown on the drawings, the character of the splice shall be determined by the Engineer. The overlap in splices shall be 40 bar diameters.

J. Welded wire fabric shall be lapped at least 1-1/2 meshes plus end extension of wires, but not less than 12 inches in structural slabs. It shall be lapped at least 1/2 mesh plus end extension of wires, but not less than six inches in slabs on the ground. All laps of wire mesh shall be securely tied together with No. 14 tie wire, one tie for each two running feet. Wires shall be staggered and tied in such a manner that they cannot slip. The mesh shall be extended across supporting beams and walls. Adequate support for mesh shall be used during placing of concrete so that mesh is completely surrounded by concrete and not less than two inches above bottom of slabs on the ground, or 1/2 inch above the formwork.

K. Metal reinforcement, before positioned, shall be free from loose mill and rust scale and from coatings, including and form oil, that destroy or reduce the bond. Where there is delay in depositing concrete, reinforcement shall be reinspected and cleaned where necessary.

L. Unless permitted, reinforcement shall not be bent after being partially embedded in hardened concrete.

3A.14 Joints and Embedded Items

A. Construction Joints

1. Joints shall be so made and located as to least impair the strength of the structure and shall be approved. In general they shall be located as shown on the drawings; however, if not shown, in no case shall construction joints be placed at intervals greater than 25 feet. Joints shall be perpendicular to the main reinforcements.

2. All reinforcing steel and mesh shall be continued across construction joints not intended for expansion or contraction of the structure. Additional reinforcing shall be provided as directed by the Engineer.

3. Surface of concrete at all joints shall be thoroughly cleaned and all laitance removed.

4. For structural members, when required or permitted, bond shall be obtained by one of the following methods:

a. Use of the bonding compound "Euco Weld" by the Euclid Chemical Company or "Weldcrete" by Larson Products.

b. Use of the surface retarder, "Surface Retarder-F" by the Euclid Chemical Company or "Rugasol F" by Sika Chemical Corporation, which delays but does not prevent setting of surface mortar. Retarded mortar shall be removed within 24 hours after placing to produce a rough exposed aggregate bonding surface.

c. By roughening surface of concrete in an approved manner which will expose aggregate uniformly and will not leave laitance, loosened particles of aggregate or damaged concrete at the surface.

B. Expansion Joints

Expansion joint locations shall be as shown on the drawings; however, if not shown, in no case shall expansion joints be placed at intervals greater than 75 feet.

1. Reinforcement or other embedded metal items bonded to concrete shall not be permitted to extend continuously through expansion joints.

2. Premolded expansion joint filler shall be size shown on the project drawings, and shall conform to "Standard Specification for Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structureal Construction," (ASTM D 1752).

C. Other Embedded Items

1. All sleeves, inserts, anchors and embedded items required for adjoining work, or for its support, shall be placed prior to concreting.

D. Placing Embedded Items

1. Expansion joint material and embedded items shall be positioned accurately and supported against displacement. Voids in sleeves, inserts and anchor slots shall be filled temporarily with readily removable material to prevent entry of concrete into the voids.

3A.15 Method of Measurement and Basis of Payment

A. Concrete shall be measured by the cubic yard to the closest one-half cubic yard (0.5 CY) for each type of concrete specified, complete in place.

B. Measurement shall include all reinforcement, joints, insulation, curing compounds, formwork and finish required for placement in accordance with the specifications.

C. Concrete will be paid for at the unit prices bid for each type.

D. No payment will be made for repairs or replacement of defective work.

Division 15 - Mechanical

SECTION 15A - PIPING AND APPURTENANCES

15A.1 General

A. Scope

1. This section includes the furnishing, installing, laying, jointing, testing and sterilizing, as required, of all process and utility pipe, fittings, special castings and appurtenant materials and equipment, all as indicated on the drawings and as specified herein.

2. The type of pipe to be used under this Contract shall be as follows:

   a. 6-inch Water Lines: either ductile iron pipe Class 50 or PVC plastic pipe, water lines 2 inches and larger (ASTM D-2241) SDR 21.

   b. Galvanized Steel Pipe: ASTM A120, standard weight.

   c. Service Lines: Copper Type K, of a size to match existing service line.

15A.2 Ductile Iron Pipe and Ductile or Cast Iron Fittings

A. Scope

1. Unless otherwise specifically noted on the plans or described herein, all ductile iron pipe installed underground shall be thickness Class 50 ductile iron. Bedding shall be as shown on the Contract Drawings. Backfill requirements shall be as specified in Division 2.

2. All interior exposed ductile iron pipe shall be Class 53, ductile iron flanged joint.

B. Standard Specifications

1. All pipe, fittings and accessories shall conform to requirements of the following standard specifications, latest revision, as applicable:

AMERICAN NATIONAL STANDARDS INSTITUTE STANDARDS

A.21.1 ANSI -	Standard for Thickness Design of Cast Iron Pipe
A.21.4 ANSI -	Standard for Cement-Mortar Lining for Cast Iron Pipe and Fittings for Water
A.21.6 ANSI -	Standard for Cast Iron Pipe Centrifugally Cast in Metal Mold for Water or Other Liquids
A.21.8 ANSI -	Standard for Cast iron Pipe Centrifugally Cast in Sand-lined Molds for Water or Other Liquids.
A.21.10 ANSI -	Standard for Cast Iron Fittings 2" through 48", for Water and Other Liquids
A.21.11 ANSI -	Standard for Rubber Gasket Joints for Cast Iron Pressure Pipe and Fittings
A.21.50 ANSI -	Standard for the Thickness Design of Ductile Iron Pipe
A.21.51 ANSI -	Standard for Ductile Iron Pipe, Centrifugally Cast in Metal or Sand-lined Molds for Water or Other Liquids
B.16.1 ANSI -	Standard for Cast Iron Pipe flanges and Flanged Fittings 25, 125, 250 and 800 Pounds
CIPRA Standard	Cast iron Pipe Research Association Standard for Flanged Pipe with Threaded Flanges

C. Pipe

1. All ductile iron pipe shall be designed in accordance with aforementioned ANSI A.21.51 and manufactured in accordance with ANSI A.21.51.

2. Flanged pipe shall have a thickness in accordance with standards of manufacturer, but not less than that specified by the CIPRA Standard.

3. Pipe for use with sleeve type couplings shall be as specified except that ends shall be plain, without bells or beads.

D. Fittings

1. Fittings shall conform to requirements of the aforementioned ANSI A.21.10 and shall be of a pressure classification at least equal to that of the pipe with which they are used. Fittings shall be of either ductile iron or cast iron construction.

2. Flanged fittings which are not available under ANSI A.21.10 (e.g. laterals or reducing ells) shall be furnished to conform to requirements of the aforementioned ANSI B.16.1 in the 125 pound pressure class.

3. Fittings shall be provided with standard bases where so indicated.

4. Fittings for underground piping shall be mechanical joint unless otherwise indicated.

E. Types of Joints

1. Joints for mechanical joint or push-on joint pipe shall conform to ANSI A.21.11.

2. Mechanical joint pipe and fittings shall be provided with sufficient quantities of accessories conforming to ANSI A.21.11. Bolts shall be of high strength cast iron.

3. Gaskets shall be of a composition suitable for exposure to the liquid within the pipe, as per ANSI A.21.11.

4. Flanges for flanged pipe shall conform to ANSI B.16.1, except that special drilling or tapping shall be as necessary to ensure correct alignment and bolting.

5. Flanged pipe shall use long hub flanges which shall be screwed on tight at the foundry by machine before they are faced and drilled.

6. Where so indicated, pipe and fittings shall be furnished with approved lugs or hooks cast integrally for use with bolts or bridle rods and socket clamps to keep pipe from pulling apart under pressure.

F. Lining and Coating

1. All pipe and fittings shall be lined and coated as follows:

a. Inside of all pipe and fittings shall be given a standard thickness cement lining and bituminous seal coat in accordance with ANSI A.21.4.

b. All pipe and fittings to be installed underground shall be coated on outside with standard bituminous coating specified under the appropriate ANSI Specification for pipe and fittings.

c. All pipe and fittings embedded or cast in concrete or exposed on interior of buildings shall not be coated. Pipe and fittings shall be painted as directed by the Owner.

d. Machined surfaces shall be cleaned and coated with suitable rust-preventative coating at the shop immediately after being machined.

G. Gaskets, Bolts and Nuts

1. For flanged joints, gaskets shall be ring or rubber, with cloth insertion. Gaskets 12" in diameter and smaller shall be 1/16" thick; larger than 12" shall be 3/32" thick.

2. Flanged joints shall be made with bolts, bolt studs with nut on each end, or studs with nuts where flange is tapped. Number and size of bolts shall conform to same ANSI Standard as the flanges. Bolts and nuts shall, except as otherwise specified or noted on the drawings, be Grade B, conforming to ASTM Standard Specification for Low-Carbon Steel Externally and Internally Threaded Standard Fasteners, Designation A307-68. Bolt studs and studs shall be of same quality as machine bolts.

H. Pipe Jointure

1. Push-on Pipe

a. Thoroughly clean out the bell, remove all foreign matter, brush coat gasket groove with lubricant.

b. Insert gasket with solid face toward installer.

c. Release gasket and press remaining loop into lubricated groove.

d. Apply coating of lubricant to exposed gasket surface prior to joint assembly.

e. Clean plain end and grind or file any sharp edges.

f. Guide plain end into bell.

g. If deflection is required, it should be taken after joint is assembled.

2. Mechanical-Joint Pipe

a. Inside of bell and plain end of pipe shall be cleaned thoroughly of all foreign matter, then these surfaces and the gasket shall be brushed over with soapy water.

b. With gland and gasket on plain end of pipe, "seat" plain end in the bell and press gasket firmly and evenly into bell.

c. Move gland into position for bolting, insert all bolts and make nuts finger tight.

d. Tighten bolts to specified torque - 75 to 90 foot pounds.

15A.3 PVC Plastic Pipe (AWWA C-900) and Cast Iron or Ductile Iron Fittings

A. Scope

1. Contractor shall furnish, install, lay, joint and test all AWWA C-900 Poly Vinyl Chloride (PVC) pipe, appropriate fittings, specials (4" and larger) and appurtenant materials and equipment, all as shown on the drawings and herein specified.

2. Unless otherwise specifically noted on the plans or described herein, all AWWA C-900 PVC pipe shall be Class 150 SDR 18. Bedding shall be as shown on the Contract Drawings. Backfill requirements shall be as specified in Division 2.

B. Pipe

1. Pipe shall have the minimum chemical and physical properties as described in AWWA C900 for the class specified. Standard laying lengths shall be 20' for all sizes. A maximum of 15% of the pipe may be furnished in random lengths of not less than 10' long.

C. Fittings

1. Fittings shall be of either ductile iron or cast iron construction. PVC water pipe shall have the same outside diameter as cast iron or ductile iron pipe. PVC pipe shall be capable of being assembled directly into a cast iron or ductile iron bell or fitting.

2. The rubber ring suitable for cast iron or ductile iron fitting or bell shall be used in jointure, NOT the PVC rubber ring.

D. Joints

1. Provisions shall be made for expansion and contraction at each joint with an elastomeric ring which shall meet requirements of AWWA C900. Bell section shall be designed to be at least as strong as the pipe wall. Bell-end pipe and couplings designed for making PVC joints using elastomeric gaskets to affect the pressure seal shall be tested as assembled joints, and shall meet the laboratory performance requirements specified in ASTM D3139.

E. Pipe Jointure

1. Clean ring groove and inspect bell to be sure no foreign matter is present.

2. Clean and properly insert rubber ring - DO NOT LUBRICATE RUBBER RING.

3. Clean spigot end of any foreign matter.

4. Lubricate spigot end of pipe with manufacturer's recommended lubricant.

5. Insert spigot end into bell so it is in contact with ring. Push spigot end in until the reference mark on spigot end is flush with end of bell.

15A.4 PVC Plastic Pipe (ASTM D-2241) and Cast Iron or Ductile Iron Pipe and Fittings

A. Scope

1. Contractor shall furnish, install, lay, joint and test all ASTM D-2241 Poly Vinyl Chloride (PVC) pipe, appropriate fittings, specials and appurtenant materials and equipment, all as shown on the drawings and herein specified.

2. ASTM D-2241 pipe bedding shall be as shown on the Contract Drawings. Backfill requirements shall be as specified in Division 2.

B. Pipe

1. All pipe and fittings shall meet or exceed all requirements of ASTM specification ASTM D-2241 and ASTM D-1784. Pipe shall be standard 20' lengths as supplied by the manufacturer. Shorter pipe pieces shall be provided or cut to suit actual dimensions. Pipe shall be Class 200, SDR 21.

C. Fittings

1. Fittings shall be of either ductile iron or cast iron mechanical joint construction. PVC ASTM D-2241 pipe shall be capable of being assembled directly into a cast iron or ductile iron bell or fitting.

2. ASTM D-2241 PVC pipe shall require the use of a transition gasket to accommodate the smaller outside diameter of the PVC pipe.

D. Joints

1. Provisions shall be made for expansion and contraction at each joint with an elastomeric ring which shall meet requirements of ASTM F-477. Bell section shall be designed to be at least as strong as the pipe wall. Bell-end pipe and couplings designed for making PVC joints using elastomeric gaskets to affect the pressure seal shall be tested as assembled joints, and shall meet the laboratory performance requirements specified in ASTM D3139.

E. Pipe Jointure

1. Clean ring groove and inspect bell to be sure no foreign matter is present.

2. Clean and properly insert rubber ring - DO NOT LUBRICATE RUBBER RING.

3. Clean spigot end of any foreign matter.

4. Lubricate spigot end of pipe with manufacturer's recommended lubricant.

5. Insert spigot end into bell so it is in contact with ring. Push spigot end in until the reference mark on spigot end is flush with end of bell.

15A.5 Small Diameter PVC Pressure Plastic Pipe - Inside Buildings

A. Scope

1. Contractor shall furnish, install, lay, joint and test all small diameter (smaller than 4" diameter) Poly Vinyl Chloride (PVC) Pressure Pipe, appropriate fittings, specials and appurtenant materials and equipment, all as shown on the drawings and herein specified.

B. Pipe and Fittings

1. Pipe and fittings installed within structures shall be schedule 80 and shall be joined by solvent weld, procedure shall conform to ASTM 2855 "Making Solvent Cemented Joints with PVC Pipe and Fittings".

15A.6 Copper Pipe and Fittings

A. Scope

1. Contractor shall furnish, install, lay, joint and test all copper pipe, fittings, specials and appurtenant materials and equipment, all as indicated on the drawings and hereinafter specified.

B. Tubing

1. All copper tubing utilized for conducting liquids or air above ground shall be Type L, Hard Drawn for solder joints, conforming to ASTM Specification B-88.

2. Copper tubing for underground service shall be Type K, annealed and conforming to ASTM B-88.

3. Copper tubing utilized for instrument air shall be either Type K, hard-drawn for solder joints, conforming to ASTM B-88, or Type L, 1/4 hard-temper, compression joint, conforming to ASTM B-68.

C. Fittings

1. Solder type fittings shall be wrought copper, Type L or Type K to match adjacent piping and conforming to ANSI B16.22.

2. Compression type fittings shall be brass Type L, conforming to ANSI B16.26.

3. All fittings for underground cold water service shall be flared brass, conforming to ANSI A40.2.

15A.7 Underground Water Line Installation in the Vicinity of Existing or Proposed Sanitary Sewers and Storm Sewers

A. Requirements for water line installation as per the Department of Environmental Resources are as follows:

1. Horizontal Separation - Whenever possible, a water main should be laid at least 10' horizontally from any existing or proposed drain or sewer line. Should local conditions prevent a lateral separation of 10', a water main may be laid closer than 10' to (or in the same trench as) a storm or sanitary sewer, provided that the main is laid in a separate trench, or on a undisturbed earth shelf located on one side of the sewer at such an elevation that bottom of water main is at least 18" above top of the sewer. When it is impossible to obtain proper horizontal and vertical separation as stipulated, both water main and sewer shall be constructed of push-on or mechanical joint ductile iron pipe, and shall be pressure-tested to assure water tightness before backfilling.

2. Vertical Separation - Whenever water mains must cross house sewers, storm drains, or sanitary sewers, the water main shall be laid at such an elevation that bottom of the water main is 18" above top of the drain or sewer. This vertical separation should be maintained for that portion of the water main located within 10' horizontally of any sewer or drain it crosses, said 10' to be measured as the normal distance from the water main to pass under a sewer or drain, the water main shall be laid with a push-on or mechanical joint ductile iron pipe, or protected with concrete encasement and should extend on each side of the crossing until the normal distance from the water main to sewer, or drain line, is at least 10'. In making such crossing, it is preferable to centger a length of water main pipe over the sewer to be crossed, so that joints will be equidistant from the sewer and as remote therefrom as possible. Where a water main must cross under a sewer, a vertical separation of 18" between bottom of the sewer and top of the water main shall be maintained, with adequate support for the larger-sized sewer lines to prevent them from settling on and breaking the water main.

3. Sewer Manholes- No water pipe shall pass through or come into contact with any part of a sewer manhole.

15A.8 Pipeline Testing

A. Pressure Main Pressure and Leakage Tests

1. All pressure mains shall be tested by the Contractor in a manner satisfactory to and witnessed by the Engineer. Contractor shall furnish all equipment, apparatus, pumps, taps and gauges to conduct the following tests:

   a. The section under test shall be filled with water, all air expelled from the line and maintained full of water for a period of not less than 24 hours.

   b. Pressure and leakage test shall first consist of raising the water pressure (based on the elevation of the lowest point of the section under test and corrected to the gauge elevation) to a pressure in pounds per square inch numerically equal to the pressure rating of the pipe and maintaining such pressure for a period of 30 minutes.

   c. Pressure and leakage test shall then consist of dropping the water pressure (based on the elevation of the lowest point of the section under test and corrected to the gauge elevation) to a pressure in pounds per square numerically equal to 50 lbs. greater than the normal working pressure of the pipe line. Such tests shall be maintained for an additional one and one-half (1-1/2) hours.

d. For all pipelines not underground, the section tested shall be considered as having failed to pass the test if the pressure test described in Item b cannot be maintained without additional pumping.

e. At the end of the test period for both the pressure test (Item b) and the leakage test (Item c), the section tested will be accepted if the total leakage is not greater than that determined by the following formula:

$$L = \frac{10 \times D}{5280 \times 24}$$

Where:

L = Allowable leakage in gallon/hour/foot
D = Nominal pipe diameter in inches

2. If the section fails to pass the pressure and leakage tests, Contractor shall do everything necessary to locate, uncover and repair or replace the defective pipe, fitting, or joint; all at his own expense and without extension of time for completion of the work. Additional test and repairs shall be made until the section passes the specified test.

15A.9 Miscellaneous

A. Flexible Connections

1. Flexible couplings shall be Dresser Industries, Inc., Style 38, or equal, shall be steel and arranged for plain end ductile iron pipe installation. Transition couplings shall be Dresser Industries,, Inc., Style 162, or equal.

2. Flexible couplings on pressure lines shall be suitably harnessed in accordance with recommendations of the manufacturer, or otherwise protected against separation from thrust.

B. Disinfection

1. All potable water lines shall be sterilized by use of chlorine or chlorine compounds in such amounts as to produce a concentration of 50 mg/l. Chlorinated water shall be retained in the pipe long enough to destroy all non-spore forming bacteria. This period shall be at least 24 hours and preferably longer, as may be directed. After chlorinated water has been retained for the required time, the chlorine residual at the pipe extremities and at other representative points shall be at least 25 mg/l. Disinfection shall conform to AWWA specification C-601, latest revision.

2. Following disinfection, all treated water shall be thoroughly flushed from the pipe until the water through its entire length shall, upon test, be proven bacteriologically safe.

C. Foundry Inspection and Testing

1. All pipe and fittings shall be inspected and tested at the foundry as required by the standard specifications to which the material is manufactured. Contractor shall furnish in duplicate to Engineer sworn certificates of such tests. All inspection and testing at the foundry shall be accomplished at no additional expense to the Owner.

SECTION 15B - VALVES AND APPURTENANCES

15B.1 Scope

A. This section includes the furnishings, installing and testing, if required, of all valves and appurtenant materials and equipment.

B. Contractor shall submit in the number of copies required manufacturer's shop drawings of each type of valve to be furnished. Such shop drawings shall be in sufficient detail to indicate compliance with the specifications both as to operation and material of construction of the valves and other accessory equipment.

C. Operators for all valves shall be accessible, and where valves are located within a structure they shall be provided with operating handwheels, levers, nuts, chain wheels and chain, extension stems and guides, and floor stands.

D. All valves shall be restrained with concrete blocking as detailed on the drawings.

15B.2 Gate Valves

A. All gate valves shall be iron body, double disc, bronze mounted valves, conforming in all respects to AWWA standard C500, latest revision.

B. Unless otherwise noted, valves installed within structures shall be arranged for outside screw and yoke operation; valves installed underground shall be non-rising stem, complete with (2") square operating nut for wrench operation.

C. Gate valves shall be furnished with O-ring type of stem seal, with flanged mechanical joint, or plain ends, as required. Unless otherwise specified, all valves shall open by turning the wrench nut to the left or counterclockwise.

15B.3 Tapping Sleeves and Tapping Valves

A. Tapping sleeves shall be as manufactured by Darling, Mueller or approved equal. Sleeves shall be suitable for operating at a working pressure of 150 psi. Contractor shall verify existing pipeline material and dimensions to insure proper fit and installation.

1. Tapping sleeves shall be furnished complete with all fittings necessary for connection to a tapping valve and to an existing water line.

B. Tapping gate valves shall conform to standard duty gate valve requirements.

C. All tapping valves shall be furnished with a valve box conforming to the requirements for standard duty gate valves.

15B.4 Valve Boxes

A. Each valve shall be equipped with a valve box which shall be made of cast iron of 3-piece construction of the screw type with not less than 5-1/4" diameter shaft and a large oval base. Valve boxes shall be as manufactured by Mueller, Clow, or approved equal.

B. Size or depth of setting shall be adjustable over a range to accommodate a cover over the pipe 4'-6" and the box length shall be variable to suit the installation. A deep socket type cover shall be furnished with each box on which shall be cast the word "WATER". Valve boxes shall be given two coats of coal tar varnish.

C. Each valve box shall center directly over valve nut and be held in position to avoid displacement during backfilling. Top of cover shall be set to grade and box adequately supported on concrete block or brick as directed by Engineer. Valve boxes shall not touch or rest on the bonnet or any other part of the valve. In tamping and backfilling around them, special care shall be taken to keep boxes plumb and have them firmly supported. Any boxes found out of plumb, or which are not firmly supported, shall be dug up and reset.

15B.5 Curb Stops

A. Curb stops shall be Mueller Type 15200, Ford Z22, or approved equal, and constructed with an inlet and outlet having fitting threads for use with flared copper service tubes, Type K, soft. Curb stop bodies and keys shall be precision fitted and individually lapped. Taper on key shall be steeper than average to permit easier operation. Stop shall be all bronze construction.

B. The large diameter of the inverted key shall be on the bottom and the key shall be held in place by a bronze base cap and leather gasket. Key shall be designed so that water pressure from inlet side of the body exerts an upward force on the bottom of the key. Tapping of the shut-off rod shall unseat the key slightly for easy turning and pressure shall cause it to reseat. Inverted key stops shall be furnished with a bronze combined cap and tee and a fully enclosed strong and accurate check. Each curb stop shall be fully tested in both open and closed position with air pressure under water.

15B.6 Corporation Stops

A. Corporation stops shall be Mueller Type H-15010, Hayes Model 5210, Ford Type F6125, or approved equal, and constructed with an inlet thread and outlet fitting thread in accordance with Standard Specifications for Threads for Underground Service Line Fittings, AWWA C800-55, specifically in accordance, respectively, with Figure 1 - Standard Corporation Stop Thread and Figure 2 - Fitting Thread for Use with Flared Copper Service Tubes, Type K, soft. Stops shall be all red brass construction.

B. Corporation stops shall be precision fitted and have individually lapped ground key stops. Threaded end of key shall be designed so that tightening of key as many times as required for normal adjustment will strip the threads instead of breaking the stem. Stop shall be all bronze construction. Stop shall be furnished with a straight coupling nut, nut to have an extra long skirt. Concave surface of nut shall oppose the convex surface of the body uniformly to permit a tight and smooth joint. Opposed convex surfaces shall not compress the end of the flange. Each corporation stop shall be fully tested in both open and closed position with air pressure under water.

15B.7 Curb Boxes

A. Curb boxes shall be the Buffalo type and shall be Mueller H10350, Hayes Buffalo Type 92D, Tyler Series 6500, or approved equal. Shaft shall be 2-1/2" in size. Curb boxes shall be constructed of cast iron, box lid shall be furnished with the word "WATER" cast thereon, and lid screw shall be of red brass construction.

15B.8 Tapping Saddle (Service Clamp)

A. Tapping saddle shall be a heavy bronze body with double bronze strap. Saddle shall be compatible to the type of pipe being used and the corporation stop selected. Saddle shall be a type recommended by the water main manufacturer.

15B.9 Check Valves

A. Check valves shall be of a heavy duty type featuring a heavy cast iron body, fully bronze mounted with bronze clapper disc accurately seated by a bronze clapper arm against a bronze seat ring. Clapper and lever mounted on a large diameter stainless steel shaft that turns in bronze bushings help securely in valve body by cap screws. Bushings shall be sealed by O-rings protected by integral dirt seals.

B. Valve shall have flanged ends.

C. Check valves shall be a lever and weight operating type as manufactured by Mueller Co. or approved equal.

SECTION 15C - FIRE HYDRANTS AND INSTALLATION

15C.1 Hydrants

A. Hydrants shall conform to the following:

1.	Size Main Valve Opening	5-1/4 inches
2.	Direction to Open Hydrant	Counterclockwise (left)
3.	Number of 2-1/2" Hose Nozzles, thread	Two (2) Natl. Std.
4.	Number and Size Pumper Nozzle, thread	One (1) 4-1/2" Natl. Std.
5.	Type of Inlet Connection	Mechanical Joint
6.	Size of Inlet Connection	6 Inch
7.	Size and Shape of Operating Nut	1-1/2 Pentagon, point to opposite flat

B. Hydrants shall be frost-proof and provided with drains which close when hydrant is opened and open promptly when hydrant is closed. Hydrants shall conform to requirement of American Water Works Association Specification AWWA C-502. Hydrant body shall be cast iron.

C. Hydrant shall be AWWA compression type as manufactured by Kennedy, Mfg. Co., Guardian Model K81A, to match existing hydrants on the system.

15C.2 Hydrant Installation

A. Fire hydrants shall be located as shown or directed in a manner to provide complete accessibility and also to minimize possibility of damage from vehicles or injury to pedestrians.

B. When placed behind curb, hydrant barrel shall be set so that no portion of pumper or hose nozzle cap is less than 6" nor more than 12" from the gutter face of the curb.

C. When set in the lawn space between curb and sidewalk, or between sidewalk and the property line, no portion of the hydrant or nozzle cap shall be within 6" of the sidewalk of the curb.

D. All hydrants shall stand plumb and have their nozzles parallel with or at right angles to the curb with the pumper nozzle facing the curb except hydrants having two hose nozzles 90° apart shall be set with each nozzle facing the curb at an angle of 45°. Hydrants shall be set to the established grade with nozzles at least 18" above ground. Hydrant safety flange shall not be more than 6" nor less than 2" above grade.

E. Each fire hydrant shall be connected to the main with a 6" lateral controlled by an independent 6" gate valve unless otherwise directed. Each hydrant lateral valve shall be fastened to the main with a special adapter, hydrant tee, harness or tie rods.

F. Each fire hydrant shall be installed as follows:

1. Excavate to required depth.

2. Place Type A concrete foundation minimum 18" square by 6" thick under hydrant - foundation to be level.

3. Brace and block hydrant against three sides of trench wall using poured or precast concrete - do not block hydrant drain.

4. Fill space around hydrant with clean crushed aggregate, PennDOT #57, to a height of 18" above hydrant base and extending around hydrant at least 18".

5. Cover granular fill with polyethylene film and backfill to grade.

6. Where hydrants are located in sloping terrain, provide a clear area of at least 2'-0" in back and along side of hydrants.

7. Where water lines are lower than normal depth, Contractor shall install extensions on the hydrants so hydrants will be at specified elevation above grade.

8. Fire hydrants shall be delivered to the job site factory-primed with a rust inhibitive primer, and shall be finish painted after complete installation with paint and color as approved by Owner.

SECTION 15D - WATER SERVICE CONNECTIONS

15D.1 Scope

A. Service connections shall be furnished and installed as shown on the drawings, and specified herein. New service connections shall be required at certain locations to switch existing services from existing water lines to new water lines installed by this project.

B. Typical connections shall include tap on new line, saddle, corporation stop, service line and connectors. These items shall be as hereinbefore specified. Water service connections are shown as one of two types. Type A connections include a new curb stop and box and are located on same side of roadway as the new line installation. Type B installations do not include a curb stop and box and are to reconnect services located on the opposite side of highway.

C. Locations for new connections shall be as shown on the drawings and as directed in the field by the Engineer or his representative.

15D.2 Procedure

A. Contractor shall relocate all individual service lines from existing water lines that will be abandoned to new water lines.

B. At locations where service lines must be extended to a new main on the opposite side of a paved street, the new service line shall be installed by open cutting of the existing pavement.

C. New service line shall be bedded with a minimum of 3 inches of sand around the copper pipe. Under no circumstances will slag be permitted for this use.

D. Corporation stop shall be installed in accordance with water main manufacturer's recommendations.

E. Service line shall be the same size as existing service line unless otherwise directed by Engineer.

F. After new water main is tested, disinfected and pressurized, Contractor shall connect new water service line to each individual water customer's existing service line.

G. Contractor shall furnish all fittings necessary to connect to existing services.

H. Connections shall conform to Authority and Municipal Regulations and Codes.

I. Connections shall be scheduled to minimize inconvenience to water customers.

J. Connections shall be made so that no customer is without water for more than four (4) hours.

K. Contractor shall give each customer a minimum of one day's notice that the water will be temporarily shut off.

SECTION 15E - DEVELOPMENT OF PUBLIC WATER SUPPLY WELLS AT THE HOCKENBERRY RUN RESERVOIR

15E.1 General Description of Work

A. The goals of the drilling and testing program are three-fold:

1. To drill two 6-inch exploratory test wells to define the yield and water chemistry of the Allegheny, Pottsville and Mauch Chunk Formations at the Hockenberry Run reservoir located in southwestern Clearfield County, some 3 miles southwest of the Town of Irvona. The yield, water quality, and bedrock stratigraphy data collected during test drilling shall be evaluated to develop design specifications for a production well which will optimize well yield and water quality. The test wells will be constructed with casing and grout to assure that the finished production well meets PA DER construction specifications for public water supply sources.

2. To conduct the step-drawdown and 48-hour constant rate pumping tests mandated by PA DER to certify both the yield and water quality of the production well.

3. To install a permanent well pump installation in the Mauch Chunk Formation Production Well.

15E.2 Geologic Conditions

A. The potential test well sites lie in a valley-bottom setting immediately adjacent to the Hockenberry Run Reservoir. A 15 to 30 foot thick mantle of alluvial and/or residual soils overlies the bedrock in this area. Review of well logs and analysis of geologic mapping suggests that the following bedrock formations will be encountered:

1. Interbedded sandstone, shale, coal and clay of the lower half of the Allegheny Formation (Middle Kittanning through Brookville Coals) to a depth of approximately 150 feet.

2. Massive sandstones and minor shales, clays and coals (Mercer Coal and Clay) of the Pottsville Formation to a depth of approximately 290 feet.

3. Interbedded shales and calcareous sandstones of the Mauch Chunk Formation to the bottom of the test well at some 400 to 450 feet.

B. In this setting, the Allegheny traditionally produces moderate yields (25 - 75 gpm) of decent quality water with slightly elevated iron and manganese concentrations. The underlying Pottsville Formation is capable of producing large yields (100-200 gpm) but this aquifer almost always produces water with a very high concentration of iron and manganese. The yield potential of the Mauch Chunk is most likely limited by its deep burial, however, this formation commonly produces excellent quality water. Due to the poor water quality of the Pottsville, the target aquifers at the site are the Allegheny and Mauch Chunk Formations.

15E.3 Test Well and Production Well Drilling

A. A 6-inch diameter test well shall be drilled to collect yield, water chemistry and bedrock stratigraphy data. The construction of the 6-inch test well shall proceed in the following manner:

1. Ten-inch diameter steel casing, equipped with a drive shoe, shall be set to a depth of 40 feet. Installation of this 40-foot length of 10-inch casing should result in a large amount of flexibility in production well design as it should both advance the test well to bedrock and also satisfy PA DER's minimum grouting requirements for an 6-inch diameter production well.

2. After the 10-inch casing is installed, a 9-7/8" "rock socket" will be drilled to an anticipated depth of 290 feet to allow an installation of 6-inch diameter casing, equipped with a drive shoe. After the 6-inch permanent casing is set, it will be grouted in place. A 6-inch diameter open hole shall then be drilled to a total depth of approximately 400 feet. A continuous geologic log shall be kept as the hole is drilled and water samples shall be collected at each significant water-bearing zone. The yield of each water-bearing zone should be accurately measured, and if broken rock is encountered, these zones should be developed with air surging and/or foam injection.

B. The data collected during test drilling should give us a good profile of the yield and water chemistry of the well as it is advanced through the Allegheny, Pottsville and Mauch Chunk Formations.

C. The second 6-inch diameter test well shall be drilled in the Allegheny Formation to collect yield, water chemistry and bedrock stratigraphy data. The well construction shall proceed as follows:

1. Ten-inch diameter steel casing, equipped with a drive shoe, shall be set to a depth of 40 feet. Installation of this 40-foot length of 10-inch casing should result in a large amount of flexibility in production well design as it should both advance the test well to bedrock and also satisfy PA DER's minimum grouting requirements for a 6-inch diameter production well.

2. After the 10-inch casing is installed, a 9-7/8" "rock socket" will be drilled to an anticipated depth of 5 feet to allow an installation of a 6-inch diameter casing, equipped with a drive shoe. After the 6-inch permanent casing is set, it will be grouted in place. A 6-inch diameter open hole shall then be drilled to a total depth of approximately 145 feet. A continuous geologic log shall be kept as the hole is drilled and water samples shall be collected at each significant water-bearing zone. The yield of each water-bearing zone should be accurately measured, and if broken rock is encountered, these zones should be developed with air surging and/or foam injection.

D. The Contractor shall follow the requirements of the Soil Erosion and Sedimentation Control Plan which is a part of this Contract.

E. Regardless of which aquifer is utilized in the final well design, all grouting during the production well construction shall be accomplished with a grout pump and tremie pipe system. Following any grouting activities, drilling shall cease for a minimum 24-hour period to allow the grout to set. All materials used in the construction of the production well shall conform to the specifications outlined in the PA DER "Public Water Supply Manual". After well construction is completed, the production well shall be developed via air-surging and air-lift pumping until it yields a sediment-free discharge.

15E.4 Pumping Tests

A. The 8-hour step-drawdown and 48-hour constant rate pumping tests, and a 24-hour water level recovery test, will be conducted at the two production wells. The Contractor shall be responsible for installing and removing a submersible pump and power source capable of delivering a discharge at least as large as follows:

1. "Mauch Chunk" Well Pump shall be capable of pumping 95 gpm from a pumping level of 190 feet.

2. "Allegheny" Well Pump shall be capable of pumping 100 gpm from a level of 80 feet.

B. A 1-inch diameter water level access tube should be installed in the well to the top of the pump intake to allow installation of a continuous-reading water level recorder (supplied and installed by the geologist). A gate valve of appropriate diameter shall be installed at the well head to control the flow from the well. An appropriate orifice barrel/ manometer tube assembly (supplied by the geologist) shall be attached to the gate valve to accurately measure flow from the well. The flow from the well shall be discharged directly to the Hockenberry Run stream channel.

15E.5 Well Pump

A. A complete well pump installation with motor control center shall be furnished and installed in the "Mauch Chunk" Formation Well. The well pump shall be a 4-inch pump capable of pumping 95 gpm at 190 feet TDH. The pump motor shall be single phase 7-1/2 Hp. The pump shall be equal to Grundfos Model 75S75-12 (7-1/2 Hp). The pump shall be connected to a 2" diameter galvanized iron pipe and fitted with a pitless adapter.

B. The Contractor shall set a wooden termination pole with meter socket, disconnect switch and pump controller for connection to the electric utility service drop. The pole shall be a 30 foot, Class 5 pole. The electrical service shall be 240 volt, 1 phase, 100 amp service. The disconnect switch shall be 100 amp, fused switch. The pump controller shall meet the manufacturers recommendation for the size and type of motor. The disconnect and motor controller shall be in NEMA IIIR weatherproof enclosures. A lock hasp shall be provided on each door. All work shall be in conformance with the National Electric Code, latest edition. The Contractor shall have the electrical installation inspected at his own cost.

Sheet No. _____ of _____

Date _____

RECORD OF WELL PUMPING TEST

OWNER _____
(Name and Address)

WELL NO. _____ LOCATION _____

TEST RESULTS:

TIME	GPM	WATER LEVEL (FEET BELOW REF. PT.)	DRAWDOWN (FEET)	WATER*

*NOTE WHETHER WATER IS CLEAR OR TURBID

SECTION 2 - METHOD OF MEASUREMENT AND BASIS FOR PAYMENT

20A.1 Scope

A. The Bid items listed in the Bid Schedule of the Form of Proposal (C-Pages) for this Contract shall be measured and the payment quantities shall conform to this Section.

B. All payments will be made at the unit prices for each item listed in the Bid Schedule.

C. Any item not specifically listed on the Bid Schedule, but necessary to complete the work required by these contract specifications and contract drawings, will be considered incidental to the related item given in the Bid Schedule of the Form of Proposal. No payment will be made for these items.

20A.2 Water Line

A. Water lines will be measured and paid for by the lineal foot for each type, class and size installed. Measurement will be to the nearest whole foot (1.0') complete in place including, but not limited to, clearing, grubbing, excavation, pipe, gaskets, bedding PennDOT inspection, tests, disinfection, and dechlorination.

B. All excavation and bedding within the pipe zone will be considered incidental to the water line construction and no claims for extra payment will be considered.

20A.3 Fittings, Ductile or Cast Iron

A. Fittings will be measured to the nearest pound, complete with gaskets, glands, etc., complete in place.

B. Contractor shall submit a breakdown of poundage total, if requested by the Engineer.

20A.4 Road Boring - Encased

A. Encased road borings as shown on the Detailed Drawings including boring, casing pipe, carrier pipe, pipe zone bedding and accessories will be measured lump sum complete, in place.

20A.5 Restoration Unpaved Areas

A. Unpaved area restoration, as shown on the Detailed Drawings will include restoration of unpaved areas disturbed by installation of water lines and will be measured to the nearest whole foot (1.0'), measured horizontally and will include compacted backfill from the pipe zone to the proper grade, topsoil raking, seeding, fertilizer and mulch. Satisfactory completion of this item ends with the production of a good catch of grass except in existing dirt roadways where grass is not required.

20A.6 Restoration, Municipal Highway Shoulders

A. Restoration of local highway shoulders, as shown on the Detailed Drawings, will include restoration of local highway pavement disturbed by installation of water lines. Measurement will be made horizontally to the nearest whole foot (1.0'), and will include compacted backfill from the pipe zone to subgrade, 8" of 2RC aggregate, graded, rolled and penetrated as shown.

20A.7 Restoration, Municipal Highway Pavement

A. Restoration of local highway areas as shown on the Detailed Drawings will include restoration of local highway pavement disturbed by installation of water lines. Measurement will be made horizontally to the nearest whole foot (1.0') of and will include compacted backfill from the pipe zone to subgrade area, base course and bituminous wearing course as required.

20A.8 Restoration, State Highway Shoulders

A. Restoration of state highway shoulders, Type "A", as shown on the Detailed Drawings will include restoration of the shoulder area of state highway which was disturbed by installation of water lines. Measurement will be made horizontally to the nearest whole foot (1.0'), and will include compacted 2RC backfill from the pipe zone to subgrade and the surface treatment as specified.

20A.9 Restoration, State Highway Pavement

A. Restoration of state highway areas as shown on the Detailed Drawings will include restoration of state highway pavement disturbed by installation of water lines. Measurement will be made horizontally to the nearest whole foot (1.0') and will include compacted 2RC backfill from the pipe zone to subgrade area, base course and bituminous wearing course as required.

20A.10 Gate Valve and Box

A. Gate valve and box will be measured and paid for as a unit, by diameter, complete in place, including excavation, proper valve installation on the water line, backfill of the pipe zone and trench and placement of the valve box to it's proper grade.

B. Concrete valve base, anchor straps and bolts also included in this item.

20A.11 Couplings

A. Couplings will be measured as a unit, by diameter, complete and in place including preparation of existing line for installation of coupling.

20A.12 Concrete

A. Concrete will be measured, complete in place, on a cubic yard basis to the nearest 1/4 cubic yard for each type of concrete used. Work covered by this item includes but is not limited, concrete protection of water lines, thrust blocking and pavement and walk replacement. Included in this measurement is all required excavation, form work, and reinforcing.

20A.13 Hydrant Installation

A. Fire hydrants shall be measured and paid for as a unit, complete in place, to the limits shown on the detail drawings. This measurement shall include all required excavation, valve, valve box, concrete valve base and anchor base, anchors, tie rods, backfill, surface restoration and concrete thrust block.

B. This item includes removal of existing hydrant in addition to the items in hydrant installation.

20A.14 Water Service Connections - (Type A & B)

A. Service connections to existing customers will be measured per individual service transferred from an existing line to a new line. Service connection shall be installed complete including tap, pipe, saddle, corporation, excavation, backfill, connection fittings, miscellaneous materials, labor and equipment to provide a complete working service to the customer.

B. Pavement restoration as required will be paid for under municipal highway.

C. Curb stops and boxes are required for Type "A" connections installation of a certain water service connections.

20A.15 Blow-Off

A. Blow-off installation will be measured per individual unit furnished and installed complete, including all excavation and backfill, fittings, and access box, piping, concrete and miscellaneous material necessary to construct complete unit as shown on Detailed Drawings.

20A.16 Mobilization

A. Any mobilization costs such as testing insurance, bonding, etc., will be considered incidental to the construction of this project and no claims for extra payment for any of these items shall be considered.

20A.17 Aggregate

A. Coarse aggregate of the type and size called for shall be paid for at the price per ton for all material delivered and placed in accordance with these drawings and specifications. Material slips shall be given to the project inspector.

