

REPORT OF MONITORING WELL INSTALLATION

**DREDGE CELL DIKE RESTORATION
TVA KINGSTON FOSSIL PLANT
KINGSTON, TENNESSEE**

Prepared For:

TENNESSEE VALLEY AUTHORITY

Chattanooga, Tennessee

Prepared By:

MACTEC ENGINEERING AND CONSULTING, INC.

Knoxville, Tennessee

MACTEC Project 3043051046.01

September 16, 2005





engineering and constructing a better tomorrow

September 16, 2005

Mr. Ron Purkey
Tennessee Valley Authority
1101 Market Street, LP-2G
Chattanooga, TN 37402

Phone: (423) 751-4820
Fax: (423) 751-7094

Subject: **Report of Monitoring Well Installation
Dredge Cell Dike Restoration
TVA Kingston Fossil Plant
Kingston, Tennessee
MACTEC Project 3043051046.01**

Dear Mr. Purkey:

MACTEC Engineering and Consulting, Inc., (MACTEC) is pleased to submit this Report of Monitoring Well Installation for the dredge cell restoration performed at the Tennessee Valley Authority (TVA) Kingston Fossil Plant near Kingston, Tennessee. Our services, as authorized through TAO No. MAC-0733-00091, were provided in general accordance with our proposal number Prop05Knox/184 dated June 7, 2005.

This letter report reviews the project information provided to us and discusses the well installation field services. A Site Location Map, Monitoring Well Location Plan, and Monitoring Well Installation Records are also provided.

Project Information

Project information was provided by TVA via telephone conversations and through design drawings. Based on discussions with Mr. Brad Workman with TVA, we understand that TVA requested that MACTEC provide monitoring well installation field services for design activities associated with the ash disposal area. The field services included the installation of six (Type I) 1-inch PVC monitoring wells in accordance with the provided design drawings.

Monitoring Well Installation

The monitoring wells (MW-10 through MW-15) were installed at the approximate locations shown on Figure 2, Boring Location Plan. The coordinates for the proposed well locations, as well as the proposed well depths and screen intervals were provided by PEC. The locations were surveyed and staked in the field by TVA. Each monitoring well consisted of a 1-inch I.D., schedule 40 PVC pipe with a 5-foot screen length. The screens were double-density and slotted at 0.010-inch. The total depth of the wells ranged from 30.0 to 45.0 feet. The depths of the screens ranged from 24.8 to 29.8 feet and 39.8 to 44.8 feet. The Type I Monitoring Well Installation Records are included in Appendix B. A summary of the well installation is presented in Table 1.

| Table 1 Monitoring Well Summary | | | | | | |
|--|--|---------------------------|---------------------|----------------------|-------------------------|--------------------------|
| Well Number | Ground Surface Elevation (feet msl) | Total Depth (feet) | Screen Depth | | Screen Elevation | |
| | | | Top (feet) | Bottom (feet) | Top (feet msl) | Bottom (feet msl) |
| MW-10 | 810 | 45.0 | 39.8 | 44.8 | 770.2 | 765.2 |
| MW-11 | 786 | 45.0 | 39.8 | 44.8 | 746.2 | 741.2 |
| MW-12 | 779 | 30.0 | 24.8 | 29.8 | 754.2 | 749.2 |
| MW-13 | 804 | 45.0 | 39.8 | 44.8 | 764.2 | 759.2 |
| MW-14 | 784 | 45.0 | 39.8 | 44.8 | 744.2 | 739.2 |
| MW-15 | 771 | 30.0 | 24.8 | 29.8 | 746.2 | 741.2 |

Prepared/Date: CTJ 9/16/05
 Checked/Date: CDT 9/16/05

Ground-Water Conditions

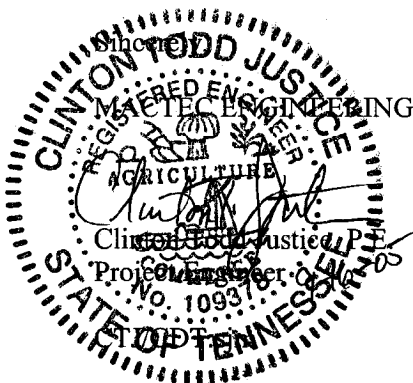
Ground-water levels were observed at the time of well installation and at approximately 24-hours after well installation. The recorded ground-water levels are presented in Table 2.

