



Duquesne Light

435 Sixth Avenue
Pittsburgh, Pennsylvania
15219

(412) 456-6000

August 27, 1979

Director of Nuclear Reactor Regulation
United States Nuclear Regulatory Commission
Washington, D.C. 20555

ATTENTION: MR. JOHN F. STOLZ, CHIEF
LW Reactors Branch 1

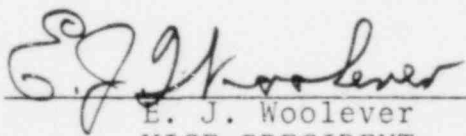
SUBJECT: Beaver Valley Power Station - Unit No. 2
Reactor Containment Structure Founding Material
Docket No. 50-412

Gentlemen:

Forwarded herewith are 40 copies of 18 boring logs (2002, 2003, 2005, 2009, 2013, 2015, 2021, 2022, 2023, 2025, 3005, 3007, 3009, 3013, 3019, 3021, 3024 and 5011) inadvertently omitted from "Amendment No. 3", dated July 6, 1979, to "Report on Soil Densification Program, Beaver Valley Power Station Unit No. 2", dated September 23, 1976.

This will complete your copy of Amendment No. 3.

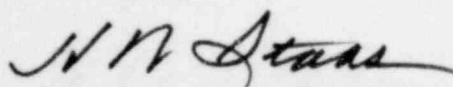
DUQUESNE LIGHT COMPANY

By 
E. J. Woolever
VICE PRESIDENT

cc: Mr. B. H. Grier
Mr. J. Angelo

(CORPORATE SEAL)

Attest:


H. W. Staas
Secretary

7909 050 316

911001

COMMONWEALTH OF PENNSYLVANIA)
) SS:
COUNTY OF ALLEGHENY)

On this 27th day of August, 1979 before me,
ROBERT J. MONROE, a Notary Public in and for said
Commonwealth and County, personally appeared E. J. Woolever,
who being duly sworn, disposed, and said that (1) he is Vice
President of Duquesne Light Company, (2) he is duly authorized
to execute and file the foregoing Information on behalf of
said Company, and (3) the statements set forth in the Information
are true and correct to the best of his knowledge, information
and belief.

WITNESS my hand and seal the day and year first above
written.



ROBERT J. MONROE, Notary Public
PITTSBURGH, ALLEGHENY COUNTY, PA.
MY COMMISSION EXPIRES
FEBRUARY 7, 1983

311002

| | | | |
|--|--|--|----------------------------------|
| SITE / LOCATION <u>BEAVER VALLEY POWER STATION - UNIT 2</u> | | J.O. NO. <u>12241</u> | BORING <u>B-2002</u> |
| COORDINATES <u>N 3972.6</u> | <u>E 8116.6</u> | GROUND ELEV. (1) <u>680 FEET</u> | SHEET 1 OF <u>2</u> |
| INCLINATION <u>VERTICAL</u> | | BEARING _____ | LOGGED BY <u>REYNOLDS/McCAIN</u> |
| DATE: START / FINISH <u>7/5/76</u> / <u>7/6/76</u> | | CONTRACTOR / DRILLER <u>PENNA DRILLING</u> | |
| STATIC GROUNDWATER DEPTH / DATE <u>13 FEET</u> / <u>7/5/76</u> | | DRILL RIG TYPE _____ | |
| DEPTH TO BEDROCK _____ | | TOTAL DEPTH DRILLED <u>41.5 FEET</u> | |
| METHODS: | | | |
| DRILLING SOIL | <u>3 1/8" HOLLOW BIT TO ADVANCE HOLE</u> | | |
| SAMPLING SOIL | <u>2" O.D. SPLIT SPOON</u> | | |
| DRILLING ROCK | <u>NONE</u> | | |
| SPECIAL TESTING OR INSTRUMENTATION _____ | | | |
| REMARKS _____ | | | |

| ELEVATION (FEET) | DEPTH (FEET) | SAMPLE TYPE | SAMPLE NUMBER | BLOWS (2) OR U.S. PENETRATION (3) | SPT N VALUES OR U.S. REC (4) | GROUP SYMBOL (5) | SAMPLE DESCRIPTION | FIELD AND LAB. TEST RESULTS / COMMENTS |
|---------------------|-----------------|----------------|------------------|---|---------------------------------|------------------|--|--|
| 680 | 0 | | | | | | | |
| | | | | % REC | | | | |
| 675 | 5 | S | 1 | 6-14 17% | 18 | SC | BLOWS/INCH: 1-1-1-1-1-1/2" -1-1/2-1-2-1-1/2"-5-5 CLAYEY SAND, WIDELY GRADED, 42% SUBANGULAR TO SUBROUNDED GRAVEL TO 0.8 INCH MAXIMUM; COARSE TO FINE SAND, 16% SLIGHTLY PLASTIC FINES, BROWN, SLIGHT REACTION TO HCL. | |
| 670 | 10 | S | 2 | 11-11-15 61% | 26 | SP-SM | BLOWS/INCH: 1-3-2-2-2-1, 2-2-1-2-2-2-, 1-3-3-2-3-3 SANDY GRAVEL, POORLY GRADED, ANGULAR TO SUBANGULAR GRAVEL TO 1.2 INCH MAXIMUM, 35-45% COARSE TO FINE SAND, MOSTLY MEDIUM TO FINE, 8-12% NONPLASTIC FINES, BROWN, WITH A FEW POCKETS OF SANDY SILT, NO REACTION TO HCL. | |
| 665 | 15 | | | | | | | |

| | | | | | | |
|--|---|---|----------------------|---------------------|------------------------|---------------------|
| LEGEND / NOTES S_ SPLIT BARREL SAMPLE UNDISTURBED SAMPLES (U.D.S.) US_ SHELBY TUBE UF_ FIXED PISTON UO_ OSTERBERG UD_ DENISON UP_ PITCHER N_ STD. PENETRATION RESISTANCE BLOWS/FT GROUNDWATER ** RECOVERY INFORMATION NOT AVAILABLE | 1. DATUM IS MEAN SEA LEVEL UNLESS OTHERWISE INDICATED 2. BLOWS REQUIRED TO DRIVE 2" O.D. SAMPLE SPOON 6" OR DISTANCE SHOWN USING 140 lb. HAMMER FALLING 30" * INDICATES USE OF 300 lb HAMMER 3. DENOTES INCHES OF PENETR. OF UNDISTURBED SAMPLER 4. DENOTES INCHES OF UNDISTURBED SAMPLE RECOVERY 5. UNIFIED SOIL CLASSIFICATION SYSTEM | BORING LOG BEAVER VALLEY POWER STATION - UNIT 2 DUQUESNE LIGHT COMPANY PITTSBURGH, PENNSYLVANIA 12241-GSK-124A STONE & WEBSTER ENG. CORP. <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>ISSUED BY <u>cap</u></td> <td>DATE <u>9/13/76</u></td> <td>BORING NO. <u>2002</u></td> <td>SHEET <u>1 OF 2</u></td> </tr> </table> | ISSUED BY <u>cap</u> | DATE <u>9/13/76</u> | BORING NO. <u>2002</u> | SHEET <u>1 OF 2</u> |
| ISSUED BY <u>cap</u> | DATE <u>9/13/76</u> | BORING NO. <u>2002</u> | SHEET <u>1 OF 2</u> | | | |

| BORING B-2002 | | | | | | | | | | |
|---------------------|-----------------|----------------|------------------|---------------------------------------|--------------------------------------|---------------------|---|--|--|--|
| SHEET 2 OF 2 | | | | | | | | | | |
| SITE / LOCATION | | | | | BEAVER VALLEY POWER STATION - UNIT 2 | | | | | |
| | | | | | J.O. NO. 12241 | | | | | |
| ELEVATION (FEET) | DEPTH (FEET) | SAMPLE TYPE | SAMPLE NUMBER | BLOWS (2) OR UDS PENETRATION(3) | SPT N VALUES OR UDS REC(4) | GROUP SYMBOL (5) | SAMPLE DESCRIPTION | | | FIELD AND LAB. TEST RESULTS / COMMENTS |
| 665 | 15 | S | 3 | 5-9-11 11% | 20 | SM | SILTY SAND, WIDELY GRADED, 42% SUBANGULAR TO SUBROUNDED GRAVEL TO 0.8 INCH MAXIMUM, COARSE TO FINE SAND, 16% SLIGHTLY PLASTIC FINES, BROWN, SLIGHT REACTION TO HCL. | | | |
| 660 | 20 | S | 4 | 14-16-18 | 34 | | NO RECOVERY. PIECE OF GRAVEL IN TIP OF SPOON. | | | |
| | | S | 5 | 11-12-10 50% | 22 | SP-SM | BLOWS/INCH: 2-2-2-1-3-1, 2-2-2-2-3-1, 2-2-2-1-2 GRAVELLY SAND, POORLY GRADED, 6% GRAVEL TO 4 INCH MAXIMUM COARSE TO FINE SAND, MOSTLY MEDIUM AND FINE, 9% NONPLASTIC FINES, BROWN, NO REACTION TO HCL. | | | |
| 655 | 25 | S | 6 | 13-22-21 | 43 | | BLOWS/INCH: 1-2-3-2-3-2-4-3-4-4-3-4-3-4-3-4-4 NO RECOVERY. PIECE OF GRAVEL IN TIP OF SPOON. | | | |
| | | S | 7 | 8-7-5 40% | 12 | GP-GM | BLOWS/INCH: 1-1-1-2-1-2, 1-1-1-2-1-1/2", 1-1/2"-1-2-1 SANDY GRAVEL, POORLY GRADED SUBANGULAR TO 0.9 INCH MAXIMUM, 40% COARSE TO FINE, MOSTLY MEDIUM SAND, 6% NONPLASTIC FINES, BROWN, NO REACTION TO HCL. | | | |
| | | S | 8 | 9-12-12 17% | 24 | GP | BLOWS/INCH: 1-1-2-2-1-2, 2-2-2-2-3-1, 2-2-2-1-2-3 SANDY GRAVEL, SAME AS ABOVE. | | | |
| 650 | 30 | S | 9 | 9-10-12 28% | 22 | GP | BLOWS/INCH: 1-1-1-2-2-2 2-2-1-2-1-2 3-2-1-2-2-2 SANDY GRAVEL, POORLY GRADED, TO 1 3/8" MAXIMUM, 20-40% MOSTLY FINE SAND, 2-5% NONPLASTIC FINES, COMPACT, MOIST, BROWN. | | | |
| | | S | 10 | 10-8-7 40% | 15 | GP-GM | BLOWS/INCH: 2-2-2-1-1-2 1-1-2-1-1-2 1-1-1-2-1-1 SANDY GRAVEL, POORLY GRADED, SUBANGULAR TO 0.9 INCH MAXIMUM, 41% COARSE TO FINE MOSTLY MEDIUM SAND, 9% NONPLASTIC FINES, BROWN, NO REACTION TO HCL. | | | |
| 645 | 35 | S | 11 | 6-7-6 22% | 13 | GP-GM | BLOWS/INCH: 2-1-1/2"-1-1 1-1-2-1-1-1 1-1-1-1-1-1 SANDY GRAVEL, POORLY GRADED, SUBANGULAR TO SUBROUNDED TO 1.0 INCH MAXIMUM, 41% COARSE TO FINE, MOSTLY MEDIUM SAND, 11% NONPLASTIC FINES, BROWN, NO REACTION TO HCL. | | | |
| | | S | 12 | 8-8-10 56% | 18 | SP-SM | BLOWS/INCH: 2-1-1-2-1-1 2-1-2-1-1-1 1-2-1-2-2-2 TOP 8" SAND, POORLY GRADED, 5-10% GRAVEL TO 1/2 INCH COARSE TO FINE SAND MOSTLY MEDIUM TO FINE, 2-3% NONPLASTIC FINES, COMPACT, WET, BROWN. | | | |
| | | S | 13 | 7-32-27 61% | | SP | BOTTOM 2" SILTY SAND, POORLY GRADED, MOSTLY MEDIUM TO FINE, 10-20% NONPLASTIC FINES, COMPACT, DAMP, BROWN. | | | |
| 640 | 40 | S | 14 | 32-31-33 72% | 64 | SP | BLOWS/INCH: 1-1-1-1-1-2 4-7-5-7-5-4 4-5-5-3-4-6 GRAVELLY SAND, POORLY GRADED, 20-40% SUBROUNDED GRAVEL TO 3/4 INCH - INCLUDES PLATY FRAGMENTS DARK GRAY LIMESTONE, COARSE TO FINE SAND, MOSTLY MEDIUM TO FINE, 2-5% NONPLASTIC FINES, DENSE, MOIST, BROWN. | | | |
| | | | | | | | BLOWS/INCH: 4-5-5-6-8-4 4-5-6-5-6-5 5-6-6-5-6-5 GRAVELLY SAND, POORLY GRADED, 40-60% GRAVEL TO 1 1/2 INCH, MOSTLY FINE SAND, 2-5% NONPLASTIC FINES, VERY DENSE, MOIST, BROWN. | | | |
| | | | | | | | END OF BORING AT 41.5 FEET | | | |

NOTE: FOR BORING SUMMARY AND LEGEND INFO SEE SHEET 1.

STONE & WEBSTER ENG. CORP

ISSUED BY CSH DATE 9/12/96

BORING NO. 2002 SHEET 2 OF 2

SITE / LOCATION BEAVER VALLEY POWER STATION - UNIT NO. 2 J.O. NO. 12241 BORING B-2003
 COORDINATES N 3971.5 E 8128.8 GROUND ELEV. (1) 680 FEET SHEET : OF 2
 INCLINATION VERTICAL BEARING _____ LOGGED BY McCain/REYNOLDS
 DATE : START / FINISH 7/4/76 / 7/4/76 CONTRACTOR / DRILLER PENNA DRILLING
 STATIC GROUNDWATER DEPTH / DATE 13 FEET / 7/4/76 DRILL RIG TYPE _____
 DEPTH TO BEDROCK _____ TOTAL DEPTH DRILLED 37.5 FEET

METHODS :

DRILLING SOIL 3 1/8" ROLLER BIT TO ADVANCE HOLE

SAMPLING SOIL 2" O.D. SPLIT SPOON

DRILLING ROCK _____

SPECIAL TESTING OR INSTRUMENTATION _____

REMARKS _____

| ELEVATION (FEET) | DEPTH (FEET) | SAMPLE TYPE | SAMPLE NUMBER | BLOWS(2) OR U.D.S. PENETRATION(3) | SPT N VALUES OR U.D.S. REC(4) | GROUP SYMBOL(5) | SAMPLE DESCRIPTION | FIELD AND LAB. TEST RESULTS / COMMENTS |
|---------------------|-----------------|----------------|------------------|---|----------------------------------|-----------------|---|--|
| 680 | 0 | | | | | | | |
| 675 | 5 | S | 1 | 6-8-7 33% | 15 | SC | CLAYEY SAND - WIDELY GRADED, 41% MOSTLY ANGULAR GRAVEL TO 1.0 INCH MAXIMUM, COARSE TO FINE SAND, 12% NONPLASTIC FINES, BROWN, STRONG REACTION TO HCL | |
| 670 | 10 | S | 2 | 17-18-17 ** | 35 | SP | GRAVELLY SAND - POORLY GRADED, 10-20% SUBANGULAR-SUBROUNDED GRAVEL TO 1 1/2 INCHES MAXIMUM, MOSTLY FINE SAND, 5-7% NONPLASTIC FINES, DENSE, DAMP, BROWN, NO REACTION TO HCL | |
| 665 | 15 | | | | | | | |

LEGEND / NOTES

S_ SPLIT BARREL SAMPLE
 UNDISTURBED SAMPLES (U.D.S.)
 US_ SHELBY TUBE
 UF_ FIXED PISTON
 UO_ OSTERBERG
 UD_ DENISON
 UP_ PITCHER
 N_ STD PENETRATION
 RESISTANCE BLOWS/FT
 GROUNDWATER
 ** RECOVERY INFORMATION
 NOT AVAILABLE

1. DATUM IS MEAN SEA LEVEL
 UNLESS OTHERWISE INDICATED
 2. BLOWS REQUIRED TO DRIVE
 2" O.D. SAMPLE SPOON 6" OR
 DISTANCE SHOWN USING 140 lb.
 HAMMER FALLING 30"
 * INDICATES USE OF 300 lb
 HAMMER
 3. DENOTES INCHES OF PENETR.
 OF UNDISTURBED SAMPLER
 4. DENOTES INCHES OF
 UNDISTURBED SAMPLE
 RECOVERY
 5. UNIFIED SOIL CLASSIFICATION
 SYSTEM

BORING LOG

BEAVER VALLEY POWER STATION - UNIT NO. 2
 DUQUESNE LIGHT COMPANY
 PITTSBURGH, PENNSYLVANIA

12241-GSK-125A

STONE & WEBSTER ENG. CORP.

| | | | |
|--------------------------|------------------|----------------------|-----------------|
| ISSUED BY <i>John</i> | DATE 8/5/1976 | BORING NO. B-2003 | SHEET 1 OF 2 |
|--------------------------|------------------|----------------------|-----------------|

| BORING <u>B-2003</u> | | | | | | | | | | |
|---|-----------------|----------------------------|------------------|---------------------------------------|-------------------------------|--------------|---|--|--|--|
| SHEET <u>2</u> OF <u>2</u> | | | | | | | | | | |
| SITE / LOCATION <u>BEAVER VALLEY POWER STATION - UNIT NO. 2</u> J.O. NO. <u>12241</u> | | | | | | | | | | |
| ELEVATION (FEET) | DEPTH (FEET) | SAMPLE TYPE | SAMPLE NUMBER | BLOWS (2) OR UDS PENETRATION(3) | SPT N VALUES OR UDS REC(4) | GROUP SYM(5) | SAMPLE DESCRIPTION | | | FIELD AND LAB. TEST RESULTS / COMMENTS |
| 665 | 15 | S | 3 | 13-13-9 | 22 | GW-GP | SILTY GRAVEL - WELL GRADED, SUBROUNDED TO ANGULAR GRAVEL TO 1.3 INCHES MAXIMUM, 27% COARSE TO FINE SAND, 8% NONPLASTIC TO SLIGHTLY PLASTIC FINES, BROWN, SLIGHT REACTION TO HCl | | | |
| 660 | 20 | S | 4 | 10-13-13 | 26 | GW-GM | BLOWS/INCH 1-1-2-1-3-2-2-2-2-2-3-2-2-2-2-2-3-2 SILTY GRAVELLY SAND - SIMILAR TO ABOVE, NO REACTION TO HCl | | | |
| | | S | 5 | 15-17-13 | 30 | | BLOWS/INCH 2-2-2-3-3-3/3-3-3-3-2-3/2-2-3-2-2-2 NO RECOVERY | | | |
| 655 | 25 | S | 6 | 11-12-14 | 26 | SM | BLOWS/INCH 1-1-2-3-2-2/2-2-2-2-2-2/2-2-3-2-3-2 SILTY SAND - UNIFORM, 17% MOSTLY ANGULAR GRAVEL TO 1.1 INCHES MAXIMUM, MOSTLY FINE SAND, 13% NONPLASTIC FINES, BROWN, NO REACTION TO HCl | | | |
| | | S | 7 | 10-7-8 | 15 | GW-GM | BLOWS/INCH 2-2-1-2-1-2/1-1-1-2-1-1/1-2-1-1-2-1 SANDY GRAVEL - WELL GRADED, SUBROUNDED TO SUBANGULAR GRAVEL TO 1.0 INCH MAXIMUM, 44% COARSE TO FINE SAND, 11% NONPLASTIC FINES, BROWN, SLIGHT REACTION TO HCl | | | |
| | | S | 8 | 8-10-10 | 20 | GP-GM | 1-2-1-2-1-1/2-1-2-1-2-2/2-2-2-1-1-2 SANDY GRAVEL - POORLY GRADED ANGULAR (FRESHLY FRACTURED) TO 1.3 INCHES MAXIMUM, 38% COARSE TO FINE, MOSTLY FINE SAND, 9% NONPLASTIC FINES, BROWN, NO REACTION TO HCl | | | |
| 650 | 30 | S | 9 | 9-9-12 | 21 | | BLOWS/INCH 2-1-2-2-1-1-1-2-1-1-2-2-3-1-2-2-2-2 NO RECOVERY - PIECE OF GRAVEL IN TIP OF SPOON | | | |
| | | S | 10 | 15-14-11 | 25 | C | 2-2-2-2-3-2-2-3-3-2-2-2-2-1-2-2-2-2 NO RECOVERY | | | |
| 645 | 35 | S | 11 | 17-15-10 | 25 | GM | BLOWS/INCH 1-2-2-3-3-2/2-2-3-3-2-3/2-2-2-1-1-2 SILTY GRAVEL - WIDELY GRADED, ANGULAR (FRESHLY FRACTURED) TO 0.8 INCH MAXIMUM, 41% COARSE TO FINE SAND, 12% NONPLASTIC FINES, BROWN, NO REACTION TO HCl | | | |
| | | S | 12 | 20-14-20 | 34 | SM | SILTY SAND - UNIFORM, FINE, 15% NONPLASTIC FINES, BROWN, NO REACTION TO HCl, ONE PIECE OF 0.8 INCH IN GRAVEL BLOWS/INCH 3-4-4-3-3-3/2-2-2-2-3-3/2-2-3-4-3-6 SILTY SAND - WIDELY GRADED, 10-15% SUBROUNDED GRAVEL TO 1.2 INCHES MAXIMUM, COARSE TO FINE SAND MOSTLY FINE, 10-15% NONPLASTIC FINES, BROWN, NO REACTION TO HCl | | | |
| 642.5 | 37.5 | END OF BORING AT 37.5 FEET | | | | | | | | |

311006

NOTE: FOR BORING SUMMARY AND
LEGEND INFO. SEE SHEET 1.



STONE & WEBSTER ENG. CORP.

ISSUED BY AK

DATE 8/5/1976

BORING NO. B-2003

SHEET 2 OF 2

| | | | |
|---|-----------------|--|--|
| SITE / LOCATION <u>BEAVER VALLEY POWER STATION - UNIT NO. 2</u> | | J.O. NO. <u>12241</u> | BORING <u>B-2005</u> |
| COORDINATES <u>N 3969.3</u> | <u>S 8112.0</u> | GROUND ELEV. (I) <u>680</u> | SHEET <u>1</u> OF <u>2</u> |
| INCLINATION <u>VERTICAL</u> | | BEARING <u></u> | LOGGED BY <u>R.S. SKRYNNESS/W. OLSZEWSKI</u> |
| DATE: START / FINISH <u>7/4/76</u> / <u>6/76</u> | | CONTRACTOR / DRILLER <u>PENNA DRILLING</u> | |
| STATIC GROUNDWATER DEPTH / DATE <u>13 FEET</u> / <u>7-6-76</u> | | DRILL RIG TYPE <u></u> | |
| DEPTH TO BEDROCK <u></u> | | TOTAL DEPTH DRILLED <u>41.5 FEET</u> | |
| METHODS: | | | |
| DRILLING SOIL <u>3 1/8" TOLLER BIT TO ADVANCE HOLE, MUD</u> | | | |
| SAMPLING SOIL <u>2.0" O.D. SPLIT SPOON</u> | | | |
| DRILLING ROCK <u>NONE</u> | | | |
| SPECIAL TESTING OR INSTRUMENTATION <u></u> | | | |
| REMARKS <u></u> | | | |

| ELEVATION (FEET) | DEPTH (FEET) | SAMPLE TYPE | SAMPLE NUMBER | BLOWS(2) OR U.D.S. PENETRATIONS(3) | SPT N VALUES OR U.D.S. REC(4) | GROUP SYMBOL | SAMPLE DESCRIPTION | FIELD AND LAB TEST RESULTS / COMMENTS |
|---------------------|-----------------|----------------|------------------|--|----------------------------------|--------------|---|---|
| 680 | 0 | | | | | | | |
| | | | | | | | BLOWS/INCH: 1-1-2-1-1-2/1-1-1-2-1-1/1-1-2-2-2-2 | |
| | | S | 1 | 8-7-10 ** | 17 | GP | SANDY GRAVEL, POORLY GRADED, SUBANGULAR TO SUBROUNDED GRAVEL TO 1.2 INCH MAXIMUM, 35% COARSE TO FINE SAND, 9% NONPLASTIC FINES, BROWN, STRONG REACTION TO HCL. | |
| | | S | 2 | 6-6-6 ** | 12 | GP | BLOWS/INCH: 1-1-1-1-1-1/1-1-1-1-1-1/1-1-1-1-1-1 SANDY GRAVEL, POORLY GRADED, SUBANGULAR TO SUBROUNDED GRAVEL TO 0.9 INCH MAXIMUM, 37% COARSE TO FINE SAND, 9% NONPLASTIC FINES, BROWN, STRONG REACTION TO HCL. | |
| 675 | 5 | | | | | | BLOWS/INCH: 1-1-2-1-2-1/2-1-1-1-2-1/3-3-3-3-4-4 | |
| | | S | 3 | 8-8-20 56% | 28 | GP | SANDY GRAVEL, POORLY GRADED, MEDIUM GRAVEL 30-35% COARSE TO FINE SAND, MOSTLY MEDIUM, STRONG REACTION TO HCL. | |
| | | S | 4 | 17-22-18 50% | 40 | GP | BLOWS/INCH: 2-3-3-3-3-3/3-3-4-5-4-3/3-3-2-3-3-4 SANDY GRAVEL, POORLY GRADED, FINE TO MEDIUM GRAVEL, 30-35% COARSE TO FINE SAND, MOSTLY MEDIUM, 5-10% NONPLASTIC FINES, MEDIUM BROWN, STRONG REACTION TO HCL. | |
| 670 | 10 | | | | | | BLOWS/INCH: 2-2-2-2-2-2/2-3-2-3-2-2/3-2-2-1-5-3 | |
| | | S | 5 | 12-14-16 22% | 30 | GP | SILTY GRAVEL, WIDELY GRADED, SUBANGULAR TO SUBROUNDED GRAVEL TO 1.1 INCH MAXIMUM, 42% COARSE TO FINE SAND, 13% NONPLASTIC TO SLIGHTLY PLASTIC FINES, BROWN, SLIGHT REACTION TO HCL. | |
| | | S | 6 | 10-14-17 50% | 31 | GP- QM | BLOWS/INCH: 1-1-2-2-2-2/2-3-3-2-2-2/3-3-3-2-2-4 SANDY GRAVEL, POORLY GRADED, ANGULAR TO SUBROUNDED GRAVEL TO 1.4 INCH MAXIMUM, 20-30% COARSE TO FINE SAND, 5-10% FINES, BROWN, NO REACTION TO HCL. | |
| 665 | 15 | | | | | | BLOWS/INCH: 1/2"-1-2-2-2/1-3-3-2-2-2/2-2-3-3-2-3 | |
| | | S | 7 | 8-13-15 22% | 28 | | SAMPLE INADEQUATE, NOT REPRESENTATIVE. INCLUDED PIECES OF ANGULAR GRAVEL TO 1 INCH. | |