20A.18 Corrugated Drain Pipe

A. This pipe shall be paid for by the lineal foot for each size installed. Measurement will be to the nearest whole foot (1.0') complete in place including excavation, pipe, bands, bedding and backfill.

20A.19 Geotextile

A. This material shall be paid for by the square yard measured in place. This price shall include furnishing and installing the fabric.

20A.20 Ditch Along Access Road

A. This work shall be paid for by the lineal foot measured along the edge of the road and shall include all excavation, clearing, grading, shaping and disposal of materials.

20A.21 Road Grading

A. This work shall be paid for by the hour for grading work and shall include furnishing suitable equipment, operator, supervision, and grade checker. Time shall be counted to the nearest one-half hour for actual working time. No payment shall be made for down time due to equipment problems.

IRVONA MUNICIPAL AUTHORITY

SOIL EROSION AND SEDIMENTATION CONTROL PLAN
CONTRACT 89-01 - WATER WELL DEVELOPMENT
CONTRACT 89-02 - ACCESS ROAD AND WATER LINE REPLACEMENT

December 1989

A. PROJECT DESCRIPTION

The recommended soil erosion and sedimentation control plan for this project is designed to control erosion at its source and to keep surface flows from carrying sediment beyond work limits. The project location of Contract 89-01 is in Chest Township, Clearfield County, while Contract 89-02 is in Chest and Beccaria Townships, Clearfield County. This project includes the construction of 1,100 LF of water line and appurtenances, the replacement of two fire hydrants, roadway drainage modifications for the access road to Hockenberry Run Reservoir which travels along Hockenberry Run, and the development of water wells adjacent to the reservoir.

B. SITE DATA

The project sites for Contracts 89-01 and 89-02 are as follows:

a. Contract 89-01 - Development of a water well site located about 3 miles west of Coalport near the Hockenberry Run Reservoir.

b. Contract 89-02

1. Construction of roadway drainage modifications for the access road to Hockenberry Run Reservoir along Hockenberry Run from the reservoir to the intersection of S.R. 3005 to the northwest of Irvona Borough.

2. Construction of a 6" diameter water line along S.R. 3005 at the northwest corner of Irvona Borough and a 2" diameter water line replacement northwest of the intersection of S.R. 3005 and S.R. 0053 in Irvona Borough.

3. Construction of a 6" diameter water line along Washington Street and a 6" diameter water line along Lynwood Street in the Village of Rosebud, Beccaria Township, north of Coalport Borough.

4. Replacement of a fire hydrant along Hill Street in the Village of Rosebud, Beccaria Township, north of Coalport Borough and replacement of a fire hydrant at the intersection of Liberty Street (T-802) and S.R. 2002 in the Village of Blain City, Beccaria Township, north of Coalport Borough.

C. SOIL EROSION AND SEDIMENTATION CONTROL MEASURES

The proper scheduling of earth-moving activities in conjunction with proper implementation of soil erosion and sedimentation control measures is a major factor in minimizing accelerated erosion. Clearing and grubbing activities should not begin until control measures are in place. In no case shall excavation begin without the proper controls being completed. Efforts should be made to direct surface runoff around work areas. Water draining from work areas must be collected and controlled prior to entering the stream or other natural water courses.

Clearing, stripping and excavation operations required for construction shall be staged such that construction will take place as soon as practicable after the operation has been performed. Natural vegetation shall not be removed from any area unless subsequent operations are prepared to proceed.

Runoff will be diverted away from excavation areas before natural vegetation is removed. Erosion checks of baled straw, hay or a silt barrier fence as shown on the attached details shall be placed to intercept and trap sediment laiden runoff from disturbed areas. If at any time it is anticipated that work on any segment of the project will be halted for more than 20 days, the area bared shall be seeded with annual rye grass at the rate of 20 lbs. per 1,000 square feet.

Contractor shall take sufficient care to prevent silting and pollution of streams at stream crossings and/or encroachments. The following actions shall be avoided:

a. Operation of heavy equipment in the stream
b. Changing the course of the stream during construction
c. Pumping muddy or silt-laden water in the stream
d. Dumping spoil or surplus excavated materials in the stream or on the banks from where it may slide into the stream.
e. Leaving cofferdams or similar structures in the stream to be carried away at high water.

Areas where natural vegetation has been removed shall be covered with straw or mulch until reseeding occurs.

Dewatering operations shall not discharge directly into waters of the Commonwealth, or any land area lacking natural vegetative cover.

Cofferdams shall be provided at every stream crossing to prevent silt being carried downstream. Riprap for cofferdams shall be 4" to 6" size to trap silt. Bales of straw shall be placed in front of the riprap to prevent silt escaping through the riprap. A diversion ditch shall be provided to divert stream flow from the work area. Bales of straw shall be placed at the end of the diversion ditch to trap any sediment that may be carried by the diversion ditch. Cofferdams shall not be removed until backfilled materials are stabilized.

D. EROSION CONTROL & PIPELINE CONSTRUCTION

In areas of water line construction, Contractor shall provide temporary erosion and sedimentation control devices during construction and permanent control devices upon completion of all earthmoving operations in a work area. Costs incurred by providing these erosion and sedimentation control devices shall be considered incidental to the contract Total Base Bid for Contracts 89-01 and 89-02.

Trenching shall be done with a minimal amount of disturbance to natural vegetation and excavated material shall be placed somewhere other than in natural runoff channels. During construction, Contractor shall provide erosion and sedimentation control devices in the form of hay bales (See Standard Detail 12) in areas where erosion is likely to occur. In some areas, temporary diversion piping may be required to keep runoff water from entering the construction area.

Contractor shall seed and mulch (as indicated in Section 2G) immediately following trench backfill, in areas that were vegetated prior to trenching operations. In areas other than those with a vegetative cover, Contractor shall, immediately upon trench backfill, restore the surface to its original or improved condition.

Backfilled trenches on steep slopes shall have erosion checks or other approved devices placed across the disturbed areas, perpendicular to the slope so as to intercept and divert runoff away and onto vegetated ground. These diversions shall be placed no further than 100 feet apart on slopes greater than 10%.

E. EROSION CONTROL MEASURES FOR WELL SITE CONSTRUCTION

Contractor shall provide the erosion control devices as indicated on the Site Plan. However, it shall be the Contractor's responsibility to take all action to avert erosion. Costs incurred by providing erosion and sedimentation control measures shall be considered incidental to the Total Base Bid for Contract 89-01.

During drilling operations, each well area shall have straw bales placed around the downhill perimeter as indicated on the Water Well Development Site Plan. Straw bales shall be placed end-to-end and securely staked with hardwood flats as indicated in the Standard Details. These erosion control devices shall be left in place during the entire construction period and repaired or replaced as necessary.

Straw bales shall be similarly placed on the downhill perimeter of the settling basins (shown in Standard Details), which will receive all silt laiden water produced during the drilling operations. These basins will be left in place to trap any sediment before entering any natural water course, even after drilling is completed. The settling basins shall be cleaned periodically to prevent a buildup of sediment. Collapsed or damaged barriers shall be replaced. When the wells are under operation, the barriers and straw erosion checks shall be removed and the disturbed areas restored with seed and mulch.

F. ACCESS ROAD IMPROVEMENTS

Runoff from the grading, and drainage pipe installation shall be directed onto areas of undisturbed vegetation to prevent silt laden water from entering a stream. Straw bale barriers shall be placed at the outlet of each pipe to filter silt out of the water.

G. CONCLUSION

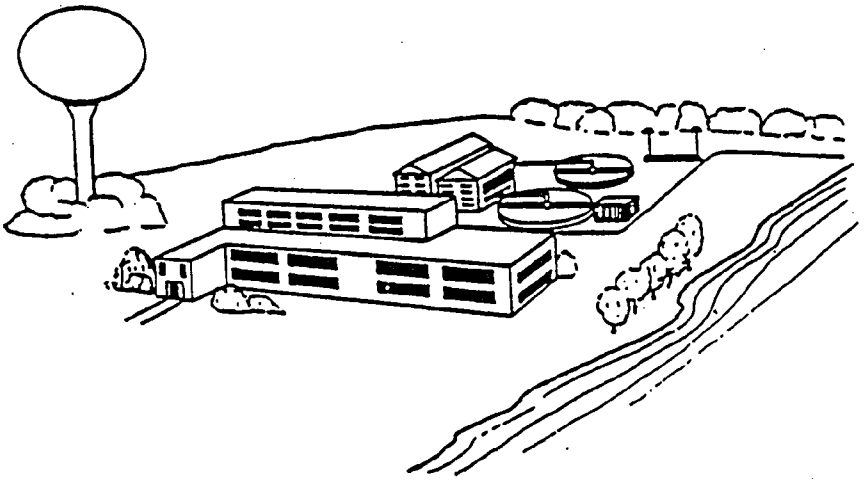
Erosion and sedimentation control measures outlined in the plan are designed on the basis of foreseeable erosion problems and are only a guide to the Contractor and does not relieve him of his responsibility to submit, for approval, an erosion and sedimentation control plan.

The facilities for sedimentation control shall be maintained for their designed operation to insure adequate performance. During construction, the Contractor should remedy any erosion problems that may begin in unprotected area. All temporary erosion control structures shall be removed after construction areas have been stabilized and restored.

Permanent soil erosion and sedimentation control measures amount to restoring the work areas to as good or better than original condition by revegetation or paving. The use of the recommended control measures should minimize erosion and sedimentation during the construction of this project and reduce its effect upon the environment. For additional erosion and sedimentation control measures which may be employed, the Contractor is referred to the "Soil Erosion and Sedimentation Control Manual" issued by the Pennsylvania Department of Environmental Resources. Copies of this manual may be obtained at the local County Conservation District Office.

COPY

Public Water Supply Manual



PART II

COMMUNITY SYSTEM DESIGN STANDARDS

DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER SUPPLY AND COMMUNITY HEALTH
DIVISION OF DRINKING WATER MANAGEMENT

TABLE II-5
Steel Pipe*

Size (inches)	Diameter (inches)		Thickness (inches)	Weight per foot (pounds)	
	External	Internal		Plain ends (calculated)	With Threads and Couplings (Nominal)
6 id	6.625	6.065	0.280	18.97	19.18
8	8.625	7.981	0.322	28.55	29.35
10	10.750	10.020	0.365	40.48	41.85
12	12.750	12.000	0.375	49.56	51.15
14 od.	14.000	13.250	0.375	54.57	57.00
16	16.000	15.250	0.375	62.58	65.30
18	18.000	17.250	0.375	70.59	73.00
20	20.000	19.250	0.375	78.60	81.00
22	22.000	21.000	0.500	114.81	
24	24.000	23.000	0.500	125.49	
26	26.000	25.000	0.500	136.17	
28	28.000	27.000	0.500	146.85	
30	30.000	29.000	0.500	157.53	
32	32.000	31.000	0.500	168.21	
34	34.000	33.000	0.500	178.89	
36	36.000	35.000	0.500	189.57	

*Abstracted from previous AWWA Standard for Deep Wells, AWWA-A100-66. The minimum thickness for standard and two-ply carbon-steel well casings (based on well diameters and depths) as outlined in the current editions of AWWA-A100 shall apply.

JAMES R. CASSELL[illegible]Y
Ground-Water Geo[illegible]st

108 E. [illegible] Street / P.O. Box 616
Boalsbu[illegible]ennsylvania 16827
(814) 46[illegible]/128

RECEIVED
NOV [illegible] '91
The Neilan Engineers
Somerset, Pa.

November 8, 1991

Scott Rugh
Neilan Engineers
1065 Tayman Ave., P.O. Box 837
Somerset, PA 15501-0837

Re: Scope of Work and Costs for Irvona Well Development Project

Dear Scott:

At your request, I have written this letter to present a scope of work and associated costs for conducting a groundwater exploration program for Irvona Municipal Authority. The scope of this project includes the location, drilling supervision, and test pumping of a single, fracture-trace test well. I have broken the following hydrogeologic consulting proposal down into 4 separate phases. The estimated prices given for each phase of my proposal will be treated as not to exceed values and the job will be billed on an hourly basis for the work actually performed according to the attached rate schedule.

Fracture Trace and Lineament Analysis

The work conducted under this phase of the project will culminate in the identification of a high-yield potential, fracture-trace, test well site. This work includes:

1) Obtaining several flights of both high and low altitude aerial photographs of the Irvona area.

2) Analyzing these aerial photographs for fracture traces and lineaments.

3) Identifying well sites at fracture trace intersections.

4) Locating the fracture-zone test well sites in the field.

5) Inspecting the test well sites with the project engineer to determine the feasibility of drill rig access.

6) Once a well site has been selected for drilling, write a short letter report describing the well site geology and anticipated drilling conditions. This letter should be attached to the project engineer's request to Pa DER for a sanitary survey of the test well site.

Total Cost = $1350

Supervision of Test Well Drilling

The work conducted under this phase of the project involves:

1) Coordinating the drilling contractor's activities and supervising the work in the field as necessary, acting as the Authority's representative. This work would include: collection and analysis of formation and water samples; compilation of a continuous geologic log describing the lithology, yield and water quality of the formations encountered, and; making field decisions regarding drilling depth, casing lengths, screen selection and placement, and well development techniques.

As the time required to complete this work is largely dependent upon both the efficiency of the drilling contractor and the nature of the drilling conditions actually encountered, I have presented an estimated cost for this phase based upon 3 days of drilling supervision. The final cost for this phase will be adjusted on an hourly basis for the work actually performed.

Total Cost = $1600

Supervision of Pumping Test Activities

The work performed during this phase of the project includes:

1) Conducting a day-long, step-drawdown pumping test. The data from this step-drawdown pumping test shall be analyzed to select a realistic pumping rate for the ensuing, long-term, 72-hour, constant-rate pumping test.

2) Installation and calibration of a continuous water level recorder and flow meter prior to the start of the long-term pumping test. Use of these instruments ensures accurate data for aquifer analysis to determine the sustained yield potential of the well. The use of this equipment also dramatically reduces the costs for performing the long-term pumping test (no need for a man to continually measure water levels during the test). The water level recording equipment will monitor drawdown levels through-out the 72-hour pumping test.

3) Plotting the drawdown data during the course of the long-term pumping test to evaluate the potential need for adjustment in pumping rate.

4) Sampling the well at the conclusion of the long-term pumping test for Pa DER's "New Source Sampling Matrix". At this time, the water level measurement equipment will be reprogrammed to measure recovery levels for the 48-hour period following the cessation of pumping.

The cost for this work reflects some $1200 in lab costs associated with the water samples collected during the pumping test program (key parameters at 24 and 48-hours/Pa DER New Source Analysis and radon

JAMES R. CASSELBERRY
Ground-Water Geologist

108 E. Main Street / P.O. Box 616
Boalsburg, Pennsylvania 16827
(814) 466-7128

at the conclusion of the pumping test).

Total Cost = $3300

Report Preparation

1) Write a summary report describing the well construction and the results of the pumping test program. This report shall define both the water quality and sustained yield potential of the well and shall contain all the hydrogeologic information necessary for permitting the well as a source of public water supply. Recommendations regarding the use of the well will be made. Any construction modifications deemed necessary to improve well performance will also be identified.

Total Cost = $900

My total estimated cost for performing all phases of the project is $7150. If you have any questions on the scope of work or costs included in this proposal, please give me a call. Thank you for giving me the opportunity to work with you on this project.

Regards,

James R. Casselberry

JRC/jc
Attachment

JAMES R. CASSELBERRY
Ground-Water Geologist

108 E. Main Street / P.O. Box 616
Boalsburg, Pennsylvania 16827
(814) 466-7128

JAMES R. CASSELBERRY
Ground-Water Geologist

108 E. Main Street / P.O. Box 616
Boalsburg, Pennsylvania 16827
(814) 466-6328

November 1, 1991

General Rate Schedule for Consulting Services

Professional Services:

Principal	$62.00 per hour
Project Hydrogeologist	$42.00 per hour
Drafting/Data Processing	$20.00 per hour
Expert Witness Testimony	1.5 x above rates

Related Expenses:

Car Mileage @ $.30 per mile

Four-Wheel Drive Vehicle Mileage @ $.35 per mile

Travel expenses and subcontractor's costs will include a 15% surcharge

ALL-STATE® LEGAL 800-222-0510 ED511 RECYCLED

Water Supply Application and Technical Specifications to Permit Well No. 1 for a Public Water Supply

Irvona Municipal Authority

October 8, 1990

Prepared By:

Neilan Engineers Division
1065 Tayman Avenue
P.O. Box 837
Somerset, Pennsylvania 15501

Date Prepared
7-9-90

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF COMMUNITY ENVIRONMENTAL CONTROL

APPLICATION FOR PUBLIC WATER SUPPLY PERMIT

FOR DEPARTMENT USE ONLY

A. APPLICANT (Name and Address of Water Company)

Irvona Municipal Authority
Berwind Street
Irvona, PA 16656

TELEPHONE NO. 814-672-3959

B. PROJECT LOCATION

Serving Water to the Public within:
Municipality: Irvona Borough and Beccaria Township

County: Clearfield

C. HEREBY APPLIES FOR APPROVAL OF PLANS AND PERMIT OF THE FOLLOWING:

FOR: 1. [X] Use as Source of Supply [X] Construction [X] Operation

4. SOURCE

[X] Well(s) [ ] Spring(s)
[ ] Stream [ ] Lake

Known As: Well No. 1

5. FACILITIES

[ ] Impoundment
[ ] Settling
[ ] Filtration
[ ] Iron Removal
[ ] Softening
[ ] Disinfection
[ ] Pump Station(s)
[ ] Transmission Lines
[ ] Distribution Storage
[ ] Distribution System

I hereby certify that the completeness report and all plans, modules, and documents designated therein are attached to this application, and made a part hereof.

Donna Morrison
Name of Responsible Water Company Official

Name of Responsible Water Company Official	Title	Date of Application
Donna Morrison	Secretary - Treasurer	October 1, 1990

Address: Berwind Street Irvona, PA 16656

AFFIDAVIT

Commonwealth of Pennsylvania, County Of Somerset

I, _____, being duly sworn, according to law, depose and say that I (am the applicant) (am an officer or official of the applicant) (have the authority to make this application) and that the plans, reports and documents submitted as part of the application are true and correct to the best of my knowledge and belief.

Sworn and Subscribed to before me this 1st Day Of Oct. 19 90

R. ERIC CRITCHFIELD, Notary Public
Somerset Boro., Somerset County, PA
My Commission Expires June 13, 1992

Notary Public

Donna Morrison
Name of Responsible Water Company Official

THE SECTION BELOW IS TO BE COMPLETED BY THE DESIGN ENGINEER AUTHORIZED BY THE APPLICANT TO PREPARE THIS APPLICATION

Name of Design Engineer and Firm
F. Scott Rugh, P.E., Neilan Engineers, Inc.

Mailing Address: 1065 Tayman Ave., Somerset, PA 15501

Telephone Number: 814 445-6551

Agreement Date: 9-27-90

Signature of Design Engineer: F Scott Rugh

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
DESIGN ENGINEER'S
F. SCOTT RUGH
ENGINEER
027377-E
PENNSYLVANIA

DATE PREPARED
9-27-90
DATE REVISED

DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF COMMUNITY ENVIRONMENTAL CONTROL

PUBLIC WATER SUPPLY

MODULE 3 — WELLS

For Department Use Only

NOTE

IF ANY OF THE QUESTIONS IN THIS MODULE ARE NOT KNOWN DUE TO THE FACT THAT THE WELLS HAVE BEEN IN USE FOR A LONG PERIOD OF TIME AND SPECIFIC INFORMATION IS NOT AVAILABLE, ATTACH NECESSARY DISCUSSION SHEETS EXPLAINING HOW THESE WELLS COMPLY WITH THE RULES AND REGULATIONS OF THE DEPARTMENT, CHAPTER 109, ON THE BASIS OF THE TOPOGRAPHY AND GEOLOGY OF THE AREA, THE SANITARY SURVEY, THE WATER QUALITY DATA AND AVAILABLE INFORMATION ON CONSTRUCTION OF THE WELL.

A. GENERAL

1. IS THE TEST METHOD FOR WELLS CLEARLY OUTLINED IN THE SPECIFICATIONS? [X] Yes [ ] No [ ] N/A

2. ARE THE TEST DATA INCLUDED GIVING WATER LEVEL DRAWDOWN AND PUMPING RATE DURING THE ENTIRE TEST OF THE PROPOSED WELL, AND OF THE DRAWDOWN IN WELLS WITHIN 500 FEET AND THE RECOVERY WATER LEVELS UPON CONCLUSIONS OF PUMPING? [X] Yes [ ] No [ ] N/A

3. HAS THE DURATION OF THE TEST BEEN DETERMINED WITH DUE CONSIDERATION TO CLARITY OF WATER AND THE OBTAINING OF REPRESENTATIVE SAMPLES OF WATER FOR CHEMICAL AND BACTERIOLOGICAL ANALYSIS? [X] Yes [ ] No [ ] N/A

B. CASING AND LINER PIPES

1. DOES THE PROTECTIVE CASING OF WROUGHT IRON OR STEEL HAVE MINIMUM WEIGHTS AND THICKNESS AS SPECIFIED IN TABLES 1 AND 2 OF THE PUBLIC WATER SUPPLY MANUAL? [X] Yes [ ] No [ ] N/A

2. IS WELL CASING PIPE OTHER THAN WROUGHT IRON OR STEEL ADAPTABLE BOTH TO THE STRESSES TO WHICH THE PIPE WILL BE SUBJECTED DURING INSTALLATION AND TO THE CORROSIVENESS OF THE WATER? [ ] Yes [ ] No [X] N/A

3. IS THE PIPE TO BE DRIVEN EQUIPPED WITH A DRIVE SHOE? [X] Yes [ ] No [ ] N/A

4. ARE CASING AND LINER PIPE JOINTS WELDED OR THREADED? [X] Yes [ ] No

5. IS PROTECTIVE CASING THAT IS TO BE GROUTED IN THE DRILL HOLE OR ANNULAR OPENING PROVIDED WITH SUFFICIENT GUIDES WELDED TO THE CASING TO PERMIT THE UNOBSTRUCTED FLOW AND DEPOSITION OF GROUT TO A MINIMUM THICKNESS OF 1.50 INCHES, OR TO A GREATER THICKNESS AS INDICATED IN ITEMS 8-6, AND H-6? [X] Yes [ ] No

6. DO TEMPORARY CASINGS AND LINERS INSTALLED WITHOUT DRIVING HAVE A MINIMUM THICKNESS OF 0.25 INCHES? [ ] Yes [ ] No [X] N/A

7. IS CASING PIPE UTILIZED FOR PROTECTION AGAINST CONTAMINATION AND HAVING WEIGHTS LESS THAN SPECIFIED BY TABLES 1 AND 2 OF THE PUBLIC WATER SUPPLY MANUAL SURROUNDED BY 4 INCHES OF CONCRETE, GROUT NEAT CEMENT GROUT OR OTHER APPROVED MATERIAL? [ ] Yes [X] No [ ] N/A

8. IS THE WALL OR CURBING AT LEAST 6 INCHES THICK AND POURED IN ONE OPERATION? [ ] Yes [ ] No [X] N/A

IRVONA MUNICIPAL AUTHORITY
CLEARFIELD COUNTY, PENNSYLVANIA

1993 WATER PROJECT

PaDER PUBLIC WATER SUPPLY PERMIT APPLICATION

December 1992

Prepared by:

NEILAN ENGINEERS DIVISION
The EADS Group
1065 Tayman Avenue
Somerset, Pennsylvanial 15501

11-23-92

BUREAU OF COMMUNITY ENVIRONMENTAL CONTROL

APPLICATION FOR PUBLIC WATER SUPPLY PERMIT

FOR DEPARTMENT USE ONLY

A. APPLICANT (Name and Address of Water Company)

Irvona Municipal Authority
Berwind Street
Irvona, PA 16656

TELEPHONE NO. (814) 672-3959

B. PROJECT LOCATION

Serving Water to the Public within:
Municipality

Irvona Borough and portions of Beccaria Twp.

County

Clearfield

C. HEREBY APPLIES FOR APPROVAL OF PLANS AND PERMIT OF THE FOLLOWING:

FOR: 1. [X] Use as Source of Supply [X] Construction [X] Operation

4. SOURCE

[X] Well(s) [ ] Spring(s)
[ ] Stream [ ] Lake

Known As Hockenberry Run Well No. 2

5. FACILITIES

[ ] Impoundment
[ ] Settling
[ ] Filtration
[ ] Iron Removal
[ ] Softening
[X] Disinfection
[X] Pump Station(s)
[X] Transmission Lines
[X] Distribution Storage
[ ] Distribution System

I hereby certify that the completeness report and all plans, modules and documents designated therein are attached to this application, and made a part hereof.

Kenneth J Hewitt
Name of Responsible Water Company Official

Name of Responsible Water Company Official	Title	Date of Application
Kenneth Hewitt	Chairman	12-15-92

Address

Berwind Street Irvona, PA 16656

AFFIDAVIT

Commonwealth of Pennsylvania, County Of Somerset

I, Kenneth J Hewitt, being duly sworn, according to law, depose and say that I (am the applicant) (am an officer or official of the applicant) (have the authority to make this application) and that the plans, reports and documents submitted as part of the application are true and correct to the best of my knowledge and belief.

Sworn and Subscribed to before me this

15 Day Of December 1992

Kenneth J Hewitt
Name of Responsible Water Company Official

Randal B. Mulhollen
Notary Public

NOTARIAL SEAL
RANDAL B. MULHOLLEN, NOTARY PUBLIC
SOMERSET BOROUGH, SOMERSET COUNTY
MY COMMISSION EXPIRES MARCH 4, 1996

THE SECTION BELOW IS TO BE COMPLETED BY THE DESIGN ENGINEER AUTHORIZED BY THE APPLICANT TO PREPARE THIS APPLICATION

Name of Design Engineer and Firm

F. Scott Rugh, P.E., Neilan Engineers Division

Mailing Address	Telephone Number
1065 Tayman Avenue, P.O. Box 837 Somerset, PA 15501	(814) 445-6551

Agreement Date	Signature of Design Engineer
5-12-92	F Scott Rugh

DESIGN ENGINEER'S SEAL
F. SCOTT RUGH
027377-E
PENNSYLVANIA

DATE PREPARED	DEPARTMENT OF ENVIRONMENTAL RESOURCES	
11-23-92	BUREAU OF COMMUNITY ENVIRONMENTAL CONTROL	
DATE REVISED	PUBLIC WATER SUPPLY	For Department Use Only
	MODULE 3 — WELLS	

NOTE

IF ANY OF THE QUESTIONS IN THIS MODULE ARE NOT KNOWN DUE TO THE FACT THAT THE WELLS HAVE BEEN IN USE FOR A LONG PERIOD OF TIME AND SPECIFIC INFORMATION IS NOT AVAILABLE, ATTACH NECESSARY DISCUSSION SHEETS EXPLAINING HOW THESE WELLS COMPLY WITH THE RULES AND REGULATIONS OF THE DEPARTMENT, CHAPTER 109, ON THE BASIS OF THE TOPOGRAPHY AND GEOLOGY OF THE AREA, THE SANITARY SURVEY, THE WATER QUALITY DATA AND AVAILABLE INFORMATION ON CONSTRUCTION OF THE WELL.

A. GENERAL

		Yes	No	N/A
1.	IS THE TEST METHOD FOR WELLS CLEARLY OUTLINED IN THE SPECIFICATIONS? Well drilled under previous contract	☐	☐	☒
2.	ARE THE TEST DATA INCLUDED GIVING WATER LEVEL DRAWDOWN AND PUMPING RATE DURING THE ENTIRE TEST OF THE PROPOSED WELL, AND OF THE DRAWDOWN IN WELLS WITHIN 500 FEET AND THE RECOVERY WATER LEVELS UPON CONCLUSIONS OF PUMPING? Refer to attached Hydrogeologist report	☒	☐	☐
3.	HAS THE DURATION OF THE TEST BEEN DETERMINED WITH DUE CONSIDERATION TO CLARITY OF WATER AND THE OBTAINING OF REPRESENTATIVE SAMPLES OF WATER FOR CHEMICAL AND BACTERIOLOGICAL ANALYSIS?	☒	☐	☐

B. CASING AND LINER PIPES

		Yes	No	N/A
1.	DOES THE PROTECTIVE CASING OF WROUGHT IRON OR STEEL HAVE MINIMUM WEIGHTS AND THICKNESS AS SPECIFIED IN TABLES 1 AND 2 OF THE PUBLIC WATER SUPPLY MANUAL?	☒	☐	☐
2.	IS WELL CASING PIPE OTHER THAN WROUGHT IRON OR STEEL ADAPTABLE BOTH TO THE STRESSES TO WHICH THE PIPE WILL BE SUBJECTED DURING INSTALLATION AND TO THE CORROSIVENESS OF THE WATER?	☐	☐	☒
3.	IS THE PIPE TO BE DRIVEN EQUIPPED WITH A DRIVE SHOE?	☒	☐	☐
4.	ARE CASING AND LINER PIPE JOINTS WELDED OR THREADED?	☒	☐	
5.	IS PROTECTIVE CASING THAT IS TO BE GROUTED IN THE DRILL HOLE OR ANNULAR OPENING PROVIDED WITH SUFFICIENT GUIDES WELDED TO THE CASING TO PERMIT THE UNOBSTRUCTED FLOW AND DEPOSITION OF GROUT TO A MINIMUM THICKNESS OF 1.50 INCHES, OR TO A GREATER THICKNESS AS INDICATED IN ITEMS B-6, AND H-6?	☒	☐	
6.	DO TEMPORARY CASINGS AND LINERS INSTALLED WITHOUT DRIVING HAVE A MINIMUM THICKNESS OF 0.25 INCHES?	☐	☐	☒
7.	IS CASING PIPE UTILIZED FOR PROTECTION AGAINST CONTAMINATION AND HAVING WEIGHTS LESS THAN SPECIFIED BY TABLES 1 AND 2 OF THE PUBLIC WATER SUPPLY MANUAL SURROUNDED BY 4 INCHES OF CONCRETE, GROUT NEAT CEMENT GROUT OR OTHER APPROVED MATERIAL?	☐	☐	☒
8.	IS THE WALL OR CURBING AT LEAST 6 INCHES THICK AND POURED IN ONE OPERATION?	☐	☐	☒

ALL-STATE LEGAL SUPPLY CO., 1-800-222-0510 ED11-AC RECYCLED

P◯sylvania Department of Envirc◯ntal Protection
P. O. Box 209
Hawk Run, PA 16840-0209
July 28, 1998

HAWK RUN DISTRICT OFFICE

(814) 342-8200
FAX (814) 342-8216

Mr. Carl Rudnick
Irvona Municipal Authority
Berwind Street
Irvona, PA 16656

RE: Service Request HR #98-068
Irvona Municipal Water Supply
Investigation
Beccaria Township, Clearfield County

Dear Mr. Rudnick:

I have completed my investigation of your municipal well degradation complaint. I was asked to review the Irvona Municipal well problem and determine if the problem could be attributed to recent or past surface mining activity. A review of our records indicates that there has not been any substantial surface mining activity in the vicinity of the municipal wells in the past twenty-five years.

The surface mining that has occurred in the Hockenberry Run watershed has been reviewed and has not been found to be hydrologically connected to the recharge zones of the municipal well supply. Surface and deep mining operations in the adjacent watersheds generate mine drainage, which is contained within those adjacent watersheds. There is no evidence of inter-watershed movement of mine drainage that could affect the municipal well supply.

Any water quality impact from surface or deep coal mining to the municipal wells would be evident in the water quality characteristics of the well supply. Generally, mine drainage-impacted waters have high sulfate concentrations. An increase in Sulfate concentration is a prime indicator of an impact from mine drainage pollution. I have compiled the available water quality information for Well #1 and Well #2 and have enclosed it with this letter. A review of water quality data for Well #1 and Well #2 reveals that sulfate concentrations remain at background levels of less than 20 mg/L. Therefore, an impact from mine drainage is not evident at the municipal well supply.

For the purposes of generating a prompt response to your complaint, I have not generated a report that addresses the specific mining operations in the area. Current surface mining operations in Becarria Township are isolated from the Hockenberry Run watershed. If there is a specific mining operation which you believe is a cause of concern, please contact me and I will specifically research that operation.

Beccaria Twp., Clearfield Co.

One of your main concer was the increasing iron concentration at appeared in Well #1 during the past year. On June 24, 1998, our office lowered the downhole camera down Well #1 for the purposes of discovering the source of the noise that emanated from the well bore. During that camera run, we discovered a significant casing leakage problem. These leakage problems occurred in the surface casing at 74 feet and 110 feet below the surface. Water was clearly seen entering the well bore under hydraulic pressure. Using a bailer, the Department obtained water quality samples (#4458156, #4458157) of the leakage at 74 feet. The chemical analysis of these samples has recently returned from the lab and reveal that the leakage water contains elevated, particulate iron concentrations (14.7 mg/L). A filtered water sample to remove suspended matter taken from the leakage reveals somewhat lower dissolved iron concentrations (2.02 mg/L). One can only conclude that the iron concentration problem of Well #1 can be attributed to a leakage problem of the surface casing. Water from the Lower Allegheny Formation laden with particulate iron is flowing into Well #1 at the leakage points. The leakage water has sulfate concentrations less than 20 mg/L; therefore, the Allegheny Formational waters are not impacted by mine drainage in the area of Well #1. Copies of the leakage samples are enclosed.

Bacteriological water samples were taken from Well #1 and Well #2 for analysis for iron and sulfate bacteria. Analysis of these samples report negative results for bacteria contamination. I have enclosed the lab results for these samples for your review and records.

In conclusion, my investigation has concluded that the alleged water contamination experienced by Irvona Municipal Authority is not contributable to recent or past surface mining activities in the area.

Given the leakage problem, you asked me to present you with options to deal with the problem so that the authority can make a sound informed decision on how best to serve it's customers. I have limited experience in dealing with well problems of this magnitude and I am unfamiliar with the regulations governing the development or repair of municipal water supplies. You should not hesitate to seek help from other DEP personnel who are experienced with dealing with these problems.

Probably the least expensive option is to repair or seal the leaks in Well #1. You may want to consider using a series of inflatable packers to seal the leakage areas. However, this may not work or only provide a temporary solution to the problem. There may be other solutions to sealing the leakage areas. You may want to explore these solutions by contacting some experienced well drilling contractors or oil well service companies that specialize in downhole well problems.

Given the deep hydrologic regime, the overlying poor water quality aquifers, and the problems you have already experienced with your current well supply, you should logically re-evaluate your option to drill another municipal supply well in the area. Obviously, if not properly engineered, the current problems could reoccur, thus rendering a replacement well useless.

I hope this letter addresses your concerns with respect to the surface mining impact question. I am enclosing the water sample analyses for the samples that I gathered during my investigation. If you have any further questions, please feel free to contact me at the Hawk Run District Office.

The regulations pertaining to a citizen's complaint entitle you to request an informal review of the Department's investigation if you do not agree with the findings. Your request for an informal review should contain the following information:

1. Nature of the complaint.

2. How you are or may be adversely affected by the mining operation.

3. Why you feel the Department's decision is incorrect.

4. If applicable, indicate portion(s) of the report of the Department's investigation that was incomplete or was overlooked.

If all of the above are not included in your request, no further action will be taken by the Department.

A written request for an informal review shall be mailed to:

Director
Bureau of Mining and Reclamation
Department of Environmental Protection
P.O. Box 8461
Harrisburg, PA 17105-8461

If you have questions or comments regarding this matter, please contact me at your convenience.

Sincerely,

David Bisko

David Bisko
Hydrogeologist
District Mining Operations

Enclosure

DB/dcb

cc: John P. Varner
Bill Kosmer, Williamsport Regional Office
Tom Tarcson
Scott Barnes
David Bisko

VERIFICATION

I am authorized as a member of the Board the Irvona Municipal Authority to make this Verification on behalf of Irvona Municipal Authority, and hereby state that all of the facts set forth in the foregoing document are true and correct to the best of my knowledge, information and belief. I understand that the statements herein are made subject to the penalties of 18 Pa. C.S. §4904 (relating to unsworn falsification to authorities).

Donald K. Monzo

Dated: 5-16-01

CERTIFICATE OF SERVICE

I hereby certify that I have this day served a true and correct copy of the foregoing document upon the person and in the manner indicated below.

Service by First Class U.S. Mail:

James R. Casselberry
108 East Main Street
Post Office Box 616
Boalsburg, PA 16827

James R. Casselberry & Associates, Inc.
108 East Main Street
Post Office Box 616
Boalsburg, PA 16827

Robert J. Ray, Esquire
Kelly B. Bakayza, Esquire
Burnes, White & Hickton, LLC
120 Fifth Avenue, Suite 2400
Pittsburgh, PA 15222
(counsel on behalf of The EADS Group)

James N. Bryant, Esquire
Bryant & Associates, P.C.
107 East Main Street
Millheim, PA 16854
(counsel on behalf of David Eriksen, t/a Eriksen Well Drilling)

Scott T. Wyland

DATED: May 25, 2001

ALL-STATE LEGAL SUPPLY CO., 1-800-222-0510 FD11-AG RECYCLED

Law Offices

BRYANT & ASSOCIATES, P.C.

PLEASE REPLY TO

MILLHEIM OFFICE

May 31, 2001

James N. Bryant
Bernard F. Cantorna

107 East Main Street
Millheim, PA 16854
814-349-5666
814-364-9869
FAX 814-349-2212

IN STATE COLLEGE
1901 East College Avenue
State College, PA 16801
814-238-4370
FAX 814-238-8016

www.bryant-associates.com

Scott T. Wyland, Esq.
100 North 10th Street
P. O. Box 1778
Harrisburg, PA 17105

Re: Irvona Municipal Authority v. Eriksen, et al

Dear Mr. Wyland:

I have previously entered my appearance in this matter. Preliminary Objections will follow shortly.

First I must thank you. My wife just bought a new Pontiac; I bought a Saturn for the company, and we, of course, have accumulated the lifestyle that is expected of a local attorney after 30 years of practice. Some days I wonder where the income is going to come from. Then I get a complaint from a law firm in Harrisburg who must have a xerox machine on steroids. The complaint seems to ask for the sun, the moon, the stars, and new banjos and dentures for everyone who has ever sat on a porch in Irvona and could not get work as an extra in the movie Deliverance.

My client is perfectly willing to concede that he put in the wrong casing. He is not sure how he did it, but he did it. [redacted] Other than that, he is not going to contribute voluntarily to your pension program or the "Authority's significant damages". He will, however, somewhat reluctantly, contribute to my recent vehicle acquisitions and my lifestyle. In this case, it is probably a hell of a lot cheaper. I am looking forward to a long and contentious litigation, [redacted]

Very truly yours,

BRYANT & ASSOCIATES, P.C.

By: James N. Bryant

JNB:ksr
cc: David Eriksen

CERTIFICATE OF SERVICE

I hereby certify that I have this day served a true and correct copy of the foregoing document upon the person and in the manner indicated below.

Service by First Class U.S. Mail:

James R. Casselberry
108 East Main Street
Post Office Box 616
Boalsburg, PA 16827

James R. Casselberry & Associates, Inc.
108 East Main Street
Post Office Box 616
Boalsburg, PA 16827

Robert J. Ray, Esquire
Kelly B. Bakayza, Esquire
Burnes, White & Hickton, LLC
120 Fifth Avenue, Suite 2400
Pittsburgh, PA 15222
(counsel on behalf of The EADS Group)

James N. Bryant, Esquire
Bryant & Associates, P.C.
107 East Main Street
Millheim, PA 16854
(counsel on behalf of David Eriksen, t/a Eriksen Well Drilling)

Scott T. Wyland

DATED: June 20, 2001

Irvona Municipal Authority v.
Eriksen, et al., Docket No. 00-955-CD

VERIFICATION

I am authorized as a member of the Board the Irvona Municipal Authority to make this Verification on behalf of Irvona Municipal Authority, and hereby state that all of the facts set forth in the foregoing document are true and correct to the best of my knowledge, information and belief. I understand that the statements herein are made subject to the penalties of 18 Pa. C.S. §4904 (relating to unsworn falsification to authorities).

Gerald K. Morris

Dated: 6-20-01

FILED
JUN 25 2001
m/1:15/
William A. Shaw
Prothonotary

IN THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA
CIVIL ACTION

IRVONA MUNICIPAL AUTHORITY, Plaintiff	:	
vs.	:	No. 00 - 955 - CD
DAVID ERIKSEN, t/a ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION, Defendants	:	JURY TRIAL DEMANDED

PRAECIPE FOR ENTRY OF APPEARANCE

Filed on behalf of

Defendants:
David Eriksen, t/a Eriksen Well Drilling and
James R. Casselberry and James R. Casselberry & Associates, Inc.

FILED
JUL 09 2001
William A. Shaw
Prothonotary

Counsel of Record for this Party:

James N. Bryant, Esq.
Attorney-At-Law
PA I.D. 14084

BRYANT & ASSOCIATES, P.C.
107 East Main Street
Millheim, PA 16854

(814) 349-5666

IN THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA
CIVIL ACTION

IRVONA MUNICIPAL AUTHORITY, Plaintiff	:	
vs.	:	No. 00 - 955 - CD
DAVID ERIKSEN, t/a ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION, Defendants	:	JURY TRIAL DEMANDED

PRAECIPE FOR ENTRY OF APPEARANCE

TO THE PROTHONOTARY OF SAID COURT:

Kindly enter my appearance on behalf of the Defendants, DAVID ERIKSEN, t/a ERIKSEN WELL DRILLING and JAMES R. CASSELBERRY, t/a JAMES R. CASSELBERRY & ASSOCIATES, INC., to the above captioned matter. All papers may be served upon these Defendants at my law offices located at 107 East Main Street, Millheim, PA 16854.

BRYANT & ASSOCIATES, P.C.

By: _____

James N. Bryant, Esq.
Attorney for 14084
Attorney ID No. 14084
107 East Main Street
Millheim, PA 16854

DATED: July 6, 2001

IN THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA
CIVIL ACTION

IRVONA MUNICIPAL AUTHORITY, Plaintiff	:	
vs.	:	No. 00 - 955 - CD
DAVID ERIKSEN, t/a ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION, Defendants	:	JURY TRIAL DEMANDED

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the within was **PRAECIPE FOR ENTRY OF APPEARANCE** served by depositing the same with the United States Postal Service, postage prepaid, addressed to the following:

Scott T. Wyland
100 North 10th Street
P. O. Box 1778
Harrisburg, PA 17105

Kelly B. Bakayza, Esq.
Robert J. Ray, Esq.
Burns, White & Hickton
120 Fifth Avenue, Suite 2400
Pittsburgh, PA 15222-3001

By: _____
James N. Bryant, Esq.
Attorney for Defendants:
David Eriksen, t/a Eriksen Well Drilling and
James R. Casselberry and James R. Casselberry & Associates, Inc.

