

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

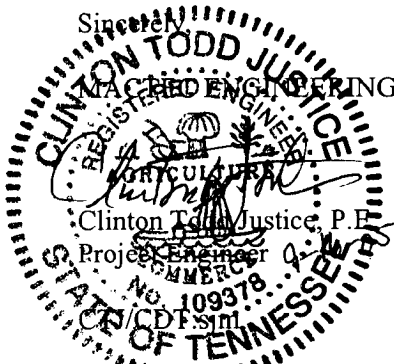
Ground-Water Conditions

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.

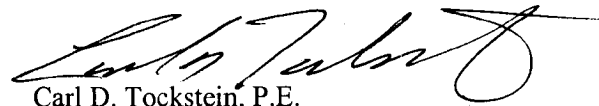
Well Number	Ground Elevation (feet msl)	Depth to Ground Water at Time of Installation (feet)	Ground-Water Elevation at Time of Installation (feet msl)	Depth to Ground Water 24 Hours After Drilling (feet)	Ground-Water Elevation 24 Hours After Drilling (feet)
MW-10	810	44.5	765.5	44.6	765.4
MW-11	786	23.6	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.



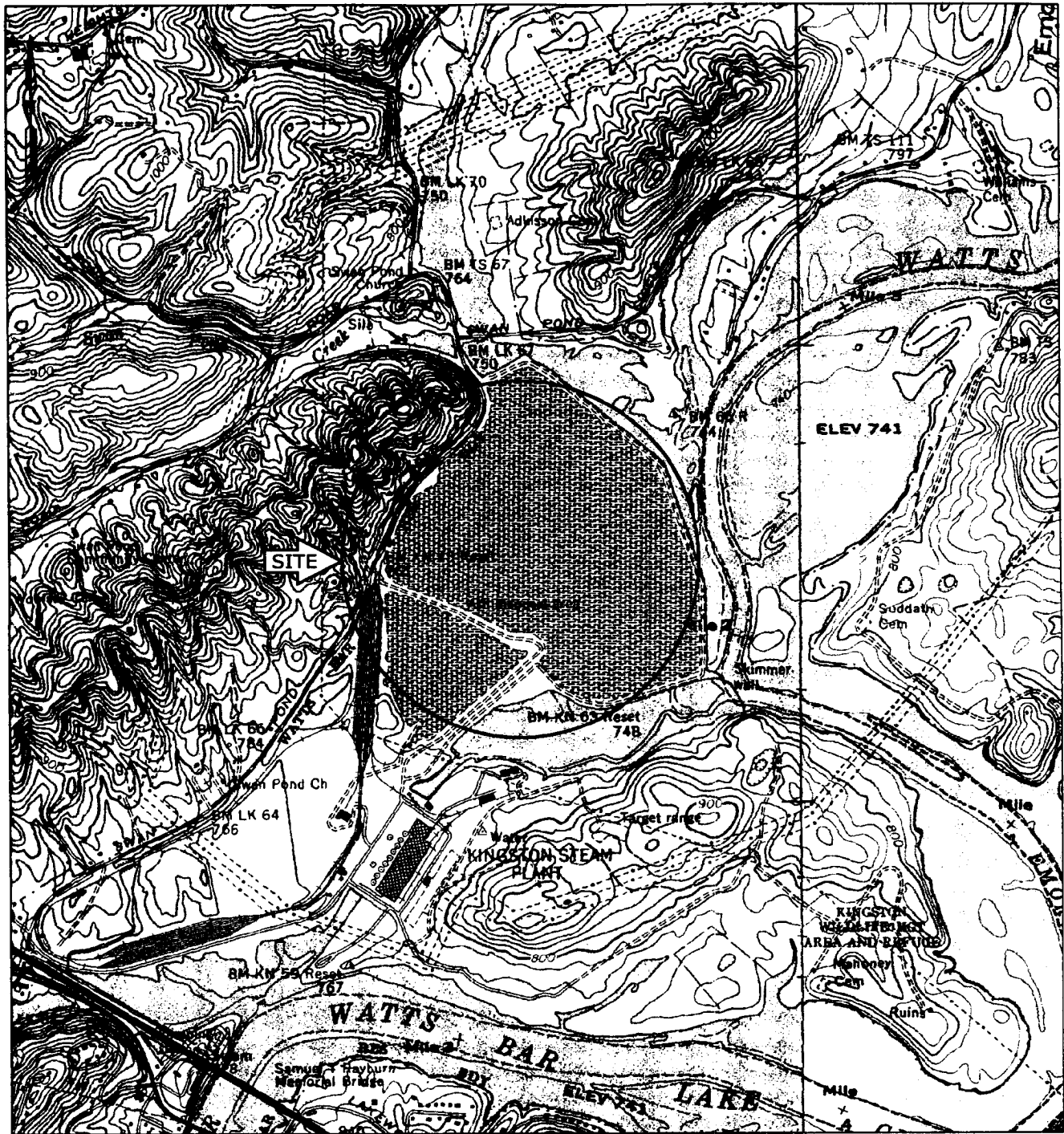
Attached Engineering and Consulting, Inc.