LEGEND / NOTES

S_ SPLIT BARREL SAMPLE
UNDISTURBED SAMPLES (U.D.S.)
US_ SHELBY TUBE
UF_ FIXED PISTON
UO_ OSTERBERG
UD_ DENISON
UP_ PITCHER
N_ STD. PENETRATION
RESISTANCE BLOWS/FT
▽
GROUNDWATER

** RECOVERY INFORMATION
NOT AVAILABLE

- DATUM IS MEAN SEA LEVEL UNLESS OTHERWISE INDICATED
- BLOWS REQUIRED TO DRIVE 2" O.D. SAMPLE SPOON 6" OR DISTANCE SHOWN USING 140 lb HAMMER FALLING 30"
- * INDICATES USE OF 300 lb HAMMER
3. DENOTES INCHES OF PENETR. OF UNDISTURBED SAMPLER
4. DENOTES INCHES OF UNDISTURBED SAMPLE RECOVERY
5. UNIFIED SOIL CLASSIFICATION SYSTEM

BORING LOG

BEAVER VALLEY POWER STATION - UNIT NO. 2
DUQUESNE LIGHT CO. COMPANY
PITTSBURGH, PENNSYLVANIA

12241-GSK-126A

STONE & WEBSTER ENG. CORP.

| | | | |
|-------------------------|--------------------------|----------------------|-----------------|
| ISSUED BY <i>CAL</i> | DATE <i>2/15/1996</i> | BORING NO. B-2005 | SHEET 1 OF 2 |
|-------------------------|--------------------------|----------------------|-----------------|

| BORING B-2005 | | | | | | | | | |
|---|-----------------|----------------------------|------------------|---------------------------------------|-------------------------------|--------------|--|--|--|
| SHEET 2 OF 2 | | | | | | | | | |
| SITE / LOCATION BEAVER VALLEY POWER STATION - UNIT NO. 2 J.O. NO. 12241 | | | | | | | | | |
| ELEVATION (FEET) | DEPTH (FEET) | SAMPLE TYPE | SAMPLE NUMBER | BLOWS (2) OR UDS PENETRATION(3) | SPT N VALUES OR UDS REC(4) | GROUP SYMBOL | FIELD AND LAB TEST RESULTS / COMMENTS | | |
| % REC | | | | | | | | | |
| 665 | 15 | S | 8 | 11-13-19 45% | 32 | SP | BLOWS/INCH: 1-1-2-3-2-2/2-2-2-2-2-3/3-3-3-3-4 TOP 6 INCHES: GRAVEL, SIMILAR TO ABOVE. BOTTOM 2 INCHES: GRAVELLY SAND, POORLY GRADED, 30-40% GRAVEL, COARSE TO FINE SAND, LESS THAN 5% FINES, BROWN. | | |
| | | S | 9 | 9-15-16 40% | 31 | GP-GM | BLOWS/INCH: 1-1-1.5-1.5-1-3/2-3-2-2-3/2-3-2-3-3 SANDY GRAVEL, POORLY GRADED, SUBANGULAR TO SUBROUNDED GRAVEL TO 0.9 INCH MAXIMUM, 39% COARSE TO FINE SAND, 8% NONPLASTIC FINES, BROWN. | | |
| 660 | 20 | S | 10 | 15-19-16 45% | 35 | SP | BLOWS/INCH: 1-2-3-3-3-3/2-2-3-4-4-4/2-3-3-2-3-3 GRAVELLY SAND, POORLY GRADED, 35-45% SUBANGULAR TO SUBROUNDED GRAVEL TO 0.6 INCH MAXIMUM, COARSE TO FINE MOSTLY MEDIUM SAND, LESS THAN 5% FINES, BROWN, NO REACTION TO HCL. | | |
| | | S | 11 | 14-15-25 40% | 40 | GP-GM | BLOWS/INCH: 1-3-3-3-2-2/2-2-2-3-2-4/3-4-4-5-4-5 SANDY GRAVEL, POORLY GRADED, ANGULAR TO SUBROUNDED GRAVEL TO 0.9 INCH MAXIMUM, COARSE TO FINE MOSTLY MEDIUM SAND, 5-10% NONPLASTIC FINES, BROWN, MANY GRAVEL SIZED SANDSTONE FRAGMENTS, NO REACTION TO HCL. | | |
| 655 | 25 | S | 12 | 20-26-22 | 48 | | BLOWS/INCH: 2-3-3-4-4-4/3-4-4-5-5-5/4-4-3-4-3-4 NO RECOVERY | | |
| | | S | 13 | 10-11-12 56% | 23 | SM-SP | BLOWS/INCH: 1-2-2-2-2-1/2-2-2-2-1-2/2-2-2-2-2-2 SILTY SAND, 10-20% GRAVEL TO 0.8 INCH MAXIMUM, COARSE TO FINE SAND, 10-20% NONPLASTIC FINES, BROWN, NO REACTION TO HCL. TOP OF SPOON SANDSTONE. | | |
| | | S | 14 | 16-11-9 50% | 20 | GP-GM | BLOWS/INCH: 2-3-3-2-3-3/2-2-2-2-2-1/2-1-2-1-1-2 SANDY GRAVEL, POORLY GRADED, SUBANGULAR TO SUBROUNDED GRAVEL TO 1.1 INCH MAXIMUM, 38% COARSE TO FINE SAND, 8% NONPLASTIC FINES, BROWN. | | |
| 650 | 30 | S | 15 | 8-13-11 28% | 24 | | BLOWS/INCH: 1-1-1-1-2-2/3-2-2-2-2-2/2-2-2-2-3/2" 2 INCHES: SANDSTONE, IN BOTTOM OF SPOON | | |
| | | S | 16 | 10-9-11 11% | 20 | SM | BLOWS/INCH: 2-1-2-2-2-1/2-1-2-1-2-1/2-2-2-1-2-2 SILTY SAND, WIDELY GRADED, 34% SUBANGULAR TO SUBROUNDED GRAVEL TO 0.7 INCH MAXIMUM, COARSE TO FINE SAND, 13% NONPLASTIC FINES, BROWN. | | |
| 645 | 35 | S | 17 | 9-6-9 45% | 15 | GP-GM | BLOWS/INCH: 1-3-2-1-1-1/1-1-1-1-1-1/1-1-2-1-2-2 SANDY GRAVEL, POORLY GRADED, SUBANGULAR TO SUBROUNDED GRAVEL TO 0.8 INCH MAXIMUM, 32% COARSE TO FINE SAND, 11% NONPLASTIC FINES, YELLOWISH GRAY. | | |
| | | S | 18 | 10-12-11 | 23 | | BLOWS/INCH: 1-1-2-1-2-3/2-2-2-2-2-2/2-2-2-2-2-1 NO RECOVERY | | |
| | | S | 19 | 9-34-30 83% | 64 | SP | BLOWS/INCH: 1-2-1-2-1-2/6-5-6-7-5-5/4-6-7-7-6 TOP 6 INCHES: SAND, UNIFORM, FINE, LESS THAN 5% FINES, BROWN, NO REACTION TO HCL. | | |
| 640 | 40 | S | 20 | 21-34-31 50% | 65 | ML | BLOWS/INCH: 3-3-3-4-3-5/6-6-5-6-5-6/4-6-5-4-5-7 SANDY SILT, NONPLASTIC, 25-35% FINE SAND, BROWN, FRAGMENTS OF LIMESTONE THROUGHOUT, STRONG REACTION TO HCL. | | |
| 638.5 | 41.5 | END OF BORING AT 41.5 FEET | | | | | | | |
| 635 | 45 | | | | | | | | |

NOTE: FOR BORING SUMMARY AND LEGEND INFO SEE SHEET 1

STONE & WEBSTER ENG. CORP.

ISSUED BY
QW

DATE
9/15/1996

BORING NO.
B-2005

SHEET
2 OF 2

911008

12241-001-126B

| | | | |
|---|-----------------|--|-------------------------|
| SITE / LOCATION <u>BEAVER VALLEY POWER STATION - UNIT NO. 2</u> | | J.O. NO <u>12241</u> | BORING <u>B-2009</u> |
| COORDINATES <u>N 3971.5</u> | <u>B 8118.7</u> | GROUND ELEV. (I) <u>680 FEET</u> | SHEET 1 OF <u>2</u> |
| INCLINATION <u>VERTICAL</u> | | BEARING _____ | LOGGED BY <u>MALDEN</u> |
| DATE : START / FINISH <u>7/11/76</u> / <u>7/11/76</u> | | CONTRACTOR / DRILLER <u>PENNA DRILLING/SORBA</u> | |
| STATIC GROUNDWATER DEPTH / DATE <u>13 FEET</u> / <u>7/11/76</u> | | DRILL RIG TYPE _____ | |
| DEPTH TO BEDROCK _____ | | TOTAL DEPTH DRILLED <u>22.3 FEET</u> | |
| METHODS : | | | |
| DRILLING SOIL <u>3 1/8" ROLLER BIT TO ADVANCE HOLE</u> | | _____ | |
| SAMPLING SOIL <u>2" O.D. SPLIT SPOON</u> | | _____ | |
| DRILLING ROCK _____ | | _____ | |
| SPECIAL TESTING OR INSTRUMENTATION _____ | | | |
| REMARKS _____ | | | |

| ELEVATION (FEET) | DEPTH (FEET) | SAMPLE TYPE | SAMPLE NUMBER | BLOWS(2) OR U.D.S. PENETRATION(3) | SPT N VALUES OR U.D.S. REC.(4) | GROUP SYMBOL (5) | SAMPLE DESCRIPTION | FIELD AND LAB TEST RESULTS / COMMENTS |
|--|-----------------|----------------|------------------|---|-----------------------------------|---------------------|--|---|
| % REC | | | | | | | | |
| 680 | 0 | | | | | | | |
| | | S | 1 | 7-8-9 67% | 17 | SP-SM | GRAVELLY SAND - POORLY GRADED, COARSE TO FINE, MOSTLY COARSE AND FINE, 35-45% SUBROUNDED TO SUBANGULAR (FRACTURED) GRAVEL TO 1.25 INCHES MAXIMUM, 5-10% SLIGHTLY PLASTIC FINES, BROWN, STRONG REACTION TO HCl | |
| | | S | 2 | 8-8-8 61% | 16 | SM | BLOWS/INCH 2-1-1-2-1-1-2-1-1-2-1-1-2-1-1-2-1 SILTY SAND - WIDELY GRADED, 26% SUBROUNDED GRAVEL TO 0.7 INCH MAXIMUM, COARSE TO FINE SAND, 1% NONPLASTIC FINES, BROWN, STRONG REACTION TO HCl | |
| 675 | 5 | | | | | | | |
| | | S | 3 | 11-13-11 56% | 24 | SM | BLOWS/INCH 1-2-2-2-2-2-3-2-2-2-3-1-2-2-1-2-2-2 GRAVELLY SAND - SIMILAR TO ABOVE | |
| | | S | 4 | 30-14-11 50% | 25 | SM | BLOWS/INCH 2-4-4-7-8-5-4-2-2-2-2-2-2-2-1-2-2-2 SILTY SAND - WIDELY GRADED, 35% SUBROUNDED GRAVEL TO 0.8 INCH MAXIMUM, COARSE TO FINE SAND, 16% NONPLASTIC FINES, BROWN, STRONG REACTION TO HCl | |
| 670 | 10 | | | | | | | |
| | | S | 5 | 14-15-15 72% | 30 | SM | BLOWS/INCH 2-3-2-2-1 3-2-3-2-3-2-3-3-2-2-3-2-3 GRAVELLY SAND - SIMILAR TO ABOVE | |
| | | S | 6 | 26-27-13 100% | 50 | SM | BLOWS/INCH 5-4-4-5-4-4-5-4-5-5-4-4-4-5-3-4-3-4 SILTY SAND - WIDELY GRADED, 23% GRAVEL TO 0.9 INCH MAXIMUM, COARSE TO FINE SAND, 19% NONPLASTIC FINES, BROWN, STRONG REACTION TO HCl | |
| | | S | 7 | 15-16-17 56% | 33 | SM | BLOWS/INCH 2-3-2-3-3-2-3-2-3-3-3-2-3-3-2-3-3 SILTY SAND - WIDELY GRADED, 29% SUBANGULAR TO SUBROUNDED GRAVEL TO 0.8 INCH MAXIMUM, COARSE TO FINE SAND, 14% NONPLASTIC FINES, BROWN, SMALL POCKET OF BLACK, STRONG REACTION TO HCl | |
| 665 | 15 | | | | | | | |
| <div><div><div>LEGEND / NOTES</div><div>S_ SPLIT BARREL SAMPLE UNDISTURBED SAMPLES (U.D.S.) US_ SHELBY TUBE UF_ FIXED PISTON UO_ OSTERBERG UD_ DENISON UP_ PITCHER N_ STD. PENETRATION RESISTANCE BLOWS/FT G_ GROUNDWATER ** RECOVERY INFORMATION NOT AVAILABLE</div></div><div><div>1. DATUM IS MEAN SEA LEVEL UNLESS OTHERWISE INDICATED 2. BLOWS REQUIRED TO DRIVE 2" O.D. SAMPLE SPOON 6" OR DISTANCE SHOWN USING 140 lb HAMMER FALLING 30" * INDICATES USE OF 300 lb HAMMER 3. DENOTES INCHES OF PENETR. OF UNDISTURBED SAMPLER 4. DENOTES INCHES OF UNDISTURBED SAMPLE RECOVERY 5. UNIFIED SOIL CLASSIFICATION SYSTEM</div><div><div>BORING LOG</div><div>BEAVER VALLEY POWER STATION - UNIT NO. 2 DUQUESNE LIGHT COMPANY PITTSBURGH, PENNSYLVANIA 12241-GSK-129A STONE & WEBSTER ENG. CORP.</div><div>ISSUED BY DATE BORING NO. SHEET B-2009 1 OF 2</div></div></div></div> | | | | | | | | |

| BORING <u>B-2009</u> SHEET <u>2</u> OF <u>2</u> | | | | | | | | | |
|---|-----------------|----------------|------------------|---------------------------------------|-------------------------------|---------------------|--|--|--|
| SITE / LOCATION <u>BEAVER VALLEY POWER STATION - UNIT NO. 2</u> J.O. NO. <u>12241</u> | | | | | | | | | |
| ELEVATION (FEET) | DEPTH (FEET) | SAMPLE TYPE | SAMPLE NUMBER | BLOWS (2) OR UDS PENETRATION(3) | SPT N VALUES OR UDS REC(4) | GROUP SYMBOL (5) | SAMPLE DESCRIPTION | FIELD AND LAB. TEST RESULTS / COMMENTS | |
| % REC | | | | | | | | | |
| 665 | 15 | | | | | | | | |
| | | S | 8 | 33-28-19 67% | 47 | SM | BLOWS/INCH 3-4-3-7-9-7-8-5-4-4-4-3-4-3-3-3-3 GRAVELLY SAND - SIMILAR TO ABOVE | | |
| | | S | 9 | 76/6" 33% | | SM | BLOWS/INCH 3-4-8-13-23-25 GRAVELLY SAND - SIMILAR TO ABOVE EXCEPT 20-30% GRAVEL TO 0.75 INCH MAXIMUM. | | |
| 660 | 20 | S | 10 | 50-44-30 90% | 74 | SM | BLOWS/INCH 5-6-9-10-10-10-9-9-6-5-6-6-5-5-4-5-5 SILTY SAND - WIDELY GRADED, 29% SUBANGULAR TO SUBROUNDED GRAVEL TO 0.7 INCH MAXIMUM, COARSE TO FINE SAND, 18% NONPLASTIC FINES, BROWN, LIGHTLY SPOTTED WITH BLACK LIGNITE, STRONG REACTION TO HCl | | |
| 657.2 | 22.3 | S | 11 | 30-49-51 72% | 100 | SM | BLOWS/INCH 4-4-6-5-6-5-9-6-10-7-5-12-20-5-13-17 1/2" GRAVELLY SAND - SIMILAR TO ABOVE | | |
| END OF BORING AT 22.3 FEET | | | | | | | | | |
| | | | | | | | | | |

911010

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|---|----------------------------|---------------------------------|------------------|----------------------|-----------------|
| NOTE: FOR BORING SUMMARY AND LEGEND INFO. SEE SHEET 1. | STONE & WEBSTER ENG. CORP. | ISSUED BY <i>[Signature]</i> | DATE 8/5/1946 | BORING NO. B-2009 | SHEET 2 OF 2 |
|---|----------------------------|---------------------------------|------------------|----------------------|-----------------|

| | | | |
|---|-----------------|--|--|
| SITE / LOCATION <u>BEAVER VALLEY POWER STATION - UNIT NO. 2</u> | | J.O. NO. <u>12241</u> | BORING <u>B-2013</u> |
| COORDINATES <u>N 3969.4</u> | <u>E 8114.9</u> | GROUND ELEV. (I) <u>680 FEET</u> | SHEET <u>1</u> OF <u>2</u> |
| INCLINATION <u>VERTICAL</u> | | BEARING _____ | LOGGED BY <u>W. J. Olszewski/M. E. Dwyer</u> |
| DATE : START / FINISH <u>7-12-76</u> / <u>7-12-76</u> | | CONTRACTOR / DRILLER <u>PENNA DRILLING/B. GOLLIHUE</u> | |
| STATIC GROUNDWATER DEPTH / DATE <u>13 FEET</u> / <u>7/13/76</u> | | DRILL RIG TYPE _____ | |
| DEPTH TO BEDROCK _____ | | TOTAL DEPTH DRILLED <u>41.5 FEET</u> | |
| METHODS : | | | |
| DRILLING SOIL <u>3 1/8" ROLLER BIT TO ADVANCE HOLE</u> | | _____ | |
| SAMPLING SOIL <u>2" O.D. SPLIT SPOON</u> | | _____ | |
| DRILLING ROCK <u>NONE</u> | | _____ | |
| SPECIAL TESTING OR INSTRUMENTATION _____ | | | |
| REMARKS _____ | | | |

| ELEVATION (FEET) | DEPTH (FEET) | SAMPLE TYPE | SAMPLE NUMBER | BLOWS (2) OR U.D.S. PENETRATOR (3) | SPT N VALUES OR U.D.S. REC (4) | GROUP SYMBOL (5) | SAMPLE DESCRIPTION | FIELD AND LAB. TEST RESULTS / COMMENTS |
|---------------------|-----------------|----------------|------------------|--|-----------------------------------|------------------|---|--|
| 680 | 0 | S | 1 | 5-6-8 45% | 14 | GM | SANDY GRAVEL, WELL GRADED, SUBANGULAR TO ANGULAR, TO 1.1 INCHES MAXIMUM, 41% COARSE TO FINE SAND, 11 % NONPLASTIC FINES, BROWN, STRONG REACTION TO HCl | |
| | | S | 2 | 8-6-12 | 18 | | BLOWS/INCH 1-3-1-1-1-1/1-1-1-1-1-1/2-1-2-2-2-3 NO RECOVERY | |
| 675 | 5 | S | 3 | 7-7-7 17% | 14 | GM | BLOWS/INCH 1-1-2-1-1-1/1-2-1-1-1-1/1-1-2-1-1-1 SANDY GRAVEL, WELL GRADED, ANGULAR, TO 0.8 INCH MAXIMUM, 44% COARSE TO FINE SAND, 13% NONPLASTIC FINES, BROWN, STRONG REACTION TO HCl | |
| | | S | 4 | 8-6-8 28% | 14 | SM | BLOWS/INCH 2-1-1-1-2-1/1-1-1-1-1-1/1-1-1-1-2-2 SILTY SAND, WIDELY GRADED, 41% ANGULAR GRAVEL TO 0.9 INCH MAXIMUM, COARSE TO FINE SAND, 13% NONPLASTIC FINES, BROWN, SLIGHT REACTION TO HCl | |
| 670 | 10 | S | 5 | 11-36-25 45% | 61 | SM | 1-1-1-1-4-3/4-5-9-6-6-6/6-3-5-5-3-3 SILTY SAND, SAME AS ABOVE | |
| | | S | 6 | 17-23-29 45% | 52 | SM | BLOWS/INCH 1-2-3-4-3-4/3-4-4-4-4-4/4-4-3-5-7-6 SILTY GRAVEL, WIDELY GRADED, ANGULAR, TO 1.0 INCH MAXIMUM, 40% COARSE TO FINE SAND, 14% NONPLASTIC FINES, BROWN, SLIGHT REACTION TO HCl | |
| | | S | 7 | 31-24-23 6% | 47 | | BLOWS/INCH 1-4-3-5-3-3-3/5-3-3-4-5-4/6-4-3-4-3-3 SANDSTONE | |
| 665 | 15 | S | 8 | 20-24-25 45% | 49 | GM | BLOWS/INCH 3-3-3-3-4-4/4-4-4-4-4-4/4-4-4-5-4-4 SILTY GRAVEL, WIDELY GRADED, ANGULAR TO SUBROUND GRAVEL TO 1.0 INCH MAXIMUM, 25-35% COARSE TO FINE SAND, 15-20% NONPLASTIC FINES, BROWN, NO REACTION TO HCl | |

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|---------------------------------------|------------------------------|---------------------------------------|--|----------------------|--------------------------|----------------------------|
| LEGEND / NOTES | S. SPLIT BARREL SAMPLE | 1. DATUM IS MEAN SEA LEVEL | BORING LOG BEAVER VALLEY POWER STATION - UNIT NO. 2 DUQUESNE LIGHT COMPANY PITTSBURGH, PENNSYLVANIA 12241-GSK-130A STONE & WEBSTER ENG. CORP. | | | |
| | UNDISTURBED SAMPLES (U.D.S.) | UNLESS OTHERWISE INDICATED | | | | |
| | US. SHELBY TUBE | 2. BLOWS REQUIRED TO DRIVE | | | | |
| | UF. FIXED PISTON | 2" O.D. SAMPLE SPOON 6" OR | | | | |
| UO. OSTERBERG | DISTANCE SHOWN USING 140 lb | 3. DENOTES INCHES OF PENETR. | ISSUED BY <u>ad</u> | DATE <u>8/6/1916</u> | BORING NO. <u>B-2013</u> | SHEET <u>1</u> OF <u>2</u> |
| UD. DENISON | HAMMER FALLING 30" | OF UNDISTURBED SAMPLER | | | | |
| UP. PITCHER | * INDICATES USE OF 300 lb | HAMMER | | | | |
| N. STD. PENETRATION | HAMMER | 4. DENOTES INCHES OF | | | | |
| RESISTANCE BLOWS/FT | | UNDISTURBED SAMPLE | | | | |
| <u>7</u> GROUNDWATER | | RECOVERY | | | | |
| ** RECOVERY INFORMATION NOT AVAILABLE | | 5. UNIFIED SOIL CLASSIFICATION SYSTEM | | | | |

01001

| BORING <u>B-2013</u> | | | | | | | | | | |
|---|-----------------|----------------|------------------|---------------------------------------|--------------------------------|---------------------|---|--|--|--|
| SHEET <u>2</u> OF <u>2</u> | | | | | | | | | | |
| SITE / LOCATION <u>DEAVER VALLEY POWER STATION - UNIT NO. 2</u> J.O. NO. <u>12241</u> | | | | | | | | | | |
| LEVATION (FEET) | DEPTH (FEET) | SAMPLE TYPE | SAMPLE NUMBER | BLOWS (2) OR UDS PENETRATION(3) | SPT N VALUES OR UDS RECI(4) | GROUP SYMBOL (5) | SAMPLE DESCRIPTION | | | FIELD AND LAB. TEST RESULTS / COMMENTS |
| % REC | | | | | | | | | | |
| 665 | 15 | S | 9 | 14-16-30 22% | 46 | GM | BLOWS/INCH 2-2-2-2-4/5-2-3-1-3-2/2-2-4-7-7-8 SILTY GRAVEL, SAME AS ABOVE EXCEPT GRAVEL TO 0.7 INCH SANDSTONE, IN SHOE OF SPOON | | | |
| | | S | 10 | 39-32-40 45% | 72 | SM | BLOWS/INCH 5-5-7-8-8-6/6-6-6-4-5-5/6-7-5-7-3-7 SILTY SAND, WIDELY GRADED, 35% GRAVEL TO 0.8 INCH MAXIMUM, COARSE TO FINE SAND, 16% NONPLASTIC FINES, BROWN, NO REACTION TO HCl | | | |
| 660 | 20 | S | 11 | 30-37-31 50% | 68 | GM | BLOWS/INCH 4-3-5-6-6-6/6-6-7-6-7-5/6-6-4-5-5-5 SILTY GRAVEL, SAME AS ABOVE EXCEPT GRAVEL TO 0.8 INCH, NO REACTION TO HCl | | | |
| | | S | 12 | 47-10-37 61% | 77 | GM | BLOWS/INCH 6-9-8-7-11-6/7-8-7-6-6-6/5-6-5-5-5-6 SILTY GRAVEL, SAME AS ABOVE EXCEPT GRAVEL TO 1.0 INCH MAXIMUM, NO REACTION TO HCl | | | |
| 655 | 25 | S | 13 | 27-80-61 72% | 141 | SM | BLOWS/INCH 1-2-2-4-6-12/15-15-16-18-10-6/12-9-9-11-11 SILTY SAND, WIDELY GRADED, 34% GRAVEL TO 1.2 INCHES MAXIMUM, COARSE TO FINE SAND, 14% NONPLASTIC FINES, BROWN, NO REACTION TO HCl | | | |
| | | S | 14 | 25-37-32 72% | 69 | GM | BLOWS/INCH 1-3-5-5-6-5/9-6-7-7-4-4/4-5-4-5-6-8 SILTY GRAVEL, WIDELY GRADED, SUBANGULAR TO 0.8 INCH MAXIMUM, 32% COARSE TO FINE SAND, 20% NONPLASTIC FINES, BROWN, NO REACTION TO HCl | | | |
| | | S | 15 | 43-55-38 67% | 93 | GM | BLOWS/INCH 4-7-11-8-6-7/9-11-9-9-10-7/7-6-6-6-6-7 SILTY GRAVEL, WIDELY GRADED, ANGULAR TO SUBROUNDED GRAVEL TO 1.0 INCH MAXIMUM, 25-35% COARSE TO FINE SAND, 10-25% SLIGHTLY PLASTIC FINES, BROWN, FEW SMALL POCKETS LIGNITE, NO REACTION TO HCl | | | |
| 650 | 30 | S | 16 | 67-70-32 90% | 102 | GM | BLOWS/INCH 6-8-8-10-15-20/19-20-10-9-5-7/6-6-5-5-5-5 SILTY GRAVEL, WIDELY GRADED, SUBANGULAR TO SUBROUNDED GRAVEL TO 0.9 INCH MAXIMUM, 25-35% COARSE TO FINE SAND, 10-25% SLIGHTLY PLASTIC FINES, BROWN, NO REACTION TO HCl | | | |
| | | S | 17 | 14-17-15 56% | 32 | GM | BLOWS/INCH 2-2-2-3-2-3/3-3-2-3-3-3/3-2-3-2-3-2 SILTY GRAVEL, WIDELY GRADED, SUBANGULAR TO SUBROUNDED, TO 1.0 INCH MAXIMUM, 39% COARSE TO FINE SAND, 13% NONPLASTIC FINES, BROWN, NO REACTION TO HCl | | | |
| 645 | 35 | S | 18 | 23-20-26 | 46 | | BLOWS/INCH 3-3-4-3-6-4/4-4-3-2-4-3/4-5-5-4-4-4 NO RECOVERY | | | |
| | | S | 19 | 54-52-30 78% | 82 | GM | BLOWS/INCH 6-5-5-11-9-18/15-11-9-5-6-6/5-4-6-4-6-5 SILTY GRAVEL, WIDELY GRADED, SUBANGULAR TO SUBROUNDED GRAVEL TO 0.5 INCH MAXIMUM, 20-35% COARSE TO FINE SAND, 15-30% SLIGHTLY PLASTIC FINES, BROWN, NO REACTION TO HCl, 3 INCH LIGNITE SEAM | | | |
| | | S | 20 | 83/4.5" 28% | | SM | BLOWS/INCH 3-5-13-12-50/0.5" SILTY SAND, WIDELY GRADED, 24% GRAVEL TO 0.8 INCH MAXIMUM, COARSE TO FINE SAND, 27% NONPLASTIC FINES, BROWN, NO REACTION TO HCl | | | |
| 640 | 40 | S | 21 | 62-66-82 83% | 148 | GM | TOP 9 INCHES: SILTY GRAVEL, SAME AS ABOVE BOTTOM 7 INCHES: SILTY GRAVEL, SIMILAR TO ABOVE EXCEPT 10-20% NONPLASTIC TO SLIGHTLY PLASTIC FINES | | | |
| END OF BORING AT 41.5 FEET | | | | | | | | | | |