DATED: July 6, 2001

IN THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA
CIVIL ACTION

IRVONA MUNICIPAL AUTHORITY, Plaintiff	:	
vs.	:	No. 00 - 955 - CD
DAVID ERIKSEN, t/a ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION, Defendants	:	JURY TRIAL DEMANDED

PRELIMINARY OBJECTIONS TO PLAINTIFF'S AMENDED COMPLAINT

Filed on behalf of

Defendant - Eriksen Well Drilling

Counsel of Record for this Party:

James N. Bryant, Esq.
Attorney-At-Law
PA I.D. 14084

BRYANT & ASSOCIATES, P.C.
107 East Main Street
Millheim, PA 16854

(814) 349-5666

FILED
JUL 13 2001
William A. Shaw
Prothonotary

IN THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA
CIVIL ACTION

IRVONA MUNICIPAL AUTHORITY, Plaintiff	:	
vs.	:	No. 00 - 955 - CD
DAVID ERIKSEN, t/a ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION, Defendants	:	JURY TRIAL DEMANDED

ORDER

AND NOW, this ____ day of _____, 2001, upon consideration of the foregoing Preliminary Objections, a rule is granted upon the Plaintiff to show cause why such relief should not be granted. Rule returnable thereon the _____ day of _____, 2001, for filing written response.

NOTICE

A Petition or Motion has been filed against you in Court. If you wish to defend against the claims set forth in the following Motion by entering a written appearance personally or by attorney and filing in writing with the Court your defenses or objections to the matter set forth against you. You are warned that if you fail to do so the case may proceed without you and an order may be entered against you by the Court without further notice for relief requested by the Petitioner or Movant. You may lose rights important to you.

YOU SHOULD TAKE THIS PAPER TO YOUR LAWYER AT ONCE. IF YOU DO NOT HAVE A LAWYER OR CANNOT AFFORD ONE, GO TO OR TELEPHONE THE OFFICE SET FORTH BELOW TO FIND OUT WHERE YOU CAN GET LEGAL HELP.

COURT ADMINISTRATOR
CLEARFIELD COUNTY COURTHOUSE
MARKET & SECOND STREETS
CLEARFIELD, PA 16830
814-765-2641, EXT. 50-51.

BY THE COURT:

_____

Re: Eriksen Preliminary Objections

IN THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA
CIVIL ACTION

IRVONA MUNICIPAL AUTHORITY, Plaintiff	:	
vs.	:	No. 00 - 955 - CD
DAVID ERIKSEN, t/a ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION, Defendants	:	JURY TRIAL DEMANDED

PRELIMINARY OBJECTIONS TO PLAINTIFF'S AMENDED COMPLAINT

AND NOW, comes the Defendant, Eriksen Well Drilling, by and through its attorney, James N. Bryant, Esq., of Bryant & Associates, P.C., and files the following Preliminary Objections to Plaintiff's Amended Complaint and states as follows:

FIRST OBJECTION

1. The Defendant moves to strike paragraph 131 on page 29, as well as Exhibit K, which is a letter between counsel discussing settlement.

2. Communication between counsel in an effort to effectuate settlement to speed the lawsuit is not admissible at trial or in pleadings.

SECOND OBJECTION

In allegation VIII, paragraphs 79 through 85 and in Counts I, VII, and X punitive damages are requested. Nothing in the conduct of David Eriksen, t/a Eriksen Well Drilling indicates wanton and reckless disregard of the rights of others to justify punitive damages.

WHEREFORE, Defendant, Eriksen Well Drilling requests allegation 131 and Exhibit K, as well as all requests for punitive damages be stricken.

BRYANT & ASSOCIATES, P.C.

By: _____

James N. Bryant, Esq.
Attorney ID No. 14084
Attorney for Defendant, Eriksen Well Drilling
107 East Main Street
Millheim, PA 16854
(814) 349-5666

IN THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA
CIVIL ACTION

IRVONA MUNICIPAL AUTHORITY, Plaintiff	:	
vs.	:	No. 00 - 955 - CD
DAVID ERIKSEN, t/a ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION, Defendants	:	JURY TRIAL DEMANDED

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the within PRELIMINARY OBJECTIONS TO PLAINTIFF'S AMENDED COMPLAINT was served by depositing the same with the United States Postal Service, postage prepaid, addressed to the following:

Scott T. Wyland
100 North 10th Street
P. O. Box 1778
Harrisburg, PA 17105

Kelly B. Bakayza, Esq.
Robert J. Ray, Esq.
Burns, White & Hickton
120 Fifth Avenue, Suite 2400
Pittsburgh, PA 15222-3001

By:_____
James N. Bryant, Esq.
Attorney for David Eriksen, t/a
Eriksen Well Drilling

DATED: July 12, 2001

FILED
JUL 13 2001
01136 no cc
William A. Shaw
Prothonotary

IN THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA
CIVIL ACTION

IRVONA MUNICIPAL AUTHORITY, Plaintiff	:	
vs.	:	No. 00 - 955 - CD
DAVID ERIKSEN, t/a ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION, Defendants	:	JURY TRIAL DEMANDED

PRELIMINARY OBJECTIONS

Filed on behalf of

Defendant - James R. Casselberry & Associates, Inc.

Counsel of Record for this Party:

James N. Bryant, Esq.
Attorney-At-Law
PA I.D. 14084

BRYANT & ASSOCIATES, P.C.
107 East Main Street
Millheim, PA 16854

(814) 349-5666

FILED
JUN 13 2001
William A. Shaw
Prothonotary

IN THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA
CIVIL ACTION

IRVONA MUNICIPAL AUTHORITY, Plaintiff	:	
vs.	:	No. 00 - 955 - CD
DAVID ERIKSEN, t/a ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION, Defendants	:	JURY TRIAL DEMANDED

ORDER

AND NOW, this ____ day of _____, 2001, upon consideration of the foregoing Preliminary Objections, a rule is granted upon the Plaintiff to show cause why such relief should not be granted. Rule returnable thereon the _____ day of _____, 2001, for filing written response.

NOTICE

A Petition or Motion has been filed against you in Court. If you wish to defend against the claims set forth in the following Motion by entering a written appearance personally or by attorney and filing in writing with the Court your defenses or objections to the matter set forth against you. You are warned that if you fail to do so the case may proceed without you and an order may be entered against you by the Court without further notice for relief requested by the Petitioner or Movant. You may lose rights important to you.

YOU SHOULD TAKE THIS PAPER TO YOUR LAWYER AT ONCE. IF YOU DO NOT HAVE A LAWYER OR CANNOT AFFORD ONE, GO TO OR TELEPHONE THE OFFICE SET FORTH BELOW TO FIND OUT WHERE YOU CAN GET LEGAL HELP.

COURT ADMINISTRATOR
CLEARFIELD COUNTY COURTHOUSE
MARKET & SECOND STREETS
CLEARFIELD, PA 16830
814-765-2641, EXT. 50-51.

BY THE COURT:

_____

IN THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA
CIVIL ACTION

IRVONA MUNICIPAL AUTHORITY, Plaintiff	:	
vs.	:	No. 00 - 955 - CD
DAVID ERIKSEN, t/a ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION, Defendants	:	JURY TRIAL DEMANDED

PRELIMINARY OBJECTIONS

AND NOW, comes the Defendant, James R. Casselberry and James R. Casselberry & Associates, Inc., by and through its attorney, James N. Bryant, Esq., of Bryant & Associates, P.C., and files the following Preliminary Objections to the Plaintiff's Amended Complaint

1. In allegation VIII, paragraphs 79 through 85, and in Counts VIII and XI punitive damages are requested. Nothing in the conduct of James R. Casselberry or James R. Casselberry & Associates, Inc., indicates wanton and reckless disregard of the rights of others to justify punitive damages.

WHEREFORE, Defendants, James R. Casselberry and James R. Casselberry & Associates, Inc. request allegation VIII, paragraphs 79 through 85, and Counts VIII and XI be stricken, as well as any other request for punitive damages.

BRYANT & ASSOCIATES, P.C.

By:_____

James N. Bryant, Esq.
Attorney ID No. 14084
Attorney for Defendants, James R. Casselberry and James R. Casselberry & Associates, Inc.
107 East Main Street
Millheim, PA 16854
(814) 349-5666

IN THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA
CIVIL ACTION

IRVONA MUNICIPAL AUTHORITY, Plaintiff	:	
vs.	:	No. 00 - 955 - CD
DAVID ERIKSEN, t/a ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION, Defendants	:	JURY TRIAL DEMANDED

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the within PRELIMINARY OBJECTIONS was served by depositing the same with the United States Postal Service, postage prepaid, addressed to the following:

Scott T. Wyland, Esq.
100 North 10th Street
P. O. Box 1778
Harrisburg, PA 17105

Kelly B. Bakayza, Esq.
Robert J. Ray, Esq.
Burns, White & Hickton
120 Fifth Avenue, Suite 2400
Pittsburgh, PA 15222-3001

By: _____
James N. Bryant, Esq.
Attorney for James R. Casselberry &
James R. Casselberry & Associates, Inc.

DATED: July 12, 2001

GP

THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA

IRVONA MUNICIPAL AUTHORITY,

Plaintiff,

v.

ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP t/a NEILAN ENGINEERS DIVISION,

Defendants.

CIVIL DIVISION

NO. 00-955- CD

PRELIMINARY OBJECTIONS TO PLAINTIFF'S AMENDED COMPLAINT

Filed on behalf of Defendant EADS Group t/a Neilan Engineers Division

Counsel of Record for this Party:

Robert J. Ray, Esquire
Pa. I.D. #57806

BURNS, WHITE & HICKTON, LLC
120 Fifth Avenue
Suite 2400
Pittsburgh, PA 15222
(412) 394-2500

Firm I.D. #828

FILED

AUG 02 2001

William A. Shaw
Prothonotary

THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA

IRVONA MUNICIPAL AUTHORITY, Plaintiff, v. ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP t/a NEILAN ENGINEERS DIVISION, Defendants.	CIVIL DIVISION NO. 00-955- CD PRELIMINARY OBJECTIONS TO PLAINTIFF'S AMENDED COMPLAINT

PRELIMINARY OBJECTIONS
TO PLAINTIFF'S AMENDED COMPLAINT

AND NOW, comes Defendant, The EADS Group t/a Neilan Engineers Division (hereinafter "Neilan" or "Defendant"), by and through its attorney, Robert J. Ray, Esquire, and Burns, White & Hickton, LLC., and files the following Preliminary Objections to Plaintiff's Amended Complaint, and in support thereof, Defendant avers as follows:

I. INTRODUCTION

1. These Preliminary Objections are filed attacking the fraud and punitive damage claims asserted by Plaintiff, Irvona Municipal Authority (hereinafter "Plaintiff" or "Irvona"), alleging that Neilan had knowledge of a discrepancy in the thickness of a well installed by a contractor.

2. Plaintiff asserts Neilan knew that the contractor installed the casings with a thickness of .165 and .19 inches, rather than the required .28 inches!

3. On or about May 25, 2001, Plaintiff initiated this action by filing a Complaint in Civil Action.

4. Shortly thereafter, on or about June 20, 2001, Plaintiff filed an Amended Complaint which sets forth causes of action for breach of contract, negligence and fraud against Neilan in the performance of engineering services to design two wells in Clearfield County.

5. Neilan and Irvona entered into two contracts to design Well No. 1 and Well No. 2. A copy of the executed contracts between Neilan and Irvona are respectively attached to Plaintiff's Amended Complaint as Appendix "A" and "B," and incorporated herein by reference as if set forth at length.

II. DEMURRER TO COUNTS XIII AND XIV

6. A demurrer is appropriate when a complaint fails to set forth a cause of action upon which relief could be granted under any rule of law. *McCaskill v. Phila. Housing Auth.*, 419 Pa. Super. 313, 615 A.2d 382 (1992).

7. A demurrer to Counts XIII and XIV should be granted because Plaintiff has failed to set forth a *prima facie* case for fraud.

8. Plaintiff has failed to allege a representation, let alone a misrepresentation made by Neilan to Irvona to satisfy the first element of a *prima facie* claim for fraud.

9. Plaintiff relies on certifications made in connection with Irvona's application to DER to support its allegations of fraud. However, as no representation whatsoever was made to Irvona, Plaintiff did not and had no right to rely on said certifications.

10. Furthermore, Plaintiff's rights with regard to Neilan's actions, including certifications, is limited by Neilan's contractual responsibilities to Irvona.

11. For these reasons, Plaintiff's claims of fraud fail as a matter of law.

WHEREFORE, Defendant, The EADS Group t/a Neilan Engineers Division respectfully requests this Court to enter an Order dismissing Counts XIII and XIV.

III. MOTION TO STRIKE PUNITIVE DAMAGES

12. Plaintiff has alleged no basis upon which the Court could award punitive damages.

13. Plaintiff must demonstrate acts of malice, vindictiveness and a wholly wanton disregard for the rights of others for an entitlement of punitive damages.

14. Courts have consistently held that acts of negligence alone do not justify an award of punitive damages.

15. Indeed, punitive damages cannot be awarded in all fraud cases.

16. Because Plaintiff has failed to state a fraud cause of action, and also because Plaintiff has failed to plead a factual basis for punitive damages, the punitive damages claim must be stricken.

IV. MOTION TO STRIKE PARAGRAPH 82 PURSUANT TO PA.R.CIV.P. 1028(a)(2)

17. Paragraph 82 of Plaintiff's Amended Complaint constitutes the inclusion of scandalous or impertinent matter in violation of Pa.R.Civ.P. 1028(a)(2). Consequently, Paragraph 82 should be stricken.

WHEREFORE, Defendant, The EADS Group t/a Neilan Engineers Division respectfully requests this Court enter an Order granting its Motion to Strike Paragraph 82 of Plaintiff's Amended Complaint.

Respectfully submitted,

BURNS, WHITE & HICKTON, LLC

Robert J. Ray, Esquire
Attorneys for Defendant The EADS Group
t/a Neilan Engineers Division

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the within **Preliminary Objections to Plaintiff's Amended Complaint** was served upon all counsel by United States First Class Mail, postage prepaid, this 31st day of July, 2001, addressed as follows:

Scott T. Wyland, Esquire
100 N. Tenth Street
P. O. Box 1778
Harrisburg, PA 17105
Counsel for Plaintiff, Irvona Municipal Authority

James N. Bryant, Esquire
Bryant & Associates, P.A.
107 East Main Street
Millheim, PA 16854
Counsel for Eriksen Well Drilling and James R. Casselberry

BURNS, WHITE & HICKTON

By: Robert J. Ray
Robert J. Ray, Esquire

CA

IRVONA MUNICIPAL AUTHORITY, Plaintiff	:	IN THE COURT OF COMMON PLEAS CLEARFIELD COUNTY, PENNSYLVANIA
v.	:	
	:	CIVIL ACTION - LAW
DAVID ERIKSEN, t/a ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION,	:	NO. 00-955-CD
Defendants	:	JURY TRIAL DEMANDED

PROPOSED ORDER

AND NOW, this ____ day of _____, 2001, upon Motion of Plaintiff Irvona Municipal Authority, and this Court being otherwise advised of the circumstances, it is HEREBY ORDERED that Defendants James R. Casselberry & Associates and Eriksen Well Drilling shall answer fully Plaintiff Irvona Municipal Authority's first set of Interrogatories within ten (10) days hereof.

BY THE COURT:

_____
Hon. John K. Reilly, Jr., P. J.

Date: August 23, 2001

IRVONA MUNICIPAL AUTHORITY, Plaintiff	:	IN THE COURT OF COMMON PLEAS CLEARFIELD COUNTY, PENNSYLVANIA
v.	:	
	:	CIVIL ACTION - LAW
DAVID ERIKSEN, t/a ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION,	:	NO. 00-955-CD
Defendants	:	JURY TRIAL DEMANDED

MOTION FOR ORDER TO COMPEL ANSWERS TO INTERROGATORIES PROPOUNDED BY PLAINTIFF IRVONA MUNICIPAL AUTHORITY TO DEFENDANTS JAMES R. CASSELBERRY & ASSOCIATES AND ERIKSEN WELL DRILLING

Plaintiff Irvona Municipal Authority ("Irvona"), by its undersigned attorneys, moves this Honorable Court, pursuant to Rule 4019 of the Pennsylvania Rules of Civil Procedure, for an order compelling Defendants James R. Casselberry & Associates ("Casselberry") and Eriksen Well Drilling ("Eriksen") to answer Irvona's Interrogatories. In support thereof, Irvona represents as follows:

1. On July 17, 2001, counsel for Irvona served its first set of Interrogatories upon Defendants Casselberry and Eriksen.

2. Irvona indicated on each set of Interrogatories that, pursuant to the Pennsylvania Rules of Civil Procedure, answers to the Interrogatories were due within 30 days from the date of service thereof. Having been served on July 17, 2001, answers to the interrogatories were due on or before Thursday, August 16, 2001.

FILED
AUG 27 2001
William A. Shaw
Prothonotary

3. As of the date of this Motion, Irvona has received neither objections nor answers to its Interrogatories from either Casselberry or Eriksen. Further, neither of these Defendants has requested an extension of time for the submission of answers to the Interrogatories.

WHEREFORE, Plaintiff Irvona Municipal Authority respectfully requests that this Court enter an Order compelling Defendants James R. Casselberry & Associates and Eriksen Well Drilling to respond fully to Irvona's Interrogatories within ten (10) days of the date of said Order, under penalty of further sanctions pursuant to Pa. R. C. P. 4019.

Scott T. Wyland, I.D. No. 52660
Steven K. Haas, I.D. No. 73312
MALATESTA HAWKE & McKEON LLP
100 North Tenth Street
Post Office Box 1778
Harrisburg, PA 17105
(717) 236-1300

Attorneys for Plaintiff Irvona Municipal Authority

Date: August 23, 2001

CERTIFICATE OF SERVICE

I, Scott T. Wyland hereby certify that on August 23, 2001, I served true and correct copies of the foregoing Motion for Order to Compel Answers to Interrogatories and Proposed Order as indicated below:

Service by first class mail:

James N. Bryant, Esquire
Bryant & Associates, P.C.
107 East Main Street
Millheim, PA 16854

Robert J. Ray, Esquire
Burns, White & Hickton
120 Fifth Avenue, Suite 2400
Pittsburgh, PA 15222-3001

Scott T. Wyland

DATE: August 23, 2001

IN THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA
CIVIL ACTION

IRVONA MUNICIPAL AUTHORITY	:	
	:	
-vs-	:	No. 00 – 955 – CD
	:	
DAVID ERIKSEN, t/a ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION	:	

ORDER

NOW, this 28th day of August, 2001, upon Motion of Plaintiff Irvona Municipal Authority, and this Court being otherwise advised of the circumstances, it is the ORDER of this Court that Defendants James R. Casselberry & Associates and Eriksen Well Drilling shall answer fully Plaintiff Irvona MunicipalAuthority's first set of Interrogatories within ten (10) days hereof.

By the Court,

President Judge

FILED

AUG 28 2001

William A. Shaw
Prothonotary

FILED 2cc Atty Wyland
014:00 2cc Atty Bryant
AUG 28 2001 2cc Atty Ray
William A. Shaw
Prothonotary

IN THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA
CIVIL ACTION

IRVONA MUNICIPAL AUTHORITY, Plaintiff	:	
vs.	:	No. 00 - 955 - CD
DAVID ERIKSEN, t/a ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION, Defendants	:	JURY TRIAL DEMANDED

DEFENDANT, JAMES R. CASSELBERRY & ASSOCIATES ANSWERS TO PLAINTIFF IRVONA MUNICIPAL AUTHORITY'S FIRST SET OF INTERROGATORIES

FILED

SEP 05 2001

William A. Shaw
Prothonotary

IRVONA MUNICIPAL AUTHORITY, Plaintiff	:	IN THE COURT OF COMMON PLEAS CLEARFIELD COUNTY, PENNSYLVANIA
v.	:	
	:	CIVIL ACTION - LAW
ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION,	:	NO. 00-955-CD
Defendants	:	JURY TRIAL DEMANDED

PLAINTIFF IRVONA MUNICIPAL AUTHORITY'S FIRST SET OF INTERROGATORIES DIRECTED TO DEFENDANT JAMES R. CASSELBERRY & ASSOCIATES

Plaintiff Irvona Municipal Authority, by its undersigned attorneys, serves on defendant James R. Casselberry & Associates the following Interrogatories, to be answered in writing under oath, pursuant to the Pennsylvania Rules of Civil Procedure within thirty (30) days from the date of service hereof.

DEFINITIONS AND INSTRUCTIONS

Please note that the following definitions and instructions shall apply and shall be considered an integral part of these Interrogatories:

A. "Plaintiff" or "Irvona," shall mean Irvona Municipal Authority, or any person acting on behalf of Irvona Municipal Authority.

B. "Defendant," "Casselberry," "you" and/or "yours" shall mean defendant James R. Casselberry & Associates or any person acting on behalf of James R. Casselberry & Associates.

C. "Document" shall mean all written or graphic matter of every kind or description, however produced or reproduced, whether drafted or final, original or reproduction, signed or unsigned, and regardless of whether approved, signed, sent, received, redrafted, or executed, including but not limited to: written communications, letters, correspondence, memoranda, minutes, notes, computer files, photographs, slides, motion pictures, telegrams, telex messages, tape or sound recordings, recordings of any type, contracts, agreements, purchase or sale orders, memoranda of telephone conversations or personal conversations, diaries, desk calendars, interoffice communications, reports, studies, bills, receipts, logs, financial statements, checks, checkbooks, invoices, requisitions, personal expense accounts, or material similar to any of the foregoing; however denominated and by whomever prepared and to whomever addressed which are in your possession, custody or control or to which you have had, or can obtain access. "Document" shall not include exact duplicates when originals are available but shall include all copies made different from originals by virtue of any writing or notation thereon.

D. "Identify" shall mean, when used in reference to:

1. A natural person -- to state the person's:

   (a) full name;

   (b) present or last known business and residential addresses;

   (c) present or last known position, business affiliation and job description; and

   (d) position, business affiliation, and job description at the time in question with respect to the interrogatory or other request involved.

2. A document -- to state the following with respect to the document:

   (a) its description (e.g., letter, memorandum, report, etc.);

   (b) its title, date and number of pages;

(c) its subject matter;

(d) the name, address, and position of the author(s) or signer(s) thereof;

(e) the name, address and position of the addressee(s);

(f) the name, address and position of each person who received a copy of the documents; and

(g) its present location and the name, address, and position of the person having present possession, custody and/or control thereof.

3. An oral communication -- to state the following with respect to the communication:

(a) the date and place where it occurred;

(b) its substance;

(c) the name, address and position of the person who made the communication;

(d) the name, address and position of each person to whom such communication was made; and

(e) the name, address and position of each person who was present when such communication was made.

4. A company, corporation, association, partnership or other legal business entity not a natural person -- to state its:

(a) full name;

(b) address of principal place of business; and

(c) description of type of entity.

5. An act, occurrence, or specific conduct (hereinafter referred to collectively as "act"):

(a) describe the substance of the event or events constituting such act;

(b) state the date when such act occurred;

(c) identify each person who participated in such act;

(d) identify all other persons who were present when such act occurred; and

(e) state whether any document was made recording such act and if so, identify each such document.

E. "Communication" shall mean any transmission or thoughts, opinions or information by speech, writing or signs.

F. "Person" shall include natural persons, partnerships, associations, corporations, leagues, governments, (including all instrumentalities, officers, agents and subdivisions thereof) and all other business, legal and artificial entities.

G. In answering these Interrogatories, you are required to furnish all information that is available to you, including that which has been obtained by and that which is now in the possession of your attorneys, employees, agents and other representatives, and not merely the information known by the individual or individuals preparing the response.

H. If you are unable to answer any of the within Interrogatories fully and completely, after exercising due diligence to secure the information necessary to make such full and complete answers, so state, and in addition, answer the remainder, and state whatever information or knowledge you may have concerning the unanswered portions thereof.

I. Answer each Interrogatory on a separate sheet of paper, attaching additional pages as required for complete answers, identifying the Interrogatory being answered, and attach an affidavit hereto, filing the original hereof with the undersigned counsel.

J. These Interrogatories shall be deemed to be continuing, as defined by Rule 4007.4, so as to require supplemental answers under oath if you obtain additional or further information pertaining to any Interrogatory subsequent to the time an answer to that Interrogatory is served.

K. If you file an objection to any of the Interrogatories propounded herein, you are nevertheless required to answer within the aforesaid thirty (30) day period the Interrogatories not objected to.

L. Whenever any Interrogatory calls for the identity of a document or communication as to which you claim privilege, include in the identification of such document or communication the fact of such claim of privilege and the basis asserted to such claim.

M. In lieu of identifying documents, you may supply the documents, or true and correct copies thereof, with you answers to these Interrogatories. The documents should be segregated or otherwise identified to reflect the number of the Interrogatory or Interrogatories to which the document is responsive.

N. With respect to each Interrogatory, in addition to supplying the information asked for and identifying the specific documents referred to, identify all documents that were referred to in preparing your answer thereof.

O. Unless the context otherwise requires, words in the singular include the plural and words in the plural include the singular; words of the neuter include the feminine and masculine.

INTERROGATORIES

1. Identify each person answering and assisting in answering these Interrogatories on behalf of defendant Casselberry.

Response:

James R. Casselberry
James N. Bryant, Esq.

2. Identify, using its full and correct name, the entity herein referred to as "James R. Casselberry & Associates," and state

a. if a corporation, the state in which incorporated, the date on which incorporated, the principal place of business, the names and addresses of all officers, and the date on which the corporation was licensed to do business in the Commonwealth of Pennsylvania; or

b. if a partnership, the name and address of each partner, whether the partnership is general or limited, and the official business address of the partnership; or

c. if a sole proprietorship, the name and address of each owner.

Response:

Casselberry & Associates is a sole proprietorship. The owner is James R. Casselberry and his address is 718 West Nittany Avenue, State College, PA 16801.

3. Identify each insurance agreement under which any person or entity carrying on an insurance business may be liable to satisfy all or part of a judgment, which may be entered in this lawsuit, or to indemnify or reimburse for payments made to satisfy such a judgment. For each agreement, please state:

a. the name and address of each insurer;

b. the name, address, and telephone number of each named insured;

c. the policy number(s);

d. the type(s) of coverage;

e. the deductible amount on each type of coverage;

f. the limit of coverage on each type of coverage;

g. the claims in this case for which such insurance is or may be available; and

identify all documents pertaining to each policy.

Response:

Casselberry carries no insurance that would indemnify or reimburse payments related to this lawsuit.

4. Describe the circumstances by which you became involved with Irvona and the construction of the wells at issue, including but not limited to:

a. the name of the person or entity that you initially contracted with;

b. what your contractual responsibilities involve(d) with respect to

i. the construction of the wells at issue, and

ii. defendants Eriksen and Neilan; and

c. the dates on which your employment or other contractual obligation commenced and ended.

Response:

a. Scott Rugh of Neilan contacted me.

b. (1) He asked for price on locating, testing and reporting of test well of ground water conditions in the vicinity of Irvona's surface water source.

(2) Creating specifications to guide ground water exploration project for Neilan.

(3) As to Eriksen, I was to tell him where to drill, how deep, where to set casings and how big a pump to use for tests.

c. Casselberry & Associates had no executed contract with any party involved in this lawsuit.

5. Identify any person who has ever sued or threatened to sue you other than the plaintiff and state

a. the nature of the suit or threatened suit,

b. the name of the attorney who represented you, and

c. the final disposition.

Response:

a. Only suit or threatened suit was brought by Richard Manges of Central City, PA. Manges believed Casselberry guaranteed that a well drilled on his property would contain a large volume of good quality water.

c. Finding for Defendant Casselberry by Somerset County District Justice.

6. Identify all current and former Casselberry employees and/or agents who worked on or were involved with the Irvona well projects, and describe the role or responsibilities of each person identified relative to the Irvona well projects.

Response:

All Test Wll #1 work was performed by James Casselberry

Test Well #2 work was performed by James Casselberry and employees Tim White and Roger Pollok.

James Casselberry prepared specifications for the construction of Test Well #2, located Test Well #2, analyzed the drilling and testing data, prepared a report describing the drilling and aquifer testing data, and analyzed water quality and down-the-borehole video data collected at Test Well #2 after it was placed on line.

Tim White logged Test Well #2 and supervised the aquifer testing process.

Roger Pollok conducted the down-the-borehole video survey.

7. Identify each person, including experts with whom you have consulted, having knowledge of any relevant facts relating to this lawsuit.

Response:

Irvona Municipal Authority representatives whose names I do not know.

Scott Wyland, Esq.
Jim Balliet
Gerry Carpenter
David Eriksen
Scott Rugh
Tom Reilly
James N. Bryant, Esq.

8. Identify each Casselberry employee and/or agent who has given a statement to anyone other than your attorney with respect to the facts at issue in this lawsuit. For each statement, identify the document or oral communication through which the statement was made.

Response:

None.

9. Identify any oral communications you have had with another party to this lawsuit following the incident in question.

Response:

I have had numerous conversations with David Eriksen and Neilan.

10. Identify each document in which you have communicated with another party to this lawsuit following the incident in question.

Response:

Documents to Irvona and Neilan are attached.

October 7, 2000

Irvona Municipal Authority
P.O. Box 247
Berwind Street
Irvona, PA 16656

Re: Well No. 2 Investigation and Pending Lawsuit

Dear Authority Members:

During a recent meeting at the offices of Gwin, Dobson and Foreman, Bill McCusker and I discussed the current problems at Well No. 2 and potential courses of action to investigate expedient solutions. I am willing to help the Authority solve the problems at Well No. 2. However, I do not feel comfortable working for a client that is in the process of suing my company.

I offer the following potential remedies:

1) I can work for the Authority only if I am dropped as a defendant from Civil Action No: 00-955-CD.

2) Based upon the information Bill McCusker provided me at the GDF meeting, I believe it is possible that a leaking well casing could be the source of Well No. 2's water quality problems. The best method of investigating this thesis is to place an appropriately-sized inflatable packer in the well below the base of the casing. I do not believe that the Terra Tigre packer the Authority purchased from Moody & Associates is appropriate for this application. The Terra Tigre packer is relatively inexpensive but has a maximum inflation diameter of only 6.5 inches

and a gland length of only 2 feet. I believe that the Terra Tigre packer is potentially too small to create an effective seal. The Baski packers we utilize for testing 6-inch nominal diameter wells have a much greater gland length (5 feet) and maximum inflation diameter (8.5 inches) than the Terra Tigre packer. I am willing to allow the Authority to utilize one of our Baski packers free of charge at Well No. 2 to determine if there is a breech that is allowing poor quality water to enter this supply.

3) If the Authority chooses to drop my firm from the lawsuit, I would perform the following work free of charge:

•Determine if PA DEP approvals are necessary for the packer installation, and if so, obtain those approvals.

•Find a competent pump service contractor to install the packer, obtain a cost quotation for the packer installation, and provide the packer and installation instructions to the contractor. Based upon previous experience, I recommend utilizing Somerset Well Drilling for the packer installation work. They have installed Baski packers for us in the past at reasonable costs ($600 to $1000).

•Use of the Baski packer would be provided to the Authority free of charge for a period of time sufficient to determine if the well casing is leaking. After this determination is made, the packer would be returned to my company.

I believe we could have the packer installation completed within two to three weeks of receiving authorization from the Authority.

If you have any questions regarding this proposal, please give me a call.

Regards,

James R. Casselberry, P.G.

cc: Jim Balliet, GDF

JRC/jc

Casselberry & Associates Memo

From: Jim Casselberry

To: Tom Rielly, P.E., Neilan Engineers

Number of Pages: 3

Date: December 22, 2000

Re: Irvona Municipal Authority Debacle

Tom:

I have written this memo to present my thoughts regarding a potential settlement with Irvona. I do not want to give Irvona any money. However, I am willing to provide the hydrogeologic consulting services associated with the development of a new well supply(s).

The failure of Test Well #1 is well documented, and the use of a casing having a wall thickness of less than the 0.286-inch standard, leaves someone holding the bag. If Dave Eriksen can not document the use of 0.286-inch casing material in Test Well #2, this well also is sub-standard and should be replaced.

I have discussed the situation with Dave Eriksen and believe he

is agreeable to replacing the wells per the original specification. We also discussed the potential for improving the well design by installing double casing through the poor-quality water-bearing horizons in the coal measures. I am not clear as to whether Dave is willing to bear the extra cost of deep double casing.

I believe the following scenario is the most cost effective for replacing the wells:

1) Drill a test well along the pipeline corridor within 500 to 1000 feet of Test Well #2. If this well is productive, reconstruct the test well to create a 6-inch diameter production well. Obtain a PA DEP permit for well operation and interconnect the new well to power and pipelines.

2) After the new well is operational, abandon Test Well #2 and then construct a second well within 10 to 20 feet of Test Well #2.

I am willing to offer the following to Irvona as part of the above-described replacement well scenario:

•Free geologic consulting services for the location, site approval, drilling supervision, pumping test supervision, data analysis, and hydrogeologic report preparation for permitting the new

wells with the PA DEP and SRBC. Though the consulting work is free of charge, all laboratory analysis will be paid by either Irvona or others (the New Source Sampling at the conclusion of test pumping is approximately $1500 per well).

Please let me know where Neilan stands in the potential settlement process.

Regards,

James R. Casselberry, P.G.

Cc: Dave Eriksen
Jim Bryant

JRC/jc

Casselberry & Associates Memo

From: Jim Casselberry

To: Scott Rugh, P.E.

Number of Pages: 6

Date: March 22, 2001

Re: Irvona Municipal Authority Production Well Development, Clearfield County, PA

Scott:

I have written this memo to provide my recommendations regarding the development of two production wells to serve the Irvona Municipal Authority (IMA). These wells are being offered as replacements for Test Wells (TW1) #1 and #2. Investigation of TW1 and TW2 has determined that both contain thin-wall casing that does not meet the PA DEP specifications for production wells. TW1 developed multiple casing breeches that allowed poor-quality water from the coal measures to mix with the high-quality waters contained in the underlying Mauch Chunk Formation (Fm). Investigation of TW2 by both our office in 1999 and by Somerset Well Drilling in 2001 indicated that the casing in this well is functioning properly (there are no breeches in the casing and the base of the casing is sealed).

In my previous correspondence dated December 22, 2000, I offered my hydrogeologic consulting services for well site location, geologic logging and hydrogeologic reporting for developing two new production wells to replace TW1 and TW2. Based upon recently-completed well development projects, these services reflect a cost approaching $18,000. My offer to perform this work still stands. Based upon our meeting on March 15, 2001, your firm appears willing to pay the engineering fees associated with the production well development and Dave Eriksen has stated that he will provide well construction services.

To produce the largest possible yield of good quality water, I believe that the two new production wells should be located in close proximity to TW2. This is based upon the following hydrogeologic factors:

1) Testing of TW1 has demonstrated that the Mauch Chunk Fm aquifer contains limited yield potential and highly-mineralized water in the headwaters of Hockenberry Run near the IMA reservoir. These conditions reflect limited groundwater circulation resulting from the deep burial of the aquifer in this locale.

2) The conditions for developing wells tapping the Mauch Chunk Fm improve in the lower reaches of Hockenberry Run where the top of the aquifer lies closer to ground level.

Testing of TW2 in 1992 implied it has a sustained yield potential in excess of the 125-gpm maximum testing rate afforded by the 6-inch diameter test well size. Production records compiled by IMA from 1995 to the current time span several intense droughts and indicate that the pumping levels in this well have remained far above the top of the Mauch Chunk Fm aquifer. This supports the thesis that the Mauch Chunk Fm contains sufficient capacity to produce IMA's needs in the lower reaches of the Hockenberry Run valley.

3) The water quality information collected at TW2 indicates that it produces good quality, relatively-dilute water. The only apparent water quality problems at TW2 are elevated iron and manganese. The iron and manganese content of the well appears to have stabilized in the last several years of production at levels of some 0.8 and 0.1 mg/l, respectively. These concentrations are much larger than those documented at the conclusion of the 48-hour pumping test in 1992 (0.22 mg/l iron and 0.05 mg/l manganese).

4) Since the casing is not leaking, the increased metals content at TW2 is not a function of faulty well construction. Therefore, it is likely that the current, stabilized, iron and manganese levels simply reflect long-term, steady-state conditions caused by continuous

production. However, the documented presence of iron bacteria in TW2 suggests a potential for reduction in metals content via a properly-conducted well cleaning program.

5) Based upon my experience in developing the Mauch Chunk Fm in Clearfield County, I believe it is extremely unlikely that groundwater having significantly better water quality than TW2 could be obtained within the IMA distribution system. Therefore, since the testing and production records have proven that the Mauch Chunk Fm aquifer is productive at TW2, I believe we should concentrate our production well development activities in this locale.

I believe that the following scenario should be followed in developing the replacement wells:

•IMA reportedly owns a 2-acre parcel surrounding TW2. A test well site should be located as far away from TW2 as possible on this 2-acre property. The site should be approved for exploration by the PA DEP via the Sanitary Survey process.

•After the site is approved by the PA DEP, we should construct a 6-inch exploratory test well to make sure that adequate yield is available. Geologic logging of the test well will also allow us to define a proper production well design. Assuming that the

geologic conditions are favorable, I believe the new production well should be 8-inch final diameter. This would allow installation of a 6-inch diameter submersible pumping system that could produce IMA's entire water demand on a relatively short pumping cycle. The 8-inch diameter well size would also allow the installation of a 6-inch PVC liner and packer if a casing breech occurred in the future.

•Following the construction of the new production well, it would be subject to a comprehensive aquifer testing program. If the aquifer tests show that a large yield of good quality water has been encountered, a PA DEP permit should be obtained and the necessary improvements should be made to plumb the new well into the IMA system.

•After the new well is put on line, TW2 should be shut-down and a new well should be constructed within 10 feet of TW2. After the second new well is developed, TW2 should be abandoned per PA DEP specifications.

Assuming that both new wells encounter similar geologic conditions as TW2, surface casing, inside casing and total drilling depths approaching 60, 280 and 440 feet are appropriate. Dave Eriksen should use these figures to estimate his well construction costs.

If you have any questions regarding the information contained in this memo, or require further assistance with this project, please give me a call.

Regards,

James R. Casselberry, P.G.

Cc: Dave Eriksen

JRC/jc

Casselberry & Associates Memo

From: Jim Casselberry

To: Jim Bryant

Number of Pages: 2 including attached waiver

Date: June 25, 2001

Re: Irvona Municipal Authority v. Eriksen Drilling, et al

Jim:

Attached is the waiver you sent me regarding the above-referenced litigation. I also put a copy in today's mail. Please let me know how to proceed. Also, note my address change. I have not been at the Boalsburg location since July of 1999.

Thanks,

Jim Casselberry

JRC/jc

Casselberry and Associates; 718 W. Nittany Avenue, State College, PA 16801
Phone 814-235-2362; Fax 814-235-2363

11. Identify each person you expect to call as a fact witness in this proceeding. For each person identified, provide his/her complete name, address, occupation and a summary of their anticipated testimony. Also, provide copies of any exhibits that the witness will sponsor.

Response:

Myself - James Casselberry

Jim Balliet GDF Engineers, current Irvona engineering representative, who has stated that his review of water quality data collected at Test Will #2 indicates that there has been no change in water quality and that the casing is not leaking.

Gerry Carpenter, Somerset Well Drilling, whose firm conducted a down-the-borehole video survey at Test Well #2 that demonstrates that the well casing is not leaking.

Bill McCusker, who at a September 2000 meeting betwen Irvona and myself at GDF's offices, stated that I was included in this lawsuit only to incriminate Neilan Engineers.

12. Identify each person you expect to call as an expert witness in this case. Additionally, state

a. each person's qualifications;

b. the subject matter on which s/he is expected to testify;

c. the substance of the facts and opinions to which s/he is expected to testify; and

d. a summary of the grounds for each opinion expected to be expressed.

Response:

Jim Balliet - a. P.E.
b. That there is no physical problem with Well #2; that there is no water quality impact
c. See b.
d. He is the engineer for the Plaintiff, personal knowledge

Gerry Carpenter - a. Driller
b. Well #2
c. He ran video of it. It is still intact.
d. Personal observation.

13. Identify all factual information supplied to each person identified in Interrogatory No. 11 that was used as the basis for an opinion, including the identity of any documents examined.

Response:

Personal observation.

14. Describe Casselberry's understanding or contention with respect to the facts underlying this lawsuit and of how and why Irvona sustained its injuries?

Response:

Irvona believes its' injuries are related to poor water quality cased by substandard construction of Test Well #1 and Test Well #2. Irvona contends that leaks in the casings at both wells have allowed poor quality water to enter the Mauch Chunk Fm aquifer.

15. Please define and explain the difference between a test well and a production well.

Response:

A test well is a boring drilled to assess subsurface conditions.

A production well is a well constructed after the subsurfact conditions are known, which is designed to extract a proven resourse. It usually has a thicker casing and larger diameter.

16. Explain how a test well would normally be converted into a production well.

Response:

After a sufficient amount of information is collected at a test well to prove the long-term sustained yield and water quality of the aquifer at this location, a production well is constructed. The conversion of the test well to a production well usually entails enlarging the test well and installing materials designed to maximize both aquifer yield and water quality.

17. Explain whether the Irvona wells were test wells, production wells, or both. If the wells were converted from test wells into production wells, explain the procedure followed to effectuate the conversion.

Response:

Test Well #1 and Test Well #2 were drilled as 6-inch diameter test wells. To obtain permits to use Test Well #1 and Test Well #2 as water supply sources with the Pennsyvlania DEP, the 6-inch test well casing was pressure grouted and these wells were placed in production. Due to the lack of history regarding long-term production records for the Mauch Chunk aquifer in the Irvona setting, Casselberry and Associates recommended that Irvona place these wells on-line and collect data for at least a year-long period to accurately define yield and water quality characteristics, prior to converting them to permanent production wells.

18. Do you contend that Irvona has exaggerated any claim(s) in connection with the injuries it alleges to have sustained in this incident? If so, please explain.

Response:

Yes.

If Eriksen Drilling installed casings having wall ticknesses less than those specified in Neilan's contract documents, I believe that Irvona should receive two new wells meeting Neilan's specifications.

Damages associated with the production of poor quality water from these wells are greatly exaggerated. Irvona made no improvements to treat the poor quality water associated with casing breach at Test Well #1 and the casing has not developed a leak at Test Well #2. No water treatment has been instituted to treat "poor quality" water.