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



MACTEC Engineering and Consulting, Inc.
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 Knoxville, Tennessee 37921-5904
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**FIGURE 1: SITE LOCATION MAP
 TVA - KINGSTON FOSSIL PLANT
 MONITORING WELL INSTALLATION
 DREDGE CELL DIKE RESTORATION
 KINGSTON, TENNESSEE**

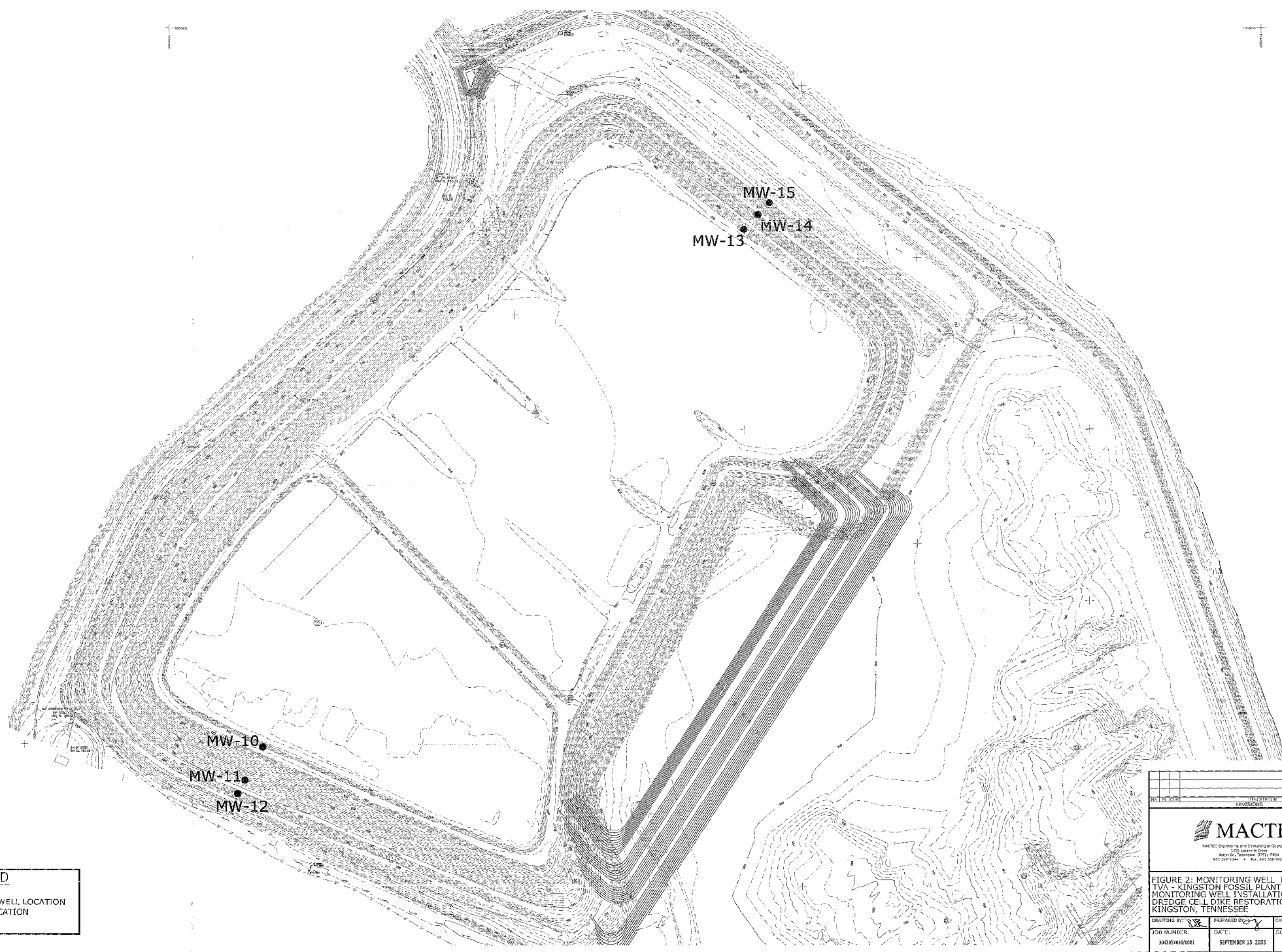
DRAFTING BY: *[Signature]*
 JOB NUMBER:
 3043051046/0001