NOTE: FOR BORING SUMMARY AND
LEGEND INFO SEE SHEET 1



STONE & WEBSTER ENG. CORP

ISSUED BY

DATE

8/6/1916

BORING NO

B-2013

SHEET

2 OF 2

AMENDMENT 3

12241-GSK-130B

911012

| | | | |
|---|-----------------|--|--|
| SITE / LOCATION <u>BEAVER VALLEY POWER STATION - UNIT NO. 2</u> | | J.O. NO. <u>12241</u> | BORING <u>B-2015</u> |
| COORDINATES <u>N 3971.4</u> | <u>E 8114.9</u> | GROUND ELEV. (I) <u>680 FEET</u> | SHEET 1 OF <u>2</u> |
| INCLINATION <u>VERTICAL</u> | | BEARING _____ | LOGGED BY <u>C.R. MAULDIN/W.J. OLSZEWSKI</u> |
| DATE: START / FINISH <u>7-12-76</u> / <u>7-12-76</u> | | CONTRACTOR / DRILLER <u>PENNA DRILLING/SWEDE</u> | |
| STATIC GROUNDWATER DEPTH / DATE <u>13 FEET</u> / <u>7-12-76</u> | | DRILL RIG TYPE _____ | |
| DEPTH TO BEDROCK _____ | | TOTAL DEPTH DRILLED <u>39.5 FEET</u> | |
| METHODS: | | | |
| DRILLING SOIL <u>3 1/8" ROLLER BIT TO ADVANCE HOLE</u> | | _____ | |
| SAMPLING SOIL <u>2" O.D. SPLIT SPOON</u> | | _____ | |
| DRILLING ROCK <u>NONE</u> | | _____ | |
| SPECIAL TESTING OR INSTRUMENTATION _____ | | | |
| REMARKS _____ | | | |

| ELEVATION (FEET) | DEPTH (FEET) | SAMPLE TYPE | SAMPLE NUMBER | BLOWS (2) OR U.S. PENETRATION (3) | SPT N VALUES OR U.S. REC. (4) | GROUP SYMBOL (5) | SAMPLE DESCRIPTION | FIELD AND LAB. TEST RESULTS / COMMENTS |
|---------------------|-----------------|----------------|------------------|---|----------------------------------|------------------|--|--|
| 680 | 0 | | | | | | | |
| | | S | 1 | 8-8-7 61% | 15 | SW- GW | BLOWS/INCH 2-1-1-1-1-2/2-1-1-2-1-1/1-1-1-1-2 GRAVELLY SAND, WELL GRADED, 30-45% GRAVEL TO 1.5 INCHES MAXIMUM, 3-8% NONPLASTIC FINES, BROWN, STRONG REACTION TO HCL | |
| | | S | 2 | 6-9-9 45% | 18 | FA- SM | BLOWS/INCH 1/2-1-2-1-1/2-1-2-2-1-1/2-1-2-1-2-1 GRAVELLY SAND, SIMILAR TO ABOVE EXCEPT 25-40% GRAVEL | |
| 675 | 5 | S | 3 | 9-7-9 40% | 16 | GM | BLOWS/INCH 2-1-1-2-2-1/1-1-2-1-1-1/2-1-1-1-3-1 SILTY GRAVEL, WIDELY GRADED, ANGULAR TO SUBANGULAR GRAVEL TO 1.0 INCH MAXIMUM, 38% COARSE TO FINE SAND, MOSTLY COARSE, 14% SLIGHTLY PLASTIC FINES, BROWN, SLIGHT REACTION TO HCL | |
| | | S | 4 | 16-17-17 56% | 36 | SP | BLOWS/INCH 3-2-2-3-3-3/3-3-2-3-3-3/3-3-3-3-4-3 GRAVELLY SAND, POORLY GRADED, 20-30% ANGULAR TO SUBROUNDED GRAVEL TO 0.6 INCH MAXIMUM, COARSE TO FINE, MOSTLY MEDIUM SAND, 5% FINES, BROWN, NO REACTION TO HCL | |
| 670 | 10 | S | 5 | 11-15-21 50% | 36 | GM | BLOWS/INCH 2-1-2-2-2-2/2-2-3-3-2-3/3-3-4-3-4-4 SILTY GRAVEL, WIDELY GRADED, ANGULAR TO SUBROUND GRAVEL TO 0.7 INCH MAXIMUM, 25-35% COARSE TO FINE SAND, 10-15% SLIGHTLY PLASTIC FINES, BROWN, NO REACTION TO HCL, DROVE THROUGH SANDSTONE AND LIMESTONE 2 INCHES FROM BOTTOM | |
| | | S | 6 | 14-17-17 33% | 34 | SP- SM | BLOWS/INCH 3-2-2-2-2-3/2-2-4-3-3-3/3-2-3-2-3-4 GRAVELLY SAND, POORLY GRADED, 36% SUBANGULAR TO SUBROUNDED GRAVEL TO 0.9 INCH MAXIMUM, COARSE TO FINE SAND, MOSTLY COARSE, 12% NONPLASTIC FINES, BROWN, SLIGHT REACTION TO HCL | |
| 665 | 15 | S | 7 | 7-12-12 40% | 24 | SP- SM | BLOWS/INCH 2-1-1-1-1-2/2-2-2-2-2-2/2-1-2-2-2-3 GRAVELLY SAND, POORLY GRADED, 20-30% SUBANGULAR GRAVEL TO 1.0 INCH MAXIMUM, COARSE TO FINE, MOSTLY MEDIUM SAND, 5-10% FINES, BROWN, NO REACTION TO HCL | |

| | | | | |
|----------------|--|--|--|-----------------------|
| LEGEND / NOTES | S_ SPLIT BARREL SAMPLE UNDISTURBED SAMPLES (U.S.) US_ SHELBY TUBE UF_ FIXED PISTON UD_ OSTERBERG UD_ DENISON UP_ PITCHER N_ STD PENETRATION RESISTANCE BLOWS/FT <u>▽</u> GROUNDWATER ** RECOVERY INFORMATION N/T AVAILABLE | 1. DATUM IS MEAN SEA LEVEL UNLESS OTHERWISE INDICATED 2. BLOWS REQUIRED TO DRIVE 2" O.D. SAMPLE SPOON 6" OR DISTANCE SHOWN USING 140 lb HAMMER FALLING 30" * INDICATES USE OF 300 lb HAMMER 3. DENOTES INCHES OF PENETR. OF UNDISTURBED SAMPLER 4. DENOTES INCHES OF UNDISTURBED SAMPLE RECOVERY 5. UNIFIED SOIL CLASSIFICATION SYSTEM | BORING LOG BEAVER VALLEY POWER STATION - UNIT NO. 2 DUQUESNE LIGHT COMPANY PITTSBURGH, PENNSYLVANIA 12241-GSK-131A STONE & WEBSTER ENG. CORP. | |
| | | | ISSUED BY <u> </u> | DATE <u>9/13/1916</u> |
| | | | BORING NO. <u>B-2015</u> | SHEET <u>1 OF 2</u> |
| | | | | |

| BORING <u>B-2015</u> | | | | | | | | | |
|----------------------------|-----------------|--|------------------|---------------------------------------|-------------------------------|-----------------------|---|--|--|
| SHEET <u>2</u> OF <u>2</u> | | | | | | | | | |
| SITE / LOCATION | | BEAVER VALLEY POWER STATION - UNIT NO. 2 | | | | J.O. NO. <u>12241</u> | | | |
| ELEVATION (FEET) | DEPTH (FEET) | SAMPLE TYPE | SAMPLE NUMBER | BLOWS (2) OR UDS PENETRATION(3) | SPT N VALUES OR UDS REC(4) | GROUP SYMBOL (5) | FIELD AND LAB. TEST RESULTS / COMMENTS | | |
| 665 | 15 | S | 8 | 25-21-26 ** | 47 | SP- SM | BLOWS/INCH 3-4-3-5-5-5/5-5-3-3-2/4-3-4-4-6-5 GRAVELLY SAND, SAME AS ABOVE, BUT WITH ORANGE-BROWN AND YELLOW-BROWN SANDSTONE FRAGMENTS | | |
| | | S | 9 | 21-25-22 45% | 47 | GP- GM | BLOWS/INCH 2-3-4-4-4-4/4-4-4-4-5-4/3-3-2-4-4-6 SILTY GRAVEL, WIDELY GRADED, ANGULAR TO SUBROUNDED GRAVEL TO 1.4 INCHES MAXIMUM, 38% COARSE TO FINE, MOSTLY COARSE SAND, 13% NONPLASTIC FINES, BROWN, NO REACTION TO HCL | | |
| 660 | 20 | S | 10 | 18-23-26 56% | 49 | SP- SM | BLOWS/INCH 1-1-4-3-4-5/4-3-3-5-5/6-4-3-5-4-4 GRAVELLY SAND, POORLY GRADED, 25-35% SUBANGULAR TO SUBROUND GRAVEL TO 0.7 INCH MAXIMUM, COARSE TO FINE, MOSTLY MEDIUM SAND, 5-10% NONPLASTIC FINES, BROWN, 0.3 INCH LAYER LIGNITE, NO REACTION TO HCL | | |
| | | S | 11 | 5-18-25 45% | 43 | GP | BLOWS/INCH 1-2-2-1-1-1/2-2-2-3-4-5/5-4-4-4-4-4 SANDY GRAVEL, POORLY GRADED, ANGULAR TO SUBROUND GRAVEL TO 1.3 INCHES MAXIMUM, 30-40% COARSE TO FINE, MOSTLY MEDIUM SAND, 5% FINES, BROWN, FEW PIECES FRACTURE SANDSTONE, NO REACTION TO HCL | | |
| 655 | 25 | S | 12 | 13-15-18 50% | 33 | SM | BLOWS/INCH 2-2-2-2-2-3/2-2-3-2-3-3/3-3-3-3-3-3 SILTY SAND, UNIFORM, 16% ANGULAR TO SUBROUNDED GRAVEL TO 1.5 INCHES MAXIMUM, FINE SAND, 14% NONPLASTIC FINES, BROWN, NO REACTION TO HCL | | |
| | | S | 13 | 12-24-24 50% | 48 | SM | BLOWS/INCH 1-2-2-2-2-3/3-4-5-4-4-4/3-3-3-5-5-5 SILTY SAND, WIDELY GRADED, 15-25% GRAVEL TO 1.0 INCH MAXIMUM, COARSE TO FINE SAND, 10-20% NONPLASTIC FINES, BROWN, NO REACTION TO HCL | | |
| 650 | 30 | S | 14 | 21-34-30 67% | 64 | SM | BLOWS/INCH 1-3-4-4-4-5 SILTY SAND, WIDELY GRADED, 34% SUBANGULAR TO SUBROUNDED GRAVEL TO 1.0 INCH MAXIMUM, COARSE TO FINE SAND, 19% NONPLASTIC FINES, BROWN, NO REACTION TO HCL | | |
| | | S | 15 | 19-45-47 33% | 92 | | BLOWS/INCH 1-2-3-3-5-5/6-10-7-7-6-9/8 10-8-6-7-8 RECOVERY ALMOST ALL SANDSTONE, SOME SAND AND GRAVEL | | |
| | | S | 16 | 22-33-35 ** | 68 | | BLOWS/INCH 1-4-3-4-5-5/5-6-6-5-5-6/6-5-7-5-6-5 RECOVERY INSUFFICIENT TO DESCRIBE. LARGE PIECE OF GRAVEL FOUND IN SHOE. | | |
| 645 | 35 | S | 17 | 18-20-28 45% | 48 | GM | BLOWS/INCH 2-3-3-3-3-4/3-4-4-2-4-2/4-3-3-6-5-7 SILTY GRAVEL, WIDELY GRADED, SUBANGULAR TO SUBROUNDED GRAVEL TO 0.8 INCH MAXIMUM, 39% COARSE TO FINE SAND, 17% NONPLASTIC FINES, BROWN, NO REACTION TO HCL | | |
| | | S | 18 | 15-28-42 45% | 70 | GM | BLOWS/INCH 2-2-3-2-3-3/4-4-4-5-6-5/4-7-2-7-9-7 SILTY GRAVEL, SAME AS ABOVE, EXCEPT 2 INCH LAYER SANDSTONE | | |
| | | S | 19 | 65-89-179 90% | 268 | GM | BLOWS/INCH 5-9-7-9-19-16/14-14-13-16-14-18/25-25-22-27-40-40 SILTY GRAVEL, SAME AS ABOVE, DROVE THROUGH SANDSTONE AT BOTTOM | | |
| END OF BORING AT 39.5 FEET | | | | | | | | | |
| 311014 | | | | | | | | | |

NOTE: FOR BORING SUMMARY AND LEGEND INFO. SEE SHEET 1

STONE & WEBSTER ENG. CORP.

ISSUED BY [Signature]

DATE 5/13/1976

BORING NO. B-2015

SHEET 2 OF 2

AMENDMENT 3
 12241-GSK-131B

| | | | | |
|---|-----------------|---|--|----------------------------|
| SITE / LOCATION <u>BEAVER VALLEY POWER STATION - UNIT NO. 2</u> | | J.O. NO. <u>12241</u> | | BORING <u>B-2021</u> |
| COORDINATES <u>N 3967.2</u> | <u>E 8118.8</u> | GROUND ELEV. (I) <u>680 FEET</u> | | SHEET <u>1</u> OF <u>2</u> |
| INCLINATION <u>VERTICAL</u> | | BEARING _____ | LOGGED BY <u>S. P. REYNOLDS/R. E. HIKE</u> | |
| DATE : START / FINISH <u>7-14-76</u> / <u>7-14-76</u> | | CONTRACTOR / DRILLER <u>PENNA. DRILLING</u> | | |
| STATIC GROUNDWATER DEPTH / DATE <u>13 FEET</u> / <u>7-14-76</u> | | DRILL RIG TYPE _____ | | |
| DEPTH TO BEDROCK _____ | | TOTAL DEPTH DRILLED <u>40.5 FEET</u> | | |
| METHODS : | | | | |
| DRILLING SOIL <u>3 1/8" ROLLER BIT TO ADVANCE HOLE</u> | | _____ | | |
| SAMPLING SOIL <u>2" O.D. SPLIT SPOON</u> | | _____ | | |
| DRILLING ROCK <u>NONE</u> | | _____ | | |
| SPECIAL TESTING OR INSTRUMENTATION _____ | | | | |
| REMARKS _____ | | | | |

| ELEVATION (FEET) | DEPTH (FEET) | SAMPLE TYPE | SAMPLE NUMBER | BLOWS (2) OR U.S. PENETRATION (3) | SPT N VALUES OR U.S. REC (4) | GROUP SYMBOL (5) | SAMPLE DESCRIPTION | FIELD AND LAB. TEST RESULTS / COMMENTS |
|---------------------|-----------------|----------------|------------------|---|---------------------------------|------------------|---|--|
| | | | | | | | 1 REC | |
| 680 | 0 | S | 1 | 7-10-11 56% | 21 | SP-SM | GRAVELLY SAND, POORLY GRADED, 20-25% SUBANGULAR TO SUBROUNDED GRAVEL TO 1.5 INCHES MAXIMUM, COARSE TO FINE SAND, MOSTLY FINE 5-8% NONPLASTIC FINES, BROWN, QUICK REACTION TO HCl. | |
| | | S | 2 | 10-11-15 17% | 26 | SP-SM | GRAVELLY SAND, SIMILAR TO ABOVE, EXCEPT GRAVEL TO 0.5 INCHES MAXIMUM. | |
| | | S | 3 | 15-16-17 | 33 | | NO RECOVERY | |
| 675 | 5 | S | 4 | 7-8-9 56% | 17 | SP-SM | SANDY GRAVEL, WELL GRADED, SUBANGULAR TO ANGULAR GRAVEL TO 1.1 INCHES MAXIMUM (SOME FRESHLY FRACTURED GRAVEL) 40% COARSE TO FINE SAND, 12% NONPLASTIC FINES, GRAYISH BROWN, STRONG REACTION TO HCl. | |
| | | S | 5 | 12-24-29 67% | 53 | SM-SP | GRAVELLY SAND, POORLY GRADED, 20-25% SUBANGULAR AND SUBROUNDED GRAVEL TO 1.3 INCHES MAXIMUM, COARSE TO FINE SAND, MOSTLY FINE, 8-12% NONPLASTIC FINES, BROWN, SLIGHT REACTION TO HCl. | |
| 670 | 10 | S | 6 | 38-50-36 67% | 86 | SP-SM | GRAVELLY SAND, POORLY GRADED, 30-35% SUBANGULAR AND SUBROUNDED GRAVEL TO 1.3 INCHES MAXIMUM, COARSE TO FINE SAND, MOSTLY FINE, 5-10% NONPLASTIC FINES, BROWN, NO REACTION TO HCl. | |
| | | S | 7 | 19-22-23 50% | 45 | SP-SM | GRAVELLY SAND, POORLY GRADED, 30-35% SUBANGULAR TO SUBROUNDED GRAVEL TO 1.4 INCHES MAXIMUM, COARSE TO FINE SAND, MOSTLY FINE, 5-8% NONPLASTIC FINES, BROWN, MODERATE REACTION TO HCl. | |
| 665 | 15 | S | 8 | 25-14-15 50% | 29 | SP-SM | SANDY GRAVEL, WELL GRADED, SUBANGULAR TO ANGULAR GRAVEL TO 1.2 INCHES MAXIMUM (SOME FRESHLY FRACTURED GRAVEL) 40% COARSE TO FINE SAND, 12% NONPLASTIC FINES, MEDIUM, BROWN, SLIGHT REACTION TO HCl. | |

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|----------------|---|--|--|----------------------------|
| LEGEND / NOTES | S_ SPLIT BARREL SAMPLE UNDISTURBED SAMPLES (U.S.) US_ SHELBY TUBE UF_ FIXED PISTON UO_ OSTERBERG UD_ DENISON UP_ PITCHER N_ STD PENETRATION RESISTANCE BLOWS/FT <u>13</u> GROUNDWATER ** RECOVERY INFORMATION NOT AVAILABLE | 1. DATUM IS MEAN SEA LEVEL UNLESS OTHERWISE INDICATED 2. BLOWS REQUIRED TO DRIVE 2" O.D. SAMPLE SPOON 6" OR DISTANCE SHOWN USING 140 lb HAMMER FALLING 30" * INDICATES USE OF 300 lb HAMMER 3. DENOTES INCHES OF PENETR. OF UNDISTURBED SAMPLER 4. DENOTES INCHES OF UNDISTURBED SAMPLE RECOVERY 5. UNIFIED SOIL CLASSIFICATION SYSTEM | BORING LOG BEAVER VALLEY POWER STATION - UNIT NO. 2 DUQUESNE LIGHT COMPANY PITTSBURGH, PENNSYLVANIA 12241-GSK-134A STONE & WEBSTER ENG. CORP. | |
| | ISSUED BY <u>SM</u> | DATE <u>9/13/94</u> | BORING NO. <u>B-2021</u> | SHEET <u>1</u> OF <u>2</u> |

| BORING B-2021 | | | | | | | | | |
|---|-----------------|----------------|------------------|---------------------------------------|-------------------------------|---------------------|---|--|--|
| SHEET 2 OF 2 | | | | | | | | | |
| SITE / LOCATION <u>BEAVER VALLEY POWER STATION - UNIT NO. 2</u> J.O. NO. <u>12241</u> | | | | | | | | | |
| ELEVATION (FEET) | DEPTH (FEET) | SAMPLE TYPE | SAMPLE NUMBER | BLOWS (2) OR UDS PENETRATION(3) | SPT N VALUES OR UDS REC(4) | GROUP SYMBOL (5) | SAMPLE DESCRIPTION | FIELD AND LAB. TEST RESULTS / COMMENTS | |
| | | | | % REC | | | | | |
| 665 | 15 | S | 9 | 11-9-11 45% | 20 | SP-SM | GRAVELLY SAND, POORLY GRADED, 34% SUBANGULAR TO SUBROUNDED GRAVEL TO 0.8 INCHES MAXIMUM, (SOME FRESHLY FRACTURED GRAVEL) COARSE TO FINE, MOSTLY FINE SAND 12% NONPLASTIC FINES, MEDIUM BROWN, NO REACTION TO HCL. | | |
| | | S | 10 | 10-18-25 50% | 43 | GP | BLOWS/INCH 1-1-1-3-2-2/2-3-4-3-3-3/4-5-3-4-4-5 SANDY GRAVEL, POORLY GRADED SUBANGULAR TO 1.4 INCHES MAXIMUM, 40-45% COARSE TO FINE SAND, MOSTLY MEDIUM TO FINE, 3-5% NONPLASTIC FINES, BROWN, NO REACTION TO HCL. | | |
| | | | 11 | 28-29-22 61% | 51 | GP | BLOWS/INCH 5-6-5-4-4-4/5-6-5-6-3-4/4-4-3-2-5-4 SANDY GRAVEL, SIMILAR TO ABOVE, EXCEPT SUBANGULAR TO SUBROUNDED TO 1.1 INCHES MAXIMUM. | | |
| 660 | 20 | SS | 12 | 9-21-25 50% | 46 | GP | BLOWS/INCH 1-1-1-3-1-2/4-3-4-5-2-3/4-4-3-5-5-4 SANDY GRAVEL, SIMILAR TO ABOVE, EXCEPT GRAVEL TO 1.2 INCHES MAXIMUM. | | |
| | | S | 13 | 12-14-16 50% | 30 | SP-SM | BLOWS/INCH 2-1-2-2-3-2/3-3-2-2-2-2/2-2-2-3-3-4 GRAVELLY SAND, POORLY GRADED, 40-45% SUBANGULAR AND SUBROUNDED GRAVEL TO 1.2 INCHES MAXIMUM, COARSE TO FINE SAND, 5-10% SLIGHTLY PLASTIC FINES, BROWN, NO REACTION TO HCL. | | |
| 655 | 25 | S | 14 | 12-14-16 33% | 30 | SM-SP | SILTY GRAVEL, WIDELY GRADED, SUBANGULAR TO SUBROUNDED GRAVEL TO 1.3 INCHES MAXIMUM, 42% COARSE TO FINE SAND, 14% NONPLASTIC FINES, MEDIUM BROWN, NO REACTION TO HCL. | | |
| | | S | 15 | 11-21-25 33% | 46 | GP | BLOWS/INCH 1-1-1-3-2-3/4-4-2-3-5-3/5-3-3-5-5-4 SANDY GRAVEL, POORLY GRADED, SUBANGULAR TO 1.4 INCHES MAXIMUM, 20-25% COARSE TO FINE SAND, 3-5% NONPLASTIC FINES, BROWN, NO REACTION TO HCL, WITH LAYER OF LIGNITE | | |
| | | S | 16 | 18-17-23 67% | 37 | SP | BLOWS/INCH 3-3-3-3-3/3-2-2-3-2-2/2-3-3-4-5-6 GRAVELLY SAND, POORLY GRADED, 35-45% SUBROUNDED GRAVEL TO 1.2 INCHES MAXIMUM, COARSE TO FINE SAND, LESS THAN 5% NONPLASTIC FINES, BROWN. | | |
| 650 | 30 | S | 17 | 27-23-22 67% | 45 | GP-SP | BLOWS/INCH 4-7-4-4-4-4/4-4-3-3-4-5/4-3-4-3-3-5 SANDY GRAVEL, POORLY GRADED, ANGULAR TO SUBROUNDED GRAVEL TO 1.3 INCHES MAXIMUM, 40-50% COARSE TO FINE SAND, LESS THAN 5% NON TO SLIGHTLY PLASTIC FINES, BROWN, NO REACTION TO HCL. | | |
| | | S | 18 | 15-16-12 45% | 29 | SM | SILTY SAND, WIDELY GRADED, 37% MOSTLY SUBANGULAR GRAVEL TO 0.9 INCHES MAXIMUM, COARSE TO FINE SAND, 17% NON TO SLIGHTLY PLASTIC FINES, MEDIUM BROWN, NO REACTION TO HCL. | | |
| 645 | 35 | S | 19 | 10-16-18 40% | 34 | GM-SM | BLOWS/INCH 1-2-1-2-2-2/3-2-3-2-3-3/3-2-4-3-3-3 SILTY GRAVEL, WIDELY GRADED, SUBANGULAR TO SUBROUNDED GRAVEL TO 1.3 INCHES MAXIMUM, 30-40% COARSE TO FINE SAND, 15-20% NON TO SLIGHTLY PLASTIC FINES, BROWN, NO REACTION TO HCL, TRACE OF LIGNITE. | | |
| | | S | 20 | 16-23-26 83% | 49 | SM | BLOWS/INCH 2-3-2-3-3-3/3-3-3-4-6-4/5-5-4-4-3-5 SILTY SAND, WIDELY GRADED, 37% MOSTLY SUBANGULAR GRAVEL TO 1.2 INCHES MAXIMUM, COARSE TO FINE SAND, 16% SLIGHTLY PLASTIC FINES, MEDIUM BROWN, SLIGHT REACTION TO HCL. | | |
| 640 | 40 | S | 21 | 58-49-52 83% | 101 | GM | BLOWS/INCH 5-9-12-13-11-8/9-7-7-7-9-10/9-11-9-8-7-8 SILTY GRAVEL, WIDELY GRADED, MOSTLY SUBANGULAR GRAVEL TO 1.2 INCHES MAXIMUM (SOME FRESHLY FRACTURED GRAVEL) 35% COARSE TO FINE SAND, 16% NONPLASTIC FINES, DARK BROWN, STRONG REACTION TO HCL. | | |
| END OF BORING AT 40.5 FEET | | | | | | | | | |
| 311016 | | | | | | | | | |

NOTE: FOR BORING SUMMARY AND
LEGEND INFO. SEE SHEET 1.