The entire problem could be solved with a new hole. Had the system not been pressure grouted. the site could have been reused. Now a new site must be developed.

19. Have you conducted any post-incident investigations into any of Irvona's claims? If so, identify:

a. each person participating in each investigation;

b. when each investigation took place;

c. the substance of each investigation;

d. the results of each investigation; and

e. all documents referring to and/or summarizing each investigation and/or the results thereof.

Response:

Casselberry has conducted no post-incident investigations.

20. If you plan to allege that someone else's conduct or some other condition or event was the sole proximate cause of the incident in question, identify each such person, event or condition, and explain how the individuals or events identified caused the incidents at issue in this proceeding.

Response:

Test Well #1 and Test Well #2 were developed as exploratory wells. These wells penetrate the deeply-buried Mauch Chunk Formation aquifer, which is overlain by a large thickness of coal-bearing strata that contain poor-quality iron-irch waters. Due to a total lack of production history from the Mauch Chunk Formation aquifer in the Irvona setting, I recommended that Test Well #1 and Test Well #2 be placed on-line and a program of long-term data collection and analysis be instituted to confirm the yield and water quality characteristics of the wells prior to committing to the velopment of a permanent well field. Thorough definition of aquifer yield and water quality characteristics is imperative in the proper construction of permanent production well facilities. Irvona Borough did not follow Casselberry's recommendations for data collection and analysis and has overlooked the fact that these wells were exploratory in nature and were not intended to be utilized as permanent production well facilities.

Test Well #1 was drilled in 1990 and was reportedly placed on-line in 1995. The iron and manganese contents increased dramatically at this well after several years of production. Investigation of Test Well #1 in 1998 indicated that the source of the poor-quality water were breaches within the 6-inch diameter casing that allowed iron-laden waters from the coal measures to enter the well. These breaches in the well casing were caused by attack of the well casing and cement grout envelope by the aggressive water from the coal measures.

Test Well #2 was drilled in 1992 was reportedly placed on-line in 1995. The iron and manganese contents have not shown a pattern of systematic increase with extended use of the well. Down-the-borehold video surveys conducted at this well by both myself and Somerset Well Drilling indicate that the casing at Test Well #2 is not leaking. Therefore, both the water quality data and video inspections indicate that there is no damage to this well and the existing water quality most likely reflects the conditions that can be anticipated with long-term production of the aquifer at Irvona's present rate of use.

A sufficient amount of information has now been collected to allow the design of permanent production well facilities. The important information to be considered in the proper development of the production wells include:

1. Knowledge that the water contained in the coal measures is sufficiently corrosive to compromise both cement grout and steel materials. This leads to the need to construct production wells with non-corrosive casing materials (PVC or stainless steel) or employ multiple strings of conventional steel casing extending through all of the high-yield water-bearing horizons in the coal measures.

RESPONSE: **TO INTERROGATORY #20 CONTINUED**

2. Knowledge that iron and managanese contents in the Mauch Chunk Formation aquifer approach the limit at which simple treatment with a sequestering agent is feasible. Therefore, the most conservative approach to utilizing this aquifer for a long-term water supply source in the Irvona setting is to plan on the construction of a green-sand filtration facility.

3, Knowledge that the well abandonment activities performed by Irvona at Test Well #1 most likely have reduced the water-bearing ability of the Mauch Chunk Formation aquifer due to pressure grouting of the fractures that formerly feed the well. Therefore, the aquifer is most likely no longer a viable source of water supply in the Test Well #1 locale.

4. Knowledge that the aquifer in the Test Well #2 setting has sufficient yield to supply Irvona's water supply needs.

21. Identify any photographs taken of the sites and/or the wells at issue in this lawsuit.

Response:

No photos taken.

22. Identify any plans, drawings, blueprints, sketches or diagrams that were made of the sites and/or the wells at issue in this lawsuit.

Response:

All plans, etc., are contained in two reports to the Plaintiff:

a. June 19, 1990 - Irvona Groundwater Exploration Report - Test Well #1

b. November 2, 2991 - Yield and Water Quality Charactertics of Test Well #2.

23. How thick is the casing installed in Irvona's wells?

Response:

I don't have any personal knowledge.

24. Who selected the casing installed in Irvona's wells?

Response:

Eriksen Well Drilling

25. Who installed the casing installed in Irvona's wells?

Response:

Eriksen Well Drilling

26. Who supervised the installation of the casing in Irvona's wells?

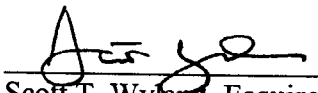
Response:

Eriksen Well Drilling

27. Who has knowledge of the type of casing that was installed in Irvona's wells?

Response:

Eriksen Well Drilling and Plaintiff



Scott T. Wyland, Esquire
Attorney I.D. No. 52660
Steven K. Haas, Esquire
Attorney I.D. No. 73312
Malatesta Hawke & McKeon LLP
Harrisburg Energy Center
100 North 10th Street
P.O. Box 1778
Harrisburg, PA 17105
(717) 236-1300

Counsel for Plaintiff Irvona Municipal Authority

DATE: July 17, 2001

CERTIFICATE OF SERVICE

I hereby certify that I have this day served a copy of the foregoing document upon the person named and in the manner indicated below.

Via First Class Mail

James N. Bryant, Esquire
Bryant & Associates, P.C.
107 East Main Street
Millheim, PA 16854

Robert J. Ray, Esquire
Kelly B. Bakayza, Esquire
Burnes, White & Hickton, LLC
120 Fifth Avenue, Suite 2400
Pittsburgh, PA 15222

Scott T. Wyland, Esquire

DATED: July 17, 2001

IN THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA
CIVIL ACTION

IRVONA MUNICIPAL AUTHORITY, Plaintiff	:	
vs.	:	No. 00 - 955 - CD
DAVID ERIKSEN, t/a ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION, Defendants	:	JURY TRIAL DEMANDED

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the within **DEFENDANT, JAMES R. CASSELBERRY & ASSOCIATES ANSWERS TO PLAINTIFF IRVONA MUNICIPAL AUTHORITY'S FIRST SET OF INTERROGATORIES** was served by depositing the same with the United States Postal Service, postage prepaid, addressed to the following:

Scott T. Wyland, Esq.
100 North 10th Street
P. O. Box 1778
Harrisburg, PA 17105

Robert J. Ray, Esq.
Kelly B. Bakayza, Esq.
Burnes, White & Hickton, LLC
120 Fifth Avenue, Suite 2400
Pittsburgh, PA 15222

By: _____
James N. Bryant, Esq.
Attorney for James R. Casselberry &
James R. Casselberry & Associates, Inc.

DATED: September 4, 2001

IN THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA
CIVIL ACTION

IRVONA MUNICIPAL AUTHORITY, Plaintiff	:	
vs.	:	No. 00 - 955 - CD
DAVID ERIKSEN, t/a ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION, Defendants	:	JURY TRIAL DEMANDED

DEFENDANT ERIKSEN WELL DRILLING'S ANSWERS TO PLAINTIFF'S FIRST SET OF INTERROGATORIES

FILED
SEP 06 2001
William A. Shaw
Prothonotary

IRVONA MUNICIPAL AUTHORITY, Plaintiff	:	IN THE COURT OF COMMON PLEAS CLEARFIELD COUNTY, PENNSYLVANIA
v.	:	
	:	CIVIL ACTION - LAW
ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION,	:	NO. 00-955-CD
Defendants	:	JURY TRIAL DEMANDED

PLAINTIFF IRVONA MUNICIPAL AUTHORITY'S FIRST SET OF INTERROGATORIES DIRECTED TO DEFENDANT ERIKSEN WELL DRILLING

Plaintiff Irvona Municipal Authority, by its undersigned attorneys, serves on defendant Eriksen Well Drilling, the following Interrogatories, to be answered in writing under oath, pursuant to the Pennsylvania Rules of Civil Procedure within thirty (30) days from the date of service hereof.

DEFINITIONS AND INSTRUCTIONS

Please note that the following definitions and instructions shall apply and shall be considered an integral part of these Interrogatories:

A. "Plaintiff" or "Irvona," shall mean Irvona Municipal Authority, or any person acting on behalf of Irvona Municipal Authority.

B. "Defendant," "Eriksen," "you" and/or "yours" shall mean defendant Eriksen Well Drilling or any person acting on behalf of Eriksen Well Drilling.

C. "Document" shall mean all written or graphic matter of every kind or description, however produced or reproduced, whether drafted or final, original or reproduction, signed or

unsigned, and regardless of whether approved, signed, sent, received, redrafted, or executed, including but not limited to: written communications, letters, correspondence, memoranda, minutes, notes, computer files, photographs, slides, motion pictures, telegrams, telex messages, tape or sound recordings, recordings of any type, contracts, agreements, purchase or sale orders, memoranda of telephone conversations or personal conversations, diaries, desk calendars, interoffice communications, reports, studies, bills, receipts, logs, financial statements, checks, checkbooks, invoices, requisitions, personal expense accounts, or material similar to any of the foregoing; however denominated and by whomever prepared and to whomever addressed which are in your possession, custody or control or to which you have had, or can obtain access. "Document" shall not include exact duplicates when originals are available but shall include all copies made different from originals by virtue of any writing or notation thereon.

D. "Identify" shall mean, when used in reference to:

1. A natural person -- to state the person's:

   (a) full name;

   (b) present or last known business and residential addresses;

   (c) present or last known position, business affiliation and job description; and

   (d) position, business affiliation, and job description at the time in question with respect to the interrogatory or other request involved.

2. A document -- to state the following with respect to the document:

   (a) its description (e.g., letter, memorandum, report, etc.);

   (b) its title, date and number of pages;

   (c) its subject matter;

   (d) the name, address, and position of the author(s) or signer(s) thereof;

(e) the name, address and position of the addressee(s);

(f) the name, address and position of each person who received a copy of the documents; and

(g) its present location and the name, address, and position of the person having present possession, custody and/or control thereof.

3. An oral communication -- to state the following with respect to the communication:

(a) the date and place where it occurred;

(b) its substance;

(c) the name, address and position of the person who made the communication;

(d) the name, address and position of each person to whom such communication was made; and

(e) the name, address and position of each person who was present when such communication was made.

4. A company, corporation, association, partnership or other legal business entity not a natural person -- to state its:

(a) full name;

(b) address of principal place of business; and

(c) description of type of entity.

5. An act, occurrence, or specific conduct (hereinafter referred to collectively as "act"):

(a) describe the substance of the event or events constituting such act;

(b) state the date when such act occurred;

(c) identify each person who participated in such act;

(d) identify all other persons who were present when such act occurred; and

(e) state whether any document was made recording such act and if so, identify each such document.

E. "Communication" shall mean any transmission or thoughts, opinions or information by speech, writing or signs.

F. "Person" shall include natural persons, partnerships, associations, corporations, leagues, governments, (including all instrumentalities, officers, agents and subdivisions thereof) and all other business, legal and artificial entities.

G. In answering these Interrogatories, you are required to furnish all information that is available to you, including that which has been obtained by and that which is now in the possession of your attorneys, employees, agents and other representatives, and not merely the information known by the individual or individuals preparing the response.

H. If you are unable to answer any of the within Interrogatories fully and completely, after exercising due diligence to secure the information necessary to make such full and complete answers, so state, and in addition, answer the remainder, and state whatever information or knowledge you may have concerning the unanswered portions thereof.

I. Answer each Interrogatory on a separate sheet of paper, attaching additional pages as required for complete answers, identifying the Interrogatory being answered, and attach an affidavit hereto, filing the original hereof with the undersigned counsel.

J. These Interrogatories shall be deemed to be continuing, as defined by Rule 4007.4, so as to require supplemental answers under oath if you obtain additional or further information pertaining to any Interrogatory subsequent to the time an answer to that Interrogatory is served.

K. If you file an objection to any of the Interrogatories propounded herein, you are nevertheless required to answer within the aforesaid thirty (30) day period the Interrogatories not objected to.

L. Whenever any Interrogatory calls for the identity of a document or communication as to which you claim privilege, include in the identification of such document or communication the fact of such claim of privilege and the basis asserted to such claim.

M. In lieu of identifying documents, you may supply the documents, or true and correct copies thereof, with you answers to these Interrogatories. The documents should be segregated or otherwise identified to reflect the number of the Interrogatory or Interrogatories to which the document is responsive.

N. With respect to each Interrogatory, in addition to supplying the information asked for and identifying the specific documents referred to, identify all documents that were referred to in preparing your answer thereof.

O. Unless the context otherwise requires, words in the singular include the plural and words in the plural include the singular; words of the neuter include the feminine and masculine.

INTERROGATORIES

1. Identify each person answering and assisting in answering these Interrogatories on behalf of defendant Eriksen.

Response:

David Eriksen
James N. Bryant, Esq.

2. Identify, using its full and correct name, the entity herein referred to as "Eriksen Well Drilling," and state

a. if a corporation, the state in which incorporated, the date on which incorporated, the principal place of business, the names and addresses of all officers, and the date on which the corporation was licensed to do business in the Commonwealth of Pennsylvania; or

b. if a partnership, the name and address of each partner, whether the partnership is general or limited, and the official business address of the partnership; or

c. if a sole proprietorship, the name and address of each owner.

Response:

C. David Eriksen
R. D. #1, Box 71
Hesston, PA 16647

3. Identify each insurance agreement under which any person or entity carrying on an insurance business may be liable to satisfy all or part of a judgment, which may be entered in this lawsuit, or to indemnify or reimburse for payments made to satisfy such a judgment. For each agreement, please state:

a. the name and address of each insurer;

b. the name, address, and telephone number of each named insured;

c. the policy number(s);

d. the type(s) of coverage;

e. the deductible amount on each type of coverage;

f. the limit of coverage on each type of coverage;

g. the claims in this case for which such insurance is or may be available; and identify all documents pertaining to each policy.

Response:

I have no insurance which will cover me for this claim.

4. Describe the circumstances by which you became involved with Irvona and the construction of the wells at issue, including but not limited to:

a. the name of the person or entity that you initially contracted with;

b. what your contractual responsibilities involve(d) with respect to

i. the construction of the wells at issue, and

ii. the supervision of defendants Neilan and Casselberry; and

c. the dates on which your employment or other contractual obligation commenced and ended.

Response:

a. Neilan Engineering

b. i. Drill well, pump test and install pump
ii. Casselberry logged well. I was supposed to be supervised by the engineering firm, but they were only on the job twice.

c. Spring 1990. However a second well was drilled in July of 1992.

5. Identify any person who has ever sued or threatened to sue you other than the plaintiff and state

a. the nature of the suit or threatened suit,

b. the name of the attorney who represented you, and

c. the final disposition.

Response:

No.

6. Identify all current and former Eriksen employees and/or agents who worked on or were involved with the Irvona well projects, and describe the role and responsibilities of each person identified relative to the Irvona well projects.

Response:

Matt Eriksen - still an employee

Helper for drilling, grouting and pumping.

7. Identify each person, including experts with whom you have consulted, having knowledge of any relevant facts relating to this lawsuit.

Response:

No one other than James Casselberry

8. Identify each Eriksen employee and/or agent who has given a statement to anyone other than your attorney with respect to the facts at issue in this lawsuit. For each statement, identify the document or oral communication through which the statement was made.

Response:

No.

9. Identify any oral communications you have had with another party to this lawsuit following the incident in question.

Response:

Talked to Casselberry, Scott Rugh of EADS Group in 2000 to find out what was going on.

10. Identify each document in which you have communicated with another party to this lawsuit following the incident in question.

Response:

None.

11. Identify each person you expect to call as a fact witness in this proceeding. For each person identified, provide his/her complete name, address, occupation and a summary of their anticipated testimony. Also, provide copies of any exhibits the witness will sponsor.

Response:

Myself.

12. Identify each person you expect to call as an expert witness in this case. For each person identified, provide his/her complete name, address and occupation. Additionally, state

a. each person's qualifications;

b. the subject matter on which s/he is expected to testify;

c. the substance of the facts and opinions to which s/he is expected to testify; and

d. a summary of the grounds for each opinion expected to be expressed.

Response:

None other than myself.

13. Identify all factual information supplied to each person identified in Interrogatory No. 11 that was used as the basis for an opinion, including the identity of any documents examined.

Response:

N/A

14. Describe Eriksen's understanding or contention with respect to the facts underlying this lawsuit and of how and why Irvona sustained its injuries?

Response:

I am being sued because .180 casing was used instead of .28. Irvona believes that this by itself caused problems.

15. Please define and explain the difference between a test well and a production well.

Response:

Test will is usually a 6" hole. Production well is usually a larger diameter hole of 8+ inches.

16. Explain how a test well would normally be converted into a production well.

Response:

The hole is enlarged to chosen diameter, recased and grouted.

17. Explain whether the Irvona wells were test wells, production wells, or both. If the wells were converted from test wells into production wells, explain the procedure followed to effectuate the conversion.

Response:

They were exploratory to see if deep water was usable. I put in temporary casing because I felt that at a later date, if the water was usable, it would be expanded. They were not converted by me.

18. Do you contend that Irvona has exaggerated any claim(s) in connection with the injuries it alleges to have sustained in this incident? If so, please explain.

Response:

Yes.

a. Number 1 location was not the first choice and the power line was a result of being close to the reservoir. It was a bad decision to run power to a well which yielded only 60 gpm.

b. They are trying to recover money spent on a poor site when well site two is a better producer. The water quality problem is due to improper use of the well in not blowing it off before sustained use.

19. Have you conducted any post-incident investigations into any of Irvona's claims? If so, identify

a. each person participating in each investigation;

b. when each investigation took place;

c. the substance of each investigation;

d. the results of each investigation; and

e. all documents referring to and/or summarizing each investigation and/or the results thereof.

Response:

None.

20. If you plan to allege that someone else's conduct or some other condition or event was the sole proximate cause of the incident in question, identify each such person, event or condition, and explain how the individuals or events identified caused the incidents at issue in this proceeding.

Response:

Had this well been converted into a permanent well of 8", this would have had .322 thickness. It also could have had special non-corrosive casing. The decision by Irvona to put this temporary well into production doomed the project. Thicker casing would have postponed the failure only slightly.

21. Identify any photographs taken of the sites and/or the wells at issue in this lawsuit.

Response:

None.

22. Identify any plans, drawings, blueprints, sketches or diagrams that were made of the sites and/or the wells at issue in this lawsuit.

Response:

None.

23. How thick is the casing installed in Irvona's wells?

Response:

Based on information received - Well 1 .159
Well 2 .190

24. Who selected the casing installed in Irvona's wells?

Response:

I did.

25. Who installed the casing installed in Irvona's wells?

Response:

I did.

26. Who supervised the installation of the casing in Irvona's wells?

Response:

Neilan Engineering

27. Who has knowledge of the type of casing that was installed in Irvona's wells?

Response:

I do.

Scott T. Wyland, Esquire
Attorney I.D. No. 52660
Steven K. Haas, Esquire
Attorney I.D. No. 73312
Malatesta Hawke & McKeon LLP
Harrisburg Energy Center
100 North 10th Street
P.O. Box 1778
Harrisburg, PA 17105
(717) 236-1300

Counsel for Plaintiff Irvona Municipal Authority

DATE: July 17, 2001

CERTIFICATE OF SERVICE

I hereby certify that I have this day served a copy of the foregoing document upon the person named and in the manner indicated below.

Via First Class Mail

James N. Bryant, Esquire
Bryant & Associates, P.C.
107 East Main Street
Millheim, PA 16854

Robert J. Ray, Esquire
Kelly B. Bakayza, Esquire
Burnes, White & Hickton, LLC
120 Fifth Avenue, Suite 2400
Pittsburgh, PA 15222

Scott T. Wyland, Esquire

DATED: July 17, 2001

IN THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA
CIVIL ACTION

IRVONA MUNICIPAL AUTHORITY, Plaintiff	:	
vs.	:	No. 00 - 955 - CD
DAVID ERIKSEN, t/a ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION, Defendants	:	JURY TRIAL DEMANDED

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the within **DEFENDANT ERIKSEN WELL DRILLING'S ANSWERS TO PLAINTIFF'S FIRST SET OF INTERROGATORIES** was served by depositing the same with the United States Postal Service, postage prepaid, addressed to the following:

Scott T. Wyland, Esq.
100 North 10th Street
P. O. Box 1778
Harrisburg, PA 17105

Robert J. Ray, Esq.
Kelly B. Bakayza, Esq.
Burnes, White & Hickton, LLC
120 Fifth Avenue, Suite 2400
Pittsburgh, PA 15222

By: _____
James N. Bryant, Esq.
Attorney for Eriksen Well Drilling

DATED: September 5, 2001

FILED NO CC
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William ... Shaw
Pro...

THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA

IRVONA MUNICIPAL AUTHORITY,

Plaintiff,

v.

ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP t/a NEILAN ENGINEERS DIVISION,

Defendants.

CIVIL DIVISION

NO. 00-955- CD

NOTICE OF SERVICE OF ANSWERS TO PLAINTIFF'S FIRST SET OF INTERROGATORIES DIRECTED TO DEFENDANT, THE EADS GROUP, T/A NEILAN ENGINEERS DIVISION

Filed on behalf of Defendant EADS Group t/a Neilan Engineers Division

Counsel of Record for this Party:

Robert J. Ray, Esquire
Pa. I.D. #57806

BURNS, WHITE & HICKTON, LLC
120 Fifth Avenue
Suite 2400
Pittsburgh, PA 15222
(412) 394-2500

Firm I.D. #828

FILED
SEP 17 2001
m/11:45/nm
William A. Shaw
Prothonotary
No C/C

THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA

IRVONA MUNICIPAL AUTHORITY,

Plaintiff,

v.

ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP t/a NEILAN ENGINEERS DIVISION,

Defendants.

CIVIL DIVISION

NO. 00-955- CD

NOTICE OF SERVICE OF ANSWERS TO PLAINTIFF'S FIRST SET OF INTERROGATORIES DIRECTED TO DEFENDANT, THE EADS GROUP t/a NEILAN ENGINEERS DIVISION

NOTICE OF SERVICE OF THE EADS GROUP, T/A NEILAN ENGINEERS DIVISION'S ANSWERS TO PLAINTIFF'S FIRST INTERROGATORIES

I Robert J. Ray, Esq. hereby certify that a true and correct copy of the foregoing **Answers to Plaintiff's First Set of Interrogatories Directed to Defendant, The Eads Group t/a Neilan Engineers Division** has been mailed to the following counsel of record via United States First Class Mail, postage prepaid, this 14th day of September, 2001, addressed as follows:

Scott T. Wyland, Esquire
100 N. Tenth Street
P. O. Box 1778
Harrisburg, PA 17105
Counsel for Plaintiff, Irvona Municipal Authority

James N. Bryant, Esquire
Bryant & Associates, P.A.
107 East Main Street
Millheim, PA 16854
Counsel for Eriksen Well Drilling and James R. Casselberry

BURNS, WHITE & HICKTON

By: Robert J Ray
Robert J. Ray, Esquire

IN THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA
CIVIL ACTION

IRVONA MUNICIPAL AUTHORITY	:	
	:	
-vs-	:	No. 00 – 955 – CD
	:	
ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP t/a NEILAN ENGINEERS DIVISION	:	

ORDER

NOW, this 24th day of October, 2001, following argument and briefs into Preliminary Objections filed on behalf Eriksen Well Drilling, James R. Casselberry, James R. Casselberry & Associates, Inc., it is the ORDER of this Court that said Objections shall be and are hereby denied to the extent that said Objections seeking to strike Exhibit K attached to Plaintiff's Amended Complaint shall be and are hereby dismissed. With regards to Preliminary Objections seeking to strike those portions of Plaintiff's Amended Complaint alleging fraud and seeking punitive damages they shall be and are hereby continued for a period of four months to permit completion of discovery as it relates to these issues.

By the Court,

President Judge

FILED

OCT 25 2001

William A. Shaw
Prothonotary

FILED

OCT 25 2001

0/10:17/ William A. Shaw
Prothonotary

cc atty Wyland
cc atty Bryant
cc atty Ray

IN THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA
CIVIL ACTION

IRVONA MUNICIPAL AUTHORITY	:	
	:	
-vs-	:	No. 00 – 955 – CD
	:	
ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP t/a NEILAN ENGINEERS DIVISION	:	

ORDER

NOW, this 24th day of October, 2001, following argument and briefs into Preliminary Objections filed on behalf of Defendant EADS Group t/a Neilan Engineers Division, it is the ORDER of this Court that said Objections be and are hereby sustained to the extent that paragraph 82 of Plaintiff's Amended Complaint shall be and is hereby stricken in so far as the allegation eludes to any criminal conduct of said Defendant. It is the further ORDER of this Court that said Objections seeking to strike those portions of Plaintiff's Amended Complaint alleging fraud and seeking punitive damages shall be and are hereby continued for a period of four months to permit completion of discovery as it relates to these issues.

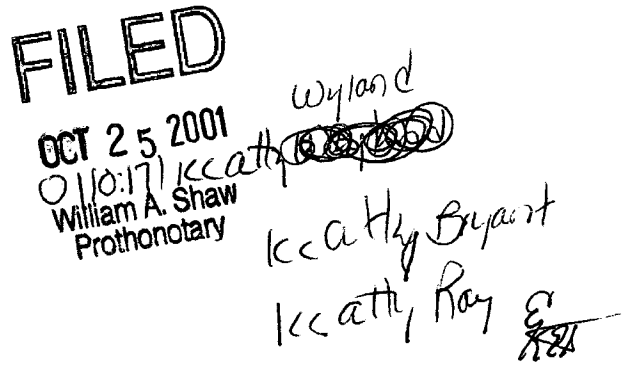
By the Court,

President Judge

FILED

OCT 25 2001

William A. Shaw
Prothonotary


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OCT 25 2001
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William A. Shaw
Prothonotary
Wyland
Kathy Bryant
Kathy Ray

IN THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA
CIVIL ACTION

IRVONA MUNICIPAL AUTHORITY, Plaintiff	:	
vs.	:	No. 00 - 955 - CD
DAVID ERIKSEN, t/a ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION, Defendants	:	JURY TRIAL DEMANDED

ANSWER TO AMENDED COMPLAINT ON BEHALF OF DAVID ERIKSEN, T/A ERIKSEN WELL DRILLING AND JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC.

Filed on behalf of

Defendants, David Eriksen, t/a/ Eriksen Well Drilling and James R. Casselberry, James R. Casselberry & Associates, Inc.Plaintiff

Counsel of Record for this Party:

James N. Bryant, Esq.
Attorney-At-Law
PA I.D. 14084

Bryant & Associates, P.C.
107 East Main Street
Millheim, PA 16854

(814) 349-5666

FILED

DEC 0 4 2001

William A. Shaw
Prothonotary

IN THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA
CIVIL ACTION

IRVONA MUNICIPAL AUTHORITY, Plaintiff	:	
vs.	:	No. 00 - 955 - CD
DAVID ERIKSEN, t/a ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION, Defendants	:	JURY TRIAL DEMANDED

ANSWER TO AMENDED COMPLAINT ON BEHALF OF DAVID ERIKSEN, T/A ERIKSEN WELL DRILLING AND JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC.

AND NOW, comes the Defendants, David Eriksen, t/a/ Eriksen Well Drilling and James R. Casselberry, James Casselberry & Associates, Inc., by and through their attorney, James N. Bryant, Esq., of Bryant & Associates, P.C., and files the following answer:

1. After a reasonable investigation, the Defendants are without knowledge or information sufficient to form a belief as to the allegations contained in this paragraph and therefore deny same and demands strict proof at the time of trial.

I. THE PARTIES

2. Admitted.

3. Admitted.

4. Admitted.

5. Admitted.

6. No answer required.

II BACKGROUND

7. Admitted.

8. Admitted.

9. Admitted.

10. Admitted.

11. After a reasonable investigation, the Defendants are without knowledge or information sufficient to form a belief as to the allegations contained in this paragraph and therefore deny same and demands strict proof at the time of trial.

12. Admitted.

13. Admitted.

14. After a reasonable investigation, the Defendant are without knowledge or information sufficient to form a belief as to the allegations contained in this paragraph and therefore deny same and demands strict proof at the time of trial.

15. Admitted.

16. Admitted.

17. Admitted.

18. Admitted.

19. Admitted.

20. Denied as stated. The Defendants, Casselberry and Eriksen, were not part of the discussion or the decision.

21. Admitted.

22. No answer is required.

23. Admitted in part and denied in part. Simply put, it is averred that Casselberry signed a contract agreeing with Neilan to determine where to drill, how to drill and how to test and analyze the resulting data. At no time was he to select casing.

24. Admitted.

III. THE IRVONA AREA AQUIFERS

25. Admitted. In addition the Burgoon is also present.

26. Admitted.

27. Admitted.

28. Admitted.

29. Denied in part. The water would also require sequestration.

30. Admitted.

31. Admitted.

32. Admitted. By way of further answer and defendant it is averred that Defendant Casselberry advised Defendant Neilan and the Plaintiff that steel casings should not be used in these wells. However, notwithstanding this warning, the Plaintiff ignored the recommendations of Defendant Casselberry and made an informed, and ultimately incorrect decisions to utilize corrosive casing and materials, and as such, are barred from recovery. And further, they elected not to increase the well size which would permit non-corrosive casing.

IV. THE WELLS

33. Admitted.

34. Admitted.

35. Admitted. By way of further answer and defense it is averred that the Defendant Casselberry and the Defendant Eriksen believed these were test wells and not a production well, and by virtue of this fact were awaiting Irvona to authorize non-corrosive casing materials, and further to later expand the wells with larger plastic non-corrosive materials.

36. Admitted.

37. No answer is required.

38. Admitted. By way of further answer, Plaintiff elected to proceed with the temporary well as a permanent well. And further, the Plaintiff was aware of the water problems and elected not to use non-corrosive parts.

V. PROJECT SPECIFICATIONS AND REQUIREMENTS

39. Admitted.

40. Denied as stated. On the contrary Defendant Eriksen was hired to drill and construct production wells in compliance with specifications set forth in contract documents. Defendant Eriksen, in accordance with accepted drilling standards drilled a test well which had a six (6") inch diameter, used thinner casings and was thought he was to later enlarge the hole and change the casings.

41. Admitted.

42. Admitted.

43. Admitted.

44. Admitted. By way of further answer and defense, it is averred that no where was the Defendant Casselberry to select or check materials.

45. No answer is required.

46. No answer is required.

47. No answer is required.

48. Admitted.

49. Denied. Defendant Casselberry was in charge of site, depth, flow and quality, non pipe selection.

50. Denied as stated. On the contrary, both Defendants Casselberry and Eriksen were of the opinion that non-corrosive materials should be used, and further, that the wells, if they were to be production wells, should be expanded and non-corrosive casing installed. These recommendations were ignored.

51. Denied as to Casselberry. The casing thickness, after the wrong decision was made, was to be checked by Neilan

52. Admitted.

53. No answer is required.

VI. WELL CONTAMINATION

54. Denied as stated. These were test wells to be used as offset of inadequate surface supply. Had they been production wells, they would have had an 8" diameter to increase yield.

55. Admitted.

56. After a reasonable investigation, the Defendants are without knowledge or information sufficient to form a belief as to the allegations contained in this paragraph and therefore deny same and demands strict proof at the time of trial.

57. After a reasonable investigation, the Defendants are without knowledge or information sufficient to form a belief as to the allegations contained in this paragraph and therefore deny same and demands strict proof at the time of trial.

58. Admitted.

59. It is denied that any difficulty exists with well 2.

60. Admitted.

61. Admitted.

62. Admitted.

63. After a reasonable investigation, the Defendants are without knowledge or information sufficient to form a belief as to the allegations contained in this paragraph and therefore deny same and demands strict proof at the time of trial.

64. After a reasonable investigation, the Defendants are without knowledge or information sufficient to form a belief as to the allegations contained in this paragraph and therefore deny same and demands strict proof at the time of trial.

65. After a reasonable investigation, the Defendants are without knowledge or information sufficient to form a belief as to the allegations contained in this paragraph and therefore deny same and demands strict proof at the time of trial.

66. Denied as stated. On the contrary, the Defendant Eriksen avers that the more likely event is that because these were only test wells and there was not sufficient width of the test hole to allow a sufficient amount of grout to overcome a problem of falling waters from one strata to another, causing cavities in the grout. These cavities allowed corrosive water to touch corrosive

pipe. The thickness of the pipe, at best, accelerated the failure of the well because of the small test hole by three years.

67. Admitted.

68. Denied as stated. The alleged deterioration is not due to quality of construction, rather natural conditions.

69. After a reasonable investigation, the Defendants are without knowledge or information sufficient to form a belief as to the allegations contained in this paragraph and therefore deny same and demands strict proof at the time of trial.

70. After a reasonable investigation, the Defendants are without knowledge or information sufficient to form a belief as to the allegations contained in this paragraph and therefore deny same and demands strict proof at the time of trial.

71. After a reasonable investigation, the Defendants are without knowledge or information sufficient to form a belief as to the allegations contained in this paragraph and therefore deny same and demands strict proof at the time of trial.

72. Denied as stated. On the contrary, it is averred that the Defendants Eriksen and Casselberry put a test well into service, not a production well. It is further averred that Irvona was warned that the well should be bored out and that non-corrosive casing should be used. It was Plaintiff's decision not to enlarge the hole and further not to use non-corrosive pipe was an independent intervening force that cased the failure. While it might be shown not to meet the thickness specifications required in the contract documents, this of and to itself, did not hasten the failure.

73. Denied as a conclusion of law.

74. No answer is required.

VII. IRVONA'S DAMAGES

75. After a reasonable investigation, the Defendants are without knowledge or information sufficient to form a belief as to the allegations contained in this paragraph and therefore deny same and demands strict proof at the time of trial.

76. After a reasonable investigation, the Defendants are without knowledge or information sufficient to form a belief as to the allegations contained in this paragraph and therefore deny same and demands strict proof at the time of trial.

77. After a reasonable investigation, the Defendants are without knowledge or information sufficient to form a belief as to the allegations contained in this paragraph and therefore deny same and demands strict proof at the time of trial.

78. After a reasonable investigation, the Defendants are without knowledge or information sufficient to form a belief as to the allegations contained in this paragraph and therefore deny same and demands strict proof at the time of trial.

VIII. PUNITIVE DAMAGES

79 - 86 Stricken.

COUNT I

Irvona v. Eriksen - Breach of Contract (Well No. 1)

86. No answer is required.

87. Denied as stated. On the contrary, Eriksen constructed only a test well. The test well should not have been put into production in its present state, as the contract documents call for a production well. Further, a production well would have had sufficient grout around the pipe

to insure that if corrosive materials were used in the piping, failure of the pipe would be delayed or prevented.

88. Denied as stated. On the contrary, the Defendant Eriksen knew at all times of the corrosive water and concurred with Casselberry's recommendation that non-corrosive pipe be used. Further, Defendant Eriksen was required to put in thicker casing in a production well only, not a test well.

89. Denied as a conclusion of law.

90. Denied as stated for reasons set forth in previous answers.

91. After a reasonable investigation, the Defendants are without knowledge or information sufficient to form a belief as to the allegations contained in this paragraph and therefore deny same and demands strict proof at the time of trial.

92. After a reasonable investigation, the Defendants are without knowledge or information sufficient to form a belief as to the allegations contained in this paragraph and therefore deny same and demands strict proof at the time of trial.

93. After a reasonable investigation, the Defendants are without knowledge or information sufficient to form a belief as to the allegations contained in this paragraph and therefore deny same and demands strict proof at the time of trial.

COUNT II

Irvona v. James R. Casselberry - Breach of Contract (Well No. 1)

94. No answer is required.

95. It is admitted Defendant Casselberry knew of the corrosive content, however it is denied that he breached his contractual obligations by virtue of the fact he was required only to test

the yield, not the items used in construction. This was the responsibility of the engineering firm and co-defendant Neilan.

96. Denied as stated. On the contract, the Defendant Casselberry was under no obligation for the mechanical elements of the test well. This was the responsibility of the Defendant Neilan.

97. Denied as stated. On the contrary it is averred that Plaintiff Irvona's use of corrosive materials, notwithstanding Casselberry's warning, the placing into production of a test well rather than a well with a larger bore hole and thicker casing was the ultimate and proximate cause of the failure. It is further averred that any supervisory responsibilities were that of the Defendant Neilan.

98. After a reasonable investigation, the Defendants are without knowledge or information sufficient to form a belief as to the allegations contained in this paragraph and therefore deny same and demands strict proof at the time of trial.

99. After a reasonable investigation, the Defendants are without knowledge or information sufficient to form a belief as to the allegations contained in this paragraph and therefore deny same and demands strict proof at the time of trial.

COUNT III

Irvona v. Neilan - Breach of Contract (Well No. 1)

100. - 105. No answer is required.

COUNT IV

Irvona v. Eriksen - Breach of Contract (Well No. 2)

106. No answer is required.

107. After a reasonable investigation, the Defendants are without knowledge or information sufficient to form a belief as to the allegations contained in this paragraph and therefore deny same and demands strict proof at the time of trial.

108. Admitted.

109. Denied as stated. On the contrary, the casing would have been more than adequate had the Plaintiff authorized a production well size test hole. This would have permitted grout sufficient to resist descending waters causing erosion of the grouting material to come in contact with the pipe. Had this been done, the failure would not have occurred.

110. After a reasonable investigation, the Defendants are without knowledge or information sufficient to form a belief as to the allegations contained in this paragraph and therefore deny same and demands strict proof at the time of trial.

111. Denied as stated. On the contrary, Plaintiff's failure to enlarge the well into a production well standards, as well as their refusal to use non-corrosive casing was in fact the proximate cause of the failure.

112. After a reasonable investigation, the Defendants are without knowledge or information sufficient to form a belief as to the allegations contained in this paragraph and therefore deny same and demands strict proof at the time of trial.

113. After a reasonable investigation, the Defendants are without knowledge or information sufficient to form a belief as to the allegations contained in this paragraph and therefore deny same and demands strict proof at the time of trial.

COUNT V

Irvona v. Casselberry - Breach of Contract (Well No. 2)

114. No answer is required.

115. Denied as stated. Defendant Casselberry was only to supervise drilling, not the size of the casing.

116. Denied as stated. Defendant Casselberry was only to supervise drilling, not the size of the casing.

117. Denied as stated. On the contrary it is averred that Defendant Casselberry at no time breached his contractual obligations because he was not required to insure the conformity to mechanical standards. Casselberry was only a hydro geologist. By way of further answer and defense it is averred that Defendant Casselberry advised the Plaintiff to use production well standards and non-corrosive pipe. Plaintiff's failure to do this was the proximate cause of the well failure.

118. After a reasonable investigation, the Defendants are without knowledge or information sufficient to form a belief as to the allegations contained in this paragraph and therefore deny same and demands strict proof at the time of trial.

119. After a reasonable investigation, the Defendants are without knowledge or information sufficient to form a belief as to the allegations contained in this paragraph and therefore deny same and demands strict proof at the time of trial.

COUNT VI

Irvona v. Neilan - Breach of Contract (Well No. 2)

120. - 125. No answer is required.

COUNT VII

Irvona v. Eriksen - Negligence (Well No. 1)

126. No answer is required

127. Denied as a conclusion of law.

128. Admitted in part and denied in part. It is admitted Defendant Eriksen knew of the highly corrosive quality of the water. By way of further answer and defense he was required by the Plaintiff to put a test well into production. At that time, Plaintiff was advise of the need of non-corrosive casing and knew or should have know of the requirement of additional grout. For this reason, Plaintiff was comparatively negligent and this negligence constitutes an independent cause of the action.

129. After a reasonable investigation, the Defendants are without knowledge or information sufficient to form a belief as to the allegations contained in this paragraph and therefore deny same and demands strict proof at the time of trial.

130. After a reasonable investigation, the Defendants are without knowledge or information sufficient to form a belief as to the allegations contained in this paragraph and therefore deny same and demands strict proof at the time of trial.

131. Denied as stated. On the contrary, the Defendant Eriksen has offered repeatedly to redrill the well. Defendant Eriksen has objected to the Plaintiff attempting to use this case to solve their problems of geography, geology and greed.

132. After a reasonable investigation, the Defendants are without knowledge or information sufficient to form a belief as to the allegations contained in this paragraph and therefore deny same and demands strict proof at the time of trial.

133. Denied as a conclusion of law.

WHEREFORE, Defendant Eriksen requests Count VII be dismissed.

COUNT VIII

Irvona v. Casselberry - Negligence (Well No. 1)

134. No answer is required.

135. Denied as a conclusion of law.

136. Admitted.

137. Denied as stated. Defendant Casselberry was only to supervise drilling, not the size of the casing.

138. After a reasonable investigation, the Defendants are without knowledge or information sufficient to form a belief as to the allegations contained in this paragraph and therefore deny same and demands strict proof at the time of trial.

139. After a reasonable investigation, the Defendants are without knowledge or information sufficient to form a belief as to the allegations contained in this paragraph and therefore deny same and demands strict proof at the time of trial.

140. After a reasonable investigation, the Defendants are without knowledge or information sufficient to form a belief as to the allegations contained in this paragraph and therefore deny same and demands strict proof at the time of trial.

141. After a reasonable investigation, the Defendants are without knowledge or information sufficient to form a belief as to the allegations contained in this paragraph and therefore deny same and demands strict proof at the time of trial.

WHEREFORE, Defendant Casselberry requests County VIII be dismissed.

COUNT IX

Irvona v. Neilan - Negligence (Well No. 1)

142. - 148. No answer is required.

COUNT X

Irvona v. Eriksen - Negligence (Well No. 2)

149. No answer is required.

150. Denied as a conclusion of law.

151. Admitted.

152. After a reasonable investigation, the Defendants are without knowledge or information sufficient to form a belief as to the allegations contained in this paragraph and therefore deny same and demands strict proof at the time of trial.

153. After a reasonable investigation, the Defendants are without knowledge or information sufficient to form a belief as to the allegations contained in this paragraph and therefore deny same and demands strict proof at the time of trial.

154. After a reasonable investigation, the Defendants are without knowledge or information sufficient to form a belief as to the allegations contained in this paragraph and therefore deny same and demands strict proof at the time of trial.

155. Denied as a conclusion of law.

WHEREFORE, Defendant Eriksen requests Count X be dismissed.

COUNT XI

Irvona v. Casselberry - Negligence (Well No. 2)

156. No answer is required.

157. Denied as stated. On the contrary, Defendant Casselberry at all times advised the Plaintiff of the problems related to this aquifer and was not required to supervise the work of Eriksen. This was the responsibility of the Defendant Neilan.

158. Admitted.

159. Denied as a conclusion.

160. After a reasonable investigation, the Defendants are without knowledge or information sufficient to form a belief as to the allegations contained in this paragraph and therefore deny same and demands strict proof at the time of trial.