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

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

COORDINATES: N 35.90984°
 W 84.51121°

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LEGEND
 ● MW-10 MONITORING WELL LOCATION AND IDENTIFICATION

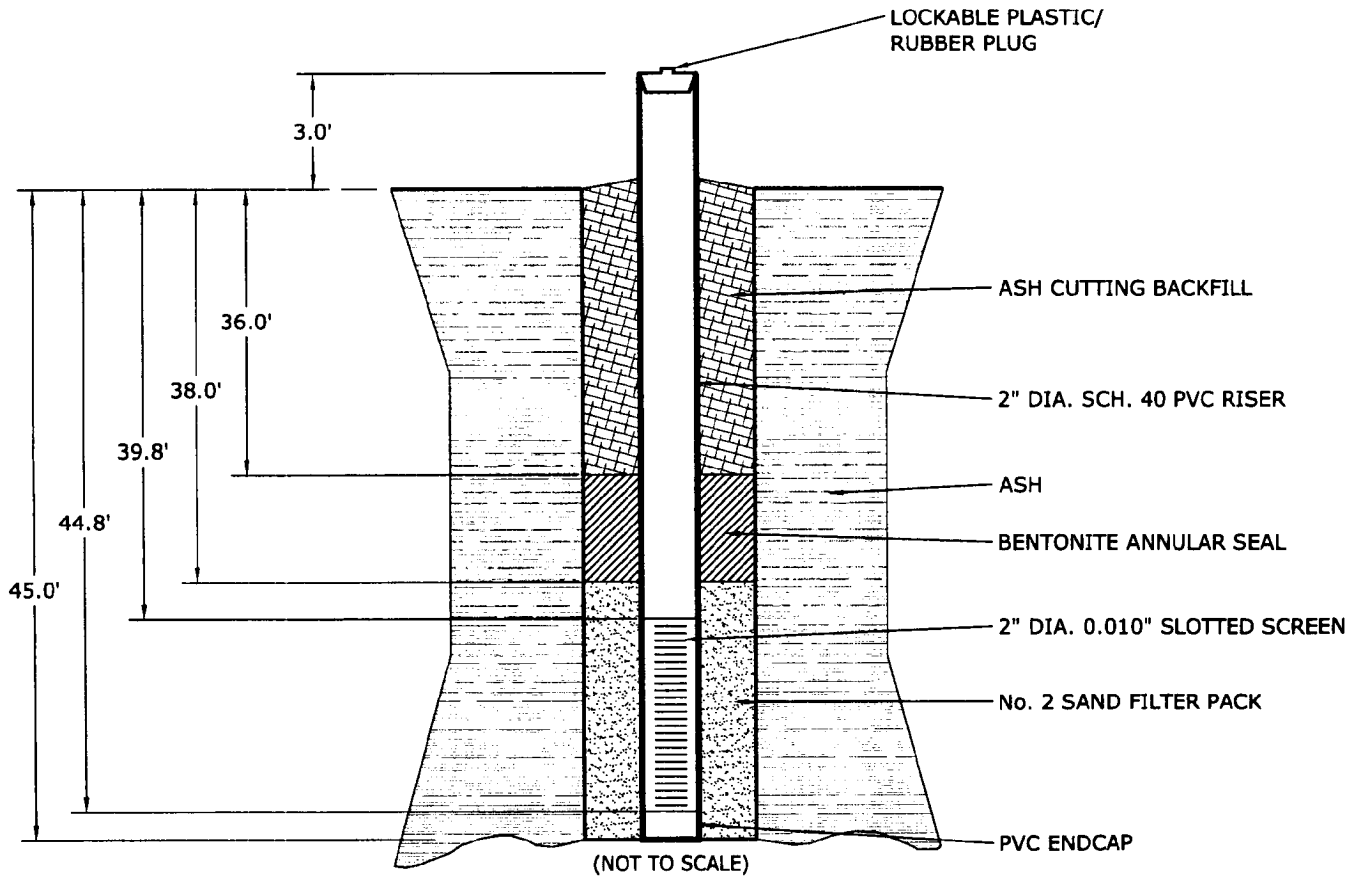
<p>MACTEC <small>MACTEC Engineering and Consulting of Georgia, Inc. 3700 Lakeside Drive Marietta, Georgia 30067, USA REGISTERED PROFESSIONAL ENGINEERS</small></p>		
<p>FIGURE 2: MONITORING WELL LOCATION PLAN TVA - KINGSTON FOSSIL PLANT MONITORING WELL INSTALLATION DREDGE CELL DIKE RESTORATION KINGSTON, TENNESSEE</p>		
<p>DRAWING BY: <i>[Signature]</i></p>	<p>PREPARED BY: <i>[Signature]</i></p>	<p>CHECKED BY: <i>[Signature]</i></p>
<p>JOB NUMBER: 304351646/0001</p>	<p>DATE: SEPTEMBER 15, 2005</p>	<p>SCALE: 0 150'</p>