Table 2
Ground-Water Data

| Well Number | Ground Elevation (feet msl) | Depth to Ground Water at Time of Installation (feet) | Ground-Water Elevation at Time of Installation (feet msl) | Depth to Ground Water 24 Hours After Drilling (feet) | Ground-Water Elevation 24 Hours After Drilling (feet) |
|-------------|-----------------------------|--|---|--|---|
| MW-10 | 810 | 44.5 | 765.5 | 44.6 | 765.4 |
| MW-11 | 786 | 23.6 | 762.4 | 23.0 | 763.0 |
| MW-12 | 779 | 14.9 | 764.1 | 14.6 | 764.4 |
| MW-13 | 804 | 32.4 | 771.6 | 32.4 | 771.6 |
| MW-14 | 784 | 17.3 | 766.7 | 17.3 | 766.7 |
| MW-15 | 771 | 5.3 | 765.7 | 5.8 | 765.2 |

Prepared/Date: CTJ 9/16/05
 Checked/Date: CDT 9/16/05

We will be pleased to discuss our data with you and would welcome the opportunity to provide the engineering and material testing services needed to successfully complete your project.



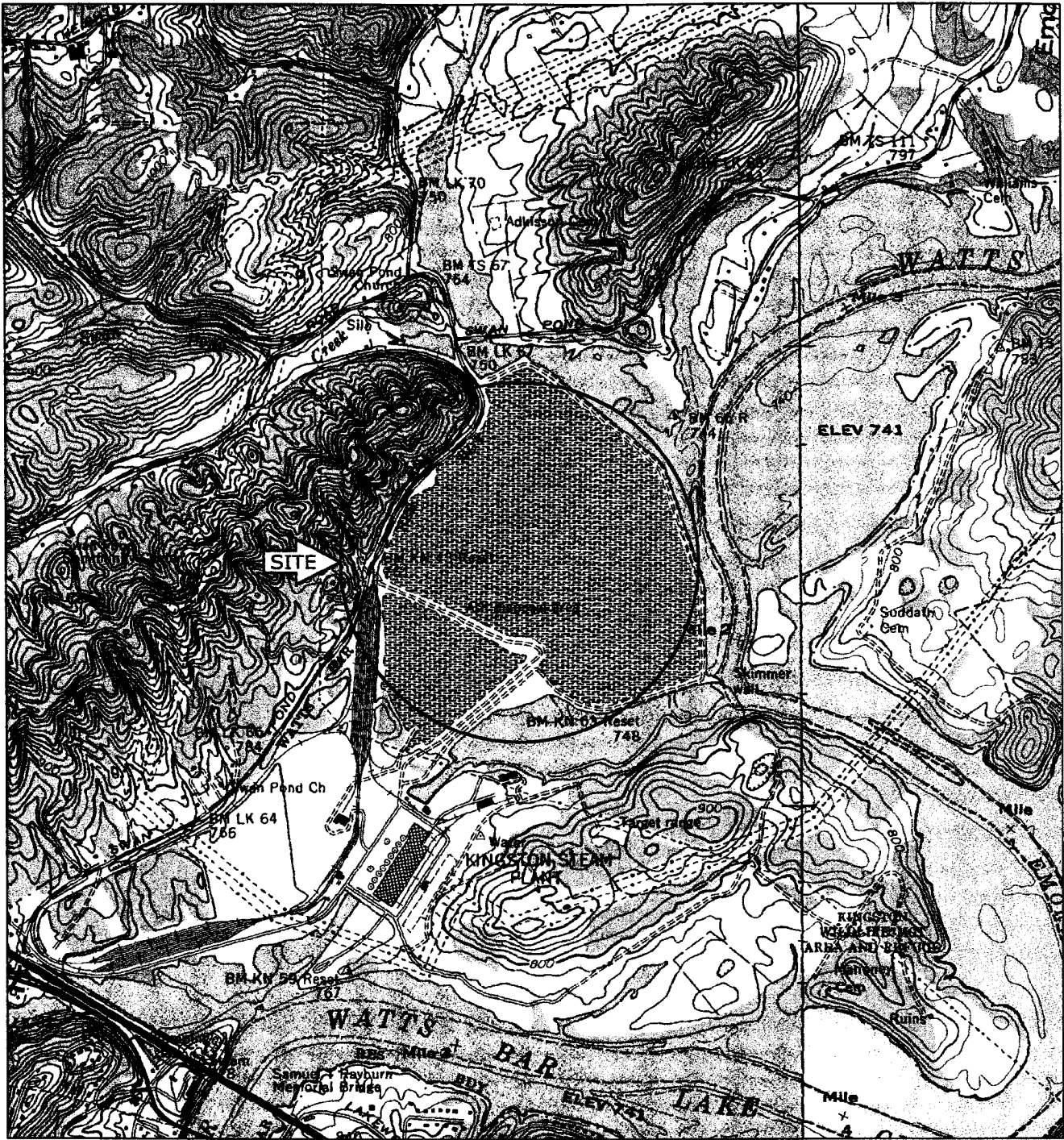
MACTEC ENGINEERING AND CONSULTING, INC.