161. After a reasonable investigation, the Defendants are without knowledge or information sufficient to form a belief as to the allegations contained in this paragraph and therefore deny same and demands strict proof at the time of trial.

162. After a reasonable investigation, the Defendants are without knowledge or information sufficient to form a belief as to the allegations contained in this paragraph and therefore deny same and demands strict proof at the time of trial.

163. Denied as a conclusion of law.

WHEREFORE, Defendant Casselberry requests Count XI be dismissed.

COUNT XII

Irvona v. Neilan - Negligence (Well No. 2)

164. - 169. No answer is required.

COUNT XIII

Irvona V. Neilan - Fraud (Well No. 1)

171. - 175. No answer is required.

COUNT XIV

Irvona v. Neilan - Fraud (Well No. 2)

176. - 180. No answer is required.

BRYANT & ASSOCIATES, P.C.

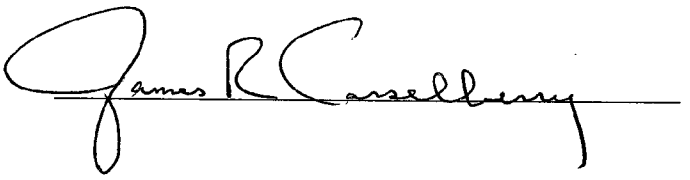
By: _____

James N. Bryant, Esq.
Attorney ID No. 14084
Attorney for Defendants
Eriksen & Casselberry
107 East Main Street
Millheim, PA 16854
(814) 349-5666

I verify that the statements made in the foregoing are true and correct. I understand that false statements herein are made subject to the penalties of 18 Pa. C.S. 4904, relating to unsworn falsification to authorities.



I verify that the statements made in the foregoing are true and correct. I understand that false statements herein are made subject to the penalties of 18 Pa. C.S. 4904, relating to unsworn falsification to authorities.



IN THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA
CIVIL ACTION

IRVONA MUNICIPAL AUTHORITY, Plaintiff	:	
vs.	:	No. 00 - 955 - CD
DAVID ERIKSEN, t/a ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION, Defendants	:	JURY TRIAL DEMANDED

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the within **ANSWER TO AMENDED COMPLAINT ON BEHALF OF DAVID ERIKSEN, T/A ERIKSEN WELL DRILLING AND JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC.** was served by depositing the same with the United States Postal Service, postage prepaid, addressed to the following:

Scott T. Wyland, Esq.
100 North 10th Street
P. O. Box 1778
Harrisburg, PA 17105

Robert J. Ray, Esq.
Burns, White & Hickton, LLC
120 Fifth Avenue
Suite 2400
Pittsburgh, PA 15222

By: _____
James N. Bryant, Esq.
Attorney for Defendants, Eriksen & Casselberry

DATED: December 3, 2001

IRVONA MUNICIPAL AUTHORITY, Plaintiff	:	IN THE COURT OF COMMON PLEAS CLEARFIELD COUNTY, PENNSYLVANIA
v.	:	
	:	CIVIL ACTION - LAW
ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION,	:	NO. 00-955-CD
Defendants	:	JURY TRIAL DEMANDED

FILED
DEC 24 2001
William A. Shaw
Prothonotary

PRELIMINARY OBJECTIONS OF PLAINTIFF TO ANSWER OF DEFENDANTS ERIKSEN AND CASSELBERRY TO AMENDED COMPLAINT

AND NOW, comes the Plaintiff, Irvona Municipal Authority, by its counsel, Malatesta Hawke & McKeon LLP, and sets forth the following Preliminary Objections to the Answer to Amended Complaint on Behalf of David Eriksen, t/a Eriksen Well Drilling, James R. Casselberry, James R. Casselberry & Associates, Inc. pursuant to Pennsylvania Rule of Evidence 408 and Pennsylvania Rule of Civil Procedure 1028:

Motion to Strike

1. Plaintiff Irvona Municipal Authority preliminarily objects to Defendant Eriksen's[1] response to the Amended Complaint, Count VII, Paragraph 131. The second and third sentences of Defendant Eriksen's response to Paragraph 131 should be stricken because Defendant Eriksen avers that he has "offered" to perform some work to resolve the case. Accordingly, Defendant

[1] The answer was filed on behalf of Eriksen and Casselberry. Plaintiff objects to the answer as submitted, whether on behalf of Eriksen only or Eriksen and the Casselberry Defendants.

Eriksen's response should be stricken because it violates Pennsylvania Rule of Evidence 408 and therefore violates law or rule of court. Pa. R. Civ. P. 1028(a)(2).

2. Plaintiff Irvona Municipal Authority preliminarily objects to Defendant Eriksen's response to the Amended Complaint, Count VII, Paragraph 131. In his answer to Paragraph 131, Defendant Eriksen states that he has objected to Irvona "attempting to use this case to solve their [sic] problem of geography, geology and greed." (emphasis added). Defendant Eriksen's answer violates Pa. R. Civ. P. 1028(a)(2) because it contains scandalous or impertinent matter.

3. On December 6, 2001, counsel for Plaintiff sent a letter to Attorney Bryant requesting that Defendants voluntarily withdraw the second and third sentences of Paragraph 131 for the reasons set forth above. Attorney Bryant did not respond to the letter. Defendants have not withdrawn the second and third sentences of the response to Paragraph 131 of the Amended Complaint.

WHEREFORE, Plaintiff Irvona Municipal Authority respectfully requests that the second and third sentences of Defendant Eriksen's response to Paragraph 131 of the Amended Complaint be stricken because they violate Pennsylvania Rule of Evidence 408 and Pennsylvania Rule of Civil Procedure 1028.

Respectfully submitted,

Scott T. Wyland, Esquire, Attorney I.D. No. 52660
Steven K. Haas, Esquire, Attorney I.D. No. 73312
Malatesta Hawke & McKeon LLP
Harrisburg Energy Center
100 North 10th Street
Harrisburg, PA 17105
(717) 236-1300
Counsel for Plaintiff Irvona Municipal Authority

DATE: December 21, 2001

CERTIFICATE OF SERVICE

I hereby certify that I have this day served a copy of the foregoing document upon the person named and in the manner indicated below.

Via First Class Mail

James N. Bryant, Esquire
Bryant & Associates, P.C.
107 East Main Street
Millheim, PA 16854

John P. Sieminski, Esquire
Burnes, White & Hickton, LLC
120 Fifth Avenue, Suite 2400
Pittsburgh, PA 15222

Scott T. Wyland, Esquire

DATED: December 21, 2001

FILED NO CC
DEC 24 2001
William A. Shaw
Prothonotary

IRVONA MUNICIPAL AUTHORITY, Plaintiff	:	IN THE COURT OF COMMON PLEAS CLEARFIELD COUNTY, PENNSYLVANIA
v.	:	
	:	CIVIL ACTION - LAW
DAVID ERIKSEN, t/a ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION,	:	NO. 00-955-CD
Defendants	:	JURY TRIAL DEMANDED

MOTION FOR ORDER TO COMPEL ANSWERS TO INTERROGATORIES AND REQUESTS FOR PRODUCTION OF DOCUMENTS PROPOUNDED BY PLAINTIFF IRVONA MUNICIPAL AUTHORITY TO DEFENDANTS JAMES R. CASSELBERRY & ASSOCIATES AND ERIKSEN WELL DRILLING

Plaintiff Irvona Municipal Authority ("Irvona"), by its undersigned attorneys, moves this Honorable Court, pursuant to Rule 4019 of the Pennsylvania Rules of Civil Procedure, for an order compelling Defendants James R. Casselberry & Associates ("Casselberry") and Eriksen Well Drilling ("Eriksen") to answer Irvona's Second Set of Interrogatories and First Request for Production of Documents. In support thereof, Irvona represents as follows:

1. On November 21, 2001, counsel for Irvona served its second set of Interrogatories and its first Request for Production of Documents upon Defendants Casselberry and Eriksen.

2. Irvona indicated on each set of requests that, pursuant to the Pennsylvania Rules of Civil Procedure, answers to the requests were due within 30 days from the date of service thereof. Having been served on November 21, 2001, answers to the requests were due on or about Friday, December 21, 2001.

FILED

JAN 07 2002

William A. Shaw
Prothonotary

3. By Order dated October 24, 2001, President Judge Reilly established a four-month time limit, until approximately February 24, 2002, for completion of further discovery on the issues of punitive damages and fraud claims. Accordingly, as Defendants are aware, time is of the essence in the completion of this further discovery.

4. As of the date of this Motion, and despite Judge Reilly's Order, Irvona has received neither objections nor answers to its requests from either Casselberry or Eriksen. Further, neither of these Defendants has requested an extension of time for the submission of answers to the requests.

5. It should be noted that the Defendants responded to Irvona's first set of interrogatories only after an Order had been entered requiring them to do so. The Defendants' repeated disregard of discovery deadlines should provide a basis for Sanctions should they continue to require Irvona to resort to motions practice for each discovery request.

WHEREFORE, Plaintiff Irvona Municipal Authority respectfully requests that this Court enter an Order compelling Defendants James R. Casselberry & Associates and Eriksen Well Drilling to respond fully to Irvona's second set of Interrogatories and its first Request for Production of Documents within ten (10) days of the date of said Order, under penalty of further sanctions pursuant to Pa. R. C. P. 4019.



Scott T. Wyland, I.D. No. 52660
Steven K. Haas, I.D. No. 73312
MALATESTA HAWKE & McKEON LLP
100 North Tenth Street
Post Office Box 1778
Harrisburg, PA 17105
(717) 236-1300

Attorneys for Plaintiff Irvona Municipal Authority

Date: January 3, 2002

IRVONA MUNICIPAL AUTHORITY, Plaintiff	:	IN THE COURT OF COMMON PLEAS CLEARFIELD COUNTY, PENNSYLVANIA
v.	:	
	:	CIVIL ACTION - LAW
DAVID ERIKSEN, t/a ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION,	:	NO. 00-955-CD
Defendants	:	JURY TRIAL DEMANDED

PROPOSED ORDER

AND NOW, this 14th day of January, 2002, upon Motion of Plaintiff Irvona Municipal Authority, and this Court being otherwise advised of the circumstances, it is HEREBY ORDERED that Defendants James R. Casselberry & Associates and Eriksen Well Drilling shall answer fully Plaintiff Irvona Municipal Authority's second set of Interrogatories and its first Request for Production of Documents within ten (10) days hereof.

BY THE COURT:

_____, J.

FILED

JAN 15 2002

01/11:00/cc atty Wyland

William A. Shaw
Prothonotary

CERTIFICATE OF SERVICE

I, Scott T. Wyland hereby certify that on January 3, 2002, I served true and correct copies of the foregoing Motion for Order to Compel Answers to Interrogatories and Document Requests and Proposed Order as indicated below:

Service by first class mail:

James N. Bryant, Esquire
Bryant & Associates, P.C.
107 East Main Street
Millheim, PA 16854

John P. Sieminski, Esquire
Burns, White & Hickton
120 Fifth Avenue, Suite 2400
Pittsburgh, PA 15222-3001

Scott T. Wyland

DATE: January 3, 2002

FILED

JAN 07 2002

m|1:18| 1cc atty Wyland

William A. Shaw
Prothonotary

IN THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA
CIVIL ACTION

IRVONA MUNICIPAL AUTHORITY, Plaintiff	:	
vs.	:	No. 00 - 955 - CD
DAVID ERIKSEN, t/a ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION, Defendants	:	JURY TRIAL DEMANDED

ANSWERS OF JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC. TO PLAINTIFF IRVONA MUNICIPAL AUTHORITY'S SECOND SET OF INTERROGATORIES

FILED

JAN 18 2002
m 11:42 noc
William A. Shaw
Prothonotary

IRVONA MUNICIPAL AUTHORITY, Plaintiff	:	IN THE COURT OF COMMON PLEAS CLEARFIELD COUNTY, PENNSYLVANIA
v.	:	
	:	CIVIL ACTION - LAW
ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION,	:	NO. 00-955-CD
Defendants	:	JURY TRIAL DEMANDED

PLAINTIFF IRVONA MUNICIPAL AUTHORITY'S SECOND SET OF INTERROGATORIES DIRECTED TO DEFENDANT JAMES R. CASSELBERRY AND JAMES R. CASSELBERRY & ASSOCIATES, INC.

Plaintiff Irvona Municipal Authority, by its undersigned attorneys, serves on defendant The Eads Group, t/a Neilan Engineers Division, the following Interrogatories, to be answered in writing under oath, pursuant to the Pennsylvania Rules of Civil Procedure within thirty (30) days from the date of service hereof.

DEFINITIONS AND INSTRUCTIONS

Please note that the following definitions and instructions shall apply and shall be considered an integral part of these Interrogatories:

A. "Plaintiff" or "Irvona," shall mean Irvona Municipal Authority, or any person acting on behalf of Irvona Municipal Authority.

B. "Defendant," "Neilan," "you" and/or "yours" shall mean defendant The Eads Group, t/a Neilan Engineers Division or any person acting on behalf of The Eads Group, t/a Neilan Engineers Division.

C. "Document" shall mean all written or graphic matter of every kind or description, however produced or reproduced, whether drafted or final, original or reproduction, signed or unsigned, and regardless of whether approved, signed, sent, received, redrafted, or executed, including but not limited to: written communications, letters, correspondence, memoranda, minutes, notes, computer files, photographs, slides, motion pictures, telegrams, telex messages, tape or sound recordings, recordings of any type, contracts, agreements, purchase or sale orders, memoranda of telephone conversations or personal conversations, diaries, desk calendars, interoffice communications, reports, studies, bills, receipts, logs, financial statements, checks, checkbooks, invoices, requisitions, personal expense accounts, or material similar to any of the foregoing; however denominated and by whomever prepared and to whomever addressed which are in your possession, custody or control or to which you have had, or can obtain access. "Document" shall not include exact duplicates when originals are available but shall include all copies made different from originals by virtue of any writing or notation thereon.

D. "Identify" shall mean, when used in reference to:

1. A natural person -- to state the person's:

   (a) full name;

   (b) present or last known business and residential addresses;

   (c) present or last known position, business affiliation and job description; and

   (d) position, business affiliation, and job description at the time in question with respect to the interrogatory or other request involved.

2. A document -- to state the following with respect to the document:

   (a) its description (e.g., letter, memorandum, report, etc.);

   (b) its title, date and number of pages;

(c) its subject matter;

(d) the name, address, and position of the author(s) or signer(s) thereof;

(e) the name, address and position of the addressee(s);

(f) the name, address and position of each person who received a copy of the documents; and

(g) its present location and the name, address, and position of the person having present possession, custody and/or control thereof.

3. An oral communication -- to state the following with respect to the communication:

(a) the date and place where it occurred;

(b) its substance;

(c) the name, address and position of the person who made the communication;

(d) the name, address and position of each person to whom such communication was made; and

(e) the name, address and position of each person who was present when such communication was made.

4. A company, corporation, association, partnership or other legal business entity not a natural person -- to state its:

(a) full name;

(b) address of principal place of business; and

(c) description of type of entity.

5. An act, occurrence, or specific conduct (hereinafter referred to collectively as "act"):

(a) describe the substance of the event or events constituting such act;

(b) state the date when such act occurred;

(c) identify each person who participated in such act;

(d) identify all other persons who were present when such act occurred; and

(e) state whether any document was made recording such act and if so, identify each such document.

E. "Communication" shall mean any transmission or thoughts, opinions or information by speech, writing or signs.

F. "Person" shall include natural persons, partnerships, associations, corporations, leagues, governments, (including all instrumentalities, officers, agents and subdivisions thereof) and all other business, legal and artificial entities.

G. In answering these Interrogatories, you are required to furnish all information that is available to you, including that which has been obtained by and that which is now in the possession of your attorneys, employees, agents and other representatives, and not merely the information known by the individual or individuals preparing the response.

H. If you are unable to answer any of the within Interrogatories fully and completely, after exercising due diligence to secure the information necessary to make such full and complete answers, so state, and in addition, answer the remainder, and state whatever information or knowledge you may have concerning the unanswered portions thereof.

I. Answer each Interrogatory on a separate sheet of paper, attaching additional pages as required for complete answers, identifying the Interrogatory being answered, and attach an affidavit hereto, filing the original hereof with the undersigned counsel.

J. These Interrogatories shall be deemed to be continuing, as defined by Rule 4007.4, so as to require supplemental answers under oath if you obtain additional or further information pertaining to any Interrogatory subsequent to the time an answer to that Interrogatory is served.

K. If you file an objection to any of the Interrogatories propounded herein, you are nevertheless required to answer within the aforesaid thirty (30) day period the Interrogatories not objected to.

L. Whenever any Interrogatory calls for the identity of a document or communication as to which you claim privilege, include in the identification of such document or communication the fact of such claim of privilege and the basis asserted to such claim.

M. In lieu of identifying documents, you may supply the documents, or true and correct copies thereof, with you answers to these Interrogatories. The documents should be segregated or otherwise identified to reflect the number of the Interrogatory or Interrogatories to which the document is responsive.

N. With respect to each Interrogatory, in addition to supplying the information asked for and identifying the specific documents referred to, identify all documents that were referred to in preparing your answer thereof.

O. Unless the context otherwise requires, words in the singular include the plural and words in the plural include the singular; words of the neuter include the feminine and masculine.

INTERROGATORIES

1. Were you aware, at the time the Irvona wells were being constructed, of the minimum casing thickness specifications required by the Pennsylvania Department of Environmental Resources for construction of wells for public water supply systems?

Response:

Yes.

2. Were you aware, at the time the Irvona wells were being constructed, of the casing material specifications required by the Pennsylvania Department of Environmental Resources for construction of wells for public water supply systems?

Response:

Yes

3. What was your role with respect to assuring that proper materials and construction techniques were used in the construction of the Irvona wells?

Response:

Casselberry provided recommndations to Neilan regarding materials and construction techniques for the Irvona Test Wells. Casselberry's role in the supervision of the drilling process at the Irvona Test Wells is clearly stated on page 2, paragraph 2 of the November 8, 1991 letter from Jim Casselberry to Scott Rugh, which is presented as Attachment H of Irvona's original Complaint. Per the November 8, 1991 letter, Casselberry's supervision of the drilling process was limited to "collection and analysis of formation and water samples, compilation of a continuous geologic log describing the lithology, yield and water quality of the formations encountered, and: making field decisions regarding drilling depths, casing lengths, screen selection and placement, and well development techniques."

4. Describe in detail your understanding of the extent and nature of your supervisory role with respect to assuring that proper materials and construction techniques were used in the construction of the Irvona wells.

Response:

Answered as part of interrogatory #3 response.

5. Do you acknowledge that you had a supervisory role with respect to assuring that the specifications set forth in the contract documents relative to the materials and construction techniques used in the construction of the Irvona wells were met.

Response:

No.

6. Describe in detail your understanding of the extent and nature of your supervisory role with respect to assuring that the specifications set forth in the contract documents relative to the materials and construction techniques used in the construction of the Irvona wells were met.

Response:

None.

7. If you are contending that you did not have a supervisory role with respect to assuring that proper materials and construction techniques were used in the construction of the Irvona wells, please explain, by reference to appropriate contract document passages or otherwise, the basis of this contention.

Response:

Answered in Interrogatory #3.

8. Identify all of the dates on which you visited the well sites during their construction and identify the purposes of each visit.

Response:

Casselberry discards daily job records after five years of storage. Therefore, records of site visitations at the Irvona Test Wells are extant only from January 1997 to the present. Site visits to the Irvona Test Wells for this time-frame are documents in the following table:

DATE	PURPOSE VISIT AND INVESTIGATION RESULTS	NAME OF C&A REPRESENTATIVE
10/7/97	Conduct a down-the-borehole video survey at Test Well #2. Results are described on the attached Table 1; October 7, 1997 Down-the-Borehole Video Log.	Roger Pollok
10/25/97	Discuss Test Well #2 water quality issues. Recommendations are presented on the attached memo of November 25, 1997.	Jim Casselberry
9/9/99	Review Moody & Associates down-the-borehole video survey of Test Well #1 and identify proper depth setting for packer installation. Based upon video log, packer is set at 317 feet.	Roger Pollok

9. For each date provided in response to Set II Interrogatory No. 8, identify the following:

a. the name of the individual making the inspection;

b. a description of the subject of the inspection and the result of the inspection; and

c. whether the well casing used in the construction of the wells was examined and by whom.

Response:

Dates of wells site visits, personnel making well site visits, purpose of site visitation and results are described in response to Interrogatory #8. The only form of casing inspection performed during any of the site visits was viewing of the inside of the 6-inch diameter casing with a down-the-borehole camera during the October 7, 1997 visit to Test Well #2.

10. Identify all documents, reports, analyses or summaries produced as a result of any inspections identified in response to Set II Interrogatory No. 8.

Response:

See attached.

Casselberry & Associates Memo

From: Jim Casselberry

To: Scott Rugh

Number of Pages: 7

Date: November 25, 1997

Re: Investigation of Apparent Water Quality Problems at Irvona Municipal Authority Wells #1 and #2

Dear Scott:

I have written this memo to address the issues we discussed at our October 25, 1997 field meeting with Irvona. For the sake of brevity, I have presented this information in summary and conclusions fashion below:

1) Irvona believes that the quality of the water produced by their wells has deteriorated since putting these supplies on line in 1995. Numerous complaints of red and black staining, odor, and excessive dissolved gas have been filed.

2) There is an insufficient amount of water sampling data to evaluate changes in the water chemistry of Well #1. The records you provided me indicate the the last sampling of this well was performed in July of 1996. The iron and manganese values for the July 1996 sampling event were 0.35 and 0.10 mg/l, respectively.

3) The Borough has collected a large amount of water quality data at Well #2. The monitored water quality parameters include iron, manganese, pH, total dissolved solids, chloride, sodium and barium. Review of these records indicates that the iron and manganese content of Well #2 has risen. However, based upon extensive sampling in 1997, the iron and manganese content of Well #2 appears to have stabilized. The 1997 analyses reveal a

Casselberry and Associates; 108 E. Main St., Boalsburg, PA, 16827
Phone 814-466-7128; FAX 814-466-6222

very narrow range in iron (0.63 to 0.72 mg/l) and manganese (0.08 to 0.10 mg/l) values for samples collected after periods of extended pumping. None of the the other water water quality parameters have changed significantly since the wells were put into production.

4) The Borough utilizes sequestering agent injection systems at both well sites to control the precipitation of iron and manganese oxides. Given the concentrations of iron and manganese reported for the wells, sequestering should provide adequate treatment to prevent oxidation of these metals. However, the red and black staining complaints suggests that the sequestering agent injection systems are ineffective. The following scenarios could possibly explain the apparent poor performance of the sequestering agent:

•When Well #2 is first turned on, it produces a slug of "dirty" water having a high concentration of particulate iron and manganese. This phenomena is created by the long contact between the aggressive water and the well casing and borehole walls when the well is idle. Since the iron and manganese is already in a particulate state, the sequestering agent will not control this situation. To rectify this problem, Well #2 should be operated on a continuous basis, or should be pumped to waste at the beginning of each production cycle.

•The sequestering agent and chlorination injection systems are not calibrated or operating in a proper fashion. The erratic chlorine residual shown on the chart recorder at Well #2 during our site visit suggests a potential for mechanical problems with this equipment.

•The iron and manganese in the wells is organically bound. The presence of iron bacteria implied from the BART testing of the wells suggests that this is a strong possibility. Herb Spencer at Kjell has recently had a large amount of experience with investigation and treatment of wells having organically bound iron and manganese. You should consult with him regarding this issue.

5) At your direction, the Borough hired Larry Wyland to perform a cleaning program at each well. This cleaning program included injection and recirculation of KJELL's F25 detergent and a chlorine solution. No mechanical agitation or surging was used as part of the cleaning process. In my experience,

eradication of iron bacteria is difficult without extensive surging or mechanical agitation.

6) To investigate the extent of the iron bacteria colonization of Well #2 and to check the integrity of its construction, we conducted a down-the-borehole video survey on October 7, 1997 prior Larry Wyland's cleaning of this well. The results of this video survey are presented on the attached Table 1. Review of Table 1 leads me to the following salient conclusions:

•The casing walls are relatively clean. No heavy masses of mineral or biologic encrustations were detected. All of the casing joints were clearly visible and appear to be sound.

•The rock borehole below the casing is exceptionally clean. No biofouling is apparent. Therefore, the well does not appear to have a extensive iron bacteria problem.

7) Irvona reports a strong "organic" odor at the Wells #1 and #2 and claims that lab analyses for hydrogen sulfide have been negative. Questioning of Irvona at our site meeting indicates that the sampling for hydrogen sulfide gas was performed with bottles that did not contain the proper preservative (zinc acetate). Given the geologic setting of the wells, it is likely that the strong organic odor is hydrogen sulfide. To further investigate the odor problems, proper hydrogen sulfide sampling should be conducted. This is an important issue. If the hydrogen sulfide concentration is high, the reported water color problems could be a result of precipitation of iron sulfide particulates as the hydrogen sulfide degases. This situation could be addressed via aeration.

8) The test pumping of Well #1 during the original development of this well revealed a high concentration of odorless nonflammable gas. This phenomena was not encountered during the aquifer tests at Well #2. It is likely that the gas reported in the water in the distribution system stems from production of Well #1. Since the gas at Well #1 was odorless and nonflammable, it is likely that it is carbon dioxide which is common in deep-seated regional groundwater flow systems containing sodium carbonate waters. Aeration could potentially be used to drive off the gas prior to entry into the distribution system.

9) The quality of Well #1 and Well #2 are extremely dissimilar. Well #1 produces sodium carbonate water having a high dissolved solids content. Well #2 produces calcium bicarbonate water having a much lower solids content than Well #1. Irvona's erratic style of producing the wells could create all of the reported water quality problems simply from reactions between the distribution system piping and the changing quality of the source waters. To minimize these problems, the following production scenario is recommended:

•Well #2 has sufficient capacity to supply the entire water system demand (Well #1 does not). Therefore, Irvona should try pumping Well #2 on a continuous basis and utilize Well #1 as a backup only in the event of a failure at Well #2.

10) Irvona expressed concern that strip mining, dumping of PCBs and gas well drilling could be polluting Wells #1 and #2 and asked me to provide a comprehensive list of water sampling parameters to investigate this possibility. The following list should suffice:

•Total Petroleum Hydrocarbons (TPH)
•Methane
•Ethane
•Calcium
•Magnesium
•Sodium
•Chloride
•Potassium
•Strontium
•Barium
•Oil and Grease
•Sulfate
•Cobalt
•Aluminum
•Nitrate
•Alkalinity
•Total Dissolved Solids
•Volatile Organic Compounds (VOCs)
•Synthetic Organic Compounds (SOCs)
•PCBs

If you or Irvona have any questions regarding the information contained in this memo, please give me a call.

Regards,

James R. Casselberry, P.G.

JRC/jc

Attachment

Casselberry and Associates: 108 E. Main St., Boalsburg, PA. 16827
Phone 814-466-7128; FAX 814-466-6222

TABLE 1

IRVONA BOROUGH WATER SUPPLY WELL #2

OCTOBER 7, 1997 DOWN-THE-BOREHOLE VIDEO LOG

REFERENCE:	Top of the well casing
STATIC WATER LEVEL:	56 feet below the top of casing (btoc)
PURPOSE OF SURVEY:	To document the construction of the well and to identify the location and condition of the water-bearing fracture zones penetrated by the borehole.

Depth in Feet and Description

0 to 273 Six-inch diameter casing. Excellent visibility above the static water level (56 feet btoc). Below the static water level, a moderate concentration of suspended colloidal material reduces visibility. However, the casing walls are clearly discernable. The casing is relatively clean, and in general, is covered by a thin "patchy" film of mineral precipitates. Casing joints are detected at 5.5, 28, 40, 61, 83, 104, 125, 147, 168, 189, 210, 231 and 253 feet. None of the casing joints appear to be breached. The transition from the base of the casing to the underlying rock borehole is smooth, indicating that the casing is correctly seated and sealed.

273 to 433 Six-inch diameter open borehole. A small amount of colloidal material is suspended in most segments of the borehole, but visibility is good. The well bore appears to be straight and stable throughout its entire length. No heavy mineral encrustations or biofouling are evident. The unfractured segments of the borehole are uniform and smooth and the fracture zones are enlarged. The water in the borehole clears at the location of the largest fractures, indicating water entry points. The location and condition of water-bearing fracture zones penetrated by well are described below:

286:	Small bedding parallel fracture with loose black mineral encrustations.
291:	Large bedding parallel fracture; borehole is caved-out to approximately 8 inches in diameter; loose black precipitate on fracture faces; excellent water clarity; water-bearing horizon.
302:	Small bedding parallel and high angle fractures.

TABLE 1 - Continued

316-317:	Large bedding parallel fracture; borehole is caved-out to approximately 8 inches in diameter; loose black precipitate on fracture faces; excellent water clarity; water-bearing horizon.
332:	Very small bedding parallel fracture.
335:	Very small bedding parallel fracture.
341:	Very small bedding parallel fracture.
368-369:	Small bedding parallel fracture with loose black mineral encrustations.
373:	Very small bedding parallel fracture.
398:	Small bedding parallel fracture with loose black mineral encrustations.
401-402:	Large bedding parallel fracture; borehole is slightly enlarged; loose black precipitate on fracture faces; excellent water clarity; water-bearing horizon.
417:	Small high angle fracture; loose black mineral encrustations on fracture faces.
425:	Very small bedding parallel fracture.
429-430:	Large bedding parallel fracture; borehole is caved-out to approximately 8 inches in diameter; loose black precipitate on fracture faces; excellent water clarity; water-bearing horizon.

11. Were you aware during the construction of the wells that the well casing being used was thinner than the minimum thickness required for well casing by the DEP for public water supply systems? If not, why not?

Response:

No - I was not informed until long after the wells were in service.

CERTIFICATE OF SERVICE

I hereby certify that I have this day served a copy of the foregoing document upon the person named and in the manner indicated below.

Via First Class Mail

James N. Bryant, Esquire
Bryant & Associates, P.C.
107 East Main Street
Millheim, PA 16854

John P. Sieminski, Esquire
Burnes, White & Hickton, LLC
120 Fifth Avenue, Suite 2400
Pittsburgh, PA 15222

Scott T. Wyland, Esquire

DATED: November 21, 2001

12. What steps or actions, if any, did you perform or undertake during the development and construction of the wells to assure that well casing that was used met DER requirements?

Response:

None

13. Identify all correspondence, reports, summaries, analyses, e-mail messages, notes, tabulations or any other written documentation of any type concerning the subject matter of this proceeding.

Response:

Attached.

Scott T. Wyland, Esquire
Attorney I.D. No. 52660
Steven K. Haas, Esquire
Attorney I.D. No. 73312
Malatesta Hawke & McKeon LLP
Harrisburg Energy Center
100 North 10th Street
P.O. Box 1778
Harrisburg, PA 17105
(717) 236-1300

Counsel for Plaintiff Irvona Municipal Authority

DATE: November 21, 2001

IN THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA
CIVIL ACTION

IRVONA MUNICIPAL AUTHORITY, Plaintiff	:	
vs.	:	No. 00 - 955 - CD
DAVID ERIKSEN, t/a ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION, Defendants	:	JURY TRIAL DEMANDED

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the within **ANSWERS OF JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC. TO PLAINTIFF IRVONA MUNICIPAL AUTHORITY'S SECOND SET OF INTERROGATORIES** was served by depositing the same with the United States Postal Service, postage prepaid, addressed to the following:

Scott T. Wyland, Esq.
100 North 10th Street
P. O. Box 1778
Harrisburg, PA 17105

John P. Sieminski, Esq.
Burnes, White & Hickton, LLC
120 Fifth Avenue, Suite 2400
Pittsburgh, PA 15222

By: _____
James N. Bryant, Esq.
Attorney for James R. Casselberry

DATED: January 17, 2002

IN THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA
CIVIL ACTION

IRVONA MUNICIPAL AUTHORITY, Plaintiff	:	
vs.	:	No. 00 - 955 - CD
DAVID ERIKSEN, t/a ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION, Defendants	:	JURY TRIAL DEMANDED

DEFENDANT, DAVID ERIKSEN T/A ERIKSEN WELL DRILLING ANSWER TO PLAINTIFF'S REQUEST FOR PRODUCTION OF DOCUMENTS

1. The contract document was attached to the Complaint.

2. We have nothing.

3. Mr. Eriksen drilled the wells approximately 10 years ago and other than the contract documents, has nothing.

4. Nothing.

5. Contract documents.

6. We have nothing.

7. Other than the contract documents, we have nothing.

FILED
JAN 23 2002
William A. Shaw
Prothonotary

8. There were no invoices for materials used to drill and construct the wells.

9. Other than the contract documents, we have nothing.

10. During the initial reaction, the Defendant communicated with the engineer to offer to re-drill a well. Copies of invoices submitted to the engineering firm are attached hereto. These are the Defendant's pricing of his offer to drill replacement holes. There has been no correspondence between Eriksen and Casselberry.

11. There has been no correspondence between Eriksen and anyone other than counsel for the Irvona Authority.

12. Counsel already has this.

13. The contract documents.

14. Contract documents.

15. We have nothing.

16. At present, we have nothing.

17. Other than documents received from Plaintiff, we have nothing.

18. The Defendant was not involved the efforts to correct the problem.

19. Contract documents.

20. The Defendant does not have e-mail.

21. This will have to be supplemented.

22. This will have to be supplemented.

23. Nothing other than the Casselberry reports which are in the hands of Plaintiff's counsel.

24. The Defendant has no insurance.

25. The Defendant has not made a video.

26. The Defendant has not prepared an expert report.

BRYANT & CANTORNA, LLC

By: _____

James N. Bryant, Esq.
Attorney for Plaintiff/Defendant
Attorney ID No. 14084
107 East Main Street
Millheim, PA 16854
(814) 349-5666

David R. Eriksen
Well Drilling & Pump Service
RR 1 Box 71
Hesston, Pennsylvania 16647

May 2, 2001

The Neilan Engineers, Inc.
Atten: Scott Rugh
450 Aberdeen Drive
P.O. Box 837
Somerset, Pennsylvania 15501

Dear Sirs:

I David R. Eriksen am offering my services to drill a six-inch well for well number one replacement. I am also offering an eight-inch well for well number two replacement. I have written up a six-inch well quote and an eight-inch well quote, and will install pumps and piping complete to top of the well heads for Irvona Municipal Authority.

It is my understanding from the information and knowledge learned from well number one and well number two that Irvona Municipal Authority would like to have both new wells down stream in the area of well number two. The offering of an eight-inch well to replace well number two will allow the authority many options for a higher pumping rate. Also, the eight-inch diameter hole will allow a better choice of pump selection for the authority.

Sincerely,

David R. Eriksen

Owner/Operator

cc: James Bryant

James Casselberry

INVOICE

DAVID R. ERIKSEN
WATER WELL & PUMP SERVICE
R.R. 1 BOX 71
HESSTON, PA 16647

(814) 658-3639

DATE: 4/10/2001

INVOICE #: 3407

BILL TO:

Irvona Municipal Authority
Pricing For 6" Well Replacement

P.O. NUMBER	TERMS	PROJECT

QUANTITY	DESCRIPTION	RATE	AMOUNT
1	L.S. Mobilization & Demobilization	4,400.00	4,400.00
1	L.S. Erosion & Sediment Control	1,400.00	1,400.00
80	Feet Drill 14" Rock Socket	65.00	5,200.00
1	L.S. 10" Drive Shoe	300.00	300.00
80	Feet Furnish & Install 10" Steel Casing	30.00	2,400.00
60	Bags Grount 10" Casing	30.00	1,800.00
220	Feet Drill 10" Rock Socket	35.00	7,700.00
302	Feet Furnish & Install 6" Steel Casing	14.00	4,228.00
255	Bags Grout 6" Casing	30.00	7,650.00
145	Feet Drill 6" Open Bedrock Hole (300-445 Feet)	13.00	1,885.00
4	Hours Development Time To Measure Yield Of Water Bearing Zones	175.00	700.00
1	L.S. Install Authority Supplied Submersible Pump	3,500.00	3,500.00
1	L.S. Furnish & Install 6" Pittless Adaptor	4,000.00	4,000.00
1	L.S. Well Disinfection	200.00	200.00
2	Hours Develop Production Well	175.00	350.00
1	L.S. Furnish & Install Locking Well Cap	50.00	50.00
1	L.S. Furnish, Install, & Remove 30 Horsepower Test Pump	1,500.00	1,500.00
56	Hours Step Test & Pump Test	70.00	3,920.00
1	Well Disinfection	200.00	200.00
1	New Source Water Analysis	2,100.00	2,100.00
	Pa. State Sales Tax	6.00%	0.00
		TOTAL	$53,483.00

PRODUCT 13054T FOLD AT (<) TO FIT COMPANION 9308 DU-O-VUE ENVELOPE.

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INVOICE

DAVID R. ERIKSEN
WATER WELL & PUMP SERVICE
R.R. 1 BOX 71
HESSTON, PA 16647

(814) 658-3639

DATE	INVOICE #
4/10/2001	3407

BILL TO:

Irvona Municipal Authority
Pricing For 8" Well Replacement

P.O. NUMBER	TERMS	PROJECT

QUANTITY	DESCRIPTION	RATE	AMOUNT
1	L.S. Mobilization & Demobilization	4,400.00	4,400.00
1	L.S. Erosion & Sediment Control	1,400.00	1,400.00
80	Feet Drill 15" Rock Socket	75.00	6,000.00
1	L.S. 12" Drive Shoe	375.00	375.00
80	Feet Furnish & Install 12" Steel Casing	34.00	2,720.00
60	Bags Grount 12" Casing	25.00	1,500.00
220	Feet Drill 11-3/4" Rock Socket	38.00	8,360.00
302	Feet Furnish & Install 8" Steel Casing	18.50	5,587.00
255	Bags Grout 8" Casing	30.00	7650.0
145	Feet Drill 8" Open Bedrock Hole (300-445 Feet)	16.00	2,320.00
4	Hours Development Time To Measure Yield Of Water Bearing Zones	190.00	760.00
1	L.S. Install Authority Supplied Submersible Pump	3,500.00	3,500.00
290	Feet Furnish & Install 3" Galvanized Lift Pipe	11.50	3,335.00
1	L.S. Furnish & Install 8" Pittless Adaptor	4,500.00	4,500.00
1	L.S. Well Disinfection	200.00	200.00
2	Hours Develop Production Well	175.00	350.00
1	L.S. Furnish & Install Locking Well Cap	50.00	50.00
1	L.S. Seal Abandoned Well	2,500.00	2,500.00
1	L.S. Furnish, Install, & Remove 50 Horsepower Test Pump	1,500.00	1,500.00
56	Hours Step Test & Pump Test	75.00	4,200.00
1	Well Disinfection	200.00	200.00
1	New Source Water Analysis	2,100.00	2,100.00
	Pa. State Sales Tax	6.00%	0.00
		TOTAL	$60,957.0

PRODUCT 13054T FOLD AT (<) TO FIT COMPANION 9308 DU-O-VUE ENVELOPE.

PRINTED IN U.S.A. B

IN THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA
CIVIL ACTION

IRVONA MUNICIPAL AUTHORITY, Plaintiff	:	
vs.	:	No. 00 - 955 - CD
DAVID ERIKSEN, t/a ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION, Defendants	:	JURY TRIAL DEMANDED

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the within **DEFENDANT, DAVID ERIKSEN T/A ERIKSEN WELL DRILLING ANSWER TO PLAINTIFF'S REQUEST FOR PRODUCTION OF DOCUMENTS** was served by depositing the same with the United States Postal Service, postage prepaid, addressed to the following:

Scott T. Wyland, Esq.
100 North 10th Street
P. O. Box 1778
Harrisburg, PA 17105

John P. Sieminski, Esq.
Burnes, White & Hickton, LLC
120 Fifth Avenue, Suite 2400
Pittsburgh, PA 15222

By: _____
James N. Bryant, Esq.
Attorney for David Eriksen t/a
Eriksen Well Drilling

DATED: January 22, 2002

FILED

JAN 23 2002

m/2:24 p.m

William A. Shaw
Prothonotary

no cc

IN THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA
CIVIL ACTION

IRVONA MUNICIPAL AUTHORITY, Plaintiff	:	
vs.	:	No. 00 - 955 - CD
DAVID ERIKSEN, t/a ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION, Defendants	:	JURY TRIAL DEMANDED

DEFENDANT, DAVID ERIKSEN, T/A ERIKSEN WELL DRILLING ANSWERS TO PLAINTIFF'S SECOND SET OF INTERROGATORIES AND REQUEST FOR PRODUCTION

FILED
JAN 23 2002
William A. Shaw
Prothonotary

IRVONA MUNICIPAL AUTHORITY, Plaintiff	:	IN THE COURT OF COMMON PLEAS CLEARFIELD COUNTY, PENNSYLVANIA
v.	:	
	:	CIVIL ACTION - LAW
ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION,	:	NO. 00-955-CD
Defendants	:	JURY TRIAL DEMANDED

PLAINTIFF IRVONA MUNICIPAL AUTHORITY'S SECOND SET OF INTERROGATORIES DIRECTED TO ERIKSEN WELL DRILLING

Plaintiff Irvona Municipal Authority, by its undersigned attorneys, serves on defendant The Eads Group, t/a Neilan Engineers Division, the following Interrogatories, to be answered in writing under oath, pursuant to the Pennsylvania Rules of Civil Procedure within thirty (30) days from the date of service hereof.

DEFINITIONS AND INSTRUCTIONS

Please note that the following definitions and instructions shall apply and shall be considered an integral part of these Interrogatories:

A. "Plaintiff" or "Irvona," shall mean Irvona Municipal Authority, or any person acting on behalf of Irvona Municipal Authority.

B. "Defendant," "Neilan," "you" and/or "yours" shall mean defendant The Eads Group, t/a Neilan Engineers Division or any person acting on behalf of The Eads Group, t/a Neilan Engineers Division.

C. "Document" shall mean all written or graphic matter of every kind or description, however produced or reproduced, whether drafted or final, original or reproduction, signed or unsigned, and regardless of whether approved, signed, sent, received, redrafted, or executed, including but not limited to: written communications, letters, correspondence, memoranda, minutes, notes, computer files, photographs, slides, motion pictures, telegrams, telex messages, tape or sound recordings, recordings of any type, contracts, agreements, purchase or sale orders, memoranda of telephone conversations or personal conversations, diaries, desk calendars, interoffice communications, reports, studies, bills, receipts, logs, financial statements, checks, checkbooks, invoices, requisitions, personal expense accounts, or material similar to any of the foregoing; however denominated and by whomever prepared and to whomever addressed which are in your possession, custody or control or to which you have had, or can obtain access. "Document" shall not include exact duplicates when originals are available but shall include all copies made different from originals by virtue of any writing or notation thereon.