APPENDIX A

TYPE I MONITORING WELL INSTALLATION RECORDS

TYPE I PIEZOMETER INSTALLATION RECORD

JOB NAME <u>TVA KINGSTON WELL INSTALLATION</u>	JOB NUMBER <u>3043051046/0001</u>
TVA WELL NUMBER <u>MW-10</u>	INSTALLATION DATE <u>09/07/2005</u>
AUGER DIAMETER <u>3 1/4" (I.D.), 6 1/4" (O.D.)</u>	DRILLED BY <u>G. AKINS</u>
TOTAL DEPTH <u>45.0'</u>	RISER/SCREEN
FIELD REPRESENTATIVE <u>NATE PETERSON</u>	MATERIAL <u>SCHEDULE 40 PVC</u>
<i>CTJ</i>	DIAMETER <u>1.0"</u>
	SLOT SIZE <u>0.010"</u>



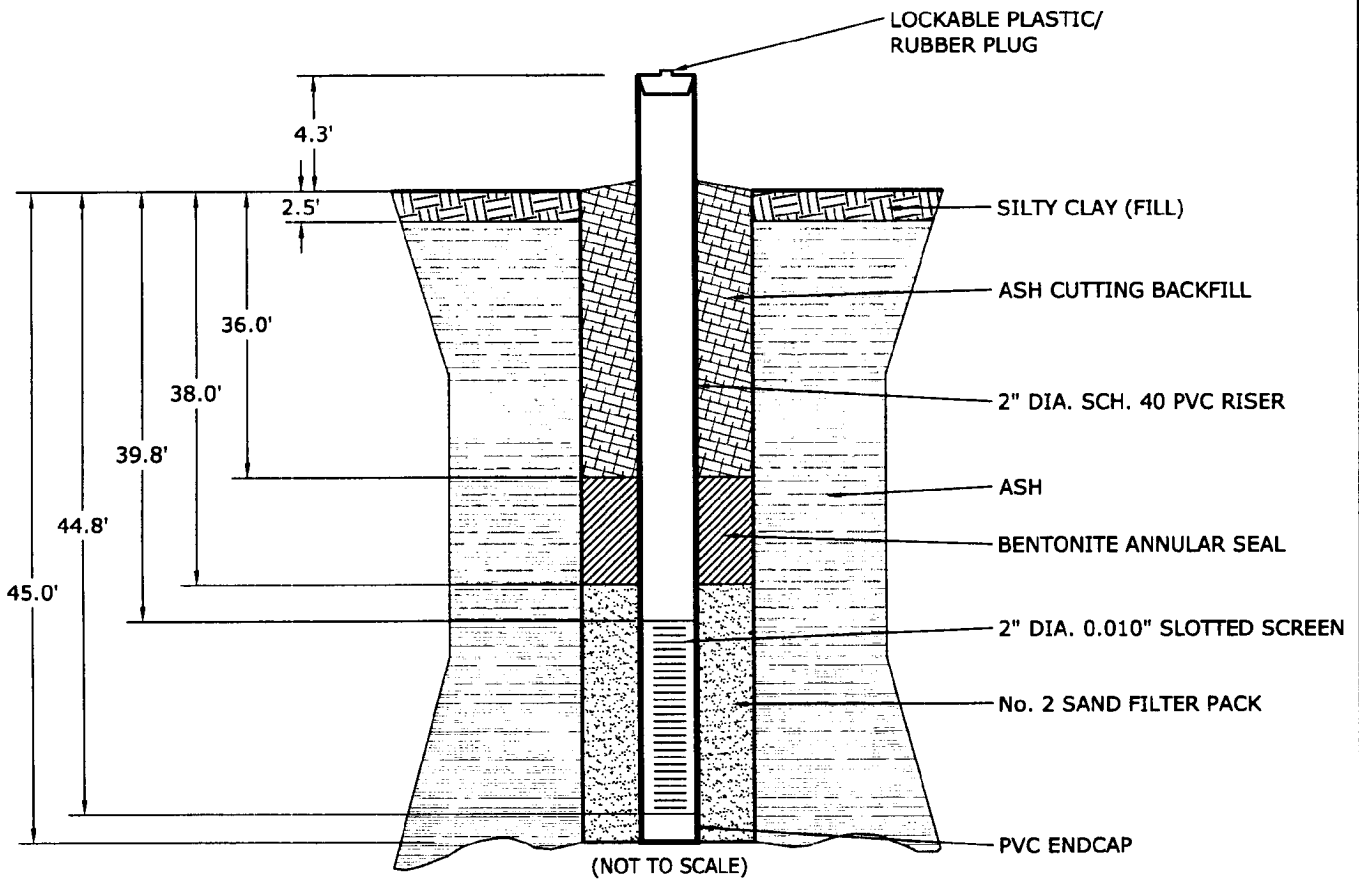
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TYPE I PIEZOMETER INSTALLATION RECORD