Carl D. Tockstein, P.E.
 Chief Engineer – Tennessee Operations

Attachments: Figures
 Appendix A – Type I Monitoring Well Installation Records

cc: Mr. Lynn Petty
 TVA Chattanooga

FIGURES



SOURCE: USGS TOPOGRAPHIC MAPS OF HARRIMAN AND ELVERTON, TN QUADRANGLES

**FIGURE 1: SITE LOCATION MAP
TVA - KINGSTON FOSSIL PLANT
MONITORING WELL INSTALLATION
DREDGE CELL DIKE RESTORATION
KINGSTON, TENNESSEE**



MACTEC Engineering and Consulting, Inc.
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Knoxville, Tennessee 37921-5904
865-588-8544 • Fax: 865-588-8026

DRAFTING BY: *[Signature]*
JOB NUMBER:
3043051046/0001

PREPARED BY: *[Signature]*
DATE:
SEPTEMBER 13, 2005

CHECKED BY: *[Signature]*
SCALE:
0 2000'

COORDINATES: N 35.90984°
W 84.51121°

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APPENDIX A

TYPE I MONITORING WELL INSTALLATION RECORDS

TYPE I PIEZOMETER INSTALLATION RECORD

JOB NAME TVA KINGSTON WELL INSTALLATION

JOB NUMBER 3043051046/0001

TVA WELL NUMBER MW-10

INSTALLATION DATE 09/07/2005

AUGER DIAMETER 3 1/4" (I.D.), 6 1/4" (O.D.)

DRILLED BY G. AKINS

TOTAL DEPTH 45.0'