D. "Identify" shall mean, when used in reference to:

1. A natural person -- to state the person's:

   (a) full name;

   (b) present or last known business and residential addresses;

   (c) present or last known position, business affiliation and job description; and

   (d) position, business affiliation, and job description at the time in question with respect to the interrogatory or other request involved.

2. A document -- to state the following with respect to the document:

   (a) its description (e.g., letter, memorandum, report, etc.);

   (b) its title, date and number of pages;

(c) its subject matter;

(d) the name, address, and position of the author(s) or signer(s) thereof;

(e) the name, address and position of the addressee(s);

(f) the name, address and position of each person who received a copy of the documents; and

(g) its present location and the name, address, and position of the person having present possession, custody and/or control thereof.

3. An oral communication -- to state the following with respect to the communication:

(a) the date and place where it occurred;

(b) its substance;

(c) the name, address and position of the person who made the communication;

(d) the name, address and position of each person to whom such communication was made; and

(e) the name, address and position of each person who was present when such communication was made.

4. A company, corporation, association, partnership or other legal business entity not a natural person -- to state its:

(a) full name;

(b) address of principal place of business; and

(c) description of type of entity.

5. An act, occurrence, or specific conduct (hereinafter referred to collectively as "act"):

(a) describe the substance of the event or events constituting such act;

(b) state the date when such act occurred;

(c) identify each person who participated in such act;

(d) identify all other persons who were present when such act occurred; and

(e) state whether any document was made recording such act and if so, identify each such document.

E. "Communication" shall mean any transmission or thoughts, opinions or information by speech, writing or signs.

F. "Person" shall include natural persons, partnerships, associations, corporations, leagues, governments, (including all instrumentalities, officers, agents and subdivisions thereof) and all other business, legal and artificial entities.

G. In answering these Interrogatories, you are required to furnish all information that is available to you, including that which has been obtained by and that which is now in the possession of your attorneys, employees, agents and other representatives, and not merely the information known by the individual or individuals preparing the response.

H. If you are unable to answer any of the within Interrogatories fully and completely, after exercising due diligence to secure the information necessary to make such full and complete answers, so state, and in addition, answer the remainder, and state whatever information or knowledge you may have concerning the unanswered portions thereof.

I. Answer each Interrogatory on a separate sheet of paper, attaching additional pages as required for complete answers, identifying the Interrogatory being answered, and attach an affidavit hereto, filing the original hereof with the undersigned counsel.

J. These Interrogatories shall be deemed to be continuing, as defined by Rule 4007.4, so as to require supplemental answers under oath if you obtain additional or further information pertaining to any Interrogatory subsequent to the time an answer to that Interrogatory is served.

K. If you file an objection to any of the Interrogatories propounded herein, you are nevertheless required to answer within the aforesaid thirty (30) day period the Interrogatories not objected to.

L. Whenever any Interrogatory calls for the identity of a document or communication as to which you claim privilege, include in the identification of such document or communication the fact of such claim of privilege and the basis asserted to such claim.

M. In lieu of identifying documents, you may supply the documents, or true and correct copies thereof, with you answers to these Interrogatories. The documents should be segregated or otherwise identified to reflect the number of the Interrogatory or Interrogatories to which the document is responsive.

N. With respect to each Interrogatory, in addition to supplying the information asked for and identifying the specific documents referred to, identify all documents that were referred to in preparing your answer thereof.

O. Unless the context otherwise requires, words in the singular include the plural and words in the plural include the singular; words of the neuter include the feminine and masculine.

INTERROGATORIES

1. Were you aware, at the time the Irvona wells were being constructed, of the minimum casing thickness specifications required by the Pennsylvania Department of Environmental Resources for construction of wells for public water supply systems?

Response:

Yes.

2. Were you aware, at the time the Irvona wells were being constructed, of the casing material specifications required by the Pennsylvania Department of Environmental Resources for construction of wells for public water supply systems?

Response:

Yes.

3. Were you aware during the construction of the wells that the well casing being used was thinner than the minimum thickness required for well casing by the DEP for public water supply systems? If not, why not?

Response:

No. I put the casing in as temporary casing thinking that we were drilling a test well and that we would later be grouting the hole shut and abandoning the site.

4. What steps or actions, if any, did you perform or undertake during the development and construction of the wells to assure that well casing that was used met DER requirements?

Response:

I did a 10" bore hole as required by DEP. Because the geologist advised that this was not a likely site, I used thinner casings since I felt that they would be pulled when the hole was abandoned. When we hit salt water at 550 feet, we grounted that area. The yield at a shallow depth. The well was left stand because Casselberry felt that this was subject to problems. When the well was put into production much later, I did not remember the casing thickness.

5. Identify all correspondence, reports, summaries, analyses, e-mail messages, notes, tabulations or any other written documentation of any type concerning the subject matter of this proceeding.

Response:

a. Original contract.
b. The defendant has no documents relating to failure.
c. The defendant received no memos, summaries, etc.

Scott T. Wyland, Esquire
Attorney I.D. No. 52660
Steven K. Haas, Esquire
Attorney I.D. No. 73312
Malatesta Hawke & McKeon LLP
Harrisburg Energy Center
100 North 10th Street
P.O. Box 1778
Harrisburg, PA 17105
(717) 236-1300

Counsel for Plaintiff Irvona Municipal Authority

DATE: November 21, 2001

CERTIFICATE OF SERVICE

I hereby certify that I have this day served a copy of the foregoing document upon the person named and in the manner indicated below.

Via First Class Mail

James N. Bryant, Esquire
Bryant & Associates, P.C.
107 East Main Street
Millheim, PA 16854

John P. Sieminski, Esquire
Burnes, White & Hickton, LLC
120 Fifth Avenue, Suite 2400
Pittsburgh, PA 15222

Scott T. Wyland, Esquire

DATED: November 21, 2001

I verify that the statements made in the foregoing are true and correct. I understand that false statements herein are made subject to the penalties of 18 Pa. C.S. 4904, relating to unsworn falsification to authorities.



IN THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA
CIVIL ACTION

IRVONA MUNICIPAL AUTHORITY, Plaintiff	:	
vs.	:	No. 00 - 955 - CD
DAVID ERIKSEN, t/a ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION, Defendants	:	JURY TRIAL DEMANDED

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the within **DEFENDANT, DAVID ERIKSEN, T/A ERIKSEN WELL DRILLING ANSWERS TO PLAINTIFF'S SECOND SET OF INTERROGATORIES AND REQUEST FOR PRODUCTION** was served by depositing the same with the United States Postal Service, postage prepaid, addressed to the following:

Scott T. Wyland, Esq.
100 North 10th Street
P. O. Box 1778
Harrisburg, PA 17105

John P. Sieminski Esq.
Burnes, White & Hickton, LLC
120 Fifth Avenue, Suite 2400
Pittsburgh, PA 15222

By: _____
James N. Bryant, Esq.
Attorney for Defendant,
David Eriksen t/a Eriksen Well Drilling

DATED: January 22, 2002

FILED
JAN 23 2002
12:24 p.m.
William A. Shaw
Prothonotary
no cc

THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA

IRVONA MUNICIPAL AUTHORITY,

Plaintiff,

v.

ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP t/a NEILAN ENGINEERS DIVISION,

Defendants.

CIVIL DIVISION

NO. 00-955- CD

NOTICE OF SERVICE OF ANSWERS TO PLAINTIFF'S SECOND SET OF INTERROGATORIES DIRECTED TO DEFENDANT, THE EADS GROUP, T/A NEILAN ENGINEERS DIVISION

Filed on behalf of Defendant EADS Group t/a Neilan Engineers Division

Counsel of Record for this Party:

Robert J. Ray, Esquire
Pa. I.D. #57806

BURNS, WHITE & HICKTON, LLC
120 Fifth Avenue
Suite 2400
Pittsburgh, PA 15222
(412) 394-2500

Firm I.D. #828

FILED

JAN 31 2002

William A. Shaw
Prothonotary

THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA

IRVONA MUNICIPAL AUTHORITY, Plaintiff, v. ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP t/a NEILAN ENGINEERS DIVISION, Defendants.	CIVIL DIVISION NO. 00-955- CD NOTICE OF SERVICE OF ANSWERS TO PLAINTIFF'S SECOND SET OF INTERROGATORIES DIRECTED TO DEFENDANT, THE EADS GROUP t/a NEILAN ENGINEERS DIVISION

NOTICE OF SERVICE OF THE EADS GROUP, T/A NEILAN ENGINEERS DIVISION'S ANSWERS TO PLAINTIFF'S SECOND INTERROGATORIES

I Robert J. Ray, Esq. hereby certify that a true and correct copy of the foregoing **Answers to Plaintiff's Second Set of Interrogatories Directed to Defendant, The Eads Group t/a Neilan Engineers Division** has been mailed to the following counsel of record via United States First Class Mail, postage prepaid, this 29th day of January, 2002, addressed as follows:

Scott T. Wyland, Esquire
100 N. Tenth Street
P. O. Box 1778
Harrisburg, PA 17105
Counsel for Plaintiff, Irvona Municipal Authority

James N. Bryant, Esquire
Bryant & Associates, P.A.
107 East Main Street
Millheim, PA 16854
Counsel for Eriksen Well Drilling and James R. Casselberry

BURNS, WHITE & HICKTON

By: Robert J. Ray
Robert J. Ray, Esquire

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the within **Notice of Service of Answers to Plaintiff's Second Set of Interrogatories Directed to Defendant, The Eads Group t/a Neilan Engineers Division** was served upon all counsel by United States First Class Mail, postage prepaid, this 14th day of January, 2002, addressed as follows:

Scott T. Wyland, Esquire
100 N. Tenth Street
P. O. Box 1778
Harrisburg, PA 17105
Counsel for Plaintiff, Irvona Municipal Authority

James N. Bryant, Esquire
Bryant & Associates, P.A.
107 East Main Street
Millheim, PA 16854
Counsel for Eriksen Well Drilling and James R. Casselberry

BURNS, WHITE & HICKTON

By: Robert J. Ray
Robert J. Ray, Esquire

THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA

IRVONA MUNICIPAL AUTHORITY,

Plaintiff,

v.

ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP t/a NEILAN ENGINEERS DIVISION,

Defendants.

CIVIL DIVISION

NO. 00-955- CD

DEFENDANT THE EADS GROUP t/a NEILAN ENGINEERS DIVISION'S ANSWER, NEW MATTER, AND NEW MATTER PURSUANT TO RULE 2252(d) OF PA. R.C.P. TO PLAINTIFF'S AMENDED COMPLAINT

Filed on behalf of Defendant EADS Group t/a Neilan Engineers Division

Counsel of Record for this Party:

Robert J. Ray, Esquire
Pa. I.D. #57806

BURNS, WHITE & HICKTON, LLC
120 Fifth Avenue
Suite 2400
Pittsburgh, PA 15222
(412) 394-2500

Firm I.D. #828

FILED

FEB 08 2002

William A. Shaw
Prothonotary

THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA

IRVONA MUNICIPAL AUTHORITY,

Plaintiff,

CIVIL DIVISION

NO. 00-955- CD

v.

ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP t/a NEILAN ENGINEERS DIVISION,

Defendants.

NOTICE TO PLEAD

TO: All Parties

You have twenty (20) days to plead the within **DEFENDANT THE EADS GROUP t/a NEILAN ENGINEERS DIVISION'S NEW MATTER AND NEW MATTER PURSUANT TO PA.R.C.P. 2252** or a default judgment may be entered against you.

BURNS, WHITE & HICKTON

By: _____
Robert J. Ray, Esquire

THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA

IRVONA MUNICIPAL AUTHORITY,

Plaintiff,

v.

ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP t/a NEILAN ENGINEERS DIVISION,

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DEFENDANT THE EADS GROUP t/a NEILAN ENGINEERS DIVISION'S ANSWER, NEW MATTER AND NEW MATTER PURSUANT TO RULE 2252(D) OF PA. R.C.P. TO PLAINTIFF'S AMENDED COMPLAINT

AND NOW, comes Defendant, The EADS Group t/a Neilan Engineers Division (hereinafter "Neilan" or "Defendant"), by and through its attorney, Robert J. Ray, Esquire, and Burns, White & Hickton, LLC., and files the following Answer, New Matter and New Matter Pursuant to Rule 2252(d) of Pa. R.C.P. to Plaintiff's (hereinafter "Plaintiff" or "Irvona") Amended Complaint, stating and averring as follows:

1. The averments contained in Paragraph 1 are denied. To the contrary, Neilan acted with all due care under the circumstances, properly performed its services and owes no duty to any party. Inasmuch as the averments of Paragraph 1 are directed to a party other than Neilan, no answer is necessary.

I. THE PARTIES

2. The averments contained in Paragraph 2 are admitted.

3. The averments contained in Paragraph 3 are admitted.

4. The averments contained in Paragraph 4 are admitted.

5. The averments contained in Paragraph 5 are admitted.

6. The averments contained in Paragraph 6 are denied. To the contrary, The EADS Group, t/a Neilan Engineers Division is not an architectural firm.

II. BACKGROUND

7. The averments contained in Paragraph 7 are denied. To the contrary, upon information and belief, it is averred that Irvona provides water services to approximately 600 customers.

8. The averments contained in Paragraph 8 are admitted.

9. The averments contained in Paragraph 9 are admitted.

10. The averments contained in Paragraph 10 are admitted.

11. After reasonable investigation, Neilan is without sufficient knowledge to form a belief as to the truth or falsity of said averments contained in Paragraph 11; consequently, said averments are denied. By way of further reply, to the extent Paragraph 11 implies Irvona's water supply is unsafe, said allegation is denied.

12. The averments contained in Paragraph 12 are neither admitted nor denied as the "DEP's standards and regulations" speak for themselves.

13. The DEP's Public Water Supply Manual is a document with speaks for itself; consequently, no answer is necessary. By way of further reply, the specifications for Well No. 1 and Well No. 2 required that the well casing comport with DEP requirements.

14. After reasonable investigation, Neilan is without sufficient knowledge to form a belief as to the truth or falsity of said averments contained in Paragraph 14; consequently, said averments are denied.

15. The averments contained in Paragraph 15 are denied. To the contrary, it is averred that Irvona began a groundwater exploration program in the 1970's.

16. The averments contained in Paragraph 16 are admitted in part and denied in part. It is admitted that Irvona engaged the services of Defendants related to the identification and development of a water source. It is denied that Neilan identified the potential site for Well No. 1. To the contrary, Irvona Municipal Authority limited the area in which Well No. 1 was to be constructed.

17. The averments contained in Paragraph 17 are denied. To the contrary, Neilan prepared a Feasibility Study for Irvona to assess potential sources of water supply for Irvona. By way of further reply, it was Irvona and not Defendants, who chose to develop their water supply needs via the construction and development of Well No. 1 and Well No. 2.

18. The averments contained in Paragraph 18 are admitted.

19. The averments contained in Paragraph 19 are admitted.

20. The averments contained in Paragraph 20 are denied. To the contrary, it was solely Irvona's decision to abandon the reservoir.

21. Denied as stated. To the contrary, Neilan prepared a Feasibility Study to assess Irvona's options for supplying water. By way of further reply, the development of two wells was merely one of the options available to the Plaintiff. By way of further reply, it was solely Irvona's decision to construct and develop two wells to provide water to the community.

22. The averments contained in Paragraph 22 are denied. By way of reply, the executed contracts between Neilan & Irvona are attached to Plaintiff's Amended Complaint as Appendix "A" and Appendix "B," which speak for themselves. By way of further reply, Appendix "B" to Plaintiff's Amended Complaint is incomplete, and as such, Defendant has attached the contract document in its entirety as Exhibit "1," which speaks for itself. By way of further reply, the averments contained in Paragraph 22 regarding the obligations of Defendant are based on Plaintiff's interpretation of the contents and nature of the contracts, and Plaintiff's characterization of said contracts is denied. It is further averred that Neilan had no responsibility to supervise construction of the Wells.

23. The averments contained in Paragraph 23 are admitted.

24. The averments contained in Paragraph 24 are admitted in part and denied in part. It is admitted that Eriksen was hired to drill and construct the Wells. It is denied that Eriksen installed the electric service or well pump for Well No. 2.

III. THE IRVONA AREA AQUIFERS

25. After reasonable investigation, Neilan is without sufficient knowledge to form a belief as to the truth or falsity of said averments contained in Paragraph 25; consequently, said averments are denied.

26. After reasonable investigation, Neilan is without sufficient knowledge to form a belief as to the truth or falsity of said averments contained in Paragraph 26; consequently, said averments are denied.

27. The averments contained in Paragraph 27 are admitted.

28. The averments contained in Paragraph 28 reference "test results" from Well No. 1, which speak for themselves. Consequently, no response is necessary. By way of further reply,

the averments contained in Paragraph 28 regarding the "test results" are based on Plaintiff's characterization and interpretation of said "test results," which is denied.

29. The averments contained in Paragraph 29 require no response as the "test results" referenced in Paragraph 29 speak for themselves. By way of further reply, the averments contained in Paragraph 29 regarding the "test results" are based on Plaintiff's characterization and interpretation of said "test results," which is denied.

30. The averments contained in Paragraph 30 are denied and strict proof to the contrary is demanded at time of trial.

31. The averments contained in Paragraph 31 are neither admitted nor denied as the report entitled "Irvona Municipal Authority Groundwater Exploration Report Drilling and Testing of Test Well No. 1" speaks for itself. Consequently, no answer is necessary.

32. The averments contained in Paragraph 32 are derived from portions of a letter from Defendant Casselberry to Neilan and is attached to the Amended Complaint as Appendix "D". Said letter speaks for itself, and, consequently, no answer is necessary.

IV. THE WELLS

33. The averments contained in Paragraph 33 are neither admitted nor denied as the Groundwater Exploration Reports attached to Plaintiff's Amended Complaint as Appendix "C" and "E" speak for themselves and, consequently, no answer is necessary.

34. The averments contained in Paragraph 34 are derived from the "Groundwater Exploration Reports," which speak for themselves. By way of further reply, the averments contained in Paragraph 34 are based on Plaintiff's interpretation of the contents and nature of the Reports, and Plaintiff's characterization of said Reports is denied.

35. The averments contained in Paragraph 35 are derived from language contained in the document attached to Plaintiff's Amended Complaint as Appendix "C." Consequently, no answer is necessary.

36. The averments contained in Paragraph 36 are derived from language contained in Appendix "E" attached to Plaintiff's Amended Complaint, which speaks for itself. Consequently, no answer is necessary.

37. The averments contained in Paragraph 37 require no response as the "Well Water Development contract documents" attached to Plaintiff's Amended Complaint as Appendix "F" speaks for itself. By way of further reply, the Contract Documents for Well No. 2 incorporated specifications prepared by Defendant Casselberry.

38. The averments contained in Paragraph 38 are denied and strict proof to the contrary is demanded at time of trial.

V. PROJECT SPECIFICATIONS AND REQUIREMENTS

39. The averments contained in Paragraph 39 are admitted.

40. The averments contained in Paragraph 40 are admitted.

41. The document entitled "Instruction to Bidders" attached to Plaintiff's Amended Complaint as Appendix "F" speaks for itself. Consequently, no answer is necessary

42. Said document is attached to Plaintiff's Amended Complaint as Appendix "F". Consequently, no answer is necessary. By way of further reply, the specifications for Well No. 1 and Well No. 2 required that the casing comport with DER requirements.

43. The averments contained in Paragraph 43 are derived from language contained in the PA DEP Water Supply Manual, which speaks for itself. By way of further reply, Plaintiff's

interpretation of the contents and nature of the Manual, and on its selective reference to provisions of the Manual, and Plaintiff's characterization of the same is denied.

44. Said document attached to Plaintiff's Amended Complaint as Exhibit "H" speaks for itself and, consequently, no further answer is necessary.

45. The contracts entered into between Neilan and Irvona speak for themselves and, consequently, no further answer is necessary. By way of further reply, Neilan's contract with Irvona attached to Plaintiff's Amended Complaint as Appendix "A" specifically excludes "Resident Project" services for Well No. 1.

46. The averments contained in Paragraph 46 are derived from language contained in the Contacts attached to Plaintiff's Amended Complaint at Appendix "A" and "B, " which speak for themselves. By way of further reply, the obligations of Defendant contained in Paragraph 46 are based on Plaintiff's interpretation and characterization of the contracts between Neilan and Irvona, and Plaintiff's characterization of said contracts is denied.

47. The averments contained in Paragraph 47 are derived from language contained in the contracts between Irvona and Neilan, which speak for themselves. Consequently, no answer is necessary.

48. The averments contained in Paragraph 48 are derived from the obligations of Defendant's contained in their respective contracts, which speak for themselves. Consequently, no answer is necessary. By way of further reply, the averments regarding the obligations of Neilan are based on Plaintiff's interpretation of the nature and content of the contracts, and Plaintiff's characterization of said contracts is denied.

49. The averments contained in Paragraph 49 are denied. By way of further reply, Neilan's responsibilities did not include construction supervision.

50. Denied as stated. It is admitted that Neilan was obligated to use care in the design of the wells pursuant to its contracts and in accordance with professional industry standards. To the extent that Paragraph 50 infers that Neilan did not properly perform its services, said allegations are denied. To the contrary, Neilan acted with all due care under the circumstances, properly performed its services pursuant to its contracts, and owes no duty to any party for the allegations against it. By way of reply and pursuant to Article 1.6.12 of its contracts, Neilan is not responsible for any acts or omissions of the contractor, Eriksen Well Drilling, in the construction of the wells.

51. The averments contained in Paragraph 51 are denied. To the contrary, Neilan had no construction supervision responsibilities related to Well No. 1 or Well No. 2. By way of further reply, Neilan had no responsibility to inspect the casing installed by Defendant Eriksen. It is further averred that Neilan was not obligated to "insure" that proper materials and construction techniques were used.

52. The averments contained in Paragraph 52 are derived from portions of a document attached to Plaintiff's Amended Complaint as Appendix "D," which speaks for itself.

53. The averments contained in Paragraph 53 are admitted in part and denied in part. It is admitted that Neilan prepared the Water Supply Permit Applications to the DEP for the Irvona wells with input from James Casselberry. Said Applications speak for themselves. It is denied that Neilan falsely certified the thickness of the casings. By way of further reply, the certification was prepared using information provided in two written reports prepared by Defendant Casselberry indicating the Wells had been constructed in accordance with PaDEP's specifications set forth in the Public Water Supply Manual.

54. The averments contained in Paragraph 54 are admitted.

55. After reasonable investigation, Neilan is without sufficient knowledge to form a belief as to the truth or falsity of said averments contained in Paragraph 55; consequently, said averments are denied.

56. After reasonable investigation, Neilan is without sufficient knowledge to form a belief as to the truth or falsity of said averments contained in Paragraph 56; consequently, said averments are denied.

57. After reasonable investigation, Neilan is without sufficient knowledge to form a belief as to the truth or falsity of said averments contained in Paragraph 57; consequently, said averments are denied.

58. The averments contained in Paragraph 58 are admitted in part and denied in part. It is specifically denied that Well No. 2 is "contaminated." It is, however, admitted that Defendant Casselberry conducted a "down-the-borehole" video survey.

59. The averments contained in Paragraph 59 area admitted in part and denied in part. It is admitted that defendant Casselberry indicated the casing in Well No. 2 appeared clean and structurally sound. It is denied, however, that any contamination exists in Well No. 2.

60. The averments contained in Paragraph 60 are denied as stated. By way of further reply, the Pennsylvania DEP conducted an investigation solely for the purpose of determining if surface coal mining had affected the aquifer.

61. The averments contained in Paragraph 61 are derived from language contained in Appendix "J," which speaks for itself. Consequently, no answer is necessary.

62. After reasonable investigation, Neilan is without sufficient knowledge to form a belief as to the truth or falsity of said averments contained in Paragraph 62; consequently, said averments are denied.

63. After reasonable investigation, Neilan is without sufficient knowledge to form a belief as to the truth or falsity of said averments contained in Paragraph 63; consequently, said averments are denied.

64. After reasonable investigation, Neilan is without sufficient knowledge to form a belief as to the truth or falsity of said averments contained in Paragraph 64; consequently, said averments are denied and strict proof to the contrary is demanded at the time of trial.

65. After reasonable investigation, Neilan is without sufficient knowledge to form a belief as to the truth or falsity of said averments contained in Paragraph 65; consequently, said averments are denied and strict proof to the contrary is demanded at the time of trial.

66. After reasonable investigation, Neilan is without sufficient knowledge to form a belief as to the truth or falsity of said averments contained in Paragraph 66; consequently, said averments are denied and strict proof to the contrary is demanded at the time of trial.

67. The averments contained in Paragraph 67 are denied. To the contrary, upon information and belief, it is averred that Irvona took Well No. 1 out of service.

68. The averments contained in Paragraph 68 are denied as stated. It is further averred that if the water in Well No. 2 has deteriorated, such deterioration is the result of natural conditions.

69. After reasonable investigation, Neilan is without sufficient knowledge to form a belief as to the truth or falsity of said averments contained in Paragraph 69; consequently, said averments are denied and strict proof to the contrary is demanded at the time of trial.

70. After reasonable investigation, Neilan is without sufficient knowledge to form a belief as to the truth or falsity of said averments contained in Paragraph 70; consequently, said averments are denied and strict proof to the contrary is demanded at the time of trial.

71. After reasonable investigation, Neilan is without sufficient knowledge to form a belief as to the truth or falsity of said averments contained in Paragraph 71; consequently, said averments are denied.

72. The averments contained in Paragraph 72 are denied. To the contrary, Neilan acted with all due care under the circumstances, properly performed its services pursuant to its contracts and owes no duty to any party. By way of further reply, the specifications for the construction of the Wells met DEP standards.

73. The averments contained in Paragraph 73 are legal conclusions for which no answer is necessary. To the extent that a response is deemed to be necessary, Neilan acted with all due care under the circumstances, properly performed its services pursuant to its contracts, and owes no duty to any party for the allegations against it. By way of further reply, Neilan had no responsibility or duty to supervise the installation of the casing.

74. The averments contained in Paragraph 74 are denied. To the contrary, Neilan did not falsely certify the casing in the wells to the DEP and strict proof to the contrary is demanded at the time of trial. By way of further reply, the PaDEP certification was prepared based on two written reports prepared by Defendant Casselberry indicating that the Wells had been constructed in accordance with the specifications set in PaDEP's Public Water Supply Manual.

VII. IRVONA'S DAMAGES

75. The allegations contained in Paragraph 75 are denied. To the contrary, Neilan acted with all due care under the circumstances, properly performed its services pursuant to its contracts, and is not responsible for any damages as alleged in Paragraph 75.

76. The allegations contained in Paragraph 76 are denied. To the contrary, Neilan acted with all due care under the circumstances, properly performed its services pursuant to its

contracts, and owes no duty to Irvona or any other party to this suit. Moreover, Neilan did not breach any duty nor is Neilan responsible for any alleged damages in the following particulars:

(a) "laboratory tests to determine the quality of the well water;"

To the contrary, Neilan acted with all due care under the circumstances, properly performed its services pursuant to its contracts and owes no duty to any party.

(b) "consultations with professionals concerning water quality and related issues;"

To the contrary, Neilan acted with all due care under the circumstances, properly performed its services pursuant to its contracts and owes no duty to any party.

(c) "disinfection of the wells that would be otherwise unnecessary absent the defendants' wrongful conduct;"

To the contrary, Neilan acted with all due care under the circumstances, properly performed its services pursuant to its contracts and owes no duty to any party.

(d) "installation of blow-off valves for the two wells;"

To the contrary, Neilan acted with all due care under the circumstances, properly performed its services pursuant to its contracts and owes no duty to any party.

(e) "excess energy costs;"

To the contrary, Neilan acted with all due care under the circumstances, properly performed its services pursuant to its contracts and owes no duty to any party.

(f) "excess wear and tear on equipment and storage facilities;"

To the contrary, Neilan acted with all due care under the circumstances, properly performed its services pursuant to its contracts and owes no duty to any party.

(g) "water loss;"

To the contrary, Neilan acted with all due care under the circumstances, properly performed its services pursuant to its contracts and owes no duty to any party.

(h) "draining, cleaning and disinfection of storage facilities that would otherwise be unnecessary in the absence of the defendants' wrongful conduct;"

To the contrary, Neilan acted with all due care under the circumstances, properly performed its services pursuant to its contracts and owes no duty to any party.

(i) "additional costs associated with disinfection and treatment of water supply;"

To the contrary, Neilan acted with all due care under the circumstances, properly performed its services pursuant to its contracts and owes no duty to any party.

(j) "engineering, video and investigative costs;"

To the contrary, Neilan acted with all due care under the circumstances, properly performed its services pursuant to its contracts and owes no duty to any party.

(k) "costs of packer placement and related efforts to segregate aquifers;"

To the contrary, Neilan acted with all due care under the circumstances, properly performed its services pursuant to its contracts and owes no duty to any party.

(l) "costs associated with the abandonment of Well No. 1, including control of artesian discharges and control of artesian flows;"

To the contrary, Neilan acted with all due care under the circumstances, properly performed its services pursuant to its contracts and owes no duty to any party.

(m) "loss of revenue associated with decreased consumption of poor quality water by customer base;"

To the contrary, Neilan acted with all due care under the circumstances, properly performed its services pursuant to its contracts and owes no duty to any party.

(n) "excess labor costs;" and

To the contrary, Neilan acted with all due care under the circumstances, properly performed its services pursuant to its contracts and owes no duty to any party.

(o) "rehabilitation of Well No. 2 that would be otherwise unnecessary in the absence of defendants' wrongful conduct."

To the contrary, Neilan acted with all due care under the circumstances, properly performed its services pursuant to its contracts and owes no duty to any party.

77. The allegations contained in Paragraph 77 are denied. To the contrary, Neilan properly performed its services pursuant to its contracts and owes no duty to any party, nor is Neilan responsible for any alleged damages in the following particulars:

(a) "hydrogeologists fees;"

To the contrary, Neilan acted with all due care under the circumstances, properly performed its services pursuant to its contracts and owes no duty to any party.

(b) "engineering fees;"

To the contrary, Neilan acted with all due care under the circumstances, properly performed its services pursuant to its contracts and owes no duty to any party.

(c) "land acquisition costs and related surveying costs, attorneys fees and closing costs;"

To the contrary, Neilan acted with all due care under the circumstances, properly performed its services pursuant to its contracts and owes no duty to any party.

(d) "permitting of new water sources;"

To the contrary, Neilan acted with all due care under the circumstances, properly performed its services pursuant to its contracts and owes no duty to any party.

(e) "line installation and hook-up of new water sources;"

To the contrary, Neilan acted with all due care under the circumstances, properly performed its services pursuant to its contracts and owes no duty to any party.

(f) "addition treatment costs and associated engineering, design, construction, permitting, legal, debt service and operational costs;"

To the contrary, Neilan acted with all due care under the circumstances, properly performed its services pursuant to its contracts and owes no duty to any party.

(g) "well location and construction costs;"

To the contrary, Neilan acted with all due care under the circumstances, properly performed its services pursuant to its contracts and owes no duty to any party.

(h) "access road construction costs;"

To the contrary, Neilan acted with all due care under the circumstances, properly performed its services pursuant to its contracts and owes no duty to any party.

(i) "water testing and treatment costs;"

To the contrary, Neilan acted with all due care under the circumstances, properly performed its services pursuant to its contracts and owes no duty to any party.

(j) "excess energy costs and fencing costs;"

To the contrary, Neilan acted with all due care under the circumstances, properly performed its services pursuant to its contracts and owes no duty to any party.

(k) "costs associated with Well No. 2 abandonment;" and

To the contrary, Neilan acted with all due care under the circumstances, properly performed its services pursuant to its contracts and owes no duty to any party.

(l) "other related necessary and reasonable costs associated with providing reliable potable water sources for the customers of Irvona Municipal public water supply, production, treatment and conveyance systems."

To the contrary, Neilan acted with all due care under the circumstances, properly performed its services pursuant to its contracts and owes no duty to any party.

78. The allegations contained in Paragraph 78 are denied. To the contrary, Neilan acted with all due care under the circumstances, properly performed its services pursuant to its contracts and owes no duty to any party. It is further averred that Irvona has incurred no costs beyond that for which it is responsible.

VIII. PUNITIVE DAMAGES

79. Pursuant to the October 25, 2001, Order of Court by President Judge Reilly all fraud and punitive damage claims are continued to permit completion of discovery. Consequently, no further answer is required.

80. Pursuant to the October 25, 2001, Order of Court by President Judge Reilly all fraud and punitive damage claims are continued to permit completion of discovery. Consequently, no further answer is required.

81. Pursuant to the October 25, 2001, Order of Court by President Judge Reilly all fraud and punitive damage claims are continued to permit completion of discovery. Consequently, no further answer is required.

82. Pursuant to the October 25, 2001, Order of Court by President Judge Reilly Paragraph 82 is stricken.

83. Pursuant to the October 25, 2001, Order of Court by President Judge Reilly all fraud and punitive damage claims are continued to permit completion of discovery. Consequently, no further answer is required.

84. Pursuant to the October 25, 2001, Order of Court by President Judge Reilly all fraud and punitive damage claims are continued to permit completion of discovery. Consequently, no further answer is required.

85. Pursuant to the October 25, 2001, Order of Court by President Judge Reilly all fraud and punitive damage claims are continued to permit completion of discovery. Consequently, no further answer is required.

COUNT I

Irvona v. Eriksen - Breach of contract (Well No. 1)

86. Paragraphs 1 through 85 of this Answer are incorporated herein as though fully set forth at length.

87. Inasmuch as said allegations are not directed to Neilan, no answer is necessary.

88. Inasmuch as said allegations are not directed to Neilan, no answer is necessary.

89. Inasmuch as said allegations are not directed to Neilan, no answer is necessary.

90. Inasmuch as said allegations are not directed to Neilan, no answer is necessary.

91. Inasmuch as said allegations are not directed to Neilan, no answer is necessary.

92. Inasmuch as said allegations are not directed to Neilan, no answer is necessary.

93. Inasmuch as said allegations are not directed to Neilan, no answer is necessary.

WHEREFORE, Defendant, The EADS Group, t/a Neilan Engineers Division, respectfully requests that this Honorable Court enter judgment in its favor and against all parties.

COUNT II

Irvona v. James R. Casselberry - Breach of contract (Well No. 1)

94. Paragraphs 1 through 93 of this Answer are incorporated herein as though fully set forth at length.

95. Inasmuch as said allegations are not directed to Neilan, no answer is necessary.

96. Inasmuch as said allegations are not directed to Neilan, no answer is necessary.

97. Inasmuch as said allegations are not directed to Neilan, no answer is necessary.

98. Inasmuch as said allegations are not directed to Neilan, no answer is necessary.

99. Inasmuch as said allegations are not directed to Neilan, no answer is necessary.

WHEREFORE, Defendant, The EADS Group, t/a Neilan Engineers Division, respectfully requests that this Honorable Court enter judgment in its favor and against all parties.

COUNT III

Irvona v. Neilan - Breach of contract (Well No. 1)

100. Paragraphs 1 through 99 of this Answer are incorporated herein as though fully set forth at length.

101. The averments contained in Paragraph 101 are denied. To the contrary, Neilan acted with all due care under the circumstances, properly performed its services pursuant to its contract and owes no duty to any party for the allegations against it. By way of further reply, Neilan had no construction supervision responsibilities relative to Well No. 1, nor did Neilan have a duty to inspect the installation of the casing.

102. The averments contained in Paragraph 102 are denied. To the contrary, Neilan acted with all due care under the circumstances, properly performed its services pursuant to its contract and owes no duty to any party for the allegations against it. By way of further reply, Neilan was

not responsible for supervising the construction of Well No. 1, nor for inspecting the materials installed by Defendant Eriksen.

103. The averments contained in Paragraph 103 are denied. To the contrary, Neilan acted with all due care under the circumstances, properly performed its services pursuant to its contract and owes no duty to any party for the allegations against it and strict proof to the contrary is demanded at trial.

104. After reasonable investigation, Neilan is without sufficient knowledge to form a belief as to the truth or falsity of said averments contained in Paragraph 104; consequently, said averments are denied.

105. The averments contained in Paragraph 105 are denied. To the contrary, Neilan acted with all due care under the circumstances, properly performed its services pursuant to its contract and owes no duty to Irvona. It is further averred that Irvona has incurred no costs beyond those for which it is responsible.

WHEREFORE, Defendant, The EADS Group, t/a Neilan Engineers Division, respectfully requests that this Honorable Court enter judgment in its favor and against all parties.

COUNT IV

Irvona v. Eriksen - Breach of contract (Well No. 2)

106. Paragraphs 1 through 105 of this Answer are incorporated herein as though fully set forth at length.

107. Inasmuch as said allegations are not directed to Neilan, no answer is necessary.

108. Inasmuch as said allegations are not directed to Neilan, no answer is necessary.

109. Inasmuch as said allegations are not directed to Neilan, no answer is necessary.

110. Inasmuch as said allegations are not directed to Neilan, no answer is necessary.

111. Inasmuch as said allegations are not directed to Neilan, no answer is necessary.

112. Inasmuch as said allegations are not directed to Neilan, no answer is necessary.

113. Inasmuch as said allegations are not directed to Neilan, no answer is necessary.

WHEREFORE, Defendant, The EADS Group, t/a Neilan Engineers Division, respectfully requests that this Honorable Court enter judgment in its favor and against all parties.

COUNT V

Irvona v. Casselberry - Breach of contract (Well No. 2)

114. Paragraphs 1 through 113 of this Answer are incorporated herein as though fully set forth at length.

115. Inasmuch as said allegations are not directed to Neilan, no answer is necessary.

116. Inasmuch as said allegations are not directed to Neilan, no answer is necessary.

117. Inasmuch as said allegations are not directed to Neilan, no answer is necessary.

118. Inasmuch as said allegations are not directed to Neilan, no answer is necessary.

119. Inasmuch as said allegations are not directed to Neilan, no answer is necessary.

WHEREFORE, Defendant, The EADS Group, t/a Neilan Engineers Division, respectfully requests that this Honorable Court enter judgment in its favor and against all parties.

COUNT VI

Irvona v. Neilan - Breach of contract (Well No. 2)

120. Paragraphs 1 through 119 of this Answer are incorporated herein as though fully set forth at length.

121. The averments contained in Paragraph 121 are denied. To the contrary, Neilan acted with all due care under the circumstances, properly performed its services pursuant to its

contracts and owes no duty to any party. By way of further reply, Neilan had no construction supervision responsibilities for Well No. 2. It is further averred that Neilan had no duty to inspect the casing installed in Well No. 2.

122. The averments contained in Paragraph 122 are denied. To the contrary, Neilan acted with all due care under the circumstances, properly performed its services pursuant to its contracts and owes no duty to Irvona or any other party. By way of further reply, Neilan had no responsibility for supervising construction of Well No. 2, nor for inspecting the materials installed by Defendant Eriksen.

123. The averments contained in Paragraph 123 are denied. By way of further reply, it is averred that Well No. 2 suffers no contamination and strict proof to the contrary is demanded at the time of trial.

124. The averments contained in Paragraph 124 are denied. By way of further reply, it is averred that Well No. 2 suffers no contamination and strict proof to the contrary is demanded at the time of trial.

125. The averments contained in Paragraph 125 are denied. To the contrary, Neilan acted with all due care under the circumstances, properly performed its services pursuant to its contracts and owes no duty to Irvona or any other party. It is further averred that Irvona has incurred no costs beyond those for which it is responsible.

WHEREFORE, Defendant, The EADS Group, t/a Neilan Engineers Division, respectfully requests that this Honorable Court enter judgment in its favor and against all parties.

COUNT VII

Irvona v. Eriksen - Negligence (Well No. 1)

126. Paragraphs 1 through 125 of this Answer are incorporated herein as though fully set forth at length.

127. Inasmuch as said allegations are not directed to Neilan, no answer is necessary.

128. Inasmuch as said allegations are not directed to Neilan, no answer is necessary.

129. Inasmuch as said allegations are not directed to Neilan, no answer is necessary.

130. Inasmuch as said allegations are not directed to Neilan, no answer is necessary.

131. Inasmuch as said allegations are not directed to Neilan, no answer is necessary.

132. Inasmuch as said allegations are not directed to Neilan, no answer is necessary.

133. Inasmuch as said allegations are not directed to Neilan, no answer is necessary.

WHEREFORE, Defendant, The EADS Group, t/a Neilan Engineers Division, respectfully requests that this Honorable Court enter judgment in its favor and against all parties.

COUNT VIII

Irvona v. Casselberry - Negligence (Well No. 1)

134. Paragraphs 1 through 133 of this Answer are incorporated herein as though fully set forth at length.

135. Inasmuch as said allegations are not directed to Neilan, no answer is necessary.

136. Inasmuch as said allegations are not directed to Neilan, no answer is necessary.

137. Inasmuch as said allegations are not directed to Neilan, no answer is necessary.

138. Inasmuch as said allegations are not directed to Neilan, no answer is necessary.

139. Inasmuch as said allegations are not directed to Neilan, no answer is necessary.

140. Inasmuch as said allegations are not directed to Neilan, no answer is necessary.

141. Inasmuch as said allegations are not directed to Neilan, no answer is necessary.

WHEREFORE, Defendant, The EADS Group, t/a Neilan Engineers Division, respectfully requests that this Honorable Court enter judgment in its favor and against all parties.

COUNT IX

Irvona v. Neilan - Negligence (Well No. 1)

142. Paragraphs 1 through 141 of this Answer are incorporated herein as though fully set forth at length.

143. The averments contained in Paragraph 143 are denied. By way of further reply, it is specifically denied Neilan had responsibility to supervise construction of Well No. 1.

144. After reasonable investigation, Neilan is without sufficient knowledge to form a belief as to the truth or falsity of said averments contained in Paragraph 144; consequently, said averments are denied.

145. After reasonable investigation, Neilan is without sufficient knowledge to form a belief as to the truth or falsity of said averments contained in Paragraph 145; consequently, said averments are denied.

146. After reasonable investigation, Neilan is without sufficient knowledge to form a belief as to the truth or falsity of said averments contained in Paragraph 146; consequently, said averments are denied.

147. The averments contained in Paragraph 147 are denied. To the contrary, Neilan acted with all due care under the circumstances, properly performed its services pursuant to its contract and owes no duty to Irvona or any other party. It is further averred that Irvona has incurred no costs beyond those for which it is responsible.