JOB NAME <u>TVA KINGSTON WELL INSTALLATION</u>	JOB NUMBER <u>3043051046/0001</u>
TVA WELL NUMBER <u>MW-11</u>	INSTALLATION DATE <u>09/06/2005</u>
AUGER DIAMETER <u>3 1/4" (I.D.), 6 1/4" (O.D.)</u>	DRILLED BY <u>G. AKINS</u>
TOTAL DEPTH <u>45.0'</u>	RISER/SCREEN
FIELD REPRESENTATIVE <u>NATE PETERSON</u>	MATERIAL <u>SCHEDULE 40 PVC</u>
	DIAMETER <u>1.0"</u>
	SLOT SIZE <u>0.010"</u>

CPJ



MACTEC

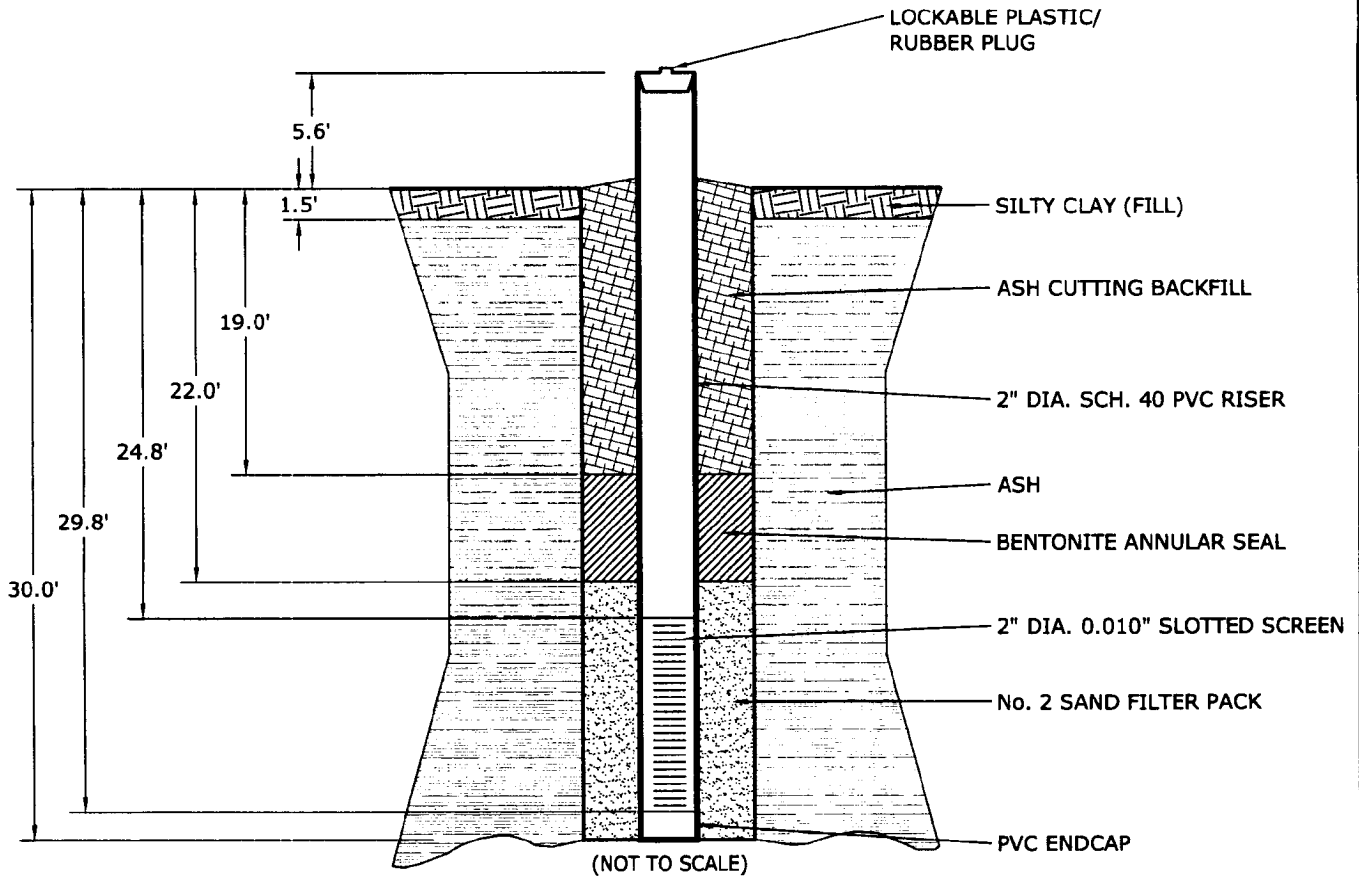
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TYPE I PIEZOMETER INSTALLATION RECORD