STONE & WEBSTER ENG. CORP

ISSUED BY CH

DATE 9/13/94

BORING NO. B-2021

SHEET 2 OF 2

| | | | |
|---|-----------------|--|------------------------------|
| SITE / LOCATION <u>BEAVER VALLEY POWER STATION - UNIT 2</u> | | J.O. NO. <u>12241</u> | BORING <u>2022</u> |
| COORDINATES <u>N 3968.3</u> | <u>E 8120.5</u> | GROUND ELEV. (I) <u>680 FEET</u> | SHEET <u>1</u> OF <u>2</u> |
| INCLINATION <u>VERTICAL</u> | | BEARING _____ | LOGGED BY <u>S. REYNOLDS</u> |
| DATE : START / FINISH <u>7-15-76</u> / <u>7-16-76</u> | | CONTRACTOR / DRILLER <u>PENNA DRILLING</u> | |
| STATIC GROUNDWATER DEPTH / DATE <u>13 FEET</u> / <u>7-16-76</u> | | DRILL RIG TYPE _____ | |
| DEPTH TO BEDROCK _____ | | TOTAL DEPTH DRILLED <u>40.5 FEET</u> | |
| METHODS : | | | |
| DRILLING SOIL <u>3 1/8" ROLLER BIT TO ADVANCE HOLE</u> | | _____ | |
| SAMPLING SOIL <u>2.0" O.D. SPLIT SPOON</u> | | _____ | |
| DRILLING ROCK <u>NONE</u> | | _____ | |
| SPECIAL TESTING OR INSTRUMENTATION _____ | | | |
| REMARKS _____ | | | |

| ELEVATION (FEET) | DEPTH (FEET) | SAMPLE TYPE | SAMPLE NUMBER | BLOWS (2) OR U.D.S. PENETRATIONS (3) | SPT N VALUES OR U.D.S. REC (4) | GROUP SYMBOL (5) | SAMPLE DESCRIPTION | FIELD AND LAB. TEST RESULTS / COMMENTS |
|---------------------|-----------------|----------------|------------------|--|-----------------------------------|---------------------|--|--|
| 680 | 0 | | | | | | | |
| | | S | 1 | 8-13-12 56% | 25 | SP | BLOWS/INCH: 1-1-1-2-1-2 / 2-2-2-2-3-2 / 1-2-1-3-3-2 <u>GRAVELLY SAND</u> , POORLY GRADED, 40-45% SUBANGULAR TO SUBROUNDED GRAVEL TO 1.2 INCH MAXIMUM, COARSE TO FINE SAND, MOSTLY MEDIUM TO FINE, 5% NON-PLASTIC FINES, BROWN, QUICK REACTION TO HCL. | |
| | | S | 2 | 11-14-12 50% | 26 | GP | BLOWS/INCH: 1-2-2-2-2-2 / 2-2-3-2-2-3 / 2-2-2-2-2-2 <u>SANDY GRAVEL</u> , POORLY GRADED, SUBANGULAR TO SUBROUNDED GRAVEL TO 1.0 INCH MAXIMUM, 30-35% COARSE TO FINE SAND, MOSTLY MEDIUM TO FINE, 3-5% NONPLASTIC FINES, BROWN, QUICK REACTION TO HCL. | |
| 67 | 5 | S | 3 | 12-16-18 | 34 | | BLOWS/INCH: 1-2-2-3-2-2 / 3-3-3-2-2-3 / 3-3-2-3-4-3 <u>NO RECOVERY</u> . | |
| | | S | 4 | 11-26-24 40% | 50 | GP | BLOWS/INCH: 1-2-1-2-2-3 / 6-5-3-3-4-5 / 4-3-4-5-4-4 <u>SANDY GRAVEL</u> , POORLY GRADED, SUBANGULAR TO 1.1 INCH MAXIMUM, 35-40% COARSE TO FINE SAND, MOSTLY MEDIUM TO FINE, 3-5% NONPLASTIC FINES, BROWN, SLOW REACTION TO HCL. | |
| 670 | 10 | S | 5 | 22-26-30 61% | 56 | SP-SM | BLOWS/INCH: 1-3-4-5-5-4 / 4-4-5-4-5-4 / 4-5-5-6-5-5 <u>GRAVELLY SAND</u> , POORLY GRADED, 40-45% SUBANGULAR GRAVEL TO 1.1 INCH MAXIMUM, COARSE TO FINE SAND, MOSTLY FINE, 5-8% NONPLASTIC FINES, BROWN, QUICK REACTION TO HCL. | |
| | | S | 6 | 11-14-12 45% | 26 | GP | BLOWS/IN: 1-2-2-2-2-2 / 2-2-3-2-2-3 / 2-2-2-2-2-2 <u>SANDY GRAVEL</u> , POORLY GRADED, ANGULAR TO SUBANGULAR GRAVEL TO 1.0 INCH MAXIMUM, 30-35% COARSE TO FINE SAND, MOSTLY MEDIUM TO FINE, 3-5% NON-PLASTIC FINES, BROWN, QUICK REACTION TO HCL. | |
| 665 | 15 | S | 7 | 6-10-12 33% | 22 | GP | BLOWS/INCH: 1-1-1/2"-2-1 / 2-2-2-2-1-1 / 2-2-2-2-1-3 <u>SANDY GRAVEL</u> , POORLY GRADED, SUBANGULAR TO SUBROUNDED GRAVEL TO 1.4 INCH MAXIMUM, 30-35% COARSE TO FINE SAND, MOSTLY MEDIUM TO FINE, 3-5% FINES, BROWN, NO REACTION TO HCL. | |

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| LEGEND / NOTES | S_ SPLIT BARREL SAMPLE UNDISTURBED SAMPLES (U.D.S.) US_ SHELBY TUBE UF_ FIXED PISTON UO_ OSTERBERG UD_ DENISON UP_ PITCHER N_ STD. PENETRATION RESISTANCE BLOWS/FT GROUNDWATER ** RECOVERY INFORMATION NOT AVAILABLE | 1. DATUM IS MEAN SEA LEVEL UNLESS OTHERWISE INDICATED 2. BLOWS REQUIRED TO DRIVE 2" O.D. SAMPLE SPOON 6" OR DISTANCE SHOWN USING 140lb HAMMER FALLING 30" *INDICATES USE OF 300lb HAMMER 3. DENOTES INCHES OF PENL TR. OF UNDISTURBED SAMPLER 4. DENOTES INCHES OF UNDISTURBED SAMPLE RECOVERY 5. UNIFIED SOIL CLASSIFICATION SYSTEM | BORING LOG BEAVER VALLEY POWER STATION - UNIT 2 DUQUESNE LIGHT COMPANY PITTSBURGH, PENNSYLVANIA 12241-GSK-135A STONE & WEBSTER ENG. CORP. |
| | ISSUED BY <u>CAN</u> DATE <u>2/3/2016</u> BORING NO. <u>2022</u> SHEET <u>1</u> OF <u>2</u> | | |
| | | | |
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| SITE LOCATION BEAVER VALLEY POWER STATION - UNIT 2 | | | | | | | | | | BORING 2022 | |
|--|-----------------|----------------|------------------|---------------------------------------|-------------------------------|--------------------|--|--|----------------------------|----------------|--|
| | | | | | | | | | | SHEET 2 OF 2 | |
| J.O. NO. 12241 | | | | | | | | | | FIELD AND LAB. | |
| ELEVATION (FEET) | DEPTH (FEET) | SAMPLE TYPE | SAMPLE NUMBER | BLOWS (2) OR UDS PENETRATION(3) | SPT N VALUES OR UDS REC(4) | GROUP SYMBOL(5) | SAMPLE DESCRIPTION | | TEST RESULTS / COMMENTS | | |
| 665 | 15 | S | 8 | 12-19-11 33% | 30 | GP | BLOWS/INCH: 1-1-3-2-2-3 / 2-5-5-1-3-3 / 3-2-2-1-1-2 SANDY GRAVEL, POORLY GRADED, SUBANGULAR TO SUBROUNDED GRAVEL TO 1.4 INCH MAXIMUM, 30-35% COARSE TO FINE SAND, MOSTLY MEDIUM TO FINE, 3-5% NONPLASTIC FINES, BROWN, NO REACTION TO HCL. | | | | |
| | | S | 9 | 13-21-30 67% | 51 | SP- SM | BLOWS/INCH: 1-1-3-2-3-3 / 3-2-3-3-4-6 / 4-5-5-7-4-5 GRAVELLY SAND, POORLY GRADED, SUBANGULAR TO 1.2 INCH MAXIMUM, 25-30% COARSE TO FINE SAND, MOSTLY FINE, 5-10% NONPLASTIC FINES, BROWN, NO REACTION TO HCL. | | | | |
| 660 | 20 | S | 10 | 27-24-27 45% | 51 | GP | BLOWS/INCH: 3-5-5-5-5-4 / 2-4-4-5-4-5 / 6-4-3-4-6-4 SANDY GRAVEL, POORLY GRADED, SUBANGULAR TO SUBROUNDED GRAVEL TO 1.25 INCH MAXIMUM, 35-45% COARSE TO FINE SAND, LESS THAN 5% NONPLASTIC FINES, BROWN, SANDSTONE GRAVEL CRUMBLES INTO SAND, NO REACTION TO HCL. | | | | |
| | | S | 11 | 12-15-17 40% | 32 | SP | BLOWS/INCH: 1-2-2-2-2-3 / 2-3-3-2-2-3 / 2-3-3-3-4-2 GRAVELLY SAND, POORLY GRADED, 35-45% SUBANGULAR TO SUBROUNDED GRAVEL TO 1.25 INCH MAXIMUM, COARSE TO FINE SAND, LESS THAN 7% NONPLASTIC FINES, BROWN, OCCASIONAL VERY THIN LAYERS OF LIGNITE, NO REACTION TO HCL. | | | | |
| | | S | 12 | 19-15-17 56% | 32 | SP | BLOWS/INCH: 3-3-3-3-4-3 / 3-3-2-2-2-3 / 3-2-3-3-3-3 SAME AS ABOVE. | | | | |
| 655 | 25 | | | | | | BLOWS/INCH: 2-3-3-4-3-4 / 4-3-3-3-3-3 / 4-4-4-3-4-5 SAMPLE A (TOP 4") SAME AS ABOVE. SAMPLE B (BOTTOM 7") GRAVELLY SAND, POORLY GRADED, 20-25% SUBROUNDED GRAVEL TO 1.0 INCH MAXI- MUM, COARSE TO FINE SAND, LESS THAN 3% NONPLASTIC FINES, BROWN, NO REAC- TION TO HCL, TRACE OF LIGNITE. | | | | |
| | | S | 13 | 19-19-24 61% | 43 | SP | | | | | |
| | | S | 14 | 15-20-22 67% | 42 | SP- SM | BLOWS/INCH: 2-3-2-3-2-3 / 4-3-4-3-3-3 / 5-4-3-4-3-3 GRAVELLY SAND, WIDELY GRADED, 40-50% SUBROUNDED TO SUBANGULAR GRAVEL TO 1.25 INCH MAXIMUM, COARSE TO FINE SAND, 7-12% SLIGHTLY PLASTIC TO NON- PLASTIC FINES, BROWN, TRACE OF LIGNITE, NO REACTION TO HCL. | | | | |
| 650 | 30 | S | 15 | 15-18-31 72% | 49 | SP- SM | BLOWS/INCH: 3-2-2-3-2-3 / 2-4-3-3-3-3 / 3-4-5-6-6-7 SAME AS ABOVE, WITHOUT LIGNITE. | | | | |
| | | S | 16 | 24-27-37 78% | 64 | GP | BLOWS/INCH: 4-3-4-4-5-4 / 3-4-4-4-6-6 / 6-6-6-6-7-6 SANDY GRAVEL, POORLY GRADED, SUBROUNDED TO SUBANGULAR GRAVEL TO 1.25 INCH MAXIMUM, 30-40% COARSE TO FINE SAND, LESS THAN 7% NONPLASTIC FINES, BROWN, NO REACTION TO HCL. | | | | |
| | | S | 17 | 19-19-16 40% | 35 | GP- GM | BLOWS/INCH: 3-3-3-3-3-4 / 4-4-3-3-3-2 / 3-2-3-3-2-3 SANDY GRAVEL, WIDELY GRADED, SUBROUNDED TO SUBANGULAR GRAVEL TO 1.25 INCH MAXIMUM, 20-25% COARSE TO FINE SAND, 7-12% NONPLASTIC FINES, BROWN, NO REACTION TO HCL. | | | | |
| 645 | 35 | | | | | | BLOWS/INCH: 3-5-5-4-5-3 / 6-3-3-4-3-3 / 4-4-4-4-4-4 SAME AS ABOVE, EXCEPT 25-35% COARSE TO FINE SAND, MOTTLED LIGHT GREEN, BROWN AND REDDISH BROWN, SLIGHT REACTION TO HCL. | | | | |
| | | S | 18 | 25-22-24 67% | 46 | GP- GM | | | | | |
| | | S | 19 | 34-53-69 83% | 122 | SW- SM | BLOWS/INCH: 2-4-4-5-7-12 / 1-4-15-11-4-4-5 / 5-4-5-5-20-30 SAMPLE A, SAND, WELL GRADED, 20-25% SUBROUNDED GRAVEL TO 1.25 INCH MAXIMUM, COARSE TO FINE SAND, 7-12% NONPLASTIC FINES, MOTTLED BROWN AND LIGHT GREEN, NO REACTION TO HCL. | | | | |
| | | | | | | | SAMPLE B, SAND, POORLY GRADED, 5-15% GRAVEL TO 0.5 INCH MAXIMUM, LESS THAN 15% COARSE SAND, MOSTLY MEDIUM AND FINE SAND, LESS THAN 3% FINES, BROWN, NO REACTION TO HCL. | | | | |
| 640 | 40 | S | 20 | 65-81-88 94% | | SP | SAMPLE C, SILTY SAND, WIDELY GRADED, 30-35% SUBROUNDED GRAVEL TO 0.5 INCH MAXIMUM, COARSE TO FINE SAND, 15-20% NONPLASTIC FINES, MOTTLED ORANGE AND BROWN AND GREEN, NO REACTION TO HCL. | | | | |
| | | | | | | | END OF BORING AT 40.5 FEET. | | | | |

NOTE: FOR BORING SUMMARY AND
LEGEND INFO SEE SHEET 1.



STONE & WEBSTER ENG. CORP

ISSUED BY

DATE

2/13/2022

BORING NO.

2022

SHEET

2 OF 2

| SITE / LOCATION | | | | | | | | | | BORING 2023 | |
|------------------------------------|-----------------|----------------|------------------|--|-----------------------------------|---------------------|--|--|---|--------------|--|
| HEAVER VALLEY POWER STATION UNIT 2 | | | | | | | | | | SHEET 2 OF 2 | |
| J.O. NO. 12241 | | | | | | | | | | | |
| ELEVATION (FEET) | DEPTH (FEET) | SAMPLE TYPE | SAMPLE NUMBER | BLOWS (2) OR UDS PENETRATION(3) | SPT N VALUES OR UDS RECI(4) | GROUP SYMBOL (5) | SAMPLE DESCRIPTION | | FIELD AND LAB TEST RESULTS / COMMENTS | | |
| 665 | | S | 10 | 21-26-15 45% | 41 | SP | 2-3-4-4-4-1 / 3-4-5-5-4-3 / 3-2-3-2-3-2 BLOWS/INCH GRAVELLY SAND, POORLY GRADED, 30-40% SUBROUNDED TO WELL ROUNDED GRAVEL TO GREATER THAN 2 IN. MANY PIECES BROKEN INTO TABULAR FRAGMENTS LIGHT BROWN SS COARSE TO FINE SAND, MOSTLY MEDIUM TO FINE, 5-10% NONPLASTIC FINES, DENSE, DAMP, BROWN | | | | |
| | | S | 11 | 11-18-26 | 44 | | 1-2-2-2-2-2 / 2-2-3-4-3-4 / 4-5-5-4-4-4 BLOWS/INCH NO RECOVERY, SAMPLER BLOCKED BY 1 1/2 IN. PEBBLE. | | | | |
| 660 | 20 | S | 12 | 12-18-24 56% | 42 | SP | 1-2-2-3-2-2 / 2-2-4-4-3-7 / 3-5-3-4-4-5 BLOWS/INCH GRAVELLY SAND, POORLY GRADED, 30-40% SUBROUNDED TO ROUNDED GRAVEL TO GREATER THAN 1 IN. COARSE TO FINE SAND, MOSTLY MEDIUM, 2-8% NONPLASTIC FINES, DENSE, DAMP, BROWN | | | | |
| | | S | 13 | 17-27-24 50% | 51 | SP | 2-2-3-3-3-4 / 4-4-4-5-5-5 / 5-3-3-5-4-4 BLOWS/INCH GRAVELLY SAND, SIMILAR TO ABOVE EXCEPT 5-10% FINES, OCCASIONAL POCKETS OF DARK BROWN SILT FEW FRAGMENTS, DETRITAL LIGNITE | | | | |
| | | S | 14 | 18-22-24 50% | 46 | SP | 2-3-3-3-4-3 / 3-4-4-3-4-4 / 4-4-5-4-3-4 BLOWS/INCH GRAVELLY SAND, SIMILAR TO ABOVE. | | | | |
| 655 | 25 | S | 15 | 21-40-35 56% | 75 | SP | 2-2-3-4-5-5 / 5-5-7-8-7-8 / 10-7-4-4-5-5 BLOWS/INCH SAND, POORLY GRADED, 5-10% ROUNDED TO WELL ROUNDED GRAVEL TO 3/4 IN. MOSTLY QUARTZ PEBBLES, MOSTLY FINE SAND, LESS THAN 2% NONPLASTIC FINES, NEAR TOP INCREASING DOWNWARD TO 2.5% FINES, DENSE, WET, DARK BROWN, TRACE LIGNITE. | | | | |
| | | S | 16 | 17-19-20 61% | 39 | SP SM | SANDY GRAVEL, POORLY GRADED, SUBROUNDED GRAVEL TO GREATER THAN 1 1/2 IN. 20-60% MOSTLY FINE SAND, 10-20% NONPLASTIC TO SLIGHTLY PLASTIC FINES, DENSE, DAMP, BROWN/ORANGE BROWN | | | | |
| | | S | 17 | 25-22-26 56% | 48 | SP SM | 2-4-3-3-2-3 / 4-3-3-4-3-2 / 3-2-3-5-4-3 BLOWS/INCH SILTY SAND, WIDELY GRADED, 32% SUBANGULAR TO SUBROUNDED GRAVEL TO 0.8 INCH MAXIMUM, COARSE TO FINE SAND, 16% NONPLASTIC FINES, BROWNISH GRAY NO REACTION WITH HCL | | | | |
| 650 | 30 | S | 18 | 22-25-27 50% | 52 | SP SM | 2-5-4-4-4-3 / 6-3-4-4-4-4 / 6-5-4-4-4-4 BLOWS INCH GRAVELLY SAND, SIMILAR TO ABOVE. | | | | |
| | | S | 19 | 22-21-28 67% | 49 | SP | GRAVELLY SAND, WELL GRADED, 37% SUBANGULAR TO SUBROUNDED GRAVEL TO 0.9 INCH MAXIMUM, COARSE TO FINE SAND 11% NONPLASTIC FINES, BROWN, NO REACTION WITH HCL | | | | |
| 645 | 35 | S | 20 | 17-13-17 67% | 30 | SP | 3-3-4-2-3-2 / 2-2-2-3-2-3 / 2-3-3-3-3-3 BLOWS INCH SILTY GRAVEL, POORLY GRADED, SUBROUNDED TO ROUNDED GRAVEL TO GREATER THAN 1 1/4 IN. 20-30% MOSTLY FINE SAND, 20-40% NONPLASTIC TO SLIGHTLY PLASTIC FINES, DENSE, DAMP, BROWN/ORANGE BROWN | | | | |
| | | S | 21 | 14-17-23 50% | 35 | SM GM | SAND, NEARLY UNIFORM, FINE, TRACE GRAVEL TO 1 IN., 2-5% NONPLASTIC FINES, FEW FRAGMENTS LIGNITE COMPACT TO DENSE, SATURATED, BROWN. GRAVELLY SAND, WIDELY GRADED, 15-25% WELL ROUNDED GRAVEL TO 3/4 IN. COARSE TO FINE SAND, 2-5% NONPLASTIC FINES, DENSE, BROWN | | | | |
| 640 | 40 | S | 22 | 34-88-100 71% | | SP | SILTY SAND, POORLY GRADED, 30-40% SUBANGULAR TO SUBROUNDED GRAVEL TO 1 IN., MOSTLY FINE SAND, 20-25% NONPLASTIC TO SLIGHTLY PLASTIC FINES, DENSE, DAMP, BROWN/ORANGE BROWN INCLUDES FEW GRAVEL SIZE FRAGMENTS DETRITAL LIGNITE 3-5-4-5-7-10 / 16-10-14-19-15-14 / 14-8-18-22-38 BLOWS/INCH GRAVELLY SILTY SAND, POORLY GRADED, 20-40% GRAVEL TO GREATER THAN 2" COARSE TO FINE SAND, MOSTLY FINE, 15-20% NONPLASTIC FINES, FRAGMENTS LIGNITE, DENSE, DARK BROWN, INCLUDES LARGE PEBBLES FRIABLE LIGHT BROWN SAND TOSS. | | | | |
| END OF BORING AT 40.4 FEET | | | | | | | | | | | |
| 311020 | | | | | | | | | | | |

NOTE: FOR BORING SUMMARY AND
LEGEND INFO SEE SHEET 1



STONE & WEBSTER ENG. CORP

ISSUED BY

DATE

9/13/2016

BORING NO

SHEET

B 2023

2 OF 2

| | | | | | | | |
|------------------------------------|--|--|--|---------------------------|--|---------------------|--|
| SITE / LOCATION | | BEAVER VALLEY POWER STATION - UNIT NO. 2 | | J.O. NO. 12241 | | BORING B-2025 | |
| COORDINATES | | N 3962.83 E 8126.25 | | GROUND ELEV. (I) 680 FEET | | SHEET 1 OF 2 | |
| INCLINATION | | VERTICAL | | BEARING | | LOGGED BY R. McCain | |
| DATE : START / FINISH | | 7-25-76 / 7-25-76 | | CONTRACTOR / DRILLER | | PENNA DRILLING | |
| STATIC GROUNDWATER DEPTH / DATE | | 13 Feet / 7-25-76 | | DRILL RIG TYPE | | | |
| DEPTH TO BEDROCK | | | | TOTAL DEPTH DRILLED | | 39.3 FEET | |
| METHODS : | | | | | | | |
| DRILLING SOIL | | 3 1/8" ROLLER BIT TO ADVANCE HOLE | | | | | |
| SAMPLING SOIL | | 2.0" O.D. SPLIT SPOON | | | | | |
| DRILLING ROCK | | | | | | | |
| SPECIAL TESTING OR INSTRUMENTATION | | | | | | | |
| REMARKS | | | | | | | |
| | | | | | | | |

| ELEVATION (FEET) | DEPTH (FEET) | SAMPLE TYPE | SAMPLE NUMBER | BLOWS (2) OR U.S. PENETRATION (3) | SPT N VALUES OR U.S. REC. (4) | GROUP SYMBOL (5) | SAMPLE DESCRIPTION | FIELD AND LAB. TEST RESULTS / COMMENTS |
|------------------|--------------|-------------|---------------|-----------------------------------|-------------------------------|------------------|---|--|
| 680 | 2 | S | 1 | 2-9-9 33% | 18 | SM | 1/4.5-1/1.5-2-2-1-2-1-1/2-2-1-2-2 BLOWS/INCH SILTY SAND, WIDELY GRADED, 38% SUBANGULAR TO SUBROUNDED GRAVEL TO 0.8 INCH MAXIMUM, COARSE TO FINE SAND, 13% NONPLASTIC FINES BROWN, STRONG REACTION WITH HCL. | |
| | | S | 2 | 7-9-11 78% | 20 | SM | 1/1.5-1 1-2-1/1-1-2-3-1-1/2-2-2-2-1-2 BLOWS/INCH SILTY SAND, SIMILAR TO ABOVE EXCEPT 25-35% GRAVEL. SHOE BLOCKED BY 2" PEBBLE. | |
| 675 | 5 | S | 3 | 10-12-12 56% | 24 | GW-GM | 2-1-1-2-2-2/2-2-2-2-2/2-2-2-2-2/2-2-2-2-2 BLOWS/INCH SANDY GRAVEL, WELL GRADED, SUBANGULAR TO SUBROUNDED GRAVEL TO 1.0 INCH MAXIMUM, 37% COARSE TO FINE SAND, 11% NONPLASTIC FINES, BROWN, STRONG REACTION WITH HCL. | |
| | | S | 4 | 8-11-11 67% | 22 | GW-GM | 1-1-2-1-2-1/2-2-2-1-2-2/1-2-2-2-2-2 BLOWS/INCH SANDY GRAVEL, SAME AS ABOVE | |
| 670 | 10 | S | 5 | 23-35-27 72% | 62 | SM | 1-2-4-5-5-6/7-6-5-6-6-5/5-4-4-5-4-5 BLOWS/INCH GRAVELLY SILTY SAND, POORLY GRADED, 15-25% SUBANGULAR TO SUBROUNDED GRAVEL TO GREATER THAN 1 IN. MOSTLY MEDIUM TO FINE SAND, 10-20% NONPLASTIC FINES, BROWN, STRONG REACTION WITH HCL. | |
| | | S | 6 | 17-21-31 50% | 52 | SP | 1-2-2-4-4-4-3-4-3-1-4/4-5-4-5-4-5 BLOWS/INCH GRAVELLY SAND, POORLY GRADED, 20-50% SUBANGULAR TO SUBROUNDED GRAVEL TO GREATER THAN 1 IN. INCLUDING TABULAR FRAGMENTS FRIABLE GRAY SANDSTONE, COARSE TO FINE SAND, MOSTLY MEDIUM TO FINE, 5-10% NONPLASTIC FINES, SLIGHT REACTION TO HCL, DENSE, DAMP, BROWN | |
| | | S | 7 | 40-18-24 67% | 42 | SM-GM | 2-7-11-12-5-3/3-2-4-3-3-1/3-4-4-4-4-5 BLOWS/INCH SAND, WIDELY GRADED, 10-15% SUBANGULAR TO WELL ROUNDED GRAVEL TO 3/4 IN. COARSE TO FINE SAND, 6-8% NONPLASTIC FINES, NO REACTION TO HCL, DENSE, WET, BROWN | |
| | | S | 8 | 28% | 51 | GP-GM | GRAVELLY SAND, POORLY GRADED, 15-20% GRAVEL TO 3/4 IN. MOSTLY FINE SAND, 2-7% NONPLASTIC FINES, SLIGHT REACTION TO HCL, DENSE, DAMP, BROWN | |
| 665 | 15 | S | 8 | 17-23-28 | 51 | GP-GM | GRAVELLY SAND, POORLY GRADED, 30-40% SUBANGULAR TO SUBROUNDED GRAVEL TO GREATER THAN 1 IN. MOSTLY MEDIUM TO FINE SAND, 2-7% NONPLASTIC FINES | |