148. The averments contained in Paragraph 148 constitute a legal conclusion to which no response is necessary. To the extent that a response is deemed to be necessary, Neilan acted with all due care under the circumstances, properly performed its services pursuant to its contract, and owes no duty to any party for the allegations against it.

WHEREFORE, Defendant, The EADS Group, t/a Neilan Engineers Division, respectfully requests that this Honorable Court enter judgment in its favor and against all parties.

COUNT X

Irvona v. Eriksen - Negligence (Well No. 2)

149. Paragraphs 1 through 148 of this Answer are incorporated herein as though fully set forth at length.

150. Inasmuch as said allegations are not directed to Neilan, no answer is necessary.

151. Inasmuch as said allegations are not directed to Neilan, no answer is necessary.

152. Inasmuch as said allegations are not directed to Neilan, no answer is necessary.

153. Inasmuch as said allegations are not directed to Neilan, no answer is necessary.

154. Inasmuch as said allegations are not directed to Neilan, no answer is necessary.

155. Inasmuch as said allegations are not directed to Neilan, no answer is necessary.

WHEREFORE, Defendant, The EADS Group, t/a Neilan Engineers Division, respectfully requests that this Honorable Court enter judgment in its favor and against all parties.

COUNT XI

Irvona v. Casselberry - Negligence (Well No. 2)

156. Paragraphs 1 through 155 of this Answer are incorporated herein as though fully set forth at length.

157. Inasmuch as said allegations are not directed to Neilan, no answer is necessary.

158. Inasmuch as said allegations are not directed to Neilan, no answer is necessary.

159. Inasmuch as said allegations are not directed to Neilan, no answer is necessary.

160. Inasmuch as said allegations are not directed to Neilan, no answer is necessary.

161. Inasmuch as said allegations are not directed to Neilan, no answer is necessary.

162. Inasmuch as said allegations are not directed to Neilan, no answer is necessary.

163. Inasmuch as said allegations are not directed to Neilan, no answer is necessary.

WHEREFORE, Defendant, The EADS Group, t/a Neilan Engineers Division, respectfully requests that this Honorable Court enter judgment in its favor and against all parties.

COUNT XII

Irvona v. Neilan - Negligence (Well No. 2)

164. Paragraphs 1 through 163 of this Answer are incorporated herein as though fully set forth at length.

165. The averments contained in Paragraph 165 are denied. By way of further reply, it is specifically denied Neilan had responsibility to supervise construction of Well No. 2.

166. The averments contained in Paragraph 166 are denied and strict proof to the contrary is demanded at time of trial.

167. After reasonable investigation, Neilan is without sufficient knowledge to form a belief as to the truth or falsity of said averments contained in Paragraph 167; consequently, said averments are denied.

168. The averments contained in Paragraph 168 are denied. By way of further reply, it is averred Well No. 2 suffers no contamination and strict proof to the contrary is demanded at the time of trial.

169. The averments contained in Paragraph 169 are denied. It is further averred that Irvona has incurred no costs beyond those for which it is responsible.

170. The averments contained in Paragraph 170 constitute a legal conclusion to which no response is necessary. To the extent that a response is deemed to be necessary, Neilan acted with all due care under the circumstances, properly performed its services pursuant to its contract, and owes no duty to any party for the allegations against it.

WHEREFORE, Defendant, The EADS Group, t/a Neilan Engineers Division, respectfully requests that this Honorable Court enter judgment in its favor and against all parties.

COUNT XIII

Irvona v. Neilan - Fraud (Well No. 1)

171. Paragraphs 1 through 170 of this Answer are incorporated herein as though fully set forth at length.

172. Pursuant to the October 25, 2001, Order of Court by President Judge Reilly all fraud and punitive damage claims are continued to permit completion of discovery. Consequently, no further answer is required.

173. Pursuant to the October 25, 2001, Order of Court by President Judge Reilly all fraud and punitive damage claims are continued to permit completion of discovery. Consequently, no further answer is required.

174. Pursuant to the October 25, 2001, Order of Court by President Judge Reilly all fraud and punitive damage claims are continued to permit completion of discovery. Consequently, no further answer is required.

175. Pursuant to the October 25, 2001, Order of Court by President Judge Reilly all fraud and punitive damage claims are continued to permit completion of discovery. Consequently, no further answer is required.

WHEREFORE, Defendant, The EADS Group, t/a Neilan Engineers Division, respectfully requests that this Honorable Court enter judgment in its favor and against all parties.

COUNT XIV

Irvona v. Neilan - Fraud (Well No. 2)

176. Paragraphs 1 through 175 of this Answer are incorporated herein as though fully set forth at length.

177. Pursuant to the October 25, 2001, Order of Court by President Judge Reilly all fraud and punitive damage claims are continued to permit completion of discovery. Consequently, no further answer is required.

178. Pursuant to the October 25, 2001, Order of Court by President Judge Reilly all fraud and punitive damage claims are continued to permit completion of discovery. Consequently, no further answer is required.

179. Pursuant to the October 25, 2001, Order of Court by President Judge Reilly all fraud and punitive damage claims are continued to permit completion of discovery. Consequently, no further answer is required.

180. Pursuant to the October 25, 2001, Order of Court by President Judge Reilly all fraud and punitive damage claims are continued to permit completion of discovery. Consequently, no further answer is required.

WHEREFORE, Defendant, The EADS Group, t/a Neilan Engineers Division, respectfully requests that this Honorable Court enter judgment in its favor and against all parties.

NEW MATTER

181. Paragraphs 1 through 180 of this Answer are incorporated herein as though fully set forth at length.

182. The Plaintiff's Amended Complaint fails to state a cause of action upon which relief can be granted.

183. Neilan properly performed all responsibilities in connection with Well No. 1 and Well No. 2.

184. Neilan asserts superceding/intervening causes as an affirmative defense.

185. Neilan asserts the Doctrine of Contribution and/or Comparative Negligence.

186. Neilan asserts that Plaintiff's cause of action is barred by the Doctrine of Waiver and/or Estoppel to the extent shown to have occurred.

187. Neilan asserts that Plaintiff's cause of action is barred by the Statute of Limitations, Laches or is otherwise time-barred to the extent shown.

188. Plaintiff's alleged damages, if any, have resulted from causes for which Plaintiff is solely responsible.

189. Neilan asserts "failure to mitigate damages" as an affirmative defense.

190. Neilan properly performed all responsibilities, including design, in connection with said project.

191. Plaintiff's alleged damages have resulted from causes for which the Plaintiff and/or other entities are solely responsible.

WHEREFORE, Defendant The EADS Group t/a Neilan Engineers Division requests judgment in its favor together with cost of suit.

NEW MATTER PURSUANT TO RULE 2252(d)

192. Paragraphs 1 through 191 of this Answer are incorporated herein as though fully set forth at length.

193. Neilan asserts that Irvona Municipal Authority is solely liable for any and all damages in the suit and denies liability thereto.

194. In the alternative, if is determined that Neilan is liable in any way for such damages to Plaintiff, which liability is specifically denied, then it is averred that Defendants David Eriksen t/a Eriksen Well Drilling, James R. Casselberry, and James R. Casselberry & Associates, Inc., are solely and jointly and severally liable for such damages for those reasons set forth in the pleadings against said Defendants, which allegations are incorporated herein, without admitting any such allegations, solely for the purpose of this crossclaim.

195. In the alternative, if Neilan is found in any way liable to the Plaintiff, which liability is specifically denied as set forth above, then in that alternative, Neilan asserts a claim for contribution and indemnification against all other Defendants.

WHEREFORE, Defendant The EADS Group t/a Neilan Engineers Division requests judgment in its favor together with cost of suit.

Respectfully submitted,

BURNS, WHITE & HICKTON, LLC

Robert J. Ray, Esquire
Attorneys for Defendant The EADS Group
t/a Neilan Engineers Division

the eads group

Neilan Engineers Division
[illegible]5 Tayman Avenue
P.O. Box 837
Somerset, Pennsylvania 15501-0837
(814) 445-6551
FAX (814) 443-2748

ENGINEERS-ARCHITECTS-SURVEYORS

April 13, 1992

Irvona Municipal Authority
Berwind Street
Irvona, Pennsylvania 16656

ENGINEERING PROPOSAL FOR NEW WATER SUPPLY SYSTEM

We present you with this proposal for Professional Engineering Services to develop a new water supply system.

The project scope was developed in the Water Supply and Treatment Feasibility Study dated October 1991, and includes the following:

1. Develop a new supply Well No. 2 along lower Hockenberry Run. Connect proposed Well No. 2 to water main. Relocate master meter and chlorinator in a new building.

2. Construct Booster Pump Station and water line extension to the Clearfield County Municipal Services and Recreation Authority System (CCMSRA) in Coalport.

3. Construct finished water storage tank and associated facilities.

Our services will consist of preparing a preliminary design, final design, assistance during Bidding or Negotiating, construction administration including resident project services during critical parts of the construction, and assistance during the operational phase.

The Authority shall pay Neilan Engineers Division for our Basic Services a lump sum fee of $35,000.00. Additional services will be charged on the basis of salary costs times a multiplier of 2.0 plus the cost of reimbursable expenses. We will bill you monthly for services and reimbursable expenses.

EXHIBIT
1

We would expect to start our services promptly after your acceptance of this proposal and follow the attached time line for this project as follows:

1. Complete exploratory well drilling by July 1, 1992.
2. Complete Preliminary Design by November 1, 1992.
3. Submit Water Supply Permit Application to DER by December 1, 1992.
4. Submit PennVEST Loan Application by January 1, 1993.
5. Prepare Bid Documents and Arrange Financing to begin Construction of New Facilities by December 1, 1993.
6. Begin Operation of New Facilities on December 27, 1994.

The above time line is based on meeting the Department of Environmental Resources Consent Order and Agreement.

As per Attachment 1 and Exhibit B, Additional Services for the project are estimated to be $37,000.00. Please note that we are proposing to furnish a Resident Project Representative for a total of four (4) weeks to cover critical portions of construction.

Services are to be rendered in the customary phases which, together with the general understandings applicable to our relationship with you are set forth in the printed General Provisions which are attached to and made a part of this proposal. Your particular responsibilities are also set forth in the General Provisions.

This proposal, Attachment 1, Exhibit B, and the General Provisions consisting of 9 pages represent the entire understanding between you and us in respect of the Project and may only be modified in writing signed by both of us. If it satisfactorily sets forth your understanding of our agreement, we would appreciate your signing the enclosed copy of this letter in the space provided below and returning it to us. This proposal will be open for acceptance until May 15, 1992, unless changed by us in writing.

NEILAN ENGINEERS DIVISION
The EADS Group

F. Scott Rugh, P.E.

FSR/rcw

Enclosure

cc: File 4100 W-02

Approved by:

J. Thomas Reilly, P.E.
President

Accepted by the Irvona Municipal Authority this 11th day of May, 1992.

Attested by
Secretary

ATTACHMENT 1

ESTIMATED COSTS
FOR
ADDITIONAL SERVICES
ATTACHMENT TO
PROPOSAL FOR WATER SUPPLY SYSTEM
IRVONA MUNICIPAL AUTHORITY

Field Surveys for Design. Route Survey to Well, Water Storage Tank, Water Lines and Booster Station	$ 8,000.00
Permits	$ 5,000.00
Hydrogeologist and Water Testing	$ 8,000.00
Tank Site Soils Foundation Testing and Report	$ 5,000.00
PennVEST Application	$ 3,000.00
Rights-of-Way and Land Acquisition Research and Drawings	$ 2,000.00
Resident Project Representative for 4 Weeks	$ 6,000.00
TOTAL	$37,000.00

EXHIBIT B TO GENERAL PROVISIONS ATTACHED TO LETTER AGREEMENT BETWEEN OWNER AND ENGINEER FOR PROFESSIONAL SERVICES, dated April 13, 1992) (for use with EJCDC No. 1910-2, 1985 Edition).

A LISTING OF THE DUTIES, RESPONSIBILITIES AND LIMITATIONS OF AUTHORITY OF THE RESIDENT PROJECT REPRESENTATIVE.

This is an Exhibit attached to, made a part of and incorporated by reference with the General Provisions attached to Letter Agreement made on April 13, 1992,
between Irvona Municipal Authority (OWNER)
and Neilan Engineers Division (ENGINEER)
providing for professional engineering services.

ENGINEER shall furnish a Resident Project Representative (RPR), assistants and other field staff to assist ENGINEER in observing performance of the work of Contractor.

Through more extensive on-site observations of the work in progress and field checks of materials and equipment by the RPR and assistants, ENGINEER shall endeavor to provide further protection for OWNER against defects and deficiencies in the work of CONTRACTOR; but, the furnishing of such services will not make ENGINEER responsible for or give ENGINEER control over construction means, methods, techniques, sequences or procedures or for safety precautions or programs, or responsibility for CONTRACTOR's failure to perform the Work in accordance with the Contract Documents and in particular the specific limitations set forth in paragraph 1.6 of the General Provisions to the Letter Agreement are applicable.

The duties and responsibilities of the RPR are limited to those of ENGINEER in ENGINEER's agreement with the OWNER and in the construction Contract Documents, and are further limited and described as follows:

A. General

RPR is ENGINEER's agent at the site, will act as directed by and under the supervision of ENGINEER, and will confer with ENGINEER regarding RPR's actions. RPR's dealings in matters pertaining to the on-site work shall in general be with ENGINEER and CONTRACTOR keeping OWNER advised as necessary. RPR's dealings with subcontractors shall only be through or with the full knowledge and approval of CONTRACTOR. RPR shall generally communicate with OWNER with the knowledge of and under the direction of ENGINEER.

B. Duties and Responsibilities of RPR

1. *Schedules:* Review the progress schedule, schedule of Shop Drawing submittals and schedule of values prepared by CONTRACTOR and consult with ENGINEER concerning acceptability.
2. *Conferences and Meetings:* Attend meetings with CONTRACTOR, such as preconstruction conferences, progress meetings, job conferences and other project-related meetings, and prepare and circulate copies of minutes thereof.
3. *Liaison:*
   a. Serve as ENGINEER's liaison with CONTRACTOR, working principally through CONTRACTOR's superintendent and assist in understanding the intent of the Contract Documents; and assist ENGINEER in serving as OWNER's liaison with CONTRACTOR when CONTRACTOR's operations affect OWNER's on-site operations.
   b. Assist in obtaining from OWNER additional details or information, when required for proper execution of the Work.
4. *Shop Drawings and Samples:*
   a. Record date of receipt of Shop Drawings and samples.
   b. Receive samples which are furnished at the site by CONTRACTOR, and notify ENGINEER of availability of samples for examination.
   c. Advise ENGINEER and CONTRACTOR of the commencement of any Work requiring a Shop Drawing or sample if the submittal has not been approved by ENGINEER.

5. *Review of Work, Rejection of Defective Work, Inspections and Tests:*
   a. Conduct on-site observations of the Work in progress to assist ENGINEER in determining if the Work is in general proceeding in accordance with the Contract Documents.
   b. Report to ENGINEER whenever RPR believes that any Work is unsatisfactory, faulty or defective or does not conform to the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test or approval required to be made; and advise ENGINEER of Work that RPR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.
   c. Verify that tests, equipment and systems startups and operating and maintenance training are conducted in the presence of appropriate personnel, and that CONTRACTOR maintains adequate records thereof; and observe, record and report to ENGINEER appropriate details relative to the test procedures and startups.
   d. Accompany visiting inspectors representing public or other agencies having jurisdiction over the Project, record the results of these inspections and report to ENGINEER.
6. *Interpretation of Contract Documents:* Report to ENGINEER when clarifications and interpretations of the Contract Documents are needed and transmit to CONTRACTOR clarifications and interpretations as issued by ENGINEER.
7. *Modifications:* Consider and evaluate CONTRACTOR's suggestions for modifications in Drawings or Specifications and report with RPR's recommendations to ENGINEER. Transmit to CONTRACTOR decisions as issued by ENGINEER.
8. *Records:*
   a. Maintain at the job site orderly files for correspondence, reports of job conferences, Shop Drawings and samples, reproductions of original Contract Documents including all Work Directive Changes, Addenda, Change Orders, Field Orders, additional Drawings issued subsequent to the execution of the Contract, ENGINEER's clarifications and interpretations of the Contract Documents, progress reports, and other Project related documents.
   b. Keep a diary or log book, recording CONTRACTOR hours on the job site, weather conditions, data relative to questions of Work Directive Changes, Change Orders or changed conditions, list of job site visitors, daily activities, decisions, observations in general, and specific observations in more detail as in the case of observing test procedures; and send copies to ENGINEER.
   c. Record names, addresses and telephone numbers of all CONTRACTORS, subcontractors and major suppliers of materials and equipment.
9. *Reports:*
   a. Furnish ENGINEER periodic reports as required of progress of the Work and of CONTRACTOR's compliance with the progress schedule and schedule of Shop Drawing and sample submittals.
   b. Consult with ENGINEER in advance of scheduled major tests, inspections or start of important phases of the Work.
   c. Draft proposed Change Orders and Work Directive Changes, obtaining backup material from CONTRACTOR and recommend to ENGINEER Change Orders, Work Directive Changes, and Field Orders.
   d. Report immediately to ENGINEER and OWNER upon the occurrence of any accident.
10. *Payment Requests:* Review applications for payment with CONTRACTOR for compliance with the established procedure for their submission and forward with recommendations to ENGINEER, noting particularly the relationship of the payment requested to the schedule of values, Work completed and materials and equipment delivered at the site but not incorporated in the Work.
11. *Certificates, Maintenance and Operation Manuals:* During the course of the Work, verify that certificates, maintenance and operation manuals and other data required to be assembled and furnished by CONTRACTOR are applicable to the items actually installed and in accordance with the Contract Documents, and have this material delivered to ENGINEER for review and forwarding to OWNER prior to final payment for the Work.
12. *Completion:*
   a. Before ENGINEER issues a Certificate of Substantial Completion, submit to CONTRACTOR a list of observed items requiring completion or correction.

b. Conduct final inspection in the company of ENGINEER, OWNER, and CONTRACTOR and prepare a final list of items to be completed or corrected.

c. Observe that all items on final list have been completed or corrected and make recommendations to ENGINEER concerning acceptance.

C. Limitations of Authority

Resident Project Representative:

1. Shall not authorize any deviation from the Contract Documents or substitution of materials or equipment, unless authorized by ENGINEER.
2. Shall not exceed limitations of ENGINEER's authority as set forth in the Agreement or the General Provisions to the Letter Agreement or the Contract Documents.
3. Shall not undertake any of the responsibilities of CONTRACTOR, subcontractors or CONTRACTOR's superintendent.
4. Shall not advise on, issue directions relative to or assume control over any aspect of the means, methods, techniques, sequences or procedures of construction unless such advice or directions are specifically required by the Contract Documents.
5. Shall not advise on, issue directions regarding or assume control over safety precautions and programs in connection with the Work.
6. Shall not accept Shop Drawing or sample submittals from anyone other than CONTRACTOR.
7. Shall not authorize OWNER to occupy the Project in whole or in part.
8. Shall not participate in specialized field or laboratory tests or inspections conducted by others except as specifically authorized by ENGINEER.

[The remainder of this page was left blank intentionally.]

GENERAL PROVISIONS

Attached to and made a part of LETTER AGREEMENT, dated _____, 19___ between Irvona Municipal Authority (OWNER) and Neilan Engineers Division (ENGINEER) in respect of the Project described therein.

SECTION 1—BASIC SERVICES OF ENGINEER

1.1. General.

1.1.1. ENGINEER shall perform for OWNER professional engineering services in all phases of the Project to which this Agreement applies as hereinafter provided. These services will include serving as OWNER's professional engineering representative for the Project, providing professional engineering consultation and advice and furnishing customary civil, structural, mechanical and electrical engineering services and customary architectural services incidental thereto.

1.2. Study and Report Phase.

After written authorization to proceed, ENGINEER shall:

1.2.1. Consult with OWNER to clarify and define OWNER's requirements for the Project and review available data.

1.2.2. Advise OWNER as to the necessity of OWNER's providing or obtaining from others data or services of the types described in paragraph 3.2, and assist OWNER in obtaining such data and services.

1.2.3. Identify and analyze requirements of governmental authorities having jurisdiction to approve the design of the Project and participate in consultations with such authorities.

1.2.4. Provide analyses of OWNER's needs, planning surveys, site evaluations and comparative studies of prospective sites and solutions.

1.2.5. Provide a general economic analysis of OWNER's requirements applicable to various alternatives.

1.2.6. Prepare a Report containing schematic layouts, sketches and conceptual design criteria with appropriate exhibits to indicate clearly the considerations involved (including applicable requirements of governmental authorities having jurisdiction as aforesaid) and the alternative solutions available to OWNER and setting forth ENGINEER's findings and recommendations. This Report will be accompanied by ENGINEER's opinion of probable costs for the Project, including the following which will be separately itemized: Construction Cost, allowance for engineering costs and contingencies, and (on the basis of information furnished by OWNER) allowances for such other items as charges of all other professionals and consultants, for the cost of land and rights-of-way, for compensation for or damages to properties, for interest and financing charges and for other services to be provided by others for OWNER pursuant to paragraph 3.2. The total of all such costs, allowances, etc. are hereinafter called "Total Project Costs."

1.2.7. Furnish five copies of the Study and Report documents and review them in person with OWNER.

The duties and responsibilities of ENGINEER during the Study and Report Phase are amended and supplemented as indicated in paragraph 2 of Exhibit A "Further Descriptions of Basic Engineering Services and Related Matters".

1.3. Preliminary Design Phase.

After written authorization to proceed with the Preliminary Design Phase, ENGINEER shall:

1.3.1. In consultation with OWNER and on the basis of the accepted Study and Report documents, determine the general scope, extent and character of the Project.

1.3.2. Prepare Preliminary Design documents consisting of final design criteria, preliminary drawings, outline specifications and written descriptions of the Project.

1.3.3. Advise OWNER if additional data or services of the types described in the first subparagraph of paragraph 3.2 are necessary and assist OWNER in obtaining such data and services.

1.3.4. Based on the information contained in the preliminary design documents, submit a revised opinion of probable Total Project Costs.

1.3.5. Furnish five copies of the above Preliminary Design documents and present and review them in person with OWNER.

The duties and responsibilities of ENGINEER during the Preliminary Design Phase are amended and supplemented as indicated in paragraph 3 of Exhibit A "Further Description of Basic Engineering Services and Related Matters".

1.4. Final Design Phase.

After written authorization to proceed with the Final Design Phase, ENGINEER shall:

1.4.1. On the basis of the accepted Preliminary Design documents and the revised opinion of probable Total Project Costs, prepare for incorporation in the Contract Documents final drawings to show the general scope, extent and character of the work to be furnished and performed by Contractor(s) (hereinafter called "Drawings") and Specifications (which will be prepared in conformance with the sixteen division format of the Construction Specifications Institute).

1.4.2. Provide technical criteria, written descriptions and design data for OWNER's use in filing applications for permits with or obtaining approvals of such governmental authorities as have jurisdiction to approve the design of the Project, and assist OWNER in consultations with appropriate authorities.

1.4.3. Advise OWNER of any adjustments to the latest opinion of probable Total Project Costs caused by changes in general scope, extent or character or design requirements of the Project or Construction Costs. Furnish to OWNER a revised opinion of probable Total Project Costs based on the Drawings and Specifications.

1.4.4. Prepare for review and approval by OWNER, its legal counsel and other advisors contract agreement forms, general conditions and supplementary conditions, and (where appropriate) bid forms, invitations to bid and instructions to bidders (all of which shall be consistent with the forms and pertinent guide sheets prepared by the Engineers' Joint Contract Documents Committee), and assist in the preparation of other related documents.

1.4.5. Furnish five copies of the above documents and of the Drawings and Specifications and present and review them in person with OWNER.

The duties and responsibilities of ENGINEER during the Final Design Phase are amended and supplemented as indicated in paragraph 4 of Exhibit A "Further Description of Basic Engineering Services and Related Matters".

1.5. Bidding or Negotiating Phase.

After written authorization to proceed with the Bidding or Negotiating Phase, ENGINEER shall:

1.5.1. Assist OWNER in advertising for and obtaining bids or negotiating proposals for each separate prime contract for construction, materials, equipment and services; and, where applicable, maintain a record of prospective bidders to whom Bidding Documents have been issued, attend pre-bid conferences and receive and process deposits for Bidding Documents.

1.5.2. Issue addenda as appropriate to interpret, clarify or expand the Bidding Documents.

1.5.3. Consult with and advise OWNER as to the acceptability of subcontractors, suppliers and other persons and organizations proposed by the prime contractor(s) (herein called "Contractor(s)") for those portions of the work as to which such acceptability is required by the Bidding Documents.

1.5.4. Consult with OWNER concerning and determine the acceptability of substitute materials and equipment proposed by Contractor(s) when substitution prior to the award of contracts is allowed by the Bidding Documents.

1.5.5. Attend the bid opening, prepare bid tabulation sheets and assist OWNER in evaluating bids or proposals and in assembling and awarding contracts for construction, materials, equipment and services.

The duties and responsibilities of ENGINEER during the Bidding or Negotiating Phase are amended and supplemented as indicated in paragraph 5 of Exhibit A "Further Description of Basic Engineering Services and Related Matters".

1.6. Construction Phase.

During the Construction Phase:

1.6.1. *General Administration of Construction Contract.* ENGINEER shall consult with and advise OWNER and act as OWNER's representative as provided in Articles 1 through 17, inclusive, of the Standard General Conditions of the Construction Contract, No. 1910-8 (1983 edition) of the Engineers' Joint Contract Documents Committee. The extent and limitations of the duties, responsibilities and authority of ENGINEER as assigned in said Standard General Conditions shall not be modified, except to the extent provided in paragraph 6 of Exhibit A "Further Description of Basic Engineering Services and Related Matters" and except as ENGINEER may otherwise agree in writing. All of OWNER's instructions to Contractor(s) will be issued through ENGINEER who will have authority to act on

behalf of OWNER to the extent provided in said Standard General Conditions except as otherwise provided in writing.

1.6.2. *Visits to Site and Observation of Construction.* In connection with observations of the work of Contractor(s) while it is in progress:

1.6.2.1. ENGINEER shall make visits to the site at intervals appropriate to the various stages of construction as ENGINEER deems necessary in order to observe as an experienced and qualified design professional the progress and quality of the various aspects of Contractor(s)' work. In addition, ENGINEER shall provide the services of a Resident Project Representative (and assistants as agreed) at the site to assist ENGINEER and to provide more continuous observation of such work. Based on information obtained during such visits and on such observations, ENGINEER shall endeavor to determine in general if such work is proceeding in accordance with the Contract Documents and ENGINEER shall keep OWNER informed of the progress of the work.

1.6.2.2. The Resident Project Representative (and any assistants) will be ENGINEER's agent or employee and under ENGINEER's supervision. The duties and responsibilities of the Resident Project Representative (and assistants) are set forth in Exhibit B "Duties, Responsibilities and Limitation of Authority of Resident Project Representative".

1.6.2.3. The purpose of ENGINEER's visits to and representation by the Resident Project Representative (and assistants, if any) at the site will be to enable ENGINEER to better carry out the duties and responsibilities assigned to and undertaken by ENGINEER during the Construction Phase, and, in addition, by exercise of ENGINEER's efforts as an experienced and qualified design professional, to provide for OWNER a greater degree of confidence that the completed work of Contractor(s) will conform generally to the Contract Documents and that the integrity of the design concept as reflected in the Contract Documents has been implemented and preserved by Contractor(s). On the other hand, ENGINEER shall not, during such visits or as a result of such observations of Contractor(s)' work in progress, supervise, direct or have control over Contractor(s)' work nor shall ENGINEER have authority over or responsibility for the means, methods, techniques, sequences or procedures of construction selected by Contractor(s), for safety precautions and programs incident to the work of Contractor(s) or for any failure of Contractor(s) to comply with laws, rules, regulations, ordinances, codes or orders applicable to Contractor(s) furnishing and performing their work. Accordingly, ENGINEER can neither guarantee the performance of the construction contracts by Contractor(s) nor assume responsibility for Contractor(s)' failure to furnish and perform their work in accordance with the Contract Documents.

1.6.3. *Defective Work.* During such visits and on the basis of such observations, ENGINEER may disapprove of or reject Contractor(s)' work while it is in progress if ENGINEER believes that such work will not produce a completed Project that conforms generally to the Contract Documents or that it will prejudice the integrity of the design concept of the Project as reflected in the Contract Documents.

1.6.4. *Interpretations and Clarifications.* ENGINEER shall issue necessary interpretations and clarifications of the Contract Documents and in connection therewith prepare work directive changes and change orders as required.

1.6.5. *Shop Drawings.* ENGINEER shall review and approve (or take other appropriate action in respect of) Shop Drawings (as that term is defined in the aforesaid Standard General Conditions), samples and other data which Contractor(s) are required to submit, but only for conformance with the design concept of the Project and compliance with the information given in the Contract Documents. Such reviews and approvals or other action shall not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto.

1.6.6. *Substitutes.* ENGINEER shall evaluate and determine the acceptability of substitute materials and equipment proposed by Contractor(s), but subject to the provision of the second subparagraph of paragraph 2.1.2.

1.6.7. *Inspections and Tests.* ENGINEER shall have authority, as OWNER's representative, to require special inspection or testing of the work, and shall receive and review all certificates of inspections, testings and approvals required by laws, rules, regulations, ordinances, codes, orders or the Contract Documents (but only to determine generally that their content complies with the requirements of, and the results certified indicate compliance with, the Contract Documents).

1.6.8. *Disputes between OWNER and Contractor.* ENGINEER shall act as initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the work thereunder and make decisions on all claims of OWNER and Contractor(s) relating to the acceptability of the work or the interpretation

of the requirements of the Contract Documents pertaining to the execution and progress of the work. ENGINEER shall not be liable for the results of any such interpretations or decisions rendered in good faith.

1.6.9. *Applications for Payment.* Based on ENGINEER's on-site observations as an experienced and qualified design professional, on information provided by the Resident Project Representative and on review of applications for payment and the accompanying data and schedules:

1.6.9.1. ENGINEER shall determine the amounts owing to Contractor(s) and recommend in writing payments to Contractor(s) in such amounts. Such recommendations of payment will constitute a representation to OWNER, based on such observations and review, that the work has progressed to the point indicated, and that, to the best of ENGINEER's knowledge, information and belief, the quality of such work is generally in accordance with the Contract Documents (subject to an evaluation of such work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents and to any other qualifications stated in the recommendation). In the case of unit price work, ENGINEER's recommendations of payment will include final determinations of quantities and classifications of such work (subject to any subsequent adjustments allowed by the Contract Documents).

1.6.9.2. By recommending any payment ENGINEER will not thereby be deemed to have represented that exhaustive, continuous or detailed reviews or examinations have been made by ENGINEER to check the quality or quantity of Contractor(s)' work as it is furnished and performed beyond the responsibilities specifically assigned to ENGINEER in this Agreement and the Contract Documents. ENGINEER's review of Contractor(s)' work for the purposes of recommending payments will not impose on ENGINEER responsibility to supervise, direct or control such work or for the means, methods, techniques, sequences, or procedures of construction or safety precautions or programs incident thereto or Contractor(s) compliance with laws, rules, regulations, ordinances, codes or orders applicable to their furnishing and performing the work. It will also not impose responsibility on ENGINEER to make any examination to ascertain how or for what purposes any Contractor has used the moneys paid on account of the Contract Price, or to determine that title to any of the work, materials or equipment has passed to OWNER free and clear of any lien, claims, security interests or encumbrances, or that there may not be other matters at issue between OWNER and Contractor that might affect the amount that should be paid.

1.6.10. *Contractor(s)' Completion Documents.* ENGINEER shall receive and review maintenance and operating instructions, schedules, guarantees, bonds and certificates of inspection, tests and approvals which are to be assembled by Contractor(s) in accordance with the Contract Documents (but such review will only be to determine that their content complies with the requirements of, and in the case of certificates of inspection, tests and approvals the results certified indicate compliance with, the Contract Documents); and shall transmit them to OWNER with written comments.

1.6.11. *Inspections.* ENGINEER shall conduct an inspection to determine if the work is substantially complete and a final inspection to determine if the completed work is acceptable so that ENGINEER may recommend, in writing, final payment to Contractor(s) and may give written notice to OWNER and the Contractor(s) that the work is acceptable (subject to any conditions therein expressed), but any such recommendation and notice will be subject to the limitations expressed in paragraph 1.6.9.2.

1.6.12. *Limitation of Responsibilities.* ENGINEER shall not be responsible for the acts or omissions of any Contractor, or of any subcontractor or supplier, or any of the Contractor(s)' or subcontractor's or supplier's agents or employees or any other persons (except ENGINEER's own employees and agents) at the site or otherwise furnishing or performing any of the Contractor(s)' work; however, nothing contained in paragraphs 1.6.1 thru 1.6.11, inclusive, shall be construed to release ENGINEER from liability for failure to properly perform duties and responsibilities assumed by ENGINEER in the Contract Documents.

1.7. Operational Phase.

During Operational Phase, ENGINEER shall, when requested by OWNER:

1.7.1. Provide assistance in the closing of any financial or related transaction for the Project.

1.7.2. Provide assistance in connection with the refining and adjusting of any equipment or system.

1.7.3. Assist OWNER in training OWNER's staff to operate and maintain the Project.

1.7.4. Assist OWNER in developing systems and procedures for control of the operation and maintenance of and record keeping for the Project.

1.7.5. Prepare a set of reproducible record prints of Drawings showing those changes made during the construction process, based on the marked-up prints, drawings and other data furnished by Contractor(s) to ENGINEER and which ENGINEER considers significant.

1.7.6. In company with OWNER, visit the Project to observe any apparent defects in the completed construction, assist OWNER in consultations and discussions with Contractor(s) concerning correction of such deficiencies, and make recommendations as to replacement or correction of defective work.

The duties and responsibilities of ENGINEER during the Operational Phase are amended and supplemented as indicated in paragraph 7 of Exhibit A "Further Description of Basic Engineering Services and Related Matters".

SECTION 2—ADDITIONAL SERVICES OF ENGINEER

2.1. Normal and customary engineering services do not include service in respect of the following categories of work which are usually referred to as Additional Services.

2.1.1. If OWNER wishes ENGINEER to perform any of the following Additional Services, OWNER shall so instruct ENGINEER in writing, and ENGINEER shall perform or obtain from others such services and will be paid therefor as provided in the Letter Agreement:

—Preparation of applications and supporting documents for governmental financial support of the Project in addition to those required under Basic Services; preparation or review of environmental studies and related services; and assistance in obtaining environmental approvals.

—Services to make measured drawings of or to investigate existing conditions or facilities.

—Services resulting from significant changes in the general scope, extent or character of the Project or major changes in documentation previously accepted by OWNER where changes are due to causes beyond ENGINEER's control.

—Providing renderings or models.

—Preparing documents for alternate bids requested by OWNER for work which is not executed or for out-of-sequence work.

—Detailed consideration of operations, maintenance and overhead expenses; value engineering and the preparation of rate schedules, earnings and expense statements, cash flow and economic evaluations, feasibility studies, appraisals and valuations.

—Furnishing the services of independent professional associates or consultants for other than Basic Services.

—If ENGINEER's compensation for Basic Services is not on the basis of Direct Labor or Salary Costs, services resulting from the award of more than one prime contract for construction, materials, equipment or services for the Project, or from the construction contract containing cost plus or incentive-savings provisions for Contractor's basic compensation, or from arranging for performance by persons other than the principal prime contractors or from administering OWNER's contracts for such services.

—Services in connection with field surveys for design purposes and engineering surveys and staking out the work of Contractor(s).

—Services during out-of-town travel other than visits to the site.

—Preparation of operating and maintenance manuals to supplement Basic Services under paragraph 1.7.3.

—Preparing to serve or serving as a consultant or witness in any litigation, arbitration or other legal or administrative proceeding except where required as part of Basic Services.

2.1.2. When required by the Contract Documents in circumstances beyond ENGINEER's control, ENGINEER shall perform or obtain from others any of the following Additional Services as circumstances require during construction and without waiting for specific instructions from OWNER, and ENGINEER will be paid therefor as provided in the Letter Agreement:

—Services in connection with work directive changes and change orders to reflect the changes requested by OWNER if the resulting change in compensation for Basic Services is not commensurate with the additional services rendered.

—Services in making revisions to Drawings and Specifications occasioned by the acceptance of substitutions proposed by Contractor(s); services after the award of each contract in evaluating and determining the acceptability of an unreasonable or excessive number of substitutions proposed by Contractor; and evaluating an unreasonable or extensive number of claims submitted by Contractor(s) or others in connection with the work.

—Services resulting from significant delays, changes or price increases occurring as a direct or indirect

result of material, equipment or energy shortages.

—Additional or extended services during construction made necessary by (1) work damage by fire or other causes during construction, (2) a significant amount of defective or neglected work of any Contractor, (3) acceleration of the progress schedule involving services beyond normal working hours, (4) default by any Contractor.

SECTION 3—OWNER'S RESPONSIBILITIES

3.1. OWNER shall provide all criteria and full information as to OWNER's requirements for the Project; designate a person to act with authority on OWNER's behalf in respect of all aspects of the Project; examine and respond promptly to ENGINEER's submissions; and give prompt written notice to ENGINEER whenever OWNER observes or otherwise becomes aware of any defect in the work.

3.2. OWNER shall also do the following and pay all costs incident thereto:

—Furnish to ENGINEER borings, probings and subsurface explorations, hydrographic surveys, laboratory tests and inspections of samples, materials and equipment; appropriate professional interpretations of all of the foregoing; environmental assessment and impact statements; property, boundary, easement, right-of-way, topographic and utility surveys; property descriptions; zoning and deed restrictions; all of which ENGINEER may rely upon in performing services hereunder.

—Guarantee access to and make all provisions for ENGINEER to enter upon public and private property.

—Provide such legal, accounting, independent cost estimating and insurance counseling services as may be required for the Project, any auditing service required in respect of Contractor(s)' applications for payment, and any inspection services to determine if Contractor(s) are performing the work legally.

—Provide engineering surveys to establish reference points for construction.

—Furnish approvals and permits from all governmental authorities having jurisdiction over the Project.

—If more than one prime contractor is to be awarded for construction, designate a party to have responsibility and authority for coordinating the activities of the various prime contractors.

3.3. OWNER shall pay all costs incident to obtaining bids or proposals from Contractor(s).

SECTION 4—MEANING OF TERMS

4.1. As used herein the term "this Agreement" refers to the Letter Agreement to which these General Provisions are attached and to these General Provisions, Exhibit A "Further Description of Basic Engineering Services and Related Matters" and Exhibit B "Duties, Responsibilities and Limitations of Authority of Resident Project Representative", as if they were part of one and the same document.

4.2. The construction cost of the entire Project (herein referred to as "Construction Cost") means the total cost to OWNER of those portions of the entire Project designed and specified by ENGINEER, but it will not include ENGINEER's compensation and expenses, the cost of land, rights-of-way, or compensation for or damages to, properties unless this Agreement so specifies, nor will it include OWNER's legal, accounting, insurance counseling or auditing services, or interest and financing charges incurred in connection with the Project or the cost of other services to be provided by others to OWNER pursuant to paragraph 3.2. [Construction Cost is one of the items comprising Total Project Costs which is defined in paragraph 1.2.6.]

4.3. Direct Labor Costs used as a basis for payment mean salaries and wages (basic and incentive) paid to all ENGINEER's personnel engaged directly on the Project, including, but not limited to, engineers, architects, surveyors, designers, draftsmen, specification writers, estimators, other technical and business personnel; but does not include indirect payroll related costs or fringe benefits. For the purposes of this Agreement the principals of ENGINEER and their current hourly Direct Labor Costs are:

The hourly Direct Labor Costs of principals of ENGINEER will be adjusted equitably to reflect changes in personnel and in ENGINEER's overall compensation procedures and practices.

4.4. The Salary Costs used as a basis for payment mean salaries and wages (basic and incentive) paid to all ENGINEER's personnel engaged directly on the Project, including, but not limited to, engineers, architects, surveyors, designers, draftsmen, specification writers, estimators, other technical and business personnel; plus the cost of customary and statutory benefits including, but not limited to, social security contributions, unem-

ployment, excise and payroll taxes, workers' compensation, health and retirement benefits, sick leave, vacation and holiday pay and other group benefits. For the purposes of this Agreement, the principals of ENGINEER and their current hourly Salary Costs are:

President $50.00

The hourly Salary Costs of principals of ENGINEER will be adjusted equitably to reflect changes in personnel and in ENGINEER's overall compensation procedures and practices.

4.5. Reimbursable Expenses mean the actual expenses incurred by ENGINEER or ENGINEER's independent professional associates or consultants directly or indirectly in connection with the Project, such as expenses for: transportation and subsistence incidental thereto; obtaining bids or proposals from Contractor(s); providing and maintaining field office facilities including furnishings and utilities; subsistence and transportation of Resident Project Representatives and their assistants; toll telephone calls and telegrams; reproduction of reports, Drawings, Specifications, Bidding Documents and similar Project-related items in addition to those required under Section 1; and if authorized in advance by OWNER, overtime work requiring higher than regular rates. In addition, when compensation for Basic Services is on the basis of cost plus a fixed fee, Direct Labor Costs or Payroll Costs method of payment, if authorized in advance by OWNER, Reimbursable Expenses will also include expenses incurred for computer time and other highly specialized equipment, including an appropriate charge for previously established programs and expenses of photographic production techniques times a factor of 1.1.

SECTION 5—MISCELLANEOUS

5.1. Reuse of Documents.

All documents including Drawings and Specifications prepared or furnished by ENGINEER (and ENGINEER's independent professional associates and consultants) pursuant to this Agreement are instruments of service in respect of the Project and ENGINEER shall retain an ownership and property interest therein whether or not the Project is completed. OWNER may make and retain copies for information and reference in connection with the use and occupancy of the Project by OWNER and others; however, such documents are not intended or represented to be suitable for reuse by OWNER or others on extensions of the Project or on any other project. Any reuse without written verification or adaptation by ENGINEER for the specific purpose intended will be at OWNER's sole risk and without liability or legal exposure to ENGINEER, or to ENGINEER's independent professional associates or consultants, and OWNER shall indemnify and hold harmless ENGINEER and ENGINEER's independent professional associates and consultants from all claims, damages, losses and expenses including attorneys' fees arising out of or resulting therefrom. Any such verification or adaptation will entitle ENGINEER to further compensation at rates to be agreed upon by OWNER and ENGINEER.