RISER/SCREEN

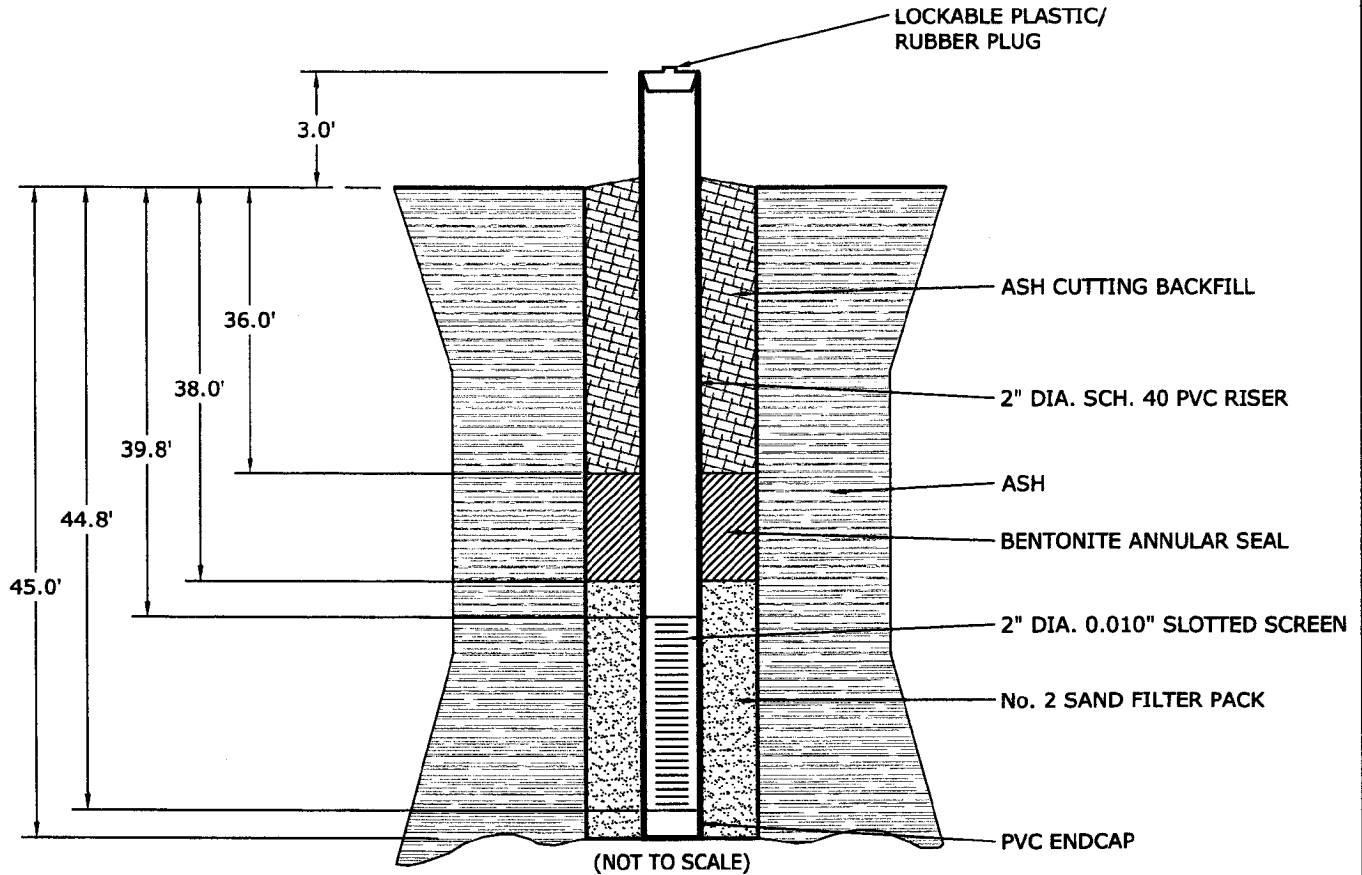
FIELD REPRESENTATIVE NATE PETERSON

MATERIAL SCHEDULE 40 PVC

DIAMETER 1.0"

SLOT SIZE 0.010"

CTJ



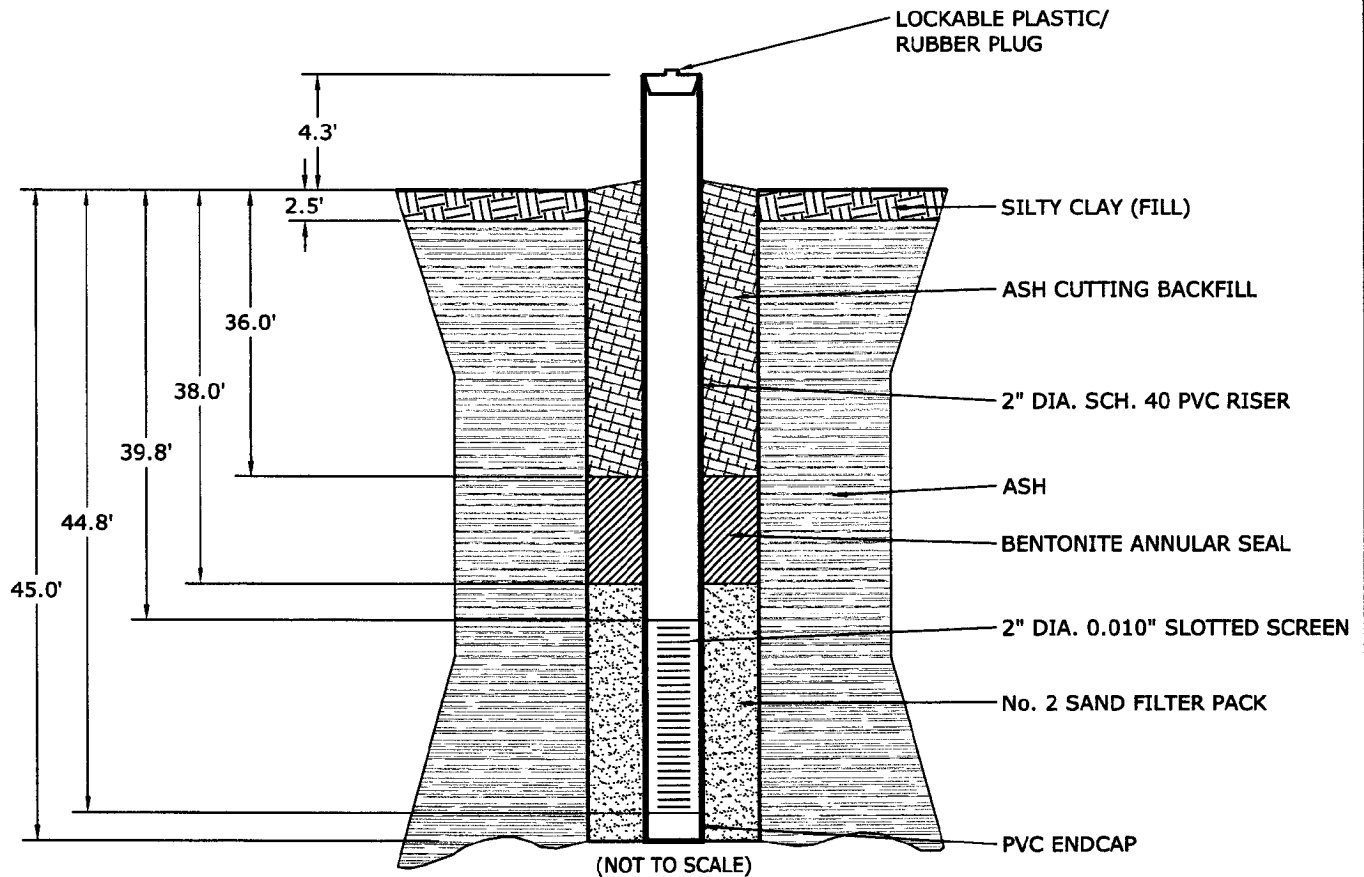
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TYPE I PIEZOMETER INSTALLATION RECORD