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| LEGEND / NOTES | S_ SPLIT BARREL SAMPLE UNDISTURBED SAMPLES (U.S.) US_ SHELBY TUBE UF_ FIXED PISTON UO_ OSTERBERG UD_ DENISON UP_ PITCHER N_ STD. PENETRATION RESISTANCE BLOWS/FT GROUNDWATER ** RECOVERY INFORMATION NOT AVAILABLE | 1. DATUM IS MEAN SEA LEVEL UNLESS OTHERWISE INDICATED 2. BLOWS REQUIRED TO DRIVE 2" O.D. SAMPLE SPOON 6" OR DISTANCE SHOWN USING 140 lb HAMMER FALLING 30" * INDICATES USE OF 300 lb HAMMER 3. DENOTES INCHES OF PENETR. OF UNDISTURBED SAMPLER 4. DENOTES INCHES OF UNDISTURBED SAMPLE RECOVERY 5. UNIFIED SOIL CLASSIFICATION SYSTEM | BORING LOG BEAVER VALLEY POWER STATION - UNIT NO. 2 DUQUESNE LIGHT COMPANY PITTSBURGH, PENNSYLVANIA 12241-GSK-138A STONE & WEBSTER ENG. CORP. ISSUED BY <i>Cal</i> DATE <i>9/13/96</i> BORING NO. B-2025 SHEET 1 OF 2 |
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| SITE / LOCATION <u>BEAVER VALLEY POWER STATION - UNIT 2</u> | | J.O. NO. <u>12241</u> | BORING <u>B-3005</u> |
| COORDINATES <u>N 3956.6</u> | <u>E 8142.0</u> | GROUND ELEV. (I) <u>680 FEET</u> | SHEET <u>1</u> OF <u>2</u> |
| INCLINATION <u>VERTICAL</u> | | BEARING _____ | LOGGED BY <u>S.P. REYNOLDS</u> |
| DATE : START / FINISH <u>7-8-76</u> / <u>7-8-76</u> | | CONTRACTOR / DRILLER <u>PENNA DRILLING</u> | |
| STATIC GROUNDWATER DEPTH / DATE <u>13 FEET</u> / <u>7-8-76</u> | | DRILL RIG TYPE _____ | |
| DEPTH TO BEDROCK _____ | | TOTAL DEPTH DRILLED <u>39.5 FEET</u> | |
| METHODS : | | | |
| DRILLING SOIL <u>3 1/8" ROLLER BIT TO ADVANCE HOLE</u> | | _____ | |
| SAMPLING SOIL <u>2.0" O.D. SPLIT SPOON</u> | | _____ | |
| DRILLING ROCK <u>NONE</u> | | _____ | |
| SPECIAL TESTING OR INSTRUMENTATION _____ | | | |
| REMARKS _____ | | | |

| ELEVATION (FEET) | DEPTH (FEET) | SAMPLE TYPE | SAMPLE NUMBER | BLOWS (2) OR U.D.C. PENETRATIONS (3) | SPT N VALUES OR U.D.S. REC (4) | GROUP SYMBOL (5) | SAMPLE DESCRIPTION | FIELD AND LAB. TEST RESULTS / COMMENTS |
|---------------------|-----------------|----------------|------------------|--|-----------------------------------|------------------|---|--|
| % REC | | | | | | | | |
| 680 | 0 | | | | | | NO SAMPLES TAKEN FROM SURFACE TO 10.0 FEET | |
| 675 | 5 | | | | | | | |
| 670 | 10 | S | 1 | 9-17-35 11% | 52 | GP- GM | SANDY GRAVEL, POORLY GRADED, ANGULAR TO SUBROUNDED GRAVEL TO 1.1 INCH MAXIMUM, 30-40% COARSE TO FINE SAND, MOSTLY FINE, 5-10% NONPLASTIC FINES, BROWN, MODERATE REACTION TO HCL | |
| 665 | 15 | | | | | | | |

LEGEND / NOTES

S_ SPLIT BARREL SAMPLE
UNDISTURBED SAMPLES (U.D.S.)

US_ SHELBY TUBE

UF_ FIXED PISTON

UO_ OSTERBERG

UD_ DENISON

UP_ PITCHER

N_ STD. PENETRATION
RESISTANCE BLOWS/FT

∇ GROUNDWATER

** RECOVERY INFORMATION
NOT AVAILABLE

1. DATUM IS MEAN SEA LEVEL UNLESS OTHERWISE INDICATED
2. BLOWS REQUIRED TO DRIVE 2" O.D. SAMPLE SPOON 6" OR DISTANCE SHOWN USING 140 lb HAMMER FALLING 30"
- * INDICATES USE OF 300 lb HAMMER
3. DENOTES INCHES OF PENETR. OF UNDISTURBED SAMPLER
4. DENOTES INCHES OF UNDISTURBED SAMPLE RECOVERY
5. UNIFIED SOIL CLASSIFICATION SYSTEM

BORING LOG

BEAVER VALLEY POWER STATION - UNIT 2

DUQUESNE LIGHT COMPANY

PITTSBURGH, PENNSYLVANIA

12241 - GSK - 142A

STONE & WEBSTER ENG. CORP.

| | | | |
|------------------------------|---------------------|--------------------------|----------------------------|
| ISSUED BY <i>[Signature]</i> | DATE <u>9/12/96</u> | BORING NO. <u>B-3005</u> | SHEET <u>1</u> OF <u>2</u> |
|------------------------------|---------------------|--------------------------|----------------------------|

| BORING B-3005 | | | | | | | | | |
|---------------------|-----------------|-------------------------|------------------|---------------------------------------|--------------------------------------|---------------------|---|--|--|
| SHEET 2 OF 2 | | | | | | | | | |
| SITE / LOCATION | | | | | BEAVER VALLEY POWER STATION - UNIT 2 | | | | |
| | | | | | J.O. NO. 12241 | | | | |
| ELEVATION (FEET) | DEPTH (FEET) | SAMPLE TYPE | SAMPLE NUMBER | BLOWS (2) OR UDS PENETRATION(3) | SPT N VALUES OR UDS REC(4) | GROUP SYMBOL (5) | FIELD AND LAB. TEST RESULTS / COMMENTS | | |
| % REC | | | | | | | | | |
| 665 | 15 | S | 2 | 9-13-29 67% | 42 | GP | SANDY GRAVEL, POORLY GRADED, ANGULAR TO SUBROUNDED GRAVEL TO 1.3 INCH MAXIMUM, 15-25% COARSE TO FINE SAND, MOSTLY FINE, 3-5% NONPLASTIC FINES, YELLOW BROWN, NO REACTION TO HCL | | |
| 660 | 20 | S | 3 | 8-13-12 39% | 25 | SM | SILTY SAND, WIDELY GRADED, 41% SUBROUNDED TO SUBANGULAR GRAVEL TO 1.2 INCH MAXIMUM, (SOME FRESHLY FRACTURED GRAVEL), COARSE TO FINE, MOSTLY FINE SAND, 13% NONPLASTIC FINES, BROWN, SLIGHT REACTION TO HCL. | | |
| | | S | 4 | 6-11-13 22% | 24 | SM | BLOWS/IN. 1/1.5 1/1.5, 2-1-1, 2-1-2-2 -1-3, 2-2-2-2-3 | | |
| | | | | | | SP-SM | TOP 2" SANDY GRAVEL, POORLY GRADED, SUBANGULAR TO SUBROUNDED GRAVEL TO 0.8" MAX., 25-30% COARSE TO FINE SAND, 5-8% NONPLASTIC FINES, BROWN, NO REACTION TO HCL: SILTY SAND, UNIFORM, FINE, 8-12% NONPLASTIC FINES, BROWN. | | |
| 655 | 25 | S | 5 | 8-13-15 56% | 28 | SM | SAND, UNIFORM, 9% SUBROUNDED GRAVEL TO 0.4 IN. MAXIMUM, FINE SAND, 10% NONPLASTIC FINES, BROWN, NO REACTION TO HCL. | | |
| | | | | | | | BLOWS/IN. 1-1-1-2-1-2, 2-2-2-2-3-2, 3-2-3-2-3-2 | | |
| | | S | 6 | 8-12-15 28% | 27 | GP-GM | BLOWS/IN. 1/2"-2-1-2-2, 2-2-2-2-2-2, 2-3-3-2-2-3 | | |
| | | | | | | SM | TOP 3" SANDY GRAVEL, POORLY GRADED, SUBANGULAR TO SUBROUNDED GRAVEL TO 1.2 IN. MAX., 35-45% COARSE TO FINE SAND, 5-8% NONPLASTIC FINES, BROWN. | | |
| | | | | | | | SILTY SAND, UNIFORM, FINE, 12-15% NONPLASTIC FINES, BROWN, NO REACTION TO HCL. | | |
| | | S | 7 | 6-11-19 67% | 30 | SM | B 3/IN. 1-1/2"-2-1-1, -2-1-2-2-1-3, -2-3-3-3-4-4 | | |
| 650 | 30 | | | | | | SILTY SAND, UNIFORM, FINE, 5-10% SUBANGULAR TO SUBROUNDED GRAVEL TO 0.6 IN. MAXIMUM, 12-15% NONPLASTIC FINES, BROWN, THIN LENSES OF LIGNITE, NO REACTION TO HCL. | | |
| | | S | 8 | 11-11-11 22% | 22 | SP-SM | BLOWS/IN. 1-2-2-2-2-2, -2-2-2-1-2-2-2, 1-2-2-2-2 | | |
| | | | | | | | GRAVELLY SAND, POORLY GRADED, 43% SUBROUNDED TO SUBANGULAR GRAVEL TO 1.3 IN. MAXIMUM, COARSE TO FINE, MOSTLY FINE SAND, 9% NONPLASTIC FINES, BROWN, NO REACTION TO HCL. | | |
| | | S | 9 | 41-11-12 28% | 23 | GP-GM | BLOWS/IN. 7-9-7-11-5-2, 2-2-2-2-2-1, 2-2-2-2-2-2 | | |
| | | | | | | | SANDY GRAVEL, POORLY GRADED ANGULAR GRAVEL TO 1.0 IN. MAXIMUM (SOME FRESHLY FRACTURED GRAVEL) 42% COARSE TO FINE, MOSTLY FINE SAND, 10% NONPLASTIC FINES, BROWN, NO REACTION TO HCL. | | |
| 645 | 35 | S | 10 | 5-9-11 | 20 | | BLOWS/IN. 1/2"-2-1-1-1, 1-2-2-2-1-1, 1-2-1-2-2-3 | | |
| | | | | | | | NO RECOVERY-ONE PIECE OF GRAVEL IN TIP OF SPOON | | |
| | | S | 11 | 11-32-53 50% | 85 | GM | BLOWS/IN. 2-1-1-2-3-2, 3-4-4-4-7-10, 7-4-7-10-12-13 | | |
| | | | | | | | SILTY GRAVEL, WIDELY GRADED, MOSTLY ANGULAR GRAVEL TO 0.8 IN. MAX., 39% COARSE TO FINE SAND, 16% NONPLASTIC FINES, BROWN, STRONG REACTION TO HCL. | | |
| | | S | 12 | 59-49-56 67% | 105 | GM | BLOWS/IN. 8-11-9-13-10-8, 10-6-7-7-8-11, 7-10-12-7-11-9 | | |
| | | | | | | | SILTY GRAVEL, WIDELY GRADED, SUBANGULAR TO SUBROUNDED TO 1.2 IN. MAX., 20-30% COARSE TO FINE SAND, MOSTLY FINE, 10-20% NONPLASTIC FINES, BROWN, NO REACTION. | | |
| 640 | 40 | END OF BORING 39.5 FEET | | | | | | | |

311021

NOTE: FOR BORING SUMMARY AND
LEGEND INFO. SEE SHEET 1.



STONE & WEBSTER ENG. CORP.

ISSUED BY

DATE


9/21/96

BORING NO.

B-3005

SHEET

2 OF 2

| | | | | | | | |
|----------------|---|---|--|-------------------------|-------------------|----------------------|-----------------|
| LEGEND / NOTES | S_ SPLIT BARREL SAMPLE UNDISTURBED SAMPLES (U.D.S.) US_ SHELBY TUBE UF_ FIXED PISTON UO_ OSTERBERG UC_ DENISON UP_ PITCHER N_ STD PENETRATION RESISTANCE BLOWS/FT A_ GROUNDWATER ** RECOVERY INFORMATION NOT AVAILABLE | 1. DATUM IS MEAN SEA LEVEL UNLESS OTHERWISE INDICATED 2. BLOWS REQUIRED TO DRIVE 2" O.D. SAMPLE SPOON 6" OR DISTANCE SHOWN USING 140 lb. HAMMER FALLING 30" * INDICATES USE OF 300 lb HAMMER 3. DENOTES INCHES OF PENETR. OF UNDISTURBED SAMPLER 4. DENOTES INCHES OF UNDISTURBED SAMPLE RECOVERY 5. UNIFIED SOIL CLASSIFICATION SYSTEM | <p align="center">BORING LOG</p> <p align="center">BEAVER VALLEY POWER STATION UNIT NO. 2 DUQUESNE LIGHT COMPANY PITTSBURGH, PENNSYLVANIA</p> <p align="center">12241-GSK-143A</p> <p align="center"> STONE & WEBSTER ENG. CORP.</p> <table border="1"> <tr> <td>ISSUED BY <i>adw</i></td> <td>DATE 2/15/1976</td> <td>BORING NO. B-3007</td> <td>SHEET 1 OF 2</td> </tr> </table> | ISSUED BY <i>adw</i> | DATE 2/15/1976 | BORING NO. B-3007 | SHEET 1 OF 2 |
| | ISSUED BY <i>adw</i> | DATE 2/15/1976 | BORING NO. B-3007 | SHEET 1 OF 2 | | | |

941025

| BORING B 3007 | | | | | | | | | |
|---|-----------------|----------------|------------------|---------------------------------------|-------------------------------|---------------------|---|--|--|
| SHEET 4 OF 2 | | | | | | | | | |
| SITE / LOCATION BEAVER VALLEY POWER STATION UNIT NO. 2 J.O. NO. 12241 | | | | | | | | | |
| ELEVATION (FEET) | DEPTH (FEET) | SAMPLE TYPE | SAMPLE NUMBER | BLOWS (2) OR UDS PENETRATION(3) | SPT N VALUES OR UDS REC(4) | GROUP SYMBOL (5) | FIELD AND LAB. TEST RESULTS / COMMENTS | | |
| % REC | | | | | | | | | |
| 665 | 15 | S | 9 | 18-16-17 22% | 33 | GF | 2-3-3-3-3-4/3-3-3-2-2-3/3-3-3-2-3 BLOWS/INCH SANDY GRAVEL, POORLY GRADED, 20-30% SAND, MOSTLY FINE, 2-7% NON- PLASTIC FINES, GRAVEL TO 1.5 INCHES MAXIMUM, 20-30% COARSE TO FINE SAND, MOSTLY FINE, 2-7% NONPLASTIC FINES, BROWN, NO REACTION TO HCL | | |
| | | S | 10 | 8-11-12 39% | 23 | SM | 1-1-1-2-1-2/2-2-2-2-2-1/2-2-2-2-2 BLOWS/INCH GRAVELLY SAND, POORLY GRADED, 20-35% SUBROUNDED GRAVEL TO 1.25 INCH MAXIMUM, COARSE TO FINE SAND, MOSTLY FINE, 5-10% NON TO SLIGHTLY PLASTIC FINES, BROWN, MOTTLED WITH BLACK (LIMONITE), NO REACTION TO HCL, 1.4 INCH DIAMETER PIECE OF SANDSTONE LODGED IN TIP OF SHOE | | |
| 660 | 20 | S | 11 | 11-17-13 44% | 30 | SM | 1-2-2-2-2-2/2-3-4-2-3/2-2-2-3-2-2 BLOWS/INCH GRAVELLY SAND, SIMILAR TO ABOVE EXCEPT 15-30% GRAVEL, 2-7% NON- PLASTIC FINES, GRAVEL LODGED IN SHOE | | |
| | | S | 12 | 12-16-16 50% | 32 | GF | SANDY GRAVEL, POORLY GRADED, ANGULAR TO SUBANGULAR GRAVEL TO 1.5 MAXIMUM, WEATHERED, 40-45% SAND, MOSTLY MEDIUM TO COARSE, 8-12% NONPLASTIC FINES, LIGHT BROWN | | |
| 655 | 25 | S | 13 | 13-14-17 39% | 31 | SM | 1-3-2-2-3-2/2-3-2-3-2-2/2-3-3-3-3 BLOWS/INCH SILTY SAND, UNIFORM, 18% SUBROUNDED TO SUBANGULAR GRAVEL TO 1.2 INCH MAXIMUM, FINE SAND, 17% NONPLASTIC FINES, BROWN, NO REACTION TO HCL | | |
| | | S | 14 | 13-18-19 33% | 37 | SF | 2-2-2-3-2-2/3-3-3-3-4-2/3-4-3-3-3 BLOWS/INCH SAND, POORLY GRADED, 10-15% ANGULAR TO SUBANGULAR GRAVEL UP TO 1 INCH MAXIMUM, FINE TO COARSE SAND, MOSTLY FINE, 5-8% NONPLASTIC FINES, LIGHT BROWN | | |
| | | S | 15 | 12-11-16 33% | 27 | SM | 1-2-3-2-2-2/2-1-2-2-2/2-2-2-3-3-4 BLOWS/INCH SILTY SAND, WIDELY GRADED, 14% SUBROUNDED TO SUBANGULAR GRAVEL TO 1.1 INCHES MAXIMUM, COARSE TO FINE SAND, MOSTLY FINE, 15% NONPLASTIC FINES, BROWN, NO REACTION TO HCL. | | |
| 650 | 30 | S | 6 | 13-19-19 22% | 38 | SF- SM | 1-2-2-2-3-3/3-3-3-3-3-4/3-3-3-3-4 BLOWS/INCH GRAVELLY SAND, POORLY GRADED, 21% SUBROUNDED TO SUBANGULAR GRAVEL TO 1.1 INCH MAXIMUM, COARSE TO FINE SAND, MOSTLY FINE, 11% NONPLASTIC FINES, BROWN, NO REACTION TO HCL | | |
| | | S | 17 | 13-15-13 28% | 28 | GF- SM | 3-2-2-2-2-2/2-2-2-3-3-3/2-3-2-2-2-2 BLOWS/INCH SANDY GRAVEL, POORLY GRADED, ANGULAR TO SUBROUNDED GRAVEL TO 1.0 INCH MAXIMUM 30-40% COARSE TO FINE SAND, MOSTLY FINE, 10-15% NONPLASTIC FINES, BROWN | | |
| | | S | 18 | 9-13-10 61% | 23 | GF- SM | 1-1-1-2-2-2/2-3-2-2-2/1-2-1-2-2-2 BLOWS/INCH SILTY SAND, WIDELY GRADED, COARSE TO FINE SAND, MOSTLY MEDIUM 10-15% FINES, GREENISH GRAY (0-3") | | |
| 645 | 35 | S | 19 | 19-107 37% 75" | | GF- SM | SANDY GRAVEL, POORLY GRADED, ANGULAR TO SUBROUNDED GRAVEL TO 0.75 MAXIMUM, 20-30% COARSE TO FINE SAND, LESS THAN 5% FINES GREENISH GRAY (0-3") SANDY GRAVEL, SAME AS ABOVE WITH GRAVEL TO 1.50 INCHES MAXIMUM AND 5-10% FINES (0-3") | | |
| | | S | 20 | 29-47-71 67% | 118 | SM | SAND, UNIFORM, MEDIUM TO FINE SAND, MOSTLY FINE, 5-8% NONPLASTIC FINES, BROWN 2-2-3-3-3-4/6-6-7-27-61/3/4" BLOWS/INCH SANDY GRAVEL, POORLY GRADED, ANGULAR TO SUBROUNDED GRAVEL TO 1.0 INCH MAXIMUM, 30-40% COARSE TO FINE SAND, 10-15% SLIGHTLY PLASTIC FINES, BROWN | | |
| 640 | 40 | | | | | | END OF BORING AT 39.5 FEET | | |
| 311026 | | | | | | | | | |

NOTE: FOR BORING SUMMARY AND
LEGEND INFO. SEE SHEET 1

STONE & WEBSTER ENG. CORP

ISSUED BY

DATE 9/15/96

BORING NO. 3007

SHEET 2 OF 2

AMENDMENT 3

12241-GSK-143B

| | | | |
|---|-----------------|--|----------------------------|
| SITE / LOCATION <u>BEAVER VALLEY POWER STATION UNIT 2</u> | | J.O. NO. <u>12241</u> | BORING <u>B-3009</u> |
| COORDINATES <u>N 3958.6</u> | <u>E 8148.7</u> | GROUND ELEV. (I) <u>680 FEET</u> | SHEET 1 OF <u>2</u> |
| INCLINATION <u>VERTICAL</u> | | BEARING _____ | LOGGED BY <u>T. BENNER</u> |
| DATE: START / FINISH <u>7/13/71</u> / <u>7-13-76</u> | | CONTRACTOR / DRILLER <u>PENNA DRILLING</u> | |
| STATIC GROUNDWATER DEPTH / DATE <u>13 FEET</u> / <u>5-20-76</u> | | DRILL RIG TYPE _____ | |
| DEPTH TO BEDROCK _____ | | TOTAL DEPTH DRILLED <u>26.55 FEET</u> | |
| METHODS: | | | |
| DRILLING SOIL <u>3 1/5 ROLLER BIT TO ADVANCE HOLE</u> | | _____ | |
| SAMPLING SOIL <u>2 INCH OD SPLIT SPOON</u> | | _____ | |
| DRILLING ROCK <u>NONE</u> | | _____ | |
| SPECIAL TESTING OR INSTRUMENTATION _____ | | | |
| REMARKS _____ | | | |

| ELEVATION (FEET) | DEPTH (FEET) | SAMPLE TYPE | SAMPLE NUMBER | BLOWS (2) OR U.D.S. PENETRATIONS (3) | SPT N VALUES OR U.D.S. REC (4) | GROUP SYMBOL (5) | SAMPLE DESCRIPTION | FIELD AND LAB. TEST RESULTS / COMMENTS |
|---------------------|-----------------|----------------|------------------|--|-----------------------------------|---------------------|--|--|
| 680 | 0 | | | | | | BLOWS PER INCH (1/5-1-1-1-1-1-1-1-1-2-1-2-1) | |
| | | S | 1 | 2-6-8 61% | 14 | SP-SM | GRAVELLY SAND, POORLY GRADED, 31% SUBROUNDED GRAVEL TO 0.9 INCH MAXIMUM, COARSE TO FINE MOSTLY COARSE AND MEDIUM SAND, 11% NONPLASTIC FINES, BROWN, STRONG REACTION TO HCL | |
| 675 | 5 | S | 2 | 10-12-16 39% | 28 | SM | BLOWS PER INCH (1-2-1-2-2-2-2-2-2-2-2-3-3-2-2-3-3) | |
| | | S | 3 | 9-11-11 33% | 22 | SM | SILTY SAND, WIDELY GRADED, 25-35% SUBANGULAR TO SUBROUNDED GRAVEL TO 1.0 INCH MAXIMUM, COARSE TO FINE SAND, 12-20% FINES, BROWN | |
| | | S | 4 | 9-12-14 33% | 26 | SM | BLOWS PER INCH (1-2-1-2-1-2-2-2-1-2-2-2-2-2-2-1-2-2) | |
| 670 | 10 | S | 5 | 11-15-15 33% | 30 | SM | SILTY SAND, WIDELY GRADED, 30% SUBROUNDED GRAVEL TO 0.9 INCH MAXIMUM, COARSE TO FINE SAND, 15% NONPLASTIC FINES, BROWN, STRONG REACTION TO HCL | |
| | | S | 6 | 11-15-18 33% | 33 | SM | BLOWS PER INCH (1-2-1-2-2-1-2-2-2-2-2-2-2-2-2-3-2-2-3-2) | |
| | | S | 7 | 15-21-28 39% | 49 | SM | SILTY SAND, WIDELY GRADED, 19% SUBROUNDED GRAVEL TO 0.9 INCH MAXIMUM COARSE TO FINE SAND, 18% NONPLASTIC FINES, BROWN, STRONG REACTION TO HCL | |
| 665 | 15 | | | | | | BLOWS PER INCH (1-2-2-2-2-2-2-3-3-2-2-3-2-2-2-3-2-3-3) | |
| | | | | | | | SILTY SAND, WIDELY GRADED, 25-30% SUBANGULAR TO SUBROUNDED GRAVEL TO 1.1 INCH MAXIMUM, COARSE TO FINE SAND, 12-20% FINES, BROWN | |
| | | | | | | | BLOWS PER INCH (2-2-1-2-2-2-2-3-2-2-3-2-3-3-3-2-3-4-3) | |
| | | | | | | | SILTY SAND, SIMILAR TO SS-5, BUT 20-25% SUBANGULAR TO SUBROUNDED GRAVEL TO 0.8 INCH MAXIMUM | |
| | | | | | | | BLOWS PER INCH (1-3-3-2-3-3-3-4-3-4-3-4-4-5-4-5-5-5) | |
| | | | | | | | SILTY SAND, WIDELY GRADED, 25-35% SUBANGULAR TO SUBROUNDED GRAVEL TO 1.3 INCH MAXIMUM, COARSE TO FINE SAND, 12-20% SLIGHTLY PLASTIC FINES, BROWN | |