JOB NAME TVA KINGSTON WELL INSTALLATION
 TVA WELL NUMBER MW-12
 AUGER DIAMETER 3 1/4" (I.D.), 6 1/4" (O.D.)
 TOTAL DEPTH 30.0'
 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"

ctj



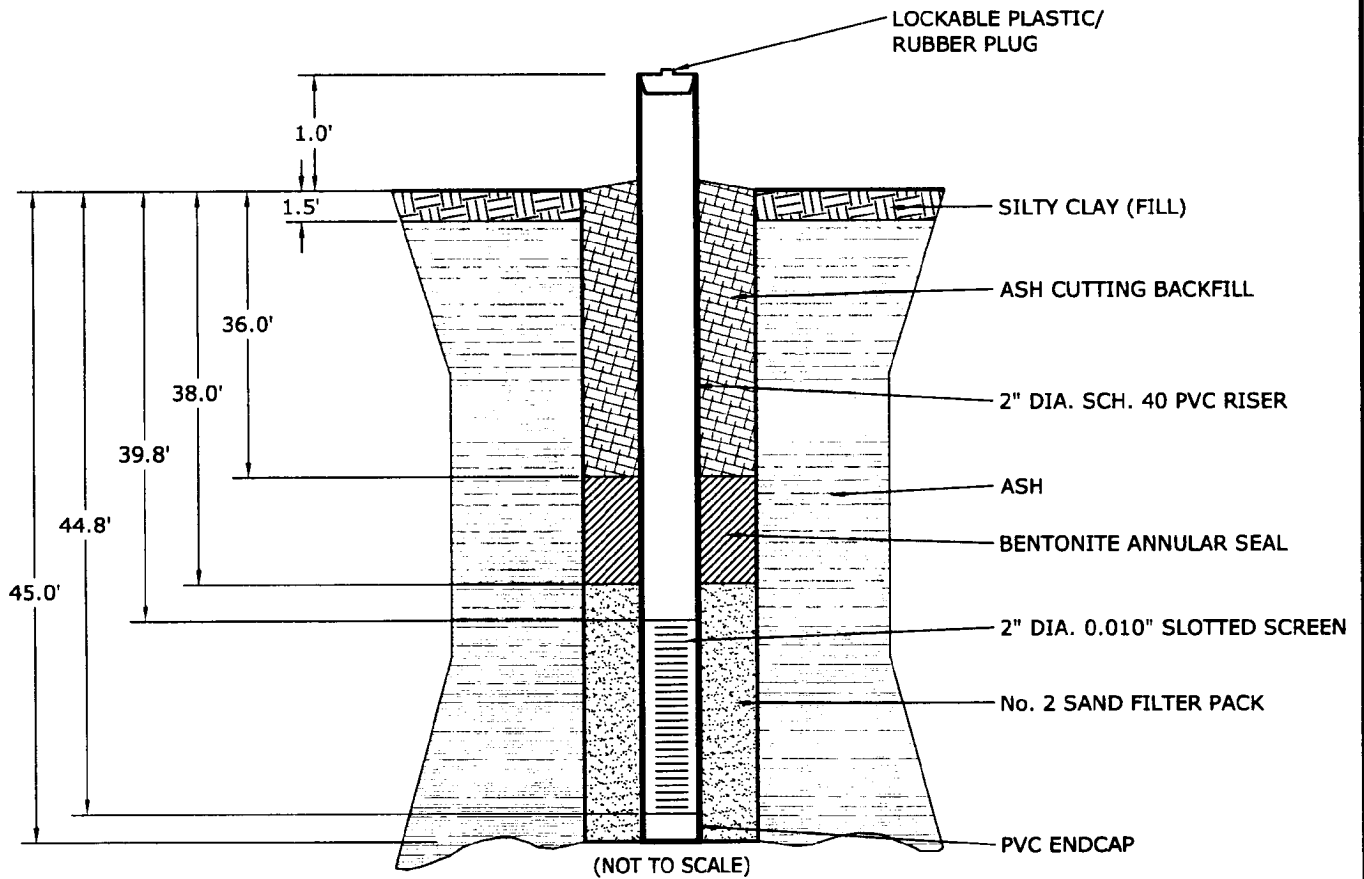
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TYPE I PIEZOMETER INSTALLATION RECORD