JOB NAME TVA KINGSTON WELL INSTALLATION
 TVA WELL NUMBER MW-11
 AUGER DIAMETER 3 1/4" (I.D.), 6 1/4" (O.D.)
 TOTAL DEPTH 45.0'
 FIELD REPRESENTATIVE NATE PETERSON

JOB NUMBER 3043051046/0001
 INSTALLATION DATE 09/06/2005
 DRILLED BY G. AKINS
 RISER/SCREEN
 MATERIAL SCHEDULE 40 PVC
 DIAMETER 1.0"
 SLOT SIZE 0.010"

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TYPE I PIEZOMETER INSTALLATION RECORD

JOB NAME TVA KINGSTON WELL INSTALLATION

JOB NUMBER 3043051046/0001

TVA WELL NUMBER MW-12

INSTALLATION DATE 09/06/2005

AUGER DIAMETER 3 1/4" (I.D.), 6 1/4" (O.D.)

DRILLED BY G. AKINS

TOTAL DEPTH 30.0'

RISER/SCREEN

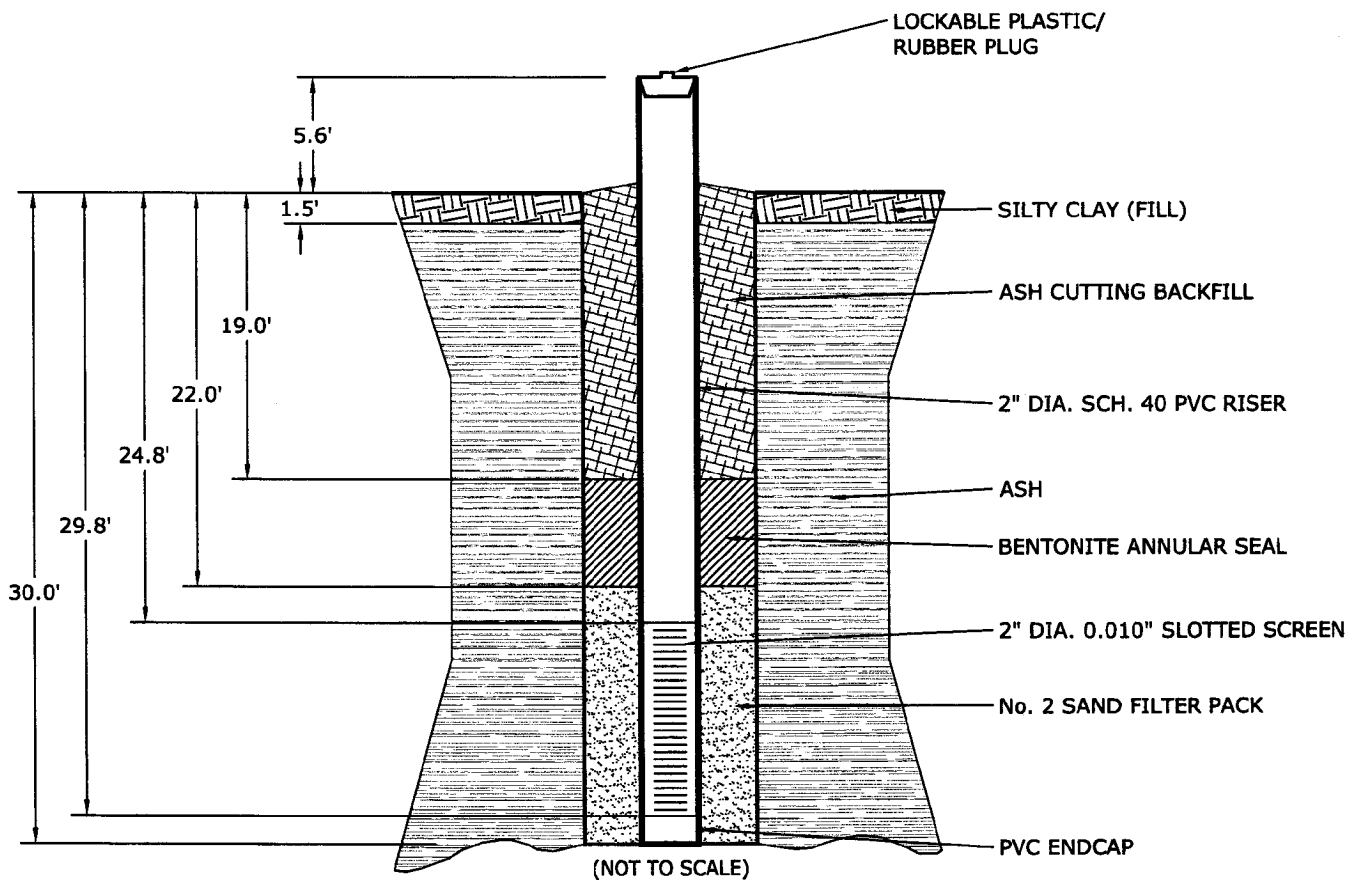
FIELD REPRESENTATIVE NATE PETERSON

MATERIAL SCHEDULE 40 PVC

DIAMETER 1.0"