| | | | |
|----------------|---|--|--|
| LEGEND / NOTES | S_ SPLIT BARREL SAMPLE UNDISTURBED SAMPLES (U.D.S.) US_ SHELBY TUBE UF_ FIXED PISTON UO_ OSTERBERG UD_ DENISON UP_ PITCHER N_ STD. PENETRATION RESISTANCE BLOWS/FT ▽ GROUNDWATER ** RECOVERY INFORMATION NOT AVAILABLE | 1. DATUM IS MEAN SEA LEVEL UNLESS OTHERWISE INDICATED 2. BLOWS REQUIRED TO DRIVE 2" O.D. SAMPLE SPOON 6" OR DISTANCE SHOWN USING 140 lb HAMMER FALLING 30" * INDICATES USE OF 300 lb HAMMER 3. DENOTES INCHES OF PENETR. OF UNDISTURBED SAMPLER 4. DENOTES INCHES OF UNDISTURBED SAMPLE RECOVERY 5. UNIFIED SOIL CLASSIFICATION SYSTEM | BORING LOG BEAVER VALLEY POWER STATION UNIT 2 DUQUESNE LIGHT COMPANY PITTSBURGH, PENNSYLVANIA 12241-GSK-145A STONE & WEBSTER ENG. CORP. |
| | ISSUED BY <u>[Signature]</u> DATE <u>9/14/1916</u> | | BORING NO. <u>B-3009</u> |
| | | | SHEET <u>1 OF 2</u> |
| | | | |

| BORING <u>B-3009</u> | | | | | | | | | | |
|---|-----------------|----------------|------------------|--|----------------------------------|-----------------|---|--|--|--|
| SHEET <u>2</u> OF <u>2</u> | | | | | | | | | | |
| SITE / LOCATION <u>BEAVER VALLEY POWER STATION UNIT 2</u> | | | | | J.O. NO. <u>12241</u> | | | | | |
| ELEVATION (FEET) | DEPTH (FEET) | SAMPLE TYPE | SAMPLE NUMBER | BLOWS (2) OR UDS. PENETRATION(3) | SPT N VALUES OR UDS. REC. (4) | GROUP SYMBOL | SAMPLE DESCRIPTION | | | FIELD AND LAB. TEST RESULTS / COMMENTS |
| % REC | | | | | | | | | | |
| 665 | 15 | S | 7 | | | | | | | |
| | | S | 8 | 24-34-39 44% | 73 | SM | BLOWS PER INCH (2-4-4-4-5-5-5-5-6-6-6-6-7-7-7) SILTY SAND, WIDELY GRADED, 21% SUBROUNDED GRAVEL TO 0.8 INCH MAXIMUM, COARSE TO FINE SAND, 20% NONPLASTIC FINES, BROWN, STRONG REACTION TO HCL | | | |
| | | S | 9 | 19-21-21 56% | 42 | SM | BLOWS PER INCH (1-3-4-4-4-3-5-2-4-4-2-4-4-3-3-4-3-4) SILTY SAND, WIDELY GRADED, 25% SUBROUNDED GRAVEL TO 0.8 INCH MAXIMUM, COARSE TO FINE SAND, 14% NONPLASTIC FINES, BROWN, STRONG REACTION TO HCL | | | |
| 660 | 20 | S | 10 | 18-21-20 39% | 41 | SM | BLOWS PER INCH (2-2-4-3-4-3-4-4-3-3-3-4-3-4-3-4-3) SILTY SAND, WIDELY GRADED, 25-30% SUBANGULAR TO SUBROUNDED GRAVEL TO 1.0 INCH MAXIMUM, COARSE TO FINE SAND, 12-20% SLIGHTLY PLASTIC FINES, BROWN | | | |
| | | S | 11 | 12-16-20 39% | 36 | SM | BLOWS PER INCH (1-2-2-2-2-3-2-3-2-3-3-3-3-4-3-3-4) SILTY SAND, WIDELY GRADED, 42% SUBANGULAR TO SUBROUNDED GRAVEL TO 0.8 INCH MAXIMUM, COARSE TO FINE SAND, 15% NONPLASTIC FINES, BROWN, STRONG REACTION TO HCL | | | |
| 655 | 25 | S | 12 | 28-24-23 56% | 47 | SM | BLOWS PER INCH (7-5-5-4-4-3 5-3-4-4-4-4 4-3-4-5-3-4) SILTY SAND, WIDELY GRADED, 25-35% SUBANGULAR TO SUBROUNDED GRAVEL, 1.1 INCH MAXIMUM, COARSE TO FINE SAND, 12-20% SLIGHTLY PLASTIC FINES, BROWN | | | |
| | | S | 13 | 50/24 | | SM | (5-15-30/0.5) BLOWS PER INCH SILTY SAND, WIDELY GRADED, 25-30% SUBANGULAR TO SUBROUNDED GRAVEL TO 0.7 INCH MAXIMUM, COARSE TO FINE SAND, 12-20% FINES, BROWN | | | |
| END OF BORING AT 26.55 FEET | | | | | | | | | | |
| | | | | | | | | | | |

311028

NOTE: FOR BORING SUMMARY AND
LEGEND INFO. SEE SHEET 1

STONE & WEBSTER ENG. CORP

ISSUED BY CAW DATE 9/19/1916

BORING NO. B-3009 SHEET 2 OF 2

AMENDMENT 3

12241-GSK-145B

| | | | | | | | |
|------------------------------------|--|--------------------------------------|-----------|----------------------|----------|---------------------|--------|
| SITE / LOCATION | | BEAVER VALLEY POWER STATION - UNIT 2 | | J.O. NO. | 12241 | BORING | B-3013 |
| COORDINATES | | N 3956.4 | E 8145.0 | GROUND ELEV. (1) | 680 FEET | SHEET 1 OF 2 | |
| INCLINATION | | VERTICAL | BEARING | LOGGED BY | | S. REYNOLDS/R. HIXE | |
| DATE : START / FINISH | | 7/16/76 | / 7/16/76 | CONTRACTOR / DRILLER | | PENNA DRILLING | |
| STATIC GROUNDWATER DEPTH / DATE | | 13 FEET | / 7/16/76 | DRILL RIG TYPE | | | |
| DEPTH TO BEDROCK | | | | TOTAL DEPTH DRILLED | | 39.5 FEET | |
| METHODS: | | | | | | | |
| DRILLING SOIL | | 3 1/8" ROLLER BIT TO ADVANCE HOLE | | | | | |
| SAMPLING SOIL | | 2" O.D. SPLIT SPOON | | | | | |
| DRILLING ROCK | | NONE | | | | | |
| SPECIAL TESTING OR INSTRUMENTATION | | | | | | | |
| REMARKS | | | | | | | |

| ELEVATION (FEET) | DEPTH (FEET) | SAMPLE TYPE | SAMPLE NUMBER | BLOWS (2) OR U.D.S. PENETRATIONS (3) | SPT N VALUES OR U.D.S. REC. (4) | GROUP SYMBOL (5) | SAMPLE DESCRIPTION | FIELD AND LAB. TEST RESULTS / COMMENTS |
|---------------------|-----------------|----------------|------------------|--|------------------------------------|---------------------|---|--|
| 680 | 0 | | | | | | | |
| | | S | 1 | 4-6 | 10 | | NO RECOVERY. BLOWS/INCH: 2/3"-2/3"-2/3"-1-1-1-1-1 | |
| 675 | 5 | S | 2 | 7-8 67% | 14 | GW-GM | SANDY GRAVEL, WELL GRADED, SUBANGULAR TO 1.2 INCH MAXIMUM, 39% COARSE TO FINE SAND, 11% NONPLASTIC FINES, BROWN, STRONG REACTION TO HCL, SLIGHT TRACE OF MICA. BLOWS/INCH: 1-1-1-2-1-1 / 1-1-1-1-1-1 / 1-2-1-1-1-2 | |
| | | S | 3 | 10-12-12 56% | 24 | GW | SANDY GRAVEL, SAME AS ABOVE, EXCEPT LESS THAN 7% FINES, PIECE OF SANDSTONE IN SHOE. BLOWS/INCH: 2-2-1-2-2-1 / 2-3-2-2-2-1 / 2-2-2-2-2-2 | |
| | | S | 4 | 9-15-18 72% | 33 | GW | SANDY GRAVEL, SAME AS ABOVE, GRAVEL TO 1.0 INCH MAXIMUM. BLOWS/INCH: 1-2-1-1-2-2 / 2-3-2-3-2-3 / 3-4-2-3-3-3 | |
| 670 | 10 | S | 5 | 12-15-15 44% | 30 | SM | SILTY SAND, WIDELY GRADED, 37% SUBANGULAR GRAVEL TO 1 INCH MAXIMUM COARSE TO FINE SAND, 20% NONPLASTIC FINES, BROWN, SLIGHT REACTION TO HCL, SLIGHT TRACE OF MICA. BLOWS/INCH: 1-1-2-3-2-3 / 3-2-3-2-3-2 / 2-2-3-3-2-3 | |
| | | S | 6 | 11-17-23 39% | 40 | SM | GRAVELLY SAND, SAME AS ABOVE, 5-8% NONPLASTIC FINES. BLOWS/INCH: 1-1-1-2-3-3 / 2-3-3-3-3-3 / 3-4-4-3-4-5 | |
| | | S | 7 | 12-14-9 17% | 23 | SM | SILTY SAND, WIDELY GRADED, 42% SUBANGULAR GRAVEL TO 1.2 INCH MAXIMUM COARSE TO FINE SAND, 13% NONPLASTIC FINES, BROWN, POCKET OF LIGNITE, NO REACTION TO HCL. BLOWS/INCH: 1-2-2-2-2-3 / 2-3-2-3-2-2 / 2-2-1-1-1-2 | |

| | | | |
|----------------|--|--|--|
| LEGEND / NOTES | S_ SPLIT BARREL SAMPLE UNDISTURBED SAMPLES (U.D.S.) US_ SHELBY TUBE UF_ FIXED PISTON UO_ OSTERBERG UD_ DENISON UP_ PITCHER N_ STD. PENETRATION RESISTANCE BLOWS/FT G_ GROUNDWATER | 1. DATUM IS MEAN SEA LEVEL UNLESS OTHERWISE INDICATED 2. BLOWS REQUIRED TO DRIVE 2" O.D. SAMPLE SPOON 6" OR DISTANCE SHOWN USING 140 lb. HAMMER FALLING 30" *INDICATES USE OF 300 lb HAMMER 3. DENOTES INCHES OF PENETR. OF UNDISTURBED SAMPLER 4. DENOTES INCHES OF UNDISTURBED SAMPLE RECOVERY 5. UNIFIED SOIL CLASSIFICATION SYSTEM | BORING LOG BEAVER VALLEY POWER STATION - UNIT 2 DUQUESNE LIGHT COMPANY PITTSBURGH, PENNSYLVANIA 12241-GSK-146A STONE & WEBSTER ENG. CORP. |
| | ISSUED BY DATE 8/13/1976 | | |
| | BORING NO. B-3013 | | SHEET 1 OF 2 |

| SITE / LOCATION | | | | | | | | | | BEAVER VALLEY POWER STATION - UNIT 2 | | J.C. NO. 12241 | | BORING R-3013 | | SHEET 2 OF 2 | |
|---------------------|-----------------|----------------------------|------------------|---------------------------------------|-------------------------------|--------------|---|--|--|---|--|----------------|--|---------------|--|--------------|--|
| ELEVATION (FEET) | DEPTH (FEET) | SAMPLE TYPE | SAMPLE NUMBER | BLOWS (2) OR UDS PENETRATION(S) | SPT N VALUES OR UDS REC(4) | GROUP SYMBOL | SAMPLE DESCRIPTION | | | FIELD AND LAB TEST RESULTS / COMMENTS | | | | | | | |
| 665 | 15 | | | | | | | | | | | | | | | | |
| | | S | 8 | 11-27-26 44% | 53 | SP-SM | GRAVELLY SAND, POORLY GRADED, 35-45% SUBANGULAR GRAVEL TO 1.2 INCH MAXIMUM, COARSE TO FINE SAND, MOSTLY MEDIUM TO FINE, 3-5% NONPLASTIC FINES, BROWN AND LIGHT GRAY, (2) REACTION TO HCL. BLOWS/INCH: 1-1-2-3-2 / 3-8-5-3-3-5 / 3-6-4-5-5-5 | | | | | | | | | | |
| | | S | 9 | 7-14-16 56% | 30 | SM | SILTY SAND, WIDELY GRADED, 29% SUBANGULAR TO SUBROUNDED GRAVEL TO 0.9 INCH MAXIMUM, COARSE TO FINE SAND, 15% NONPLASTIC FINES, BROWN, NO REACTION TO HCL. BLOWS/INCH: 1-1-1-1-2-1 / 3-2-2-2-3-2 / 2-3-3-2-3-3 | | | | | | | | | | |
| 660 | 20 | | | | | | | | | | | | | | | | |
| | | S | 10 | 9-15-17 56% | 32 | SM | GRAVELLY SAND, POORLY GRADED, 30-35% SUBANGULAR TO SUBROUNDED GRAVEL TO 0.9 INCH MAXIMUM, COARSE TO FINE SAND, MOSTLY FINE, 5-8% FINES, BROWN, NO REACTION TO HCL. BLOWS/INCH: 1-1-1-1-2-3 / 2-2-3-2-3-3 / 3-3-2-4-2-3 | | | | | | | | | | |
| | | S | 11 | 7-22-21 28% | 43 | GP-GM | SANDY GRAVEL, POORLY GRADED, ANGULAR TO SUBANGULAR TO 1.2 INCH MAXIMUM, 40-45% COARSE TO FINE SAND, 3-5% FINES, BROWN, NO REACTION TO HCL. BLOWS/INCH: 1-1-1-1-1-2 / 3-3-4-4-3-5 / 3-3-5-4-3-3 | | | | | | | | | | |
| 655 | 25 | | | | | | | | | | | | | | | | |
| | | S | 12 | 9-18-24 72% | 42 | SM | SILTY SAND, UNIFORM, LESS THAN 5% SUBROUNDED GRAVEL TO 0.3 INCH MAXIMUM, FINE SAND, 8-12% NONPLASTIC FINES, BROWN, NO REACTION TO HCL. BLOWS/INCH: 1-1-1-2-2-2 / 3-3-2-3-3-4 / 4-4-3-5-3-5 | | | | | | | | | | |
| | | S | 13 | 15-25-29 50% | 54 | SM | GRAVELLY SAND, POORLY GRADED, 30-35% SUBANGULAR TO SUBROUNDED TO 1.0 INCH MAXIMUM COARSE TO FINE SAND, MOSTLY FINE, 5-8% FINES, BROWN, NO REACTION TO HCL. BLOWS/INCH: 1-2-2-3-4-3 / 4-3-4-5-5-4 / 6-4-5-4-5-5 | | | | | | | | | | |
| | | S | 14 | 10-12-22 67% | 34 | SM | SILTY SAND, WIDELY GRADED, 12% SUBROUNDED GRAVEL TO 0.3 INCH MAXIMUM COARSE TO FINE, MOSTLY FINE, SAND, 20% NONPLASTIC FINES, BROWN, WITH A FEW POCKETS OF BLACK LIGNITE, NO REACTION TO HCL. BLOWS/INCH: 1-2-2-2-2-1 / 2-2-2-1-3-2 / 2-3-3-5-4-5 TOP 5": LIGNITE | | | | | | | | | | |
| 650 | 30 | | | | | | | | | | | | | | | | |
| | | S | 15 | 18-20-196 61% | 316 | SM | BOTTOM 6": SILTY SAND, WIDELY GRADED, 15-20% SUBANGULAR AND SUBROUNDED GRAVEL TO 0.8 INCH MAXIMUM, COARSE TO FINE SAND, MOSTLY FINE, 10-15% NONPLASTIC FINES, BROWN, NO REACTION TO HCL. BLOWS/INCH: 1-2-3-2-5-5 / 5-8-7-23-23-54 / 53-43-39-26-22-13 | | | | | | | | | | |
| | | S | 16 | 11-19-23 67% | 42 | SP-SM | GRAVELLY SAND, POORLY GRADED, 15-20% SUBROUNDED GRAVEL TO 1.3 INCH MAXIMUM, COARSE TO FINE SAND, MOSTLY FINE, 5-10% NONPLASTIC FINES, BROWN, NO REACTION TO HCL. BLOWS/INCH: 1-1-2-2-2-3 / 4-3-3-3-3-3 / 4-3-4-4-3-5 | | | | | | | | | | |
| 645 | 35 | | | | | | | | | | | | | | | | |
| | | S | 17 | 20-26-25 67% | 51 | SP-SM | GRAVELLY SAND, POORLY GRADED, 20-30% SUBANGULAR TO SUBROUNDED TO 1.0 INCH MAXIMUM, COARSE TO FINE SAND, MOSTLY FINE, 5-8% NONPLASTIC FINES, BROWN, NO REACTION TO HCL. BLOWS/INCH: 1-2-3-4-5-5 / 5-4-5-4-3-5 / 3-4-3-5-5-5 | | | | | | | | | | |
| | | S | 18 | 26-79-65 67% | 164 | GP | SANDY GRAVEL, POORLY GRADED, SUBANGULAR TO 1.0 INCH MAXIMUM, 40-45% COARSE TO FINE SAND, MOSTLY FINE, 3-5% FINES, BROWN, NO REACTION TO HCL. BLOWS/INCH: 1-1-3-3-9-9 / 18-27-26-15-10-8 / 12-9-10-11-10-13 | | | | | | | | | | |
| | | S | 19 | 40-66-39 56% | 105 | SP-SM | GRAVELLY SAND, POORLY GRADED, 40-45% SUBANGULAR GRAVEL TO 1.3 INCH MAXIMUM, COARSE TO FINE SAND, MOSTLY FINE, 5-8% NONPLASTIC FINES, BROWN, QUICK REACTION TO HCL. BLOWS/INCH: 1-3-6-9-9-12 / 15-11-18-8-6-8 / 6-7-7-6-6-7 | | | | | | | | | | |
| 640.5 | 39.5 | END OF BORING AT 39.5 FEET | | | | | | | | | | | | | | | |
| 911030 | | | | | | | | | | | | | | | | | |

NOTE: FOR BORING SUMMARY AND LEGEND INFO. SEE SHEET 1.

STONE & WEBSTER ENG. CORP.

ISSUED BY AMC DATE 9/13/96

BORING NO. B-3013 SHEET 2 OF 2

12241-GSK-126B

| | | | |
|---|------------------|---|--|
| SITE / LOCATION <u>BEAVER VALLEY POWER STATION - UNIT 2</u> | | J.O. NO. <u>12241</u> | BORING <u>B-3019</u> |
| COORDINATES <u>N 3962.83</u> | <u>E 8148.25</u> | GROUND ELEV. (I) <u>680 FEET</u> | SHEET 1 OF <u>2</u> |
| INCLINATION <u>VERTICAL</u> | | BEARING _____ | LOGGED BY <u>MWCOOPER/WJOLESZEMSKI</u> |
| DATE : START / FINISH <u>7-24-76</u> / <u>7-25-76</u> | | CONTRACTOR / DRILLER <u>PENNA DRILLING/GOLLIHUE</u> | |
| STATIC GROUNDWATER DEPTH / DATE <u>13 Feet</u> / <u>7/25/76</u> | | DRILL RIG TYPE _____ | |
| DEPTH TO BEDROCK _____ | | TOTAL DEPTH DRILLED <u>39.5 FEET</u> | |
| METHODS : | | | |
| DRILLING SOIL <u>3 1/8 " ROLLER BIT TO ADVANCE HOLE</u> | | _____ | |
| SAMPLING SOIL <u>2" O.D. SPLIT SPOON</u> | | _____ | |
| DRILLING ROCK <u>NONE</u> | | _____ | |
| SPECIAL TESTING OR INSTRUMENTATION _____ | | | |
| REMARKS _____ | | | |

| ELEVATION (FEET) | DEPTH (FEET) | SAMPLE TYPE | SAMPLE NUMBER | BLOWS (2) OR U.S. PENETRATIONS (3) | SPT N VALUES OR U.S. REC (4) | GROUP SYMBOL (5) | SAMPLE DESCRIPTION | FIELD AND LAB. TEST RESULTS / COMMENTS |
|---------------------|-----------------|----------------|------------------|--|---------------------------------|---------------------|---|--|
| 680 | 0 | S | 1 | 4-6-9 44% | 15 | SM | 1/1.5-3/4.5/1-1-1-1-1/2-1-1-2-1-2 BLOWS/INCH SILTY SAND, WIDELY GRADED, 15% SUBANGULAR GRAVEL TO 1 INCH MAXIMUM, 12-15% NONPLASTIC FINES, DARK BROWN, STRONG REACTION TO HCL. | |
| | | S | 2 | 6-6-7 44% | 13 | | 1-1-1-1-1-1/1-1-1-1-1-1/1-1-2-1-1-1 BLOWS /INCH SANDY GRAVEL, WELL GRADED, 45% SUBANGULAR TO SUBROUNDED GRAVEL TO 0.9 INCH MAXIMUM, 44% COARSE TO FINE SAND, 11% NONPLASTIC FINES, BROWN, STRONG REACTION TO HCL | |
| 675 | 5 | S | 3 | 6-10-11 33% | 21 | GW GM | 1-1-1-1-1-1/2-1-2-2-1-2/2-2-2-1-2-2 BLOWS/INCH SANDY GRAVEL, SIMILAR TO ABOVE | |
| | | S | 4 | 12-10-15 39% | 25 | SM | 1-2-2-3-1-3/2-1-2-2-1-2/1-1-3-3-3-4 BLOWS/INCH SANDY GRAVEL, WELL GRADED, MOSTLY SUBANGULAR GRAVEL TO 1.2 INCH MAXIMUM (SOME FRESHLY FRACTURED GRAVEL), 36% COARSE TO FINE SAND, 11% NONPLASTIC FINES, BROWN, STRONG REACTION TO HCL | |
| | | S | 5 | 16-17-16 67% | 33 | SP | 1-1-2-4-3-5/2- -3-3-2/3-3-3-2-3-2 BLOWS/INCH GRAVELLY SAND, 1 Y GRADED, 25-35% SUBROUNDED TO SUBANGULAR GRAVEL TO 1.3 INCH MAXIMUM, COARSE TO FINE SAND, LESS THAN 5% NONPLASTIC FINES, DARK BROWN, NO REACTION TO HCL. | |
| 670 | 10 | S | 6 | 13-11-14 73% | 25 | SP | 2-2-2-3-2-2/2-2- -2-2-1/3-3-2-2-2-2 BLOWS/INCH GRAVELLY SAND, SIMILAR TO ABOVE EXCEPT 30-40% GRAVEL TO 1 INCH MAXIMUM. | |
| | | S | 7 | 10-16-18 47% | 34 | SM | 1-2-1-2-2-2/3-2-2-3-2-4/3-3-3-3-3-3 BLOWS/INCH SILTY SAND, WIDELY GRADED, 36% SUBANGULAR TO SUBROUNDED GRAVEL TO 0.8 INCH MAXIMUM, COARSE TO FINE SAND, 14% NONPLASTIC FINES, BROWN, NO REACTION TO HCL | |
| 664 | 15 | S | 8 | 14-16-18 ** | 34 | SM | 2-2-3-2-2-3/3-2-2-3-2-4/3-2-3-3-4-3 BLOWS/INCH SILTY SAND, SIMILAR TO ABOVE. | |

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|----------------|---|---|--|--|
| LEGEND / NOTES | S_ SPLIT BARREL SAMPLE UNDISTURBED SAMPLES (U.S.) US_ SHELBY TUBE UF_ FIXED PISTON UO_ OSTERBERG UD_ DENISON UP_ PITCHER N_ STD. PENETRATION RESISTANCE BLOWS/FT GROUNDWATER ** RECOVERY INFORMATION NOT AVAILABLE | 1. DATUM IS MEAN SEA LEVEL UNLESS OTHERWISE INDICATED 2. BLOWS REQUIRED TO DRIVE 2" O.D. SAMPLE SPOON 6" OR DISTANCE SHOWN USING 140 lb HAMMER FALLING 30" *INDICATES USE OF 300 lb HAMMER 3. DENOTES INCHES OF PENETR. OF UNDISTURBED SAMPLER 4. DENOTES INCHES OF UNDISTURBED SAMPLE RECOVERY 5. UNIFIED SOIL CLASSIFICATION SYSTEM | BORING LOG BEAVER VALLEY POWER STATION - UNIT 2 DUQUESNE LIGHT COMPANY PITTSBURGH, PENNSYLVANIA 12241-GSK-148A STONE & WEBSTER ENG. CORP. | ISSUED BY <u>CAH</u> DATE <u>9/12/96</u> BORING NO. <u>B-3019</u> SHEET <u>1 OF 2</u> |
|----------------|---|---|--|--|