JOB NAME TVA KINGSTON WELL INSTALLATION
 TVA WELL NUMBER MW-13
 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 09/08/2005
 DRILLED BY G. AKINS
 RISER/SCREEN
 MATERIAL SCHEDULE 40 PVC
 DIAMETER 1.0"
 SLOT SIZE 0.010"

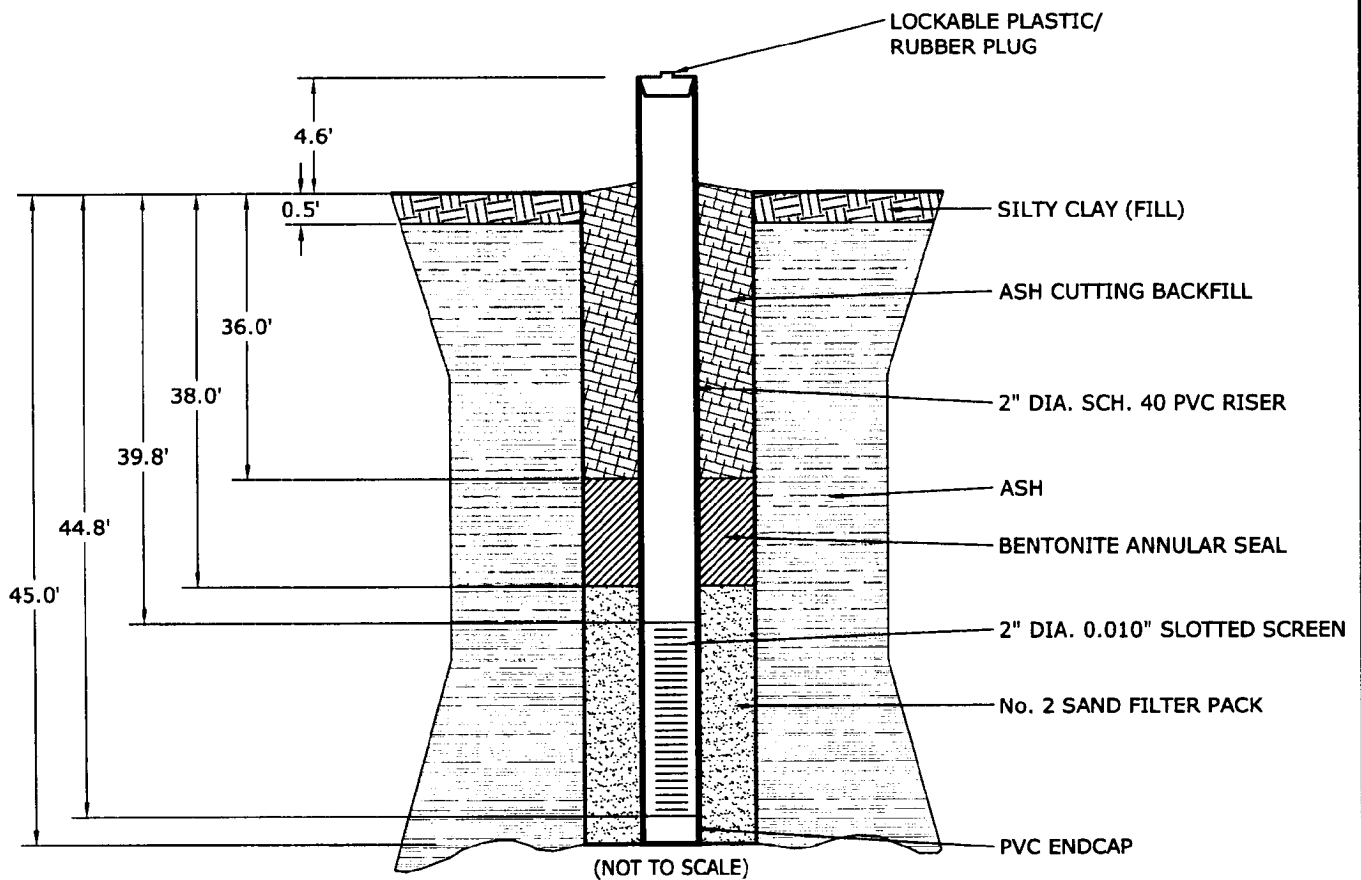
CTP



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TYPE I PIEZOMETER INSTALLATION RECORD