SLOT SIZE 0.010"

ctj

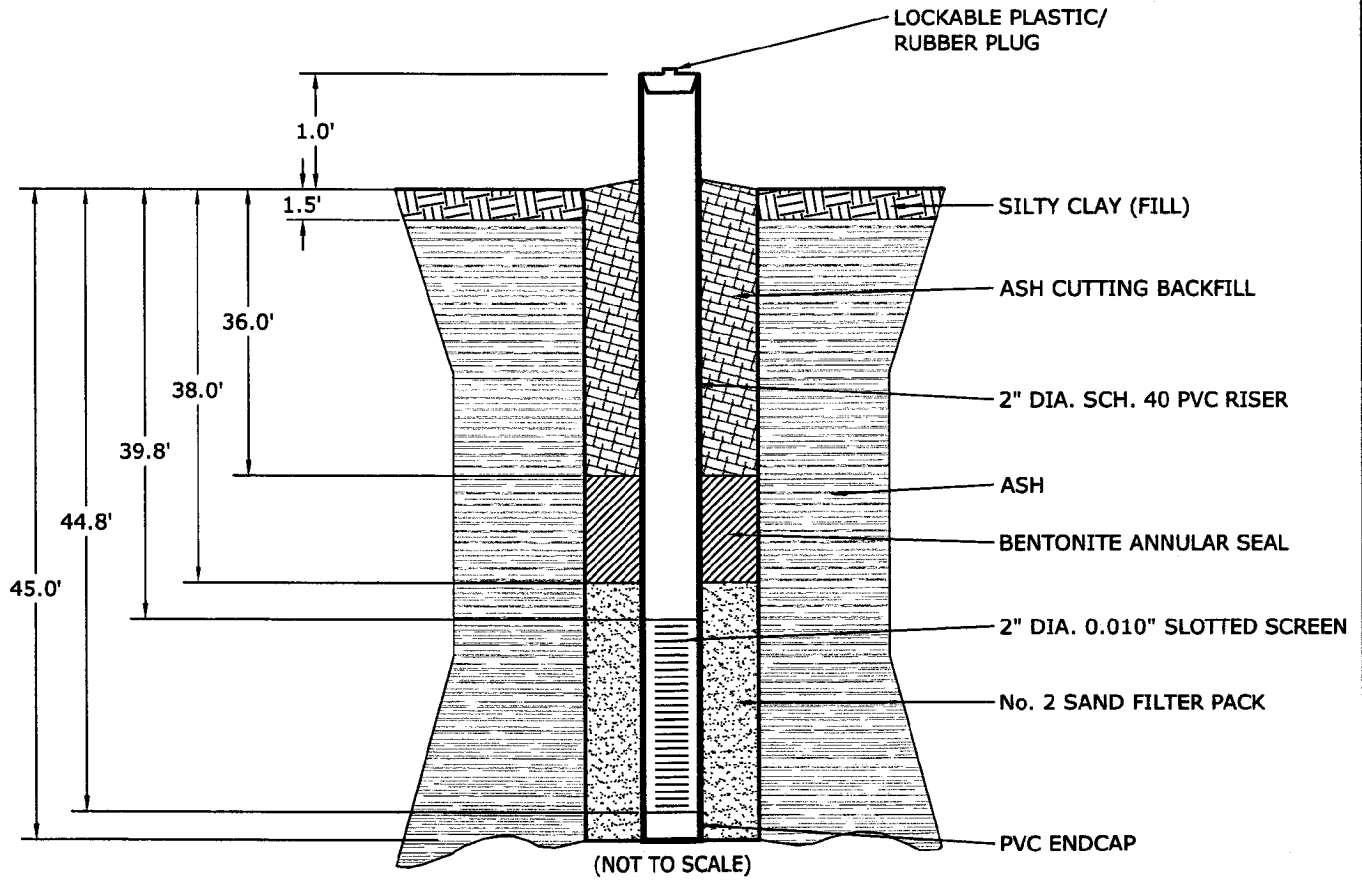


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TYPE I PIEZOMETER INSTALLATION RECORD

| | |
|---|--|
| JOB NAME <u>TVA KINGSTON WELL INSTALLATION</u> TVA WELL NUMBER <u>MW-13</u> AUGER DIAMETER <u>3 1/4" (I.D.), 6 1/4" (O.D.)</u> TOTAL DEPTH <u>45.0'</u> FIELD REPRESENTATIVE <u>NATE PETERSON</u> <i>CTJ</i> | JOB NUMBER <u>3043051046/0001</u> INSTALLATION DATE <u>09/08/2005</u> DRILLED BY <u>G. AKINS</u> RISER/SCREEN MATERIAL <u>SCHEDULE 40 PVC</u> DIAMETER <u>1.0"</u> SLOT SIZE <u>0.010"</u> |
|---|--|