5.2. Opinions of Cost.

Since ENGINEER has no control over the cost of labor, materials, equipment or services furnished by others, or over the Contractor(s)' methods of determining prices, or over competitive bidding or market conditions, ENGINEER's opinions of probable Total Project Costs and Construction Cost provided for herein are to be made on the basis of ENGINEER's experience and qualifications and represent ENGINEER's best judgment as an experienced and qualified professional engineer, familiar with the construction industry; but ENGINEER cannot and does not guarantee that proposals, bids or actual Total Project or Construction Costs will not vary from opinions of probable cost prepared by ENGINEER. If prior to the Bidding or Negotiating Phase OWNER wishes greater assurance as to Total Project or Construction Costs, OWNER shall employ an independent cost estimator as provided in paragraph 3.2. ENGINEER's services to modify the Contract Documents to bring the Construction Cost within any limitation established by OWNER will be considered Additional Services and paid for as such by OWNER.

5.3. Other Provisions Concerning Payments.

If OWNER fails to make any payment due ENGINEER for services and expenses within thirty days after receipt of ENGINEER's statement therefor, the amounts due ENGINEER will be increased at the rate of 1% per month from said thirtieth day, and in addition, ENGINEER may, after giving seven days' written notice to OWNER, suspend services under this Agreement until ENGINEER has been paid in full all amounts due for services, expenses and charges.

5.4. Termination.

The obligation to provide further services under this Agreement may be terminated by either party upon

seven days' written notice in the event of substantial failure by the other party to perform in accordance with the terms hereof through no fault of the terminating party. In the event of any termination, ENGINEER will be paid for all services rendered to the date of termination, all Reimbursable Expenses and termination expenses.

5.5. Controlling Law.

This Agreement is to be governed by the law of the principal place of business of ENGINEER.

5.6. Successors and Assigns.

5.6.1. OWNER and ENGINEER each is hereby bound and the partners, successors, executors, administrators and legal representatives of OWNER and ENGINEER (and to the extent permitted by paragraph 5.6.2 the assigns of OWNER and ENGINEER) are hereby bound to the other party to this Agreement and to the partners, successors, executors, administrators and legal representatives (and said assigns) of such other party, in respect of all covenants, agreements and obligations of this Agreement.

5.6.2. Neither OWNER nor ENGINEER shall assign, sublet or transfer any rights under or interest in (including, but without limitation, moneys that may become due or moneys that are due) this Agreement without the written consent of the other, except to the extent that any assignment, subletting or transfer is mandated by law or the effect of this limitation may be restricted by law. Unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under this Agreement. Nothing contained in this paragraph shall prevent ENGINEER from employing such independent professional associates and consultants as ENGINEER may deem appropriate to assist in the performance of services hereunder.

5.6.3. Nothing under this Agreement shall be construed to give any rights or benefits in this Agreement to anyone other than OWNER and ENGINEER, and all duties and responsibilities undertaken pursuant to this Agreement will be for the sole and exclusive benefit of OWNER and ENGINEER and not for the benefit of any other party.

5.7. Arbitration.

5.7.1. All claims, counterclaims, disputes and other matters in question between the parties hereto arising out of or relating to this Agreement or the breach thereof will be decided by arbitration in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association then obtaining, subject to the limitations and restrictions stated in paragraphs 5.7.3 and 5.7.4 below. This agreement so to arbitrate and any other agreement or consent to arbitrate entered into in accordance herewith as provided in this paragraph 5.7 will be specifically enforceable under the prevailing law of any court having jurisdiction.

5.7.2. Notice of demand for arbitration must be filed in writing with the other parties to this Agreement and with the American Arbitration Association. The demand must be made within a reasonable time after the claim, dispute or other matter in question has arisen. In no event may the demand for arbitration be made after the date when institution of legal or equitable proceedings based on such claim, dispute or other matter in question would be barred by the applicable statute of limitations.

5.7.3. All demands for arbitration and all answering statements thereto which include any monetary claim must contain a statement that the total sum or value in controversy as alleged by the party making such demand or answering statement is not more than $200,000 (exclusive of interest and costs); and the arbitrators will not have jurisdiction, power or authority to render a monetary award in response thereto against any party which totals more than $200,000 (exclusive of interest and costs). The arbitrators will not have jurisdiction, power or authority to consider, or make findings (except in denial of their own jurisdiction) concerning any claim, counterclaim, dispute or other matter in question where the amount in controversy of any such claim, counterclaim, dispute or matter is more than $200,000 (exclusive of interest and costs).

5.7.4. No arbitration arising out of, or relating to, this Agreement may include, by consolidation, joinder or in any other manner, any person or entity who is not a party to this Agreement.

5.7.5. By written consent signed by all the parties to this Agreement and containing a specific reference hereto, the limitations and restrictions contained in paragraphs 5.7.3 and 5.7.4 may be waived in whole or in part as to any claim, counterclaim, dispute or other matter specifically described in such consent. No consent to arbitration in respect of a specifically described claim, counterclaim, dispute or other matter in question will constitute consent to arbitrate any other claim, counterclaim, dispute or other matter in question which is not specifically described in such consent or in which the sum or value in controversy exceeds $200,000 (exclusive of interest and costs) or which is with any party not specifically described therein.

5.7.6. The award rendered by the arbitrators will be final, judgment may be entered upon it in any court having jursidiction thereof, and will not be subject to modification or appeal except to the extent permitted by Sections 10 and 11 of the Federal Arbitration Act (9 U.S.C. §§10, 11).

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VERIFICATION

I, R. Eric Critchfield, P.E., verify that the averments of fact contained in the foregoing **Answer, New Matter and New Matter Pursuant to Rule 2252(d) of Pa. R.C.P. to Plaintiff's Amended Complaint** are true and correct to the best of my knowledge, information or belief. I understand that the averments of fact set forth in the document are made subject to the penalties of 18 Pa. C.S.A. § 4904 relating to unsworn falsification to authorities.

R. Eric Critchfield, P.E.

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the within **Defendant The EADS Group's Answer, New Matter, and New Matter Pursuant to Rule 2252(d) of Pa. R.C.P. to Plaintiff's Amended Complaint** was served upon all counsel by United States First Class Mail, postage prepaid, this 6th day of February, 2002, addressed as follows:

Scott T. Wyland, Esquire
100 N. Tenth Street
P. O. Box 1778
Harrisburg, PA 17105
Counsel for Plaintiff, Irvona Municipal Authority

James N. Bryant, Esquire
Bryant & Associates, P.A.
107 East Main Street
Millheim, PA 16854
Counsel for Eriksen Well Drilling and James R. Casselberry

BURNS, WHITE & HICKTON

By: _____
Robert J. Ray, Esquire

CA

IRVONA MUNICIPAL AUTHORITY, Plaintiff	:	IN THE COURT OF COMMON PLEAS CLEARFIELD COUNTY, PENNSYLVANIA
v.	:	
	:	CIVIL ACTION - LAW
ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION,	:	NO. 00-955-CD
Defendants	:	JURY TRIAL DEMANDED

FILED

FEB 11 2002

William A. Shaw
Prothonotary

MOTION FOR STAY OF DEADLINE AND PROCEEDINGS PENDING MEDIATION

NOW comes Irvona Municipal Authority, by and through its counsel, Malatesta Hawke & McKeon LLP, and sets forth the following motion:

1. The parties have jointly agreed to pursue mediation in this case and are seeking a stay of the case generally and a moratorium on discovery pending their mediation.

2. On October 24, 2001, the Court issued an Order on Preliminary Objections in which it continued for a period of four months the Preliminary Objections seeking to strike those portions of Irvona Municipal Authority's amended complaint alleging fraud and seeking punitive damages. The purpose of the extension was to permit completion of discovery as it relates to these issues.

3. According to the October 24, 2001 Order, Irvona Municipal Authority has four months, or until Monday, February 25, 2002 to complete discovery and report to the Court on Irvona's progress with respect to its claim for fraud and request for punitive damages.

4. The parties have tentatively agreed to choose a neutral mediator by February 15, 2002, to share the costs of mediation equally, and to hold mediation, if possible, before March 29, 2002.

5. Because of the parties' substantial and good faith efforts to resolve this case through mediation, the parties respectfully request a general stay of this matter, including discovery, pending

the outcome of their mediation. Specifically, Irvona requests a general continuance of the February 25, 2002 deadline to report to the Court regarding discovery and evidence supporting its claim of fraud and request for punitive damages pending the outcome of mediation.

6. The parties request that an Order be entered allowing the stay to be lifted upon the request of any party to this matter. Irvona respectfully requests that the Order allow it an additional thirty (30) days after the lifting of the stay in this matter to complete its discovery and to report to the Court in accordance with the October 24, 2001 Order.

7. All parties concur in this motion.

WHEREFORE, Irvona Municipal Authority respectfully requests that its motion be granted and that an Order be entered in the form attached hereto.

Respectfully submitted,

Scott T. Wyland, I.D. No. 52660
Malatesta Hawke & McKeon LLP
Harrisburg Energy Center
100 North Tenth Street
Harrisburg, PA 17101
(717) 236-1300

DATED: February 7, 2002

Counsel for Irvona Municipal Authority

CERTIFICATE OF SERVICE

I hereby certify that I have this day served a copy of the foregoing document upon the person named and in the manner indicated below.

Via Facsimile and First Class Mail

James N. Bryant, Esquire
Bryant & Associates, P.C.
107 East Main Street
Millheim, PA 16854

John P. Sieminski, Esquire
Burnes, White & Hickton, LLC
120 Fifth Avenue, Suite 2400
Pittsburgh, PA 15222

Scott T. Wyland

DATED: February 7, 2002

FILED

FEB 11 2002
11:35/noCC
William A. Shaw
Prothonotary
ETTES

IRVONA MUNICIPAL AUTHORITY, Plaintiff	:	IN THE COURT OF COMMON PLEAS CLEARFIELD COUNTY, PENNSYLVANIA
v.	:	
	:	CIVIL ACTION - LAW
ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION,	:	NO. 00-955-CD
Defendants	:	JURY TRIAL DEMANDED

ORDER

NOW, this 19th day of February, 2002, upon consideration of the Plaintiff's motion for a stay pending mediation, and noting the concurrence of the Defendants, it is hereby Ordered as follows:

1. This matter, including discovery, is generally stayed until further Order of this Court;

2. This stay, entered pending voluntary mediation of this case by the parties, may be lifted upon the written request of any party;

3. Upon the lifting of the stay, Irvona Municipal Authority will be granted a period of thirty (30) days to complete discovery with respect to its claim for fraud and request for punitive damages and report to the Court pursuant to the Order of October 24, 2001; and

4. The parties are directed to file a joint report to the Court concerning the status of this matter on or before April 5, 2002.

BY THE COURT:

FILED

FEB 19 2002

William A. Shaw
Prothonotary

01/1:22/cc atty Wyland

J.

IRVONA MUNICIPAL AUTHORITY, Plaintiff	:	IN THE COURT OF COMMON PLEAS CLEARFIELD COUNTY, PENNSYLVANIA
v.	:	
	:	CIVIL ACTION - LAW
ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION,	:	NO. 00-955-CD
Defendants	:	JURY TRIAL DEMANDED

JOINT STATUS REPORT OF PARTIES

NOW COMES Irvona Municipal Authority, by and through its counsel, Malatesta Hawke & McKeon, LLP, and sets forth the following status report:

1. Pursuant to this Court's Order of February 19, 2002, the parties were directed to file a joint report concerning the status of this matter on or before April 5, 2002.

2. The parties have selected a mediator, David E. Lehman, Esquire, and have scheduled a mediation session for Friday, April 26, 2002 in Altoona, Pennsylvania.

3. The parties will report to the Court following mediation.

4. All parties concur in this joint status report.

Respectfully submitted,

FILED
APR 04 2002
m/11:23/2cc atty Wyland
William A. Shaw
Prothonotary

DATED: April 3, 2002

Scott T. Wyland, I.D. No. 52660
Malatesta Hawke & McKeon LLP
Harrisburg Energy Center
100 North Tenth Street
Harrisburg, PA 17101
(717) 236-1300
Counsel for Irvona Municipal Authority

CERTIFICATE OF SERVICE

I hereby certify that I have this day served a copy of the foregoing document upon the person named and in the manner indicated below.

Via Facsimile and First Class Mail

James N. Bryant, Esquire
Bryant & Associates, P.C.
107 East Main Street
Millheim, PA 16854

John P. Sieminski, Esquire
Burnes, White & Hickton, LLC
120 Fifth Avenue, Suite 2400
Pittsburgh, PA 15222

Scott T. Wyland

DATED: April 3, 2002

IRVONA MUNICIPAL AUTHORITY, Plaintiff	:	IN THE COURT OF COMMON PLEAS CLEARFIELD COUNTY, PENNSYLVANIA
v.	:	
	:	CIVIL ACTION - LAW
ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION,	:	NO. 00-955-CD
Defendants	:	JURY TRIAL DEMANDED

PLAINTIFF'S REPLY TO NEW MATTER OF DEFENDANT THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION

AND NOW, comes the plaintiff, Irvona Municipal Authority, by and through their counsel in this matter, Malatesta Hawke & McKeon LLP, and sets forth the following reply to new matter of Defendant The EADS Group, t/a Neilan Engineers Division:

181. No response required.

182. The allegations of Paragraph 182 constitute a conclusion of law to which no response is required.

183. The allegations of Paragraph 183 constitute a conclusion of law to which no response is required. To the extent that an answer is deemed necessary, the plaintiff specifically denies that Neilan properly performed all responsibilities in connection with Well No. 1 and Well No. 2.

184. The allegations of Paragraph 184 constitute a conclusion of law to which no response is required.

FILED

AUG 26 2002

William A. Shaw
Prothonotary

185. The allegations of Paragraph 185 constitute a conclusion of law to which no response is required.

186. The allegations of Paragraph 186 constitute a conclusion of law to which no response is required.

187. The allegations of Paragraph 187 constitute a conclusion of law to which no response is required.

188. No response required. To the extent that an answer is deemed necessary, the plaintiff specifically denies that its damages have resulted from causes for which it is solely responsible.

189. The allegations of Paragraph 189 constitute a conclusion of law to which no response is required.

190. The allegations of Paragraph 19 constitute a conclusion of law to which no response is required. To the extent that an answer is deemed necessary, it is specifically denied that Neilan properly performed all responsibilities, including design, in connection with the project.

191. The allegations of Paragraph 191 constitute a conclusion of law to which no response is required. To the extent that an answer is deemed necessary, plaintiff specifically denies that its damages have resulted from causes for which it and/or other entities are solely responsible.

192. No response required.

193. The allegations of Paragraph 193 constitute conclusions of law to which no response is required.

194. The allegations of Paragraph 194 constitute conclusions of law to which no response is required.

195. The allegations of Paragraph 195 constitute conclusions of law to which no response is required.

WHEREFORE, plaintiff Irvona Municipal Authority respectfully requests that the relief set forth in its complaint be granted.

Respectfully submitted,

Scott T. Wyland, I.D. No. 52660
Malatesta Hawke & McKeon LLP
Harrisburg Energy Center
100 North Tenth Street
Harrisburg, PA 17101
(717) 236-1300
Counsel for Irvona Municipal Authority

DATED: August 22, 2002

VERIFICATION

I, Donald Morrison, am authorized as chair of the Board the Irvona Municipal Authority to make this Verification on behalf of Irvona Municipal Authority, and hereby state that all of the facts set forth in the foregoing document are true and correct to the best of my knowledge, information and belief. I understand that the statements herein are made subject to the penalties of 18 Pa. C.S. §4904 (relating to unsworn falsification to authorities).

Donald K Morrison

Donald Morrison

Dated: 8/20/02

CERTIFICATE OF SERVICE

I hereby certify that I have this day served a copy of the foregoing document upon the person named and in the manner indicated below.

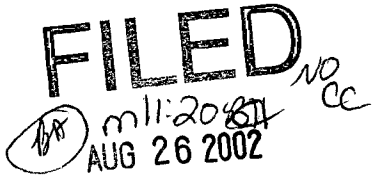
Via First Class Mail

James N. Bryant, Esquire
Bryant & Associates, P.C.
107 East Main Street
Millheim, PA 16854

John P. Sieminski, Esquire
Burnes, White & Hickton, LLC
120 Fifth Avenue, Suite 2400
Pittsburgh, PA 15222

Scott T. Wyland

DATED: August 22, 2002



William A. Shaw
Prothonotary

IN THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA
CIVIL ACTION

IRVONA MUNICIPAL AUTHORITY	:	
	:	
-vs-	:	No. 00 – 955 – CD
	:	
ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSEBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION	:	

ORDER

NOW, this 3rd day of January, 2003, following status conference into the above-captioned matter, it is the ORDER of this Court that all discovery shall be completed within ninety (90) days from date hereof following which trial on the merits will be scheduled.

By the Court,

President Judge

FILED

JAN 03 2003

William A. Shaw
Prothonotary

FILED
013:53 BH
JAN 03 2003

William A. Shaw
Prothonotary

1cc Atty Wyland
1cc Atty Bryant
1cc Atty Ray

IRVONA MUNICIPAL AUTHORITY, Plaintiff	:	IN THE COURT OF COMMON PLEAS CLEARFIELD COUNTY, PENNSYLVANIA
v.	:	
	:	CIVIL ACTION - LAW
ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION,	:	NO. 00-955-CD
Defendants	:	JURY TRIAL DEMANDED

PLAINTIFF'S PRAECIPE TO DISCONTINUE PROCEEDINGS AS TO DEFENDANT THE EADS GROUP t/a NEILAN ENGINEERS DIVISION

TO THE PROTHONOTARY:

Please mark this matter "settled and discontinued with prejudice" as to Defendant The EADS Group t/a Neilan Engineers Division only. A consent of the other defendants is being filed pursuant to Pa. R.Civ.P. 229(b)(1) contemporaneously.

FILED

NOV 17 2003

William A. Shaw
Prothonotary

Respectfully submitted,

Scott T. Wyland, I.D. 52660
Hawke McKeon Sniscak & Kennard LLP
100 North 10th Street
Harrisburg, PA 17105
(717) 236-1300

Counsel for Irvona Municipal Authority

DATED: November 11, 2003

IRVONA MUNICIPAL AUTHORITY, Plaintiff	:	IN THE COURT OF COMMON PLEAS CLEARFIELD COUNTY, PENNSYLVANIA
v.	:	
	:	CIVIL ACTION - LAW
ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., and THE EADS GROUP, t/a NEILAN ENGINEERS DIVISION,	:	NO. 00-955-CD
Defendants	:	JURY TRIAL DEMANDED

CONSENT TO DISCONTINUANCE
PURSUANT TO PA. R.CIV.P. 229(b)(1)

Defendants Casselberry and Eriksen hereby consent to this action being discontinued as to Defendant The EADS Group t/a Neilan Engineers Division only.

James N. Bryant, Esquire
Bryant & Cantorna, P.C.
107 East Main Street
Millheim, PA 16854

Attorney for Defendants Casselberry & Eriksen

DATED: 11-10-03

CERTIFICATE OF SERVICE

I hereby certify that I have this day served a copy of the foregoing document upon the person named and in the manner indicated below.

Via Facsimile and First Class Mail

James N. Bryant, Esquire
Bryant & Associates, P.C.
107 East Main Street
Millheim, PA 16854

John P. Sieminski, Esquire
Burnes, White & Hickton, LLC
120 Fifth Avenue, Suite 2400
Pittsburgh, PA 15222

Scott T. Wyland

DATED: November 11, 2003

FILED
m 1:42 BM 1cc to atty.
NOV 17 2003 copy to CA

William A. Shaw
Prothonotary

IN THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA

CIVIL DIVISION

Irvona Municipal Authority

Vs. **No. 2000-00955-CD**

Eriksen Well Drilling
James R. Casselberry
Casselberry, James R. & Assoc., Inc.
EADS, Group, The. t/a
Neilan Engineers Division
David Eriksen

CERTIFICATE OF DISCONTINUATION

Commonwealth of PA
County of Clearfield

I, William A. Shaw, Prothonotary of the Court of Common Pleas in and for the County and Commonwealth aforesaid do hereby certify that the above case was on November 17, 2003, marked:

Settled, Discontinued against EADS Group t/a Neilan Engineers Division ONLY

Record costs have been paid in full by Attorney.

IN WITNESS WHEREOF, I have hereunto affixed my hand and seal of this Court at Clearfield, Clearfield County, Pennsylvania this 17th day of November A.D. 2003.

_____
William A. Shaw, Prothonotary

IN THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY,
PENNSYLVANIA
CIVIL DIVISION

IRVONA MUNICIPAL AUTHORITY	:	
	:	
vs.	:	No. 00-955-CD
	:	
DAVID ERIKSEN, t/a ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC.,	:	

FILED

JAN 21 2004

William A. Shaw
Prothonotary/Clerk of Courts

ORDER

AND NOW, this 21st day of January, 2004, it is the ORDER of the Court that a status conference in the above matter has been scheduled for **Friday, February 6, 2004 at 11:00 A.M**, in Courtroom No. 1, Clearfield County Courthouse, Clearfield, PA.

BY THE COURT:

/s/ Fredric J. Ammerman

FREDRIC J. AMMERMAN
President Judge

FILED 1cc
01/10:31 Attys Wyland, Bryant
JAN 21 2004

William A. Shaw
Prothonotary/Clerk of Courts

CIVIL ACTION | DOCKET 282 | AUGUST 2000

Scott T. Wyland, Esq.	IRVONA MUNICIPAL AUTHORITY	AUGUST 10, 2000, PRAECIPE FOR WRIT OF SUMMONS, filed by Scott T. Wyland, Esq., Attorney for the Plaintiff SEVEN (7) CC ATTY
		Please issue a Writ of Summons to each of the above named Defendants. /s/Scott T. Wyland
		AUGUST 10, 2000, FOUR WRITS ISSUED TO ATTORNEY FOR SERVICE.
		SEPTEMBER 25, 2000, SHERIFF RETURN, SUMMONS, ON ALL DEFENDANTS, SO ANSWERS, CHESTER A. HAWKINS, SHERIFF by s/Marilyn Hamm
	00-955-CD	OCT. 18, 2000, PRAECIPE FOR APPEARANCE, s/ROBERT J. RAY, ESQUIRE
	ERIKSEN WELL DRILLING,	
	JAMES R. CASSELBERRY,	
	JAMES R. CASSELBERRY &	
	ASSOCIATES, INC., and	
*Robert J. Ray	* THE EADS GROUP t/a NEILAN	
	ENGINEERS DIVISION	

PLEASE REFER TO COMPUTER FOR FURTHER ENTRIES

		ATTY	
	Pro	BY KESNER	80.00
	Shff		
	Hawkins	by Atty	104.32
	Shff		
	Harker	by Atty	22.64
	Shff		
	Brown	by Atty	24.26
	Shff		
	Nau	by Atty	44.50

Clearfield County Court of Common Pleas

ROA Report

Case: 2000-00955-CD

Current Judge: John K. Reilly Jr.

Civil Other

Date		Judge
12/21/2000	Transferred from the docket.	No Judge
	Praecipe for Entry of Appearance on behalf of Eriksen Well Drilling. Filed by s/JAMES N. BRYANT, ESQ. no cc Certificate of Service	No Judge
05/29/2001	Complaint. filed by s/Scott T. Wyland, Esq. Verification Cert. of Svc. no cc	No Judge
06/01/2001	Preliminary Objections, filed by s/James N. Bryant, Esq. Cert of Svc. cc atty Bryant	No Judge
06/21/2001	Amended Complaint. Filed by s/Scott T. Wyland, Esq. 1 cc atty Wyland Cert of Svc	No Judge
06/25/2001	Verification. s/Donald K. (Last name is illegible)	No Judge
07/09/2001	Praecipe for Entry of Appearance, on behalf of David Eriksen, t/a Eriksen Well Drilling and James R. Casselberry and James R.I Casselberry & Associates, Inc. s/James N. Bryant, Esq. Cert of Svc no cc	No Judge
07/13/2001	Preliminary Objections to Plaintiff's Amended Complaint, on behalf of Eriksen Well Drilling, filed by s/James N. Bryant, Esq. No CC	No Judge
	Preliminary Objections, on behalf of James R. Casselberry & Associates, Inc., filed by s/James N. Bryant, Esq. No CC	No Judge
08/02/2001	Preliminary Objections to Plaintiff's Amended Complaint. Filed by s/Robert J. Ray, Esq. Cert of Svc no cc	No Judge
08/27/2001	Motion for Order to Compel Answers to Interrogatories Propounded by Plainitiff Irvona Municipal Authority to Defendants James R. Casselberry & Associates and Eriksen Well Drilling. filed by s/Scott T. Wyland, Esq. no cc	John K. Reilly Jr.
08/28/2001	ORDER, NOW, this 28th day of Aug. 2001, re: Defendants James R. Casselberry & Assoc. and Erikson Well Drilling shall answer fully Plaintiff s first set of Interrogatories within ten days hereof. by the Court, s/JKR,JR.,P.J. 2 cc Atty Wyland, Bryant and Ray	John K. Reilly Jr.
09/05/2001	Defendant, James R. Casselberry & Associates Answers to Plaintiff Irvona Municipal Authority's First Set of Interrogatories. Filed. Cert of Svc no cc	John K. Reilly Jr.
09/06/2001	Defendant Eriksen Well Drilling's Answers to Plaintiff's First Set of Interrogatories. Filed. Cert of Svc no cc	John K. Reilly Jr.
09/17/2001	Notice of Service of The EADS GROUP, T/A NEILAN ENGINEERS DIVISION'S Answers to Plaintiff's First Interrogatories, upon Scott T. Wyland, Esq. and James N. Bryant, Esq. Filed by s/Robert J. Ray, Esq. no cc	John K. Reilly Jr.
10/25/2001	ORDER, NOW, this 24th day of Oct. 2001, re: P.O.'s filed on behalf of Eriksen Well Drilling, James R. Casselberry, James R. Casselberry & Associtates, Inc. by the Court, s/JKR,JR.,P.J. 1 cc Atty Wyland, Bryant, and Ray	John K. Reilly Jr.
	ORDER, NOW, this 24th day of Oct. 2001, re: P.O.'s filed on behalf of EADS Group t/a Neilan Engineers Division. by the Court, s/JKR,JR, P.J. 1 cc Atty Wyland, Atty Bryant and Ray	John K. Reilly Jr.
12/04/2001	Answer to Amended Complaint on Behalf of David Eriksen, t/a Eriksen Well Drilling and James R. Casselberry, James R. Casselberry & Associates, Inc. Filed by s/James N. Bryant, Esq. Verification Cert of Svc no cc	John K. Reilly Jr.
12/24/2001	Preliminary Objections of Plaintiff to Answer of Defendants Eriksen and Casselberry to Amended Complaint. Filed by s/Scott T. Wyland, Esq. Cert of Svc no cc	John K. Reilly Jr.
01/07/2002	Motion for Order to Compel Answers to Interrogatories and Requests for Production of Documents Propounded by Plaintiff Irvona Municipal Authority to Defendants James R. Casselberry & Associates and Eriksen Well Drilling. Filed by s/Scott T. Wyland, Esq. Cert of Svc 1 cc Atty Wyland	John K. Reilly Jr.

Clearfield County Court of Common Pleas

ROA Report

Case: 2000-00955-CD

Current Judge: John K. Reilly Jr.

Civil Other

Date		Judge
01/15/2002	PROPOSED ORDER, AND NOW, this 14th day of Jan. 2002, re: Defendants James R. Casselberry & Assoc. and Eriksen Well Drilling shall answer fully Plaintiff Irvona Municipal Authority's second set of Interrogatories and its first Request for Production of Documents within ten (10) days hereof. by the Court, s/JKR,JR.,P.J. 1 cc Atty Wyland	John K. Reilly Jr.
01/18/2002	Answers of James R. Casselberry, James R. Casselberry & Associates, Inc. to Plaintiff Irvona Municipal Authority's Second Set of Interrogatories. Filed by s/James N. Bryant, Esq. no cc	John K. Reilly Jr.
01/23/2002	Defendant, David Eriksen t/a Eriksen Well Drilling Answer to Plaintiff's Request for Production of Documents. Filed by s/James N. Bryant, Esq. Cert. of Svc. no cc	John K. Reilly Jr.
	Defendant, David Eriksen, t/a Eriksen Well Drilling Answers to Plaintiff's Second Set of Interrogatories and Request For Production. Filed by s/Scott T. Wyand, Esq. Cert of Svc no cc	John K. Reilly Jr.
01/31/2002	Notice of Service of the EADS Group, t/a Neilan Engineers Division's Answers to Plaintiff's Second Interrogatories. Filed by s/Robert J. Ray, Esq. Cert of Svc no cc	John K. Reilly Jr.
02/08/2002	Defendant the EADS Group t/a Neilan Engineers Division's Answer, New Matter, and New Matter Pursuant to Rule 2252(d) of PA.R.C.P. to Plaintiff's Amended Complaint, filed by s/Robert J. Ray, Esq. No CC	John K. Reilly Jr.
02/11/2002	Motion For Stay of Deadline and Proceedings Pending Mediation. Filed by s/Scott T. Wyland, Esq. Certificate of Service no cc	John K. Reilly Jr.
02/19/2002	ORDER, NOW, this 19th day of Feb. 2002, re: Plaintiff's Motion for Stay Pending Mediation. by the Court, s/JKR,JR.,P.J. 1 cc Atty Wyland	John K. Reilly Jr.
04/04/2002	Joint Status Report of Parties. Filed by s/Scott T. Wyland, Esq. Certificate of Service 2 cc Atty Wyland	John K. Reilly Jr.
08/26/2002	Filing: Plaintiff's Reply to New Matter of Defendant the EADS Group, t/a Neilan Engineers Division. Verification and Certificate of Service. No cc.	John K. Reilly Jr.
01/03/2003	ORDER, NOW, this 3rd day of January, 2003, re: All Discovery to be completed within 90 days from date hereof following which trial on the merits will be scheduled. by the Court, s/JKR,JR.,P.J. 1 cc Atty Wyland, Bryant and Ray	John K. Reilly Jr.
11/17/2003	Praecipe to Discontinue against EADS Group t/a Neilan Engineers Division ONLY filed by Atty. Scott T. Wyland. 1 CC to Atty. Copy to CA	John K. Reilly Jr.
01/21/2004	ORDER, AND NOW, this 21st day of January, 2004, re: Status Conference scheduled for Friday, Feb. 6, 2004, at 11:00 a.m., in Courtroom No. 1. by the Court, s/FJA,P.J. 1 cc Attys Wyland, Bryant	John K. Reilly Jr.

IN THE COURT OF COMMON PLEAS OF CLEARFIELD COUNTY, PENNSYLVANIA

CIVIL DIVISION

IRVONA MUNICIPAL AUTHORITY, Plaintiff	*	
vs.	*	NO. 2000-955-C.D.
DAVID ERIKSEN, t/a ERIKSEN WELL DRILLING, JAMES R. CASSELBERRY, JAMES R. CASSELBERRY & ASSOCIATES, INC., Defendants	*	

FILED

FEB 06 2004

William A. Shaw
Prothonotary/Clerk of Courts

O R D E R

NOW, this 5th day of February, 2004, the Court noting that a Status Conference is scheduled for Friday, February 6, 2004; Counsel for the Plaintiff having advised the Court that the parties had entered into a Settlement Agreement; confirmation of the same received from Attorney James N. Bryant, Esquire, it is the ORDER of this Court that counsel for the Plaintiff, Attorney Scott Wyland, Esquire, shall file the Settlement Agreement with the Prothonotary of Clearfield County by no later than twenty (20) days from the date of this Order.

Status Conference scheduled for Friday, February 6, 2004 be and is hereby cancelled.

By the Court,

Judge J Ammerman

FREDRIC J. AMMERMAN
PRESIDENT JUDGE

FILED
01 10:55 BCL
FEB 06 2004
William A. Shaw
Prothonotary/Clerk of Courts

2 certified copies to Scott T. Wyland, Esquire
2 certified copies to James N. Bryant, Esquire
2 certified copies to Robert J. Ray, Esquire
1 copy to Judge Ammerman
1 copy to Court Administrator

00-955-CD

RELEASE AND SETTLEMENT AGREEMENT

This Release and Settlement Agreement ("Agreement") is made and executed this 20th day of OCTOBER, 2003, by and among Irvona Municipal Authority ("Irvona"); The EADS Group, Inc. t/a Neilan Engineering Division ("EADS"); James Casselberry ("Casselberry"); and David Eriksen t/d/b/a Eriksen Well Drilling ("Eriksen"). Irvona, EADS, Casselberry and Eriksen are sometimes referred to herein as the "Parties."

BACKGROUND

WHEREAS, in August, 2000, Irvona commenced a civil action against EADS, Defendant Casselberry and Defendant Eriksen. This action was filed at Docket No. 00-955-CD in the Clearfield County Court of Common Pleas (the "Lawsuit"); and

WHEREAS, the Parties hereto desire to (1) fully and finally resolve and settle amicably the dispute and matters in controversy between them without further litigation or expense, and (2) define clearly the continuing rights and obligations of the Parties;

NOW THEREFORE, in consideration of the promises, undertakings, covenants and representations herein set forth, and with full intent to be legally bound hereby, the Parties hereto covenant and agree as follows:

1. The foregoing recitals are incorporated by reference as though the same were fully set forth herein.

2. Defendant EADS and/or its professional liability insurance carrier shall pay to Irvona the sum of One Hundred Eight-Five Thousand Dollars ($185,000.00 US) within ten (10) days of the execution of this Agreement. Upon receipt of the payment, Irvona promptly will file a Praecipe to Discontinue to have the Lawsuit filed at Docket No. 00-955-CD marked "settled and discontinued

FILED

FEB 17 2004

William A. Shaw
Prothonotary/Clerk of Courts

with prejudice" as to all claims by Irvona against EADS. Defendant Casselberry and Defendant Eriksen each agree to provide written consent to the filing of such a Praecipe as to EADS.

3. EADS' payment obligation and Irvona's corresponding release as described in Paragraph 2, above, are independent of and not contingent upon completion of the obligations of Defendant Casselberry and Defendant Eriksen, as set forth below.

4. Upon receipt of the payment set forth in Paragraph 2 of this Agreement, Irvona hereby releases and forever discharges EADS and its subsidiaries, divisions, heirs, executors, administrators, successors, assigns, directors, officers, past and present employees, insurance carriers and/or attorneys from any and all actions, causes of action, claims, lawsuits, debts, damages, losses, costs and expenses of every kind, named in nature, known or unknown, in law or in equity, which Irvona ever had, may now have, or may have in the future, for, upon, or by reason of any matter, cause, or thing, whatsoever arising out of or in any way related, directly or indirectly, to professional services provided by EADS (including its consultants, or any other entity for whom it may be vicariously liable) to Irvona, all in connection with the Lawsuit referenced above. **THIS IS A FULL AND FINAL RELEASE OF ALL CLAIMS THAT WERE MADE, OR COULD HAVE BEEN MADE, IN THE LAWSUIT REFERENCED ABOVE.**

5. It is understood and agreed that the terms of this Agreement are not to be construed as an admission of liability on the part of EADS, but that this Agreement is a compromise and settlement of all claims, now and in the future, which are not admitted, but which are specifically denied and disputed by EADS.

6. Defendant Casselberry shall, at his sole expense, perform all work and supply all materials necessary to design plans and specifications for a six-inch (6") potable water well and an eight-inch (8") potable water well, each to be located on property owned by Irvona in Clearfield County, Pennsylvania (the "Property"). Such wells shall be designed in a manner and to such

specifications that will allow the Pennsylvania Department of Environmental Protection ("DEP") to issue to Irvona a Public Water Supply Permit for the operation of each well and shall cause such wells to comply with all applicable laws and regulations, including but not limited to applicable requirements of the Susquehanna River Basin Commission, taking into account all conditions encountered at the site. Defendant Casselberry shall, within sixty (60) days after execution of this Agreement by all Parties, provide to Irvona, for inspection and approval, a copy of the plans and specifications for each well identified above.

7. Defendant Eriksen shall, at his sole expense, perform all work and supply all materials and equipment necessary to construct the two (2) water wells to be designed by Defendant Casselberry. The wells shall be (a) placed at locations on the Property designated by Defendant Casselberry; (b) drilled in a manner that is consistent with sound engineering principles and practice; (c) constructed in accordance with the plans and specifications prepared by Defendant Casselberry and approved by Irvona in accordance with Paragraph 5, above, taking into account conditions encountered at the site; and (d) constructed in such a way that will allow the DEP to issue to Irvona a Public Water Supply Permit for the operation of each well and that will comply with all applicable legal requirements, including but not limited to requirements of the Susquehanna River Basin Commission. Irvona intends to have the second of the two wells drilled after its filtration plant is completed.

8. In performing the work required by Paragraph 7, above, Defendant Eriksen shall utilize all industry-standard materials and construction techniques to ensure maximum protection of the replacement wells from aggressive waters contained in the coal measures' groundwater systems lying above the Mauch Chunk Formation aquifer. At a minimum, this work shall include extending a string of temporary surface casing through all high-capacity water-bearing zones in the coal measures. The temporary surface casing will allow grouting of the permanent, inside, heavy-wall

well casing installed into the top of the Mauch Chunk Formation aquifer without the potential for erosion of the grout envelope by high flows of acidic water from the overlying coal measures' groundwater systems.

9. Prior to Defendant Eriksen beginning any work required under this Agreement, Irvona, at its sole expense, shall drill test wells at each location designated by Defendant Casselberry to be a well placement area. The test wells drilled by Irvona shall produce water of sufficient quality and quantity in order to be considered suitable for the purposes for which they will be used

10. Prior to commencing any work required by this Agreement, Defendant Eriksen shall obtain and produce a performance bond in an amount of at least $32,000. Such performance bond shall be in a form that is satisfactory to Irvona. Irvona may, at its own expense, obtain a separate performance bond or may pay the increase in premiums required to raise the amount of Defendant Eriksen's performance bond to a level determined by Irvona to be appropriate for the work to be performed in connection with the new wells. All work shall proceed within a reasonable time after Irvona's direction to proceed.

11. Upon completion of the work set forth in Paragraph 6 of this Agreement, Irvona hereby releases and forever discharges Defendant Casselberry and his heirs, executors, administrators, successors, assigns, past and present employees, insurance carriers and/or attorneys from any and all actions, causes of action, claims, lawsuits, debts, damages, losses, costs and expenses of every kind, named in nature, known or unknown, in law or in equity, which Irvona ever had, may now have, or may have in the future, for, upon, or by reason of any matter, cause, or thing, whatsoever arising out of or in any way related, directly or indirectly, to services provided by Defendant Casselberry to Irvona, all in connection with the Lawsuit referenced above. **THIS IS A FULL AND FINAL RELEASE OF ALL CLAIMS THAT WERE MADE, <u>OR COULD HAVE BEEN MADE</u>, IN THE LAWSUIT REFERENCED ABOVE. The terms of this Paragraph**

DO NOT release or discharge Defendant Casselberry in any manner for work to be performed pursuant to this Agreement.

12. Upon completion of the work set forth in Paragraphs 7 and 8 of this Agreement, Irvona hereby releases and forever discharges Defendant Eriksen and his heirs, executors, administrators, successors, assigns, past and present employees, insurance carriers and/or attorneys from any and all actions, causes of action, claims, lawsuits, debts, damages, losses, costs and expenses of every kind, named in nature, known or unknown, in law or in equity, which Irvona ever had, may now have, or may have in the future, for, upon, or by reason of any matter, cause, or thing, whatsoever arising out of or in any way related, directly or indirectly, to services provided by Defendant Eriksen to Irvona, all in connection with the Lawsuit referenced above. **THIS IS A FULL AND FINAL RELEASE OF ALL CLAIMS THAT WERE MADE, OR COULD HAVE BEEN MADE, IN THE LAWSUIT REFERENCED ABOVE. The terms of this Paragraph DO NOT release or discharge Defendant Eriksen in any manner for work to be performed pursuant to this Agreement.**

13. The Parties and the representatives of the Parties who have executed this Agreement represent that they are fully authorized and empowered to make this Agreement and to settle, release, change, modify, transfer, grant, bargain, and convey in all respects the rights and claims that are the subject of this Agreement.

14. As all the Parties have had an opportunity to fully review and participate in negotiating the terms of this Agreement, the language of this Agreement is not to be construed against the party that drafted the Agreement. If any provision of this Agreement is found to be invalid by a court of competent jurisdiction, all the other provisions of this Agreement will remain in full force and effect.

15. It is understood and agreed that this is the complete agreement made between the Parties and there are no oral or written understandings or agreements, directly or indirectly, connected with the subject matter of this Agreement that are not incorporated herein. This Agreement supersedes any prior written or oral agreements made between the Parties concerning the subject matter hereof.

16. This Agreement may not be modified except in writing, signed by all Parties in interest. No waiver of any breach hereof shall be deemed a waiver of any subsequently occurring or subsequently discovered breach.

17. Each of the undersigned acknowledges that he or it has executed this Agreement freely and voluntarily and with full authority to do so, after having carefully read all terms and conditions of this Agreement, having had such advice of counsel as he or it desires, having had the legal effect of the Agreement fully explained to his or its satisfaction by counsel, and being fully aware of the respective rights and obligations of the Parties hereto. Irvona agrees to adopt this Agreement by action of the Authority at a public meeting, by resolution duly noted in the official minutes of the Authority.

18. This Agreement shall be governed by and construed in accordance with the laws of the Commonwealth of Pennsylvania.

19. This Agreement shall be executed in four (4) counterparts, each of which shall constitute an original.

20. This Agreement, and the terms and provisions hereof, shall be binding upon and shall inure to the benefit of the Parties hereto, their heirs, successors and assigns.

21. EADS, Casselberry and Eriksen expressly agree that they are hereby releasing any and all cross-claims against each other *inter se* that were or could have been asserted in the Lawsuit.

IN WITNESS WHEREOF, and intending to be legally bound hereby, the Parties have executed this Agreement on the date first written above.

ATTEST:

Richard L. Holes

IRVONA MUNICIPAL AUTHORITY

By: Donald K Morrison

Title: CHAIRMAN

Dated: October 20, 2003

I, Richard L. Holes, Board Secretary, verify that this Agreement has been approved by an appropriate vote of the Irvona Municipal Authority on October 20, 2003.

ATTEST:

Victoria L. Johnston

By: Richard L Holes
Secretary

ATTEST:

L. E. Tuttle

THE EADS GROUP, INC.
T/A NEILAN ENGINEERING DIVISION

By: Dennis M Eads

Title: President

Dated: 10/9/03

WITNESS:

JAMES CASSELBERRY

By: J R Casselberry

Dated: 10/3/03

WITNESS:

DAVID ERIKSEN
T/D/B/A ERIKSEN WELL DRILLING

By: David R Eriksen

Dated: 8-19-03

FILED
m/12:48 BCA
FEB 17 2004

William A. Shaw
Prothonotary/Clerk of Courts

1 cc Atty Scott Wyland