31001

| BORING <u>B-3019</u> | | | | | | | | | | |
|---|-----------------|----------------|------------------|---------------------------------------|-------------------------------|---------------------|--|--|--|--|
| SHEET <u>2</u> OF <u>2</u> | | | | | | | | | | |
| SITE / LOCATION <u>BEAVER VALLEY POWER STATION - UNIT 2</u> J.O. NO. <u>12241</u> | | | | | | | | | | |
| ELEVATION (FEET) | DEPTH (FEET) | SAMPLE TYPE | SAMPLE NUMBER | BLOWS (2) OR UDS PENETRATION(3) | SPT N VALUES OR UDS REC(4) | GROUP SYMBOL (5) | SAMPLE DESCRIPTION | | | FIELD AND LAB. TEST RESULTS / COMMENTS |
| | | | | 1 REC | | | | | | |
| 665 | 15 | S | 8 | | | | 5-12% NONPLASTIC FINES. | | | |
| | | S | 9 | 12-15-24 56% | 39 | | GP- 1-2-2-2-3-2/2-2-2-3-2-4/3-2-4-5-4-6 BLOWS/INCH GM SANDY GRAVEL, POORLY GRADED, ANGULAR TO SUBROUNDED GRAVEL TO 1.3 INCH MAXIMUM, 35-45% COARSE TO FINE SAND, 7-12% NONPLASTIC FINES, BROWN, FEW SMALL POCKETS LIGNITE, NO REACTION TO HCL. SHOES BLOCKED BY SANDSTONE | | | |
| | | S | 10 | 14-13-15 56% | 28 | | GP- 2-2-3-3-2-2/2-3-2-2-2/2-2-2-3-3 BLOWS/INCH GM TOP 4": SANDY GRAVEL, SIMILAR TO ABOVE. BOTTOM 6": SAND, UNIFORM, MEDIUM, 5-10% FINES, BROWN, NO REACTION TO HCL. | | | |
| 660 | 20 | S | 11 | 9-20-20 50% | 40 | | SP- 1-2-1-2-2-1/3-3-3-3-5-2/5-3-3-3-3 BLOWS/INCH SM SAND, UNIFORM, 5% GRAVEL, FINE SAND (FEW PIECES OF COARSE SAND), 10% NON- PLASTIC FINES, BROWN, NO REACTION TO HCL | | | |
| | | S | 12 | 11-14-16 56% | 30 | | GP- 1-2-2-2-2-2/3-2-2-3-2-2/2-2-3-2-3-4 BLOWS/INCH GM SANDY GRAVEL, POORLY GRADED, SUBROUND GRAVEL TO 1.0 INCH MAXIMUM, 35-45% COARSE TO FINE SAND, 7-12% NONPLASTIC FINES, BROWN, NO REACTION TO HCL. | | | |
| 655 | 25 | S | 13 | 14-20-28 56% | 48 | | SP- 2-2-2-2-3-3/3-2-3-4-4-4/4-5-5-5-4-5 BLOWS/INCH SAND, UNIFORM, FINE, LESS THAN 5% FINES, BROWN, NO REACTION TO HCL. | | | |
| | | S | 14 | 11-24-23 61% | 47 | | GP- 1-2-2-2-2-2/3-4-3-5-5/3-3-4-4-5-4 BLOWS/INCH GM SANDY GRAVEL, POORLY GRADED, SUBANGULAR TO SUBROUNDED GRAVEL TO 1.3 INCH MAXIMUM, 20-30% COARSE TO FINE SAND, 5-10% NONPLASTIC FINES, BROWN, NO REACT- ION TO HCL. | | | |
| | | S | 15 | 15-14-18 56% | 32 | | SP- 2-3-3-3-2-2/2-1-4-2-2-3/2-3-4-3-2-4 BLOWS/INCH LIGNITE, INTERBEDDED WITH SMALL LAYERS OF UNIFORM, FINE, SAND. | | | |
| 650 | 30 | S | 16 | 13-27-34 67% | 61 | | SP- 1-2-2-2-3-3/4-5-3-5-5/5-5-5-5-7 BLOWS/INCH TOP 4": SAND, UNIFORM, FINE, LESS THAN 5% FINES, BROWN, NO REACTION TO HCL. SANDY GRAVEL, POORLY GRADED, SUBANGULAR TO SUBROUNDED GRAVEL TO 1.1 INCH MAXIMUM, 35-45% COARSE TO FINE SAND, 5-10% FINES, BROWN, NO REACTION TO HCL. ROLLER BIT THROUGH BOULDER 31.7-32.3 | | | |
| | | S | 17 | 5-16-21 72% | 37 | | SM- 1/3"-1-1-2/1-2-3-3-4-3/4-3-3-4-3-4 BLOWS/INCH SILTY SAND, UNIFORM, 3% GRAVEL, FINE SAND, (FEW PIECES OF COARSE SAND), 21% NONPLASTIC FINES, BROWN, NO REACTION TO HCL | | | |
| 645 | 35 | S | 18 | 8-10-15 61% | 25 | | SM- 1-1-1-1-2-2/2-1-2-1-2-2/2-2-2-2-3-4 BLOWS/INCH SILTY SAND, SIMILAR TO ABOVE EXCEPT FEW PIECES GRAVEL | | | |
| | | S | 19 | 19-33-33 56% | 66 | | SM- 1-2-3-4-4-5/8-6-6-6-4-3/3-4-8-8-5-5 BLOWS/INCH SP SILTY SAND, POORLY GRADED, 15-25% SUBANGULAR GRAVEL TO 1.2 INCH MAXIMUM, COARSE TO FINE MOSTLY FINE SAND, 10-20% SLIGHTLY PLASTIC FINES, LIGHT YELLOWISH BROWN, NO REACTION TO HCL. BOTTOM 2": LIMESTONE, FRESHLY FRACTURED, COATED WITH DEEP REDDISH BROWN MATRIX. | | | |
| | | S | 20 | 43-37-66 78% | 103 | | SM- 2-6-9-8-10-8/5-5-5-9-6-7/10-11-12-11-12-10 SILTY SAND, WIDELY GRADED, 31% MOSTLY SUBANGULAR GRAVEL TO 0.8 INCH MAXIMUM, COARSE TO FINE, MOSTLY FINE SAND 22% NONPLASTIC FINES, BROWN, SLIGHT REACTION TO HCL | | | |
| END OF BORING AT 39.5 FEET | | | | | | | | | | |
| 911032 | | | | | | | | | | |

NOTE: FOR BORING SUMMARY AND
LEGEND INFO. SEE SHEET 1


STONE & WEBSTER ENG. CORP

ISSUED BY CAF

DATE 9/13/2016

BORING NO.
B-3019

SHEET
2 OF 2

| | | | |
|----------------|---|---|---|
| LEGEND / NOTES | S_ SPLIT BARREL SAMPLE UNDISTURBED SAMPLES (U.D.S.) US_ SHELBY TUBE UF_ FIXED PISTON UC_ OSTERBERG UD_ DENISON UP_ PITCHER N_ STD PENETRATION RESISTANCE BLOWS/FT | 1. DATUM IS MEAN SEA LEVEL UNLESS OTHERWISE INDICATED 2. BLOWS REQUIRED TO DRIVE 2" O.D. SAMPLE SPOON 6" OR DISTANCE SHOWN USING 140lb HAMMER FALLING 30" *INDICATES USE OF 300lb HAMMER 3. DENOTES INCHES OF PENETR. OF UNDISTURBED SAMPLER 4. DENOTES INCHES OF UNDISTURBED SAMPLE RECOVERY 5. UNIFIED SOIL CLASSIFICATION SYSTEM | BORING LOG |
| | <u>V</u> GROUNDWATER ** RECOVERY INFORMATION NOT AVAILABLE | | BEAVER VALLEY POWER STATION - UNIT NO. 2 DUQUESNE LIGHT COMPANY PITTSBURGH, PENNSYLVANIA 12241-GSK-150A  STONE & WEBSTER ENG. CORP. |
| | | ISSUED BY <i>adw</i> DATE <i>2/15/1912</i> | BORING NO. B-3021 SHEET 1 OF 2 |

| SITE / LOCATION | | | | | | | | | | BEAVER VALLEY POWER STATION - UNIT NO. 2 | | J.O. NO. 12241 | | BORING B-3021 | | SHEET 2 OF 2 | |
|----------------------------|-----------------|----------------|------------------|---------------------------------------|-------------------------------|-----------------|--|--|--|--|--|----------------|--|---------------|--|--------------|--|
| ELEVATION (FEET) | DEPTH (FEET) | SAMPLE TYPE | SAMPLE NUMBER | BLOWS (2) OR UDS PENETRATION(3) | SPT N VALUES OR UDS REC(4) | GROUP SYMBOL | SAMPLE DESCRIPTION | | | FIELD AND LAB. TEST RESULTS / COMMENTS | | | | | | | |
| 665 | 15 | S | 9 | 9-15-12 50% | 27 | GP- GM | 1-1-1-2-2-2/2-3-3-2-2-3/2-3-2-2-1-2 <u>SANDY GRAVEL</u> , POORLY GRADED, SUBANGULAR TO SUBROUNDED GRAVEL TO 1.35 INCH MAXIMUM, 35-40% COARSE TO FINE SAND, 5-10% FINES, BROWN, NO REACTION TO HCL. | | | | | | | | | | |
| | | S | 10 | 10-12-14 72% | 26 | GC | 1-2-2-2-1-2/2-2-2-2-2/2-2-2-3-2-3 <u>CLAYEY SAND</u> , WIDELY GRADED, 39% SUBROUNDED TO SUBANGULAR GRAVEL TO 1.0 INCH MAXIMUM, (MUCH FRESHLY FRACTURED GRAVEL.), COARSE TO FINE SAND, 16% MODERATELY PLASTIC FINES, BLACKISH BROWN, NO REACTION TO HCL. | | | | | | | | | | |
| 660 | 20 | S | 11 | 8-12-15 67% | 27 | SP | 1-1-1-2-1-2/2-2-1-2-2-3/3-2-2-3-3-2 <u>GRAVELLY SAND</u> , POORLY GRADED, 23% MOSTLY SUBROUNDED GRAVEL TO 0.9 INCH MAXIMUM, COARSE TO FINE, MOSTLY MEDIUM AND FINE SAND, 9% NONPLASTIC FINES, BROWN, NO REACTION TO HCL; <u>SANDY GRAVEL</u> , POORLY GRADED, SUBANGU- LAR GRAVEL TO 1.1 INCH MAXIMUM, 28% COARSE TO FINE, MOSTLY COARSE AND MEDIUM SAND, 8% MODERATELY PLASTIC FINES, BROWN, NO REACTION TO HCL. | | | | | | | | | | |
| | | S | 12 | 11-15-15 56% | 30 | SP- SM | 2-2-2-2-1-2/3-2-2-2-3/3-2-2-2-3-3 <u>GRAVELLY SAND</u> , POORLY GRADED, 44% SUBANGULAR GRAVEL TO 1.4 INCH MAXIMUM, (SOME FRESHLY FRACTURED GRAVEL) COARSE TO FINE, MOSTLY FINE SAND, 8% NONPLASTIC FINES, BROWN, NO REACTION TO HCL. | | | | | | | | | | |
| 655 | 25 | S | 13 | 15-12-16 67% | 28 | SP | TOP 7 INCH: <u>GRAVELLY SAND</u> , POORLY GRADED, 10-15% SUBANGULAR TO SUB- ROUNDED GRAVEL TO 0.6 INCH MAXIMUM, COARSE TO FINE SAND, MOSTLY FINE LESS THAN 5% FINES, BROWN, NO REACTION TO HCL; BOTTOM INCH: <u>SANDY GRAVEL</u> POORLY GRADED, SUBANGULAR TO SUBROUNDED GRAVEL TO 0.9 INCH MAXIMUM, 35- 45% COARSE TO FINE SAND, 3-8% FINES, BROWN, WITH TRACE LIGNITE, NO RE- ACTION TO HCL. | | | | | | | | | | |
| | | S | 14 | 10-25-29 89% | 54 | GP- GM | 2-3-2-3-2-3/3-2-2-2-1/2-3-2-3-3-3 TOP: <u>GRAVELLY SAND</u> , POORLY GRADED, 10-15% SUBANGULAR TO SUBROUNDED GRAVEL TO 0.6 INCH MAXIMUM, COARSE TO FINE SAND, MOSTLY FINE, LESS THAN 5% FINES, BROWN, NO REACTION TO HCL; BOTTOM: <u>GRAVELLY SAND</u> , SIMILAR TO ABOVE, EXCEPT 30-40% GRAVEL TO 1.4 INCH MAXIMUM. | | | | | | | | | | |
| 650 | 30 | S | 15 | 15-18-15 78% | 33 | SP | 2-2-2-3-3-3/2-3-4-3-3-3/2-2-3-3-2-3 <u>GRAVELLY SAND</u> , SIMILAR TO ABOVE, EXCEPT GRAVEL TO 1.1 INCH MAXIMUM, AND MOSTLY COARSE TO MEDIUM SAND, WITH ONE 3.0 INCH LAYER OF: <u>SILTY SAND</u> , WIDELY GRADED, 10-15% GRAVEL, MOSTLY VERY FINE SAND, 12-20% FINES, BROWN | | | | | | | | | | |
| | | S | 16 | 7-26-38 78% | 64 | SM SP SM | 1-1-1-2-1-2/2-4-5-6-6-5/5-6-6-5-7-9 TOP 4 INCH: <u>SILTY SAND</u> WIDELY GRADED, LESS THAN 5% GRAVEL TO 0.3 INCH MAXIMUM, MOSTLY FINE TO VERY FINE SAND, 10-30% NON TO SLIGHTLY PLASTIC FINES, MOTTLED BROWN AND BLACK, SLIGHT REACTION TO HCL. MIDDLE 3 INCH: LIGNITE, NO REACTION TO HCL. BOTTOM 7 INCH: <u>GRAVELLY SAND</u> , POORLY GRADED, 35-45% SUBANGULAR TO SUBROUNDED GRAVEL TO 1.1 INCH MAXIMUM, COARSE TO FINE SAND, MOSTLY COARSE TO MEDIUM, 5-12% FINES, BROWN, VERY SLIGHT REACTION TO HCL. | | | | | | | | | | |
| 645 | 35 | S | 17 | 12-14-17 72% | 31 | SP | 1-2-2-2-3-2/3-2-2-2-2-3/3-3-3-3-2-3 <u>GRAVELLY SAND</u> , POORLY GRADED, 30-40% SUBANGULAR TO SUBROUNDED GRAVEL TO 0.8 INCH MAXIMUM, COARSE TO FINE SAND, LESS THAN 5% FINES, LIGHT BROWN, NO REACTION TO HCL. | | | | | | | | | | |
| | | S | 18 | 13-15-39 56% | 54 | SP GP- GM | 2-2-2-3-2-2/2-2-2-2-4/6-5-5-6-10-7 TOP: <u>SAND</u> , UNIFORM, LESS THAN 2% GRAVEL TO 0.4 INCH MAXIMUM, FINE SAND, LESS TH N 5% FINES, LIGHT BROWN, NO REACTION TO HCL. BOTTOM: <u>SANDY</u> GRAVEL, POORLY GRADED, GRAVEL TO 1.0 INCH MAXIMUM, 25-35% COARSE TO FINE SAND, 5-10% FINES, NO REACTION TO HCL. | | | | | | | | | | |
| | | S | 19 | 26-39-28 67% | 67 | GM | 3-4-4-6-5-6/5-5-7-7-2/7/5-5-5-6-5 TOP: <u>SILTY GRAVEL</u> , WIDELY GRADED, SUBANGULAR TO ANGULAR GRAVEL, 10-25% COARSE TO FINE SAND, 12-20% SLIGHTLY PLASTIC FINES, BROWN, NO REACTION TO HCL. BOTTOM: <u>SILTY SAND</u> , WIDELY GRADED, 10-20% SUBROUNDED GRAVEL TO 1.0 INCH MAXIMUM, COARSE TO FINE SAND, MOSTLY COARSE AND MEDIUM, 20-30% NONPLASTIC FINES, BROWN, NO REACTION TO HCL 8.8 FEET | | | | | | | | | | |
| | | S | 20 | 25-60 81% | 84 | GP | 1-2-3-5-6-7/8-10-12-9-11-12/10-11-13-50/0.4 INCHES 20A TOP: <u>SANDY GRAVEL</u> , SUBROUNDED GRAVEL TO 0.8 INCH MAXIMUM, 30-35% COARSE TO FINE, MOSTLY COARSE AND MEDIUM SAND, 8-12% NONPLASTIC FINES, BROWN, MODERATE REACTION TO HCL. - VERY SMALL SAMPLE | | | | | | | | | | |
| | | | | | | GM | 20A BOTTOM: <u>SILTY GRAVEL</u> , WIDELY GRADED, 38% MOSTLY ANGULAR GRAVEL TO 1.3 INCH MAXIMUM, (SOME FRESHLY FRACTURED GRAVEL) 37% COARSE TO FINE SAND, 25% NON TO SLIGHTLY PLASTIC FINES, BROWN, STRONG REACTION TO HCL. | | | | | | | | | | |
| | | | | | | GM | 20B: <u>SANDY SILT</u> , NON TO SLIGHTLY PLASTIC, 17% SUBANGULAR GRAVEL TO 0.8 INCH MAXIMUM, 18% COARSE TO FINE SAND, BROWN, STRONG REACTION TO HCL. | | | | | | | | | | |
| END OF BORING AT 38.8 FEET | | | | | | | | | | | | | | | | | |

NOTE: FOR BORING SUMMARY AND
LEGEND INFO. SEE SHEET 1.



STONE & WEBSTER ENG. CORP

ISSUED BY

DATE

2/10/10

BORING NO.

B-3021

SHEET

2 OF 2

| | | | | | | | |
|------------------------------------|--|--------------------------------------|-----------|----------------------|-------|---------------------------------|--------|
| SITE / LOCATION | | BEAVER VALLEY POWER STATION - UNIT 2 | | J.O. NO. | 12241 | BORING | B-3024 |
| COORDINATES | | N 3962.83 | E 8133.75 | GROUND ELEV. (I) | 680 | SHEET 1 OF 2 | |
| INCLINATION | | VERTICAL | | BEARING | | LOGGED BY R. McGAIN / T. BENNER | |
| DATE : START / FINISH | | 7-26-76 / 7-26-76 | | CONTRACTOR / DRILLER | | PENNA DRILLING | |
| STATIC GROUNDWATER DEPTH / DATE | | 13 FEET / 7-26-76 | | DRILL RIG TYPE | | | |
| DEPTH TO BEDROCK | | | | TOTAL DEPTH DRILLED | | 39 FEET | |
| METHODS : | | | | | | | |
| DRILLING SOIL | | 3 1/8" HOLLOW BIT TO ADVANCE HOLE | | | | | |
| SAMPLING SOIL | | 2.0" O.D. SPLIT SPOON | | | | | |
| DRILLING ROCK | | NONE | | | | | |
| SPECIAL TESTING OR INSTRUMENTATION | | | | | | | |
| REMARKS | | | | | | | |

| ELEVATION (FEET) | DEPTH (FEET) | SAMPLE TYPE | SAMPLE NUMBER | BLOWS (2) OR U.D.S. PENETRATION (3) | SPT N VALUES OR U.D.S. REC (4) | GROUP SYMBOL (5) | SAMPLE DESCRIPTION | FIELD AND LAB TEST RESULTS, COMMENTS |
|---------------------|-----------------|----------------|------------------|---|-----------------------------------|------------------|---|--|
| 680 | 0 | | | | | | | |
| | | | | | | | | |
| | | S | 1 | 7-7-10 50% | 19 | SM | SILTY SAND, WIDELY GRADED, 30-40% SUBANGULAR TO SUBROUNDED GRAVEL TO GREATER THAN 1.5 INCH INCLUDING LARGE FRAGMENTS ORANGE SANDSTONE, COARSE TO FINE SAND, MOSTLY COARSE, 10-15% NONPLASTIC FINES, MODERATE REACTION TO HCL, ESPECIALLY IN ORANGE SANDSTONE, MOTTLED DARK BROWN/ORANGE BROWN. BLOWS/INCH: 1-2-1-1-1-1 / 2-1-1-2-1-2 / 2-2-2-1-2-1 | |
| 675 | 5 | S | 2 | 6-10-12 44% | 22 | SM | SILTY SAND, WIDELY GRADED, 35% SUBANGULAR GRAVEL TO 1.0 INCH MAXIMUM COARSE TO FINE SAND, 15% NONPLASTIC FINES, BROWN, STRONG REACTION TO HCL. BLOWS/INCH: 1-1-1-1-1-1 / 2-2-1-2-2-1 / 2-2-2-2-2-2 | |
| | | S | 3 | 12-18-16 44% | 34 | SM | SILTY SAND, SIMILAR TO ABOVE. BLOWS/INCH: 1-1-3-2-3-2 / 4-3-3-3-3-3 / 2-3-3-3-3-2-3 | |
| | | S | 4 | 26-30-31 33% | 61 | SM | GRAVELLY SILTY SAND, WIDELY GRADED, 20-40% SUBROUNDED TO ROUNDED GRAVEL TO 1 INCH, COARSE TO FINE SAND, 15-20% NONPLASTIC TO SLIGHTLY PLASTIC FINES, FRAGMENTS LIGNITE, SLIGHT REACTION TO HCL, MOSTLY DARK BROWN, DENSE. BLOWS/INCH: 4-3-4-4-5-6 / 4-6-6-5-5-6 / 5-7-6-5-6-6 | |
| 670 | 10 | S | 5 | 14-17-15 28% | 32 | SP-SM | SAND, POORLY GRADED, 5-10% GRAVEL TO 1 INCH MAXIMUM, COARSE TO FINE SAND, MOSTLY FINE, 5-10% NONPLASTIC FINES, DENSE, BROWN. BLOWS/INCH: 2-2-2-2-3-3 / 3-2-3-4-3-2 / 3-2-3-2-2-3 | |
| | | S | 6 | 20-15-15 39% | 30 | GM | SILTY GRAVEL, WIDELY GRADED, ANGULAR TO 1.0 INCH MAXIMUM, 29% COARSE TO FINE SAND, 12% NONPLASTIC FINES, YELLOWISH BROWN, SLIGHT REACTION TO HCL. BLOWS/INCH: 2-3-4-3-4-4 / 3-2-3-2-3-2 / 2-2-2-2-4-3 | |
| | | | | 50% | | | GRAVELLY SAND, POORLY GRADED, 30-40% SUBROUNDED TO ROUNDED GRAVEL TO GREATER THAN 1 INCH. COARSE TO FINE SAND, MOSTLY FINE, 5-10% NONPLASTIC FINES, DENSE, BROWN, SLIGHT REACTION TO HCL. | |
| 665 | 15 | S | 7 | 16-20-18 38% | 38 | SP | | |

| | | | | | |
|----------------|---|---|--|--------------|--|
| LEGEND / NOTES | S_ SPLIT BARREL SAMPLE UNDISTURBED SAMPLES (U.D.S.) US_ SHELBY TUBE UF_ FIXED PISTON UO_ OSTERBERG UC_ DENISON UP_ PITCHER N_ STD. PENETRATION RESISTANCE BLOWS/FT GROUNDWATER ** RECOVERY INFORMATION NOT AVAILABLE | 1. DATUM IS MEAN SEA LEVEL UNLESS OTHERWISE INDICATED 2. BLOWS REQUIRED TO DRIVE 2" O.D. SAMPLE SPOON 6" OR DISTANCE SHOWN USING 140 lb HAMMER FALLING 30" * INDICATES USE OF 300 lb HAMMER 3. DENOTES INCHES OF PENETR OF UNDISTURBED SAMPLER 4. DENOTES INCHES OF UNDISTURBED SAMPLE RECOVERY 5. UNIFIED SOIL CLASSIFICATION SYSTEM | BORING LOG BEAVER VALLEY POWER STATION - UNIT 2 DUQUESNE LIGHT COMPANY PITTSBURGH, PENNSYLVANIA 12241-GEX-153A STONE & WEBSTER ENG. CORP. | | |
| | ISSUED BY DATE 2/13/10 | | BORING NO. B-3024 | SHEET 1 OF 2 | |
| | | | | | |
| | | | | | |

| BORING B-3024 | | | | | | | | | |
|---|-----------------|----------------|------------------|---------------------------------------|-------------------------------|---------------------|---|--|--|
| SHEET 2 OF 2 | | | | | | | | | |
| SITE / LOCATION BEAVER VALLEY POWER STATION - UNIT 2 J.O. NO. 12241 | | | | | | | | | |
| ELEVATION (FEET) | DEPTH (FEET) | SAMPLE TYPE | SAMPLE NUMBER | BLOWS (2) OR UDS PENETRATION(3) | SPT N VALUES OR UDS REC(4) | GROUP SYMBOL (5) | FIELD AND LAB. TEST RESULTS / COMMENTS | | |
| 665 | 15 | | 7 | | | | BLOWS/INCH: 1-2-4-3-3-3 / 3-3-3-4-3-4 / 3-3-2-3-4-3 | | |
| | | S | 8 | 15-13-16 44% | 29 | SP | SAND, UNIFORM, 2-5% ROUNDED GRAVEL TO 1 INCH, MOSTLY FINE SAND. 2-5% NONPLASTIC FINES. VERY THIN INTERBEDS DETRITAL LIGNITE, COMPACT TO DENSE BROWN. BLOWS/INCH: 2-3-3-3-2-2 / 1-2-3-3-2-2 / 2-3-3-3-2-3 | | |
| 660 | 20 | S | 9 | 18-13-22 44% | 35 | SP-SM | GRAVELLY SAND, POORLY GRADED, 20-30% SUBROUNDED TO ROUNDED GRAVEL TO 1 INCH, MOSTLY FINE SAND, 10-15% NONPLASTIC TO SLIGHTLY PLASTIC FINES, NO REACTION TO HCL, DENSE, BROWN/ORANGE - BROWN. BLOWS/INCH: 2-2-3-2-2-2 / 2-2-2-2-2-3 / 4-3-4-3-4-4 | | |
| | | S | 10 | 15-16-21 50% | 38 | SP | GRAVELLY SAND, POORLY GRADED, 15-25% SUBROUNDED TO ROUNDED GRAVEL TO 1 INCH, MOSTLY MEDIUM TO FINE SAND, LESS THAN 5% NONPLASTIC FINES, SLIGHT REACTION TO HCL, DENSE, WET, BROWN. BLOWS/INCH: 2-2-3-3-2-3 / 3-3-2-3-2-3 / 2-3-4-5-4-4 | | |
| | | S | 11 | 16-16-15 61% | 31 | SP-SM | GRAVELLY SAND, POORLY GRADED, 30-40% SUBROUNDED TO ROUNDED GRAVEL, MOSTLY FINE TO GREATER THAN 1 INCH, COARSE TO FINE SAND, MOSTLY COARSE, 5-10% NONPLASTIC FINES, WITH OCCASIONAL SMALL POCKETS DARK BROWN SANDY SILT, NO REACTION TO HCL, DENSE, DAMP, BROWN. BLOWS/INCH: 2-3-2-3-2-4 / 3-2-3-2-3-3 / 2-3-2-3-2-3 | | |
| 655 | 25 | S | 12 | 21-18-24 61% | 42 | SM | SILTY SAND, UNIFORM, COARSE TO FINE, MOSTLY FINE, 13% NONPLASTIC FINES, BROWN, NO REACTION TO HCL. BLOWS/INCH: 2-4-5-4-3-4 / 2-3-3-3-4-3 / 3-4-3-5-4-5 | | |
| | | S | 13 | 20-22-20 ** | 42 | SP-GF | GRAVELLY SAND, POORLY GRADED, 40-50% SUBROUNDED TO ROUNDED GRAVEL TO GREATER THAN 1 1/2 INCH, COARSE TO FINE SAND, 5-10% NONPLASTIC TO SLIGHTLY PLASTIC FINES, COMPACT TO DENSE, MOIST, SLIGHT REACTION TO HCL, OCCASIONAL POCKETS DARK BROWN SILT, BROWN. BLOWS/INCH: 2-4-3-4-4-3 / 4-3-3-4-4-4 / 3-4-3-3-4-3 | | |
| 650 | 30 | S | 14 | 44-38-29 44% | 67 | GM-GP | TOP 4": SILTY GRAVEL, WIDELY GRADED, SUBANGULAR, ANGULAR, SUBROUNDED GRAVEL TO 1.35 INCH MAXIMUM, 15-30% COARSE TO FINE SAND, 10-15% FINES, BROWN. BOTTOM 4": SILTY GRAVEL, SIMILAR TO ABOVE BUT DAMP, NOT WET AND FLUID, GRAVEL SUBANGULAR TO SUBROUNDED, NOT ANGULAR. BOTH LAYERS, NO APPARENT REACTION TO HCL. BLOWS/INCH: 3-7-13-9-5-7 / 7-6-7-7-5-6 / 7-4-5-5-4-4 | | |
| | | S | 15 | 23-20-22 72% | 42 | SW-SM | GRAVELLY SAND, WELL GRADED, 31% SUBANGULAR GRAVEL TO 0.9 INCH MAXIMUM COARSE TO FINE SAND, 12% NONPLASTIC FINES, BROWN, SLIGHT REACTION TO HCL. BLOWS/INCH: 3-4-4-4-4-4 / 3-4-3-4-3-3 / 4-3-4-3-4-4 | | |
| | | S | 16 | 22-27-30 72% | 57 | GP-GM | TOP 4": GRAVEL, POORLY GRADED, BROKEN ANGULAR TO SUBROUNDED TO 1.3 INCH MAXIMUM, 10-15% COARSE TO FINE SAND, 5-10% FINES, BROWN, VERY WET AND SOUPY FINES. GP-GM BOTTOM 8": SANDY GRAVEL, SUBANGULAR TO SUBROUNDED GRAVEL TO 1.0 INCH MAXIMUM, 35-45% COARSE TO FINE SAND, MOSTLY COARSE, 3-8% FINES, NO REACTION TO HCL. BLOWS/INCH: 1-2-3-4-6-6 / 3-4-4-4-5-7 / 4-5-5-5-4-7 | | |
| 645 | 35 | S | 17 | 21 - 50 5 1/2" | | | NO RECOVERY. BLOWS/INCH: 3-3-4-3-4-4 / 4-6-5-6-7-22 / 1/2" | | |
| | | S | 18 | 18-29-44 61% | 73 | SM-SP | SILTY SAND, WIDELY GRADED, 30-40% SUBANGULAR TO SUBROUNDED GRAVEL TO 1.0 INCH MAXIMUM, COARSE TO FINE SAND, 10-15% SLIGHTLY PLASTIC FINES, BROWN, VERY SLIGHT REACTION TO HCL. BLOWS/INCH: 2-4-3-3-2-4 / 3-3-3-7-6-7 / 7-7-6-8-8-8 | | |
| 641 | 39 | S | 19 | 48-74/6" 8 7/8" | | GM | SILTY GRAVEL, WIDELY GRADED, SUBANGULAR TO SUBROUNDED GRAVEL TO 1.0 INCH MAXIMUM, 25-35% COARSE TO FINE SAND, 20-30% SLIGHTLY PLASTIC FINES, BROWN, MODERATE REACTION TO HCL. BLOWS/INCH: 6-5-7-10-11 / 11-11-14-12-11-15 | | |
| 640 | 40 | | | | | | END OF BORING AT 39.0 FEET. | | |

311036

NOTE: FOR BORING SUMMARY AND
LEGEND INFO SEE SHEET 1.