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TYPE I PIEZOMETER INSTALLATION RECORD

JOB NAME TVA KINGSTON WELL INSTALLATION

JOB NUMBER 3043051046/0001

TVA WELL NUMBER MW-14

INSTALLATION DATE 09/08/2005

AUGER DIAMETER 3 1/4" (I.D.), 6 1/4" (O.D.)

DRILLED BY G. AKINS

TOTAL DEPTH 45.0'

RISER/SCREEN

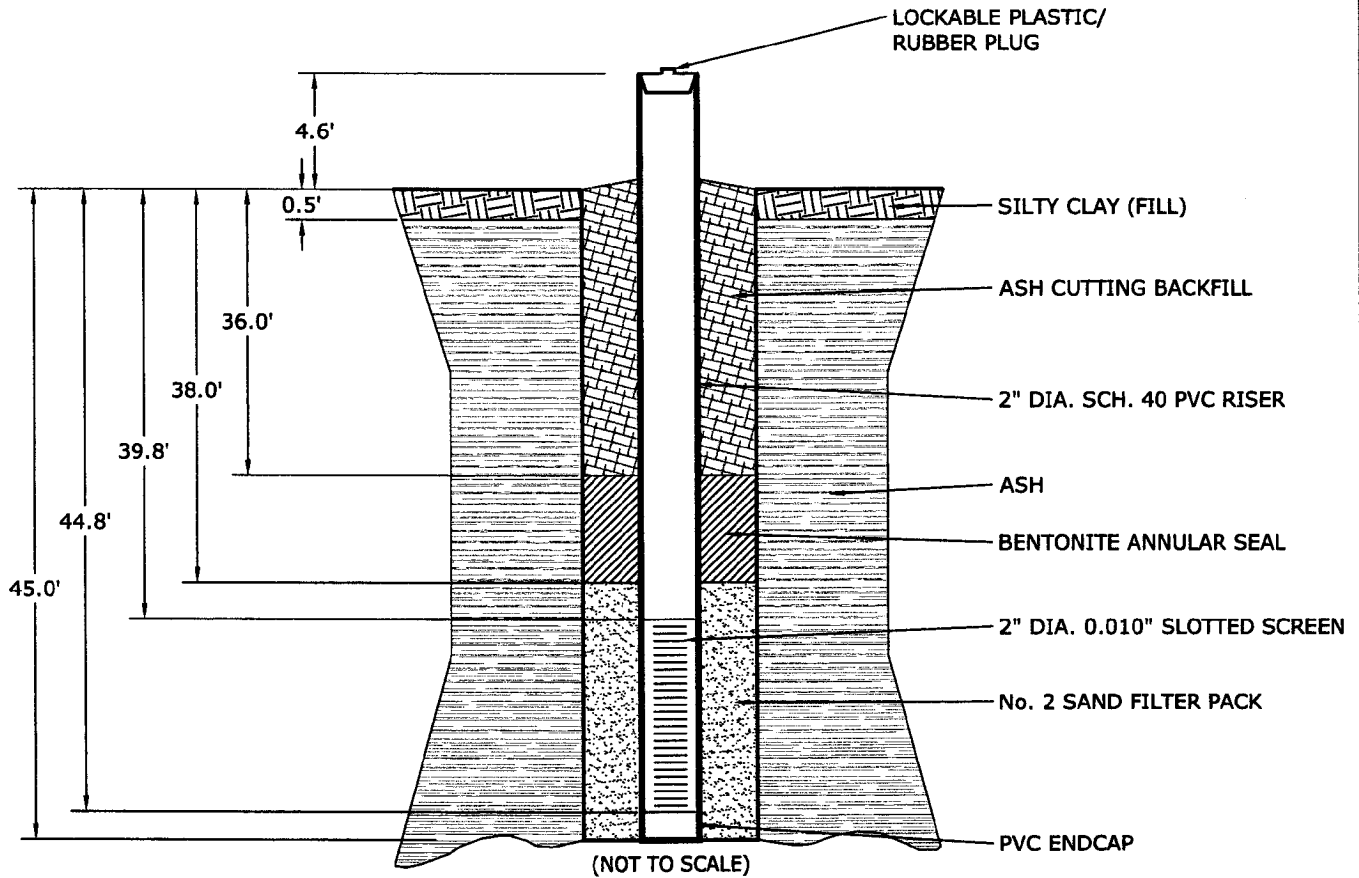
FIELD REPRESENTATIVE NATE PETERSON

MATERIAL SCHEDULE 40 PVC

DIAMETER 1.0"