JOB NAME <u>TVA KINGSTON WELL INSTALLATION</u> TVA WELL NUMBER <u>MW-14</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>NP</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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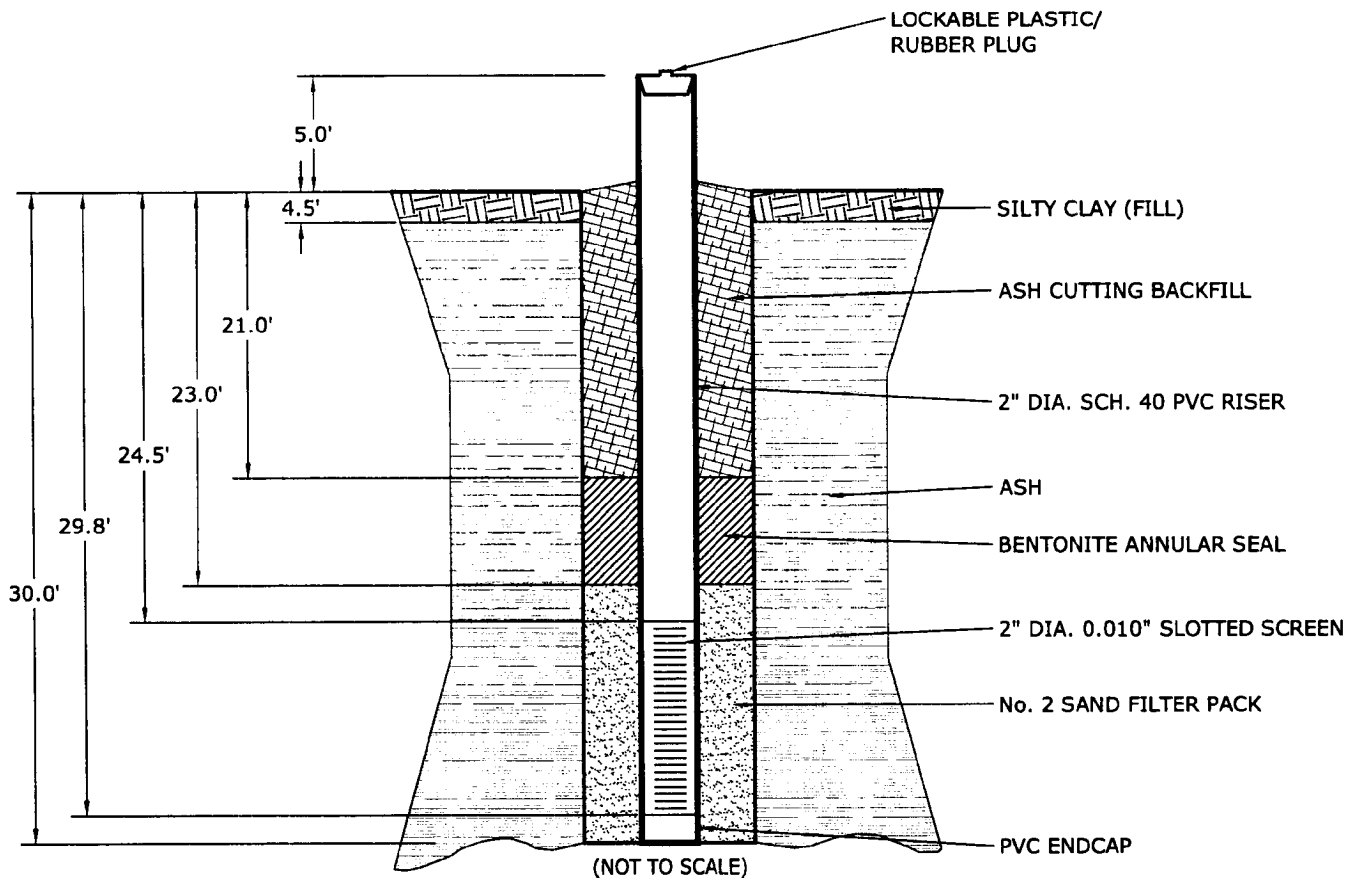


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TYPE I PIEZOMETER INSTALLATION RECORD

JOB NAME <u>TVA KINGSTON WELL INSTALLATION</u> TVA WELL NUMBER <u>MW-15</u> AUGER DIAMETER <u>3 1/4" (I.D.), 6 1/4" (O.D.)</u> TOTAL DEPTH <u>30.0'</u> FIELD REPRESENTATIVE <u>NATE PETERSON</u> 	JOB NUMBER <u>3043051046/0001</u> INSTALLATION DATE <u>09/09/2005</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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