STONE & WEBSTER ENG. CORP.

ISSUED BY

DATE

2/13/96

BORING NO.

B-3024

SHEET

2 OF 2

12241-GSK-1538

AMENDMENT 3

S / LOCATION BEAVER VALLEY POWER STATION - UNIT NO. 2 J.O. NO. 12241 BORING B-5011
 COORDINATES N 3892.7 E 8022.5 GROUND ELEV (H) 716.5 SHEET 1 OF 4
 INCLINATION VERTICAL BEARING _____ LOGGED BY W. HANSMIRE/R. J. VET
 DATE: START / FINISH 8/6/76 / 8/8/76 CONTRACTOR / DRILLER PENN DRILLING
 STATIC GROUNDWATER DEPTH / DATE 49.5 FEET / 8/8/76 DRILL RIG TYPE _____
 DEPTH TO BEDROCK _____ TOTAL DEPTH DRILLED 78.0 FEET
 METHODS:
 DRILLING SOIL 3 1/8" ROLLER BIT TO ADVANCE HOLE
 SAMPLING SOIL 2.0" O.D. SPLIT SPOON
 DRILLING ROCK _____
 SPECIAL TESTING OR INSTRUMENTATION _____
 REMARKS _____

| ELEVATION (FEET) | DEPTH (FEET) | SAMPLE TYPE | SAMPLE NUMBER | BLOWS(2) OR U.D.S. PENETRATION(3) | SPT N VALUES OR U.D.S. REC(4) | GROUP SYMBOL(5) | SAMPLE DESCRIPTION | FIELD AND LAB TEST RESULTS / COMMENTS |
|---------------------|-----------------|----------------|------------------|---|----------------------------------|-----------------|--|---|
| | | | | % REC. | | | BLOWS/INCH 1/16, 2/3, 2-2-2/3-4-4-4-4 | |
| 715 | | S | 1 | 1-8-23 33% | 31 | GW- GM | SANDY GRAVEL, WELL GRADED, SUBROUNDED (SOME FRESHLY FRACTURED) TO 1.2 INCH MAXIMUM, 39% COARSE TO FINE SAND, 7% NONPLASTIC FINES, DARK BROWN, STRONG REACTION TO HCl | |
| | | S | 2 | 10-21-28 78% | 49 | SP | BLOWS/INCH 1-1-2-2-2-2/3-3-3-3-3-3-4-5-5-5-4-5 GRAVELLY SAND, BOTTOM 4 INCHES BROKEN PIECES OF GRAVEL TO 1.5 INCHES, TOP 10 INCHES MEDIUM SAND, POORLY GRADED; BROWN | |
| 5 | | S | 3 | 24-33-45 67% | 78 | SP | BLOWS/INCH 24/6, 5-6-5-5-5-7/8-9-7-7-7-7 GRAVELLY SAND, POORLY GRADED, 30% GRAVEL, 0.25 INCH TO 1 INCH, ROUNDED, LIGHT BROWN | |
| 710 | | S | 4 | 12-30-23 67% | 53 | GP GM | BLOWS/INCH 12/6, 5-5-5-5-5-5-4-4-4-3-4-4 SANDY GRAVEL, POORLY GRADED, SUBROUNDED TO 1.0 INCH MAXIMUM, 33% COARSE TO FINE, MOSTLY FINE SAND, 6% NONPLASTIC FINES, BROWN, STRONG REACTION TO HCl | |
| | | S | 5 | 18-34-35 61% | 69 | SW | BLOWS/INCH 18/6, 5-5-5-6-7-6/7-5-6-6-6-5 GRAVELLY SAND, WELL GRADED, 10 TO 25% GRAVEL TO 1 INCH, FINE TO COARSE SAND, LESS THAN 5% NONPLASTIC FINES, BROWN, 0.2 INCH LIGNITE LAYER, BLACK (LAB SAMPLE CONTAINS LIGNITE) | |
| 10 | | | 6 | 23-23-31 67% | 54 | SP | BLOWS/INCH 23/6, 4-4-5-3-3-3/4-4-4-5-5-7-6 GRAVELLY SAND, POORLY GRADED: 30% ROUNDED AND SUBANGULAR GRAVEL TO 1 INCH; MEDIUM TO COARSE SAND, BROWN, 1 INCH LIGNITE LAYER AT BOTTOM OF SAMPLE, LESS THAN 10% NONPLASTIC FINES | |
| 705 | | S | 7 | 17-24-22 67% | 46 | GP- GM | BLOWS/INCH 2-3-2-3-4-3/4-3-4-4-5-4/4-3-4-3-4-4 SANDY GRAVEL, POORLY GRADED, SUBANGULAR TO SUBROUNDED (SOME FRESHLY FRACTURED) TO 1.0 INCH MAXIMUM, 38% COARSE TO FINE, MOSTLY FINE SAND, 8% NONPLASTIC FINES, BROWN, STRONG REACTION TO HCl | |
| 15 | | S | 8 | | | | BLOWS/INCH 4-3-3-4-3-3/2-3-5-6-5-9/8-5-6-7-8-8 GRAVELLY SAND, POORLY GRADED; 3 INCHES OF BROKEN UP ROCK | |

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|----------------|--|---|---|
| LEGEND / NOTES | S_ SPLIT BARREL SAMPLE UNDISTURBED SAMPLES (U.D.S.) US_ SHELBY TUBE UF_ FIXED PISTON UO_ OSTERBERG UD_ DENISON UP_ PITCHER N_ STD PENETRATION RESISTANCE BLOWS/FT - GROUNDWATER | 1. DATUM IS MEAN SEA LEVEL UNLESS OTHERWISE INDICATED 2. BLOWS REQUIRED TO DRIVE 2" O.D. SAMPLE SPOON 6" OR DISTANCE SHOWN USING 140 lb HAMMER FALLING 30" * INDICATES USE OF 300 lb HAMMER 3. DENOTES INCHES OF PENETR OF UNDISTURBED SAMPLER 4. DENOTES INCHES OF UNDISTURBED SAMPLE RECOVERY 5. UNIFIED SOIL CLASSIFICATION SYSTEM | BORING LOG BEAVER VALLEY POWER STATION - UNIT NO. 2 DUQUESNE LIGHT COMPANY PITTSBURGH, PENNSYLVANIA 12241-GSK-157A STONE & WEBSTER ENG. CORP. ISSUED BY <u> </u> DATE <u>8/15/1916</u> BORING NO <u>B-5011</u> SHEET <u>1</u> OF <u>4</u> |
|----------------|--|---|---|

| SITE / LOCATION <u>BEAVER VALLEY POWER STATION - UNIT NO. 2</u> J.O. NO. <u>12241</u> | | | | | | | | | | BORING <u>2-5011</u> | |
|---|--------------|-----------|---------------|------------------|----------------|----------------------------|--------------|--|---------------------------------------|----------------------------|--|
| | | | | | | | | | | SHEET <u>2</u> OF <u>4</u> | |
| ELEV. (FEET) | DEPTH (FEET) | SAM. TYPE | SAMPLE NUMBER | BLOWS (2) OR UDS | PENETRATION(3) | SPT N VALUES OR UDS REC(4) | GROUP S. (5) | SAMPLE DESCRIPTION | FIELD AND LAB TEST RESULTS / COMMENTS | | |
| 700 | 15 | S | 8 | 20-30-42 56% | 72 | SP | | (WHITE WITH STRONG HCl REACTION); MEDIUM SAND, SOME SILTY FINE SAND AT BOTTOM OF SAMPLE; .25 INCH LIGNITE LAYER IMMEDIATELY ABOVE PIECE OF ROCK; SAND PORTIONS OF SAMPLE BROWN. | | | |
| | | S | 9 | 17-23-39 56% | 62 | SM | | BLOWS/INCH 2-2-4-4-2-3/3-2-3-4-5-6/5-8-7-5-7-7 GRAVELLY SAND, GRAVEL TO 1.5 INCHES, FINE SAND, 5 TO 25% NONPLASTIC FINES, BROWN AND GRAY; STRONG HCl REACTION | | | |
| | | S | 10 | 29-26-42 56% | 68 | GM | | BLOWS/INCH 5-5-4-4-5-6/6-3-4-5-3-5/6-6-5-8-8-9 SANDY GRAVEL, POORLY GRADED, ANGULAR (FRESHLY FRACTURED) TO 0.9 INCH MAXIMUM, 38% COARSE TO FINE, MOSTLY COARSE AND FINE SAND, 9% NONPLASTIC FINES, BROWN, STRONG REACTION TO HCl NOTE: THE HIGH AMOUNT OF COARSE SAND IS DUE TO THE FRACTURED GRAVEL | | | |
| 695 | 20 | S | 11 | 23-26-47 67% | 75 | SM | | BLOWS/INCH 3-4-4-3-4-4/4-5-5-5-4-5/7-7-9-9-8 SILTY, GRAVELLY SAND, POORLY GRADED; GRAVEL 0.2 INCH TO 1 INCH, MEDIUM SAND; 25% NONPLASTIC FINES; BROWN, HIGH HCl REACTION | | | |
| | | S | 12 | 23-18-14 56% | 32 | SM | | BLOWS/INCH 4-3-4-4-4-4/4-4-3-2-3-2/2-2-3-2-2-3 SILTY SAND, UNIFORM, FINE, 23% NONPLASTIC FINES, BROWN, STRONG REACTION TO HCl | | | |
| | | S | 13 | 22-28-34 56% | 62 | SW | | BLOWS/INCH 1-3-6-4-4-4/5-4-4-4-6-5/5-5-6-5-6-7 GRAVELLY SAND, WELL GRADED; 30% ROUNDED GRAVEL TO .75 INCH; MEDIUM TO COARSE SAND; SOME SILTY FINE SAND IN POCKETS, LESS THAN 10% PLASTIC FINES IN BOTTOM PART OF SAMPLE. | | | |
| 690 | 25 | S | 14 | 22-18-17 50% | 35 | GP | | BLOWS/INCH 1-5-4-4-4-4/3-4-3-3-2-3/3-2-3-4-2 SANDY GRAVEL, POORLY GRADED; 70% SUBROUNDED GRAVEL TO 1.25 INCH, FINE TO COARSE SAND, LESS THAN 10% NONPLASTIC FINES, BROWN, STRONG REACTION TO HCl. | | | |
| | | S | 15 | 18-23-20 67% | 43 | GM | | BLOWS/INCH 2-3-3-4-3-3/3-3-5-4-4-4/4-2-4-4-3-3 SANDY GRAVEL, POORLY GRADED, ANGULAR (FRESHLY FRACTURED) TO 1.3 INCH MAXIMUM, 29% COARSE TO FINE, MOSTLY FINE SAND, 7% NONPLASTIC FINES, BROWN, STRONG REACTION TO HCl, SOME LIGNITE | | | |
| | | S | 16 | 16-22-41 56% | 63 | GP | | BLOWS/INCH 2-4-3-3-2-2/1-2-2-4-7-6/6-8-7-6-6-8 TOP 7.0 INCHES - SAND, UNIFORM, FINE SAND, 3 TO 8% NONPLASTIC FINES, BROWN BOTTOM 3.0 INCHES - SANDY GRAVEL, FRACTURED GRAVEL TO 1.25 INCH, MAXIMUM, 20 TO 35% MOSTLY FINE SAND, 2 TO 5% NON-PLASTIC FINES, LIGHT BROWN WITH MOSTLY GREEN GRAVEL | | | |
| 685 | 30 | S | 17 | 18-19-18 56% | 37 | GM | | BLOWS/INCH 1-4-3-3-4-3/4-4-3-3-2-3/3-3-2-3-4-4 SANDY GRAVEL, WELL GRADED, ANGULAR, TO 1.1 INCH MAXIMUM, 42% COARSE TO FINE SAND, 10% NONPLASTIC FINES, BROWN, STRONG REACTION TO HCl, POCKET OF LIGNITE | | | |
| | | S | 18 | 28-25-26 ** | 51 | SP | | BLOWS/INCH 6-5-4-4-5-4/5-5-4-4-5-5/5-4-3-4-4-4 NO RECOVERY - 2 INCHES GRAVEL IN TIP OF SPOON SECOND DRIVE - GRAVELLY SAND, POORLY GRADED, 20-35% GRAVEL TO 0.75 INCHES MAXIMUM, MOSTLY MEDIUM TO COARSE SAND, 3-8% NON-PLASTIC FINES, LIGHT BROWN, MODERATE HCl REACTION TO FINES AND SOME PARTICLES | | | |
| | | S | 19 | 33-41-40 61% | 81 | GM | | BLOWS/INCH 4-6-6-5-6-6/8-8-7-7-6-6/6-6-7-6-6-9 SANDY GRAVEL, WIDELY GRADED, FRESH TO HIGHLY WEATHERED GRAVEL TO 1.5 INCHES MAXIMUM, COARSE TO FINE SAND, MOSTLY MEDIUM TO COARSE, 8-12% NONPLASTIC TO VERY SLIGHTLY PLASTIC FINES (WEATHERED GRAVELS), BROWN, SLIGHT REACTION OF HCl IN FINES | | | |
| 680 | 35 | S | 20 | 27-28-27 61% | 55 | GM | | BLOWS/INCH 3-5-5-4-5/6-6-5-4-4-5/5-3-6-5-4-4 SANDY GRAVEL, POORLY GRADED, ANGULAR (FRESHLY FRACTURED) TO 0.9 INCH MAXIMUM, 33% COARSE TO FINE, MOSTLY FINE SAND, 12% NONPLASTIC FINES, BROWN, STRONG REACTION TO HCl | | | |
| | | S | 21 | 23-26-21 44% | 47 | SP | | BLOWS/INCH 2-3-3-5-4-6/5-4-4-4-5-4/4-3-3-4-3-4 GRAVELLY SAND, POORLY GRADED, 20-30% GRAVEL TO 1.0 INCH MAXIMUM, COARSE TO FINE SAND, MOSTLY MEDIUM TO COARSE, 5-10% NONPLASTIC FINES, BROWN, SLIGHT REACTION TO HCl | | | |
| | | S | 22 | 18-25-35 56% | 60 | GM | | BLOWS/INCH 3-4-3-3-2-3/5-3-3-5-4-5/5-5-6-7-6-6 SANDY GRAVEL, WELL GRADED, SUBANGULAR TO 1.3 INCHES MAXIMUM, 44% COARSE TO FINE SAND, 10% NONPLASTIC FINES, BROWN, STRONG REACTION TO HCl, SOME LIGNITE | | | |
| 675 | 40 | S | 23 | 14-16-22 61% | 38 | SP | | BLOWS/INCH 2-2-2-3-2-3/2-2-3-2-3-4/4-2-4-4-4-4 SAND, UNIFORM, ONE 0.5 INCH GRAVEL, FINE SAND, 2 TO 5% FINES, LIGHT BROWN | | | |

NOTE: FOR BORING SUMMARY AND LEGEND INFO SEE SHEET 1



STONE & WEBSTER ENG. CORP

ISSUED BY

DATE

9/15/1976

BORING NO

B-5011

SHEET

2 OF 4

| SITE / LOCATION | | | | | | | | | | BEAVER VALLEY POWER STATION - UNIT NO. 2 | | J.O. NO. 12241 | | BORING B-5011 | | SHEET 3 OF 4 | |
|---------------------|-----------------|----------------|------------------|---------------------------------------|--------------------------------|---------------------|---|--|--|--|--|----------------|--|---------------|--|--------------|--|
| ELEVATION (FEET) | DEPTH (FEET) | SAMPLE TYPE | SAMPLE NUMBER | BLOWS (2) OR UDS PENETRATION(3) | SPT N VALUES OR UDS RECI(4) | GROUP SYMBOL (5) | SAMPLE DESCRIPTION | | | FIELD AND LAB. TEST RESULTS / COMMENTS | | | | | | | |
| 670 | 45 | S | 24 | 19-28-31 56% | 59 | SP | BLOWS/INCH 2-3-3-3-4-4/4-4-5-5-6-6/6-6-4-5-5-5 SAND, UNIFORM, FINE SAND, 2 TO 5% FINES, LIGHT BROWN, FEW THIN LAYERS WITH 5 TO 10% FINES, NO REACTION TO HCL | | | | | | | | | | |
| | | S | 25 | 23-20-18 56% | 38 | SM | BLOWS/INCH 4-3-5-4-3-4/3-3-3-4-3-4/3-3-3-3-3-3 TOP: SILTY SAND, WIDELY GRADED, 31% MOSTLY SUBANGULAR GRAVEL TO 0.8 INCH MAXIMUM, COARSE TO FINE, MOSTLY MEDIUM TO FINE SAND, 14% NONPLASTIC FINES, BROWN, SLIGHT REACTION TO HCL, SOME LIGNITE | | | | | | | | | | |
| | | | | | | SC | BOTTOM: CLAYEY SAND, WIDELY GRADED, 19% SUBANGULAR TO SUBROUNDED GRAVEL TO 0.8 INCH MAXIMUM, COARSE TO FINE SAND, 23% SLIGHTLY PLASTIC FINES, BROWN, NO REACTION TO HCL | | | | | | | | | | |
| 66 | 50 | S | 26 | 23-25-29 11% | 54 | GC | BLOWS/INCH 4-4-3-3-5-4/3-5-3-4-6-4/5-4-5-5-5-5 CLAYEY GRAVEL, WIDELY GRADED, MOSTLY COARSE, ANGULAR TO 1.2 INCH MAXIMUM, 41% COARSE TO FINE, MOSTLY FINE SAND, 17% SLIGHTLY PLASTIC FINES, BROWN, SLIGHT REACTION TO HCL | | | | | | | | | | |
| | | S | 27 | 26-27-26 67% | 53 | GP | BLOWS/INCH 2-4-5-5-4-6/5-5-5-4-4-4/6-4-3-4-5-4 SANDY GRAVEL, POORLY GRADED, ROUNDED AND SHATTERED GRAVEL TO 1.25 INCH MAXIMUM, 30 TO 40% COARSE TO FINE SAND, MOSTLY COARSE TO MEDIUM, 2 TO 5% NONPLASTIC FINES, LIGHT BROWN WITH MULTICOLORED GRAVEL, SOME GRAVEL MODERATELY WEATHERED, NO REACTION TO HCL | | | | | | | | | | |
| | | S | 28 | 32-46-33 56% | 79 | GP-GM | BLOWS/INCH 4-4-5-7-6-6/9-8-8-8-6-7/6-5-6-6-6-4 SANDY GRAVEL, POORLY GRADED, ANGULAR, TO 1.3 INCH MAXIMUM, 34% COARSE TO FINE, MOSTLY FINE SAND, 8% NONPLASTIC FINES, BROWN, SLIGHT REACTION TO HCL | | | | | | | | | | |
| 660 | | S | 29 | 34-39-48 56% | 87 | GP-GM | BLOWS/INCH 5-6-6-6-5/7-5-7-7-7-6/7-8-7-9-8-9 SANDY GRAVEL, POORLY GRADED, ROUNDED AND SHATTERED GRAVEL TO 1.5 INCH MAXIMUM, 30 TO 40% COARSE TO FINE SAND, MOSTLY COARSE TO MEDIUM, 8 TO 12% VERY SLIGHTLY PLASTIC FINES TOP TO 3 TO 5% FINES, BOTTOM, LIGHT BROWN WITH MULTICOLORED GRAVELS, MANY MODERATELY WEATHERED GRAVEL PARTICLES, NO REACTION TO HCL | | | | | | | | | | |
| | | S | 30 | 35-35-31 ** | 66 | GP-GM | BLOWS/INCH 5-5-5-5-5/5-5-5-5-5/6-5-6-6-4-7/4-5-5-6-6-5 SANDY GRAVEL, POORLY GRADED, MOSTLY ROUNDED GRAVEL TO 1.25 INCH MAXIMUM, COARSE TO FINE SAND, MOSTLY COARSE TO MEDIUM, 3 TO 8% NONPLASTIC FINES, LIGHT BROWN, NO REACTION TO HCL, FEW MODERATELY WEATHERED GRAVEL PARTICLES | | | | | | | | | | |
| 655 | 60 | S | 31 | 74-55-34 17% | 89 | GP | BLOWS/INCH 10-16-13-13-12-10/12-9-9-9-8-8/8-4-6-6-5-5 GRAVEL, ROUNDED 1.5 INCH PIECE OF GRAVEL (POOR RECOVERY) | | | | | | | | | | |
| | | S | 32 | 37-49-25 22% | 74 | SM | BLOWS/INCH 4-9-5-3-8-8/16-10-7-6-6-4/4-5-4-5-4-3 SILTY SAND, WIDELY GRADED, 27% SUBROUNDED GRAVEL TO 0.7 INCH MAXIMUM, COARSE TO FINE, MOSTLY FINE SAND, 23% SLIGHTLY PLASTIC FINES, BROWN, SLIGHT REACTION TO HCL | | | | | | | | | | |
| 65 | | S | 33 | 26-29-26 67% | 55 | SP-SM | BLOWS/INCH 3-4-4-5-5-5/6-5-5-4-4-5/5-4-4-4-5-4 GRAVELLY SAND, POORLY GRADED, 25% GRAVEL TO 1.5 INCH MAXIMUM, MOSTLY LESS THAN 0.5 INCH ROUNDED, SOME BROKEN ANGULAR PIECES, MEDIUM SAND, 5 TO 12% NONPLASTIC FINES, BROWN, NO REACTION TO HCL | | | | | | | | | | |
| 650 | | S | 34 | 25-29-26 11% | 55 | GW-GM | BLOWS/INCH 1-3-5-6-4-6/7-5-4-5-4-4/4-4-4-5-5-4 SANDY GRAVEL, WELL GRADED, SUBANGULAR TO SUBROUNDED TO 1.3 INCH MAXIMUM, 76% COARSE TO FINE SAND, 9% NONPLASTIC FINES, LIGHT BROWN, SLIGHT REACTION TO HCL | | | | | | | | | | |
| | | S | 35 | 27-31-23 11% | 54 | GW-GM | BLOWS/INCH 3-3-6-4-6-5/6-5-6-5-5-4/4-4-4-3-5-3 SANDY GRAVEL (SIMILAR TO ABOVE SAMPLE - SAMPLE POSSIBLY NOT REPRESENTATIVE OF SOIL AT DEPTH - POSSIBLY MOSTLY WASH, 1.5 INCH GRAVEL WEDGED IN SHOE) | | | | | | | | | | |
| 645 | 70 | S | 36 | 39-52-60 78% | 112 | SP | BLOWS/INCH 6-6-6-7-8-6/7-8-9-9-9-10/10-9-9-1-10-10 GRAVELLY SAND, POORLY GRADED, GRAVEL ROUNDED AND SUBANGULAR TO 0.5 INCH MAXIMUM SIZE; MEDIUM TO FINE SAND, BROWN, TRACE FINES, NO REACTION TO HCL | | | | | | | | | | |
| | | S | 37 | 30-48-44 9% | 92 | GP | BLOWS/INCH 3-5-8-6-4-4/4-6-8-14-10-6/6-7-7-8-7-9 GRAVEL, 1.5 INCH GRAVEL WEDGED IN BOTTOM OF SHOE: FINE SAND, TRACE SILT, BROWN | | | | | | | | | | |
| 75 | | SS | 38 | 12-17-25 78% | 42 | ML | BLOWS/INCH 1-2-3-2-2-2/3-2-3-3-3-3/3-4-5-4-3-4 SANDY SILT, NONPLASTIC TO SLIGHTLY PLASTIC, 5% GRAVEL TO 0.8 INCH MAXIMUM, 28% FINE SAND, VERY STIFF, BROWN, STRONG REACTION TO HCL NOTE: GRAVEL CONSISTS OF JUST ONE PIECE | | | | | | | | | | |

NOTE: FOR BORING SUMMARY AND
LEGEND INFO SEE SHEET 1



STONE & WEBSTER ENG. CORP.

ISSUED BY
C.A.

DATE
2/15/1976

BORING NO.
B-5011

SHEET
3 OF 4

12241-GSK-1570

AMENDMENT 3

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