SLOT SIZE 0.010"

NP



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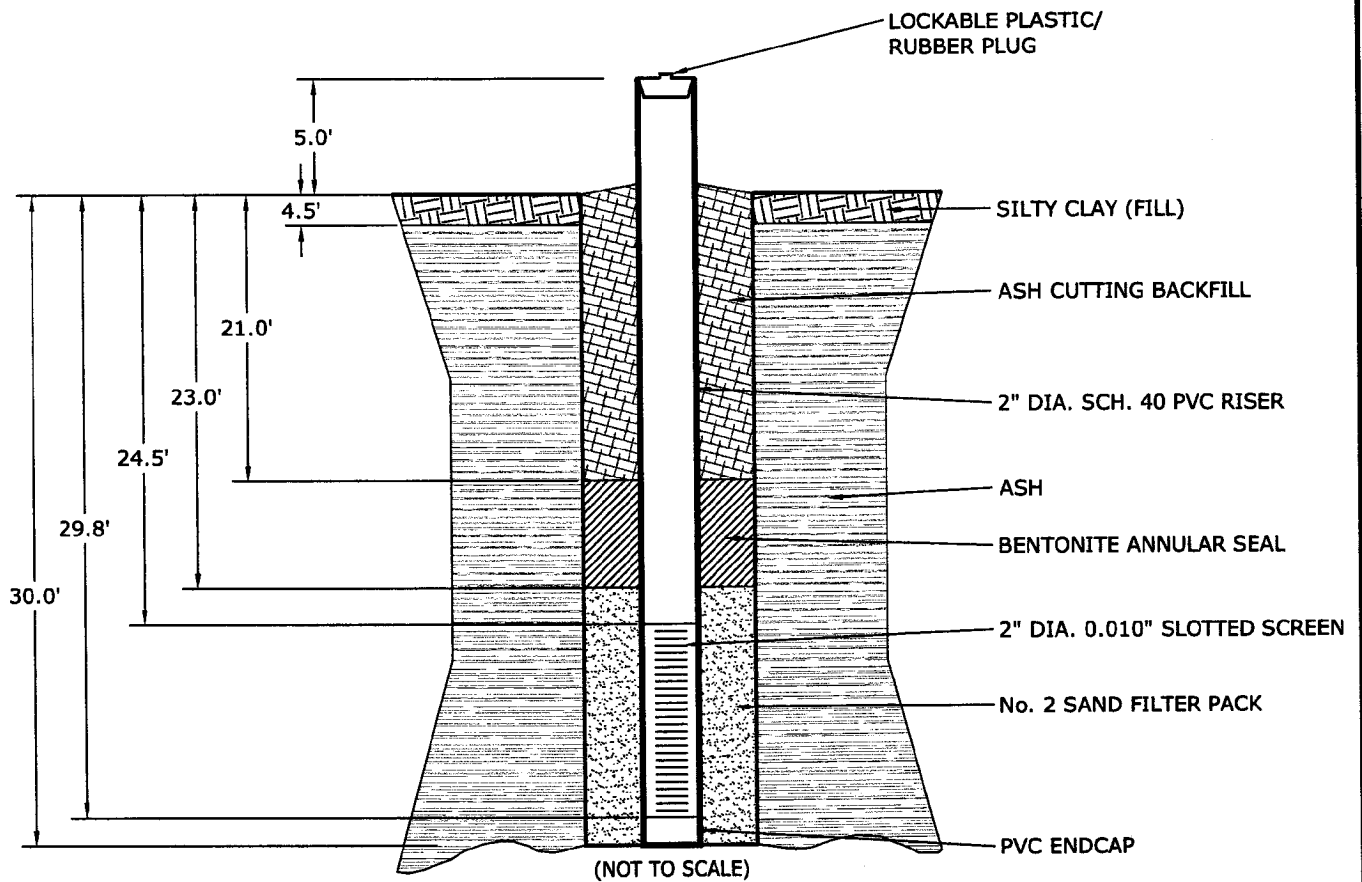


TYPE I PIEZOMETER INSTALLATION RECORD

JOB NAME TVA KINGSTON WELL INSTALLATION
 TVA WELL NUMBER MW-15
 AUGER DIAMETER 3 1/4" (I.D.), 6 1/4" (O.D.)
 TOTAL DEPTH 30.0'
 FIELD REPRESENTATIVE NATE PETERSON

NJP

JOB NUMBER 3043051046/0001
 INSTALLATION DATE 09/09/2005
 DRILLED BY G. AKINS
 RISER/SCREEN MATERIAL SCHEDULE 40 PVC
 DIAMETER 1.0"
 SLOT SIZE 0.010"



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