

**TVA Project ID 609394-001**



**Tennessee Valley Authority**

**Groundwater Monitoring Wells  
Site Inspection Summary Reports  
Shawnee Fossil Plant  
Paducah, KY**

**Prepared by P&CC Engineering**

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Rev. 2



# Groundwater Monitoring Wells Site Inspection Summary Reports Shawnee Fossil Plant

## Table of Content

Section	Page
<b>1.0 Introduction</b> .....	5
<b>2.0 Project Team</b> .....	11
<b>3.0 Well Inspection</b> .....	12
3.01 Well Unknown #1 .....	14
3.02 Well B-50 .....	16
3.03 Well R-45 .....	18
3.04 Well MW-153 .....	20
3.05 Well MW-152 .....	22
3.06 Well MW-133 .....	24
3.07 Well MW-138 .....	26
3.08 Well MW-137 .....	28
3.09 Well MW-135 .....	30
3.10 Well MW-100 .....	32
3.11 Well D-77 .....	34
3.12 Well D-76A .....	36
3.13 Well D-75B .....	38
3.14 Well D-75A .....	40
3.15 Well D-74B .....	42
3.16 Well D-74A .....	44
3.17 UST D-73 .....	46
3.18 UST D-72 .....	48
3.19 UST D-71 .....	50
3.20 UST D-59 .....	52
3.21 UST D-50 .....	54
3.22 UST D-49 .....	56
3.23 UST D-48 .....	58
3.24 Well D-47 (W-1) .....	60
3.25 UST D-47 .....	62
3.26 Well D-33A .....	64
3.27 Well D-30B .....	66
3.28 Well D-30A .....	68
3.29 Well D-28 .....	70
3.30 Well D-25 .....	72
3.31 Well D-24 .....	74
3.32 Well D-27 .....	76

## Table of Content Continues

Section		Page
3.33	Well D-19 .....	78
3.34	Well D-17 .....	80
3.35	Well D-15 .....	82
3.36	Well D-14B .....	84
3.37	Well D-14 .....	86
3.38	Well D-13 .....	88
3.39	Well D-11B .....	90
3.40	Well D-11 .....	92
3.41	Well D-10 .....	94
3.42	Well D-8A .....	96
3.43	Well D-7 .....	90
3.44	Well D-5 .....	100
3.45	Well D-3 .....	102
3.46	Well D-1 .....	104
3.47	Well D-23 .....	106
3.48	Well USGS-2, 8004-6025 .....	108
3.49	Well USGS-1, 8004-6024 .....	110
<b>4.0</b>	<b>Attachments</b> .....	<b>111</b>
	Attachment A Definitions and Terms	
	Attachment B SHF Well Water Depth Measured versus Design	
	Attachment C Monitoring Wells Location Sketches & Reference Materials	
	Attachment D Groundwater Monitoring Wells Logs	

# Groundwater Monitoring Wells Site Inspection Summary Reports Shawnee Fossil Plant

## 1.0 Introduction

The Tennessee Valley Authority (TVA) uses groundwater monitoring wells for Baseline Monitoring, Compliance Monitoring, Assessment Monitoring and other monitoring as needed or required at its fossil sites. Below is a matrix for ground water monitoring wells installed at Shawnee Fossil Plant (SHF). Note, DOE wells listed because they were on the reference map provided for the site inspection and because they are located on TVA property.

### SHF Groundwater Monitoring Well Summary

Total No. Wells	Compliance Wells	Voluntary Monitored	UST Wels	Open But Not Sampled	Closed Wells
93	14	0	8	43	28

### SHF Groundwater Monitoring Well Matrix

Well No.	KY South State Plane Northing NAD 27	KY South State Plane Easting NAD 27	Compliance Monitoring	Voluntary Monitoring	UST Well	Open But Not Sampled	Closed Well
D-7	316024.246	1115559.431				X	
D-8A	313144.802	1113639.802	X				
D-10	316205.485	1112528.984				X	
D-11	318046.613	1112997.076	X				
D-11B	318034.625	1113003.665	X				
D-13	313871.704	1117198.222				X	
D-14	311762.329	1114431.260				X	
D-14B	311757.961	1114450.688				X	
D-15	312862.553	1117276.189				X	
D-23	313774.166	1116479.100				X	

**SHF Groundwater Monitoring Well Matrix Continue**

<b>Well No</b>	<b>KY South State Plane Northing NAD 27</b>	<b>KY South State Plane Easting NAD 27</b>	<b>Compliance Monitoring</b>	<b>Voluntary Monitoring</b>	<b>UST Well</b>	<b>Open But Not Sampled</b>	<b>Closed Well</b>
D-25	312454.680	1115373.758				X	
D-28	315767.108	1113837.365				X	
D-30A	315115.911	1117180.208	X				
D-30B	315120.787	1117171.180	X				
D-33A	317079.240	1114475.266	X				
D-74A	316053.109	1115693.702	X				
D-74B	316046.28	1115701.220	X				
D-75A	315536.786	1112871.379	X				
D-75B	315529.204	1112874.703	X				
D-76A	314161.922	1113482.333	X				
D-77	312121.888	1118846.328	X				
UN #1	313697.058	1114275.295				X	
UN #2	313462.862	1114338.825				X	
D-19	306445.091	1116555.366	X				
D-24	312052.258	1116579.975				X	
D-27	31215.277	116372.534	X				
D-47	306196.660	111707.516				X	
D-17	309569.496	1118389.515				X	
R43	309826.973	1117583.279				X	
MW-133	307843.447	1113921.187				DOE	
MW-135	307857.795	1113922.209				DOE	
MW-137	307870.472	1113923.253				DOE	
MW-138	307884.144	1113919.708				DOE	

**SHF Groundwater Monitoring Well Inventory Continue**

Well No.	KY South State Plane Northing NAD 27	KY South State Plane Easting NAD 27	Compliance Monitoring	Voluntary Monitoring	UST Well	Open But Not Sampled	Closed Well
MW-100	303577.254	1119317.169				DOE	
MW-152	311180.628	1116370.094				DOE	
MW-153	311169.235	1116362.330				DOE	
MW-146						DOE	
MW-147						DOE	
D-39							X
B-50	313461.6	1114336.80				X	
D-1	307420.83	1112969.32				X	
D-3	311940.30	1112206.79				X	
D-5	315081.42	1111031.13				X	
B-49	313434.60	1115191.20					X
D-2	312614.00	114506.00					X
D-4	313742.91	1112514.02					X
D-6	316596.90	1106738.18					X
D-8	313215.74	1113716.64					X
D-8B	313143.12	1113637.53					X
D-9	314012.81	1113534.60					X
D-20	313782.04	1114548.66					X
D-30	315083.09	1117193.72					X
D-34	311687.08	1118213.90					X
D-35	311647.66	1118274.7					X
D-36	311549.40	1118174.4					X

**SHF Groundwater Monitoring Well Inventory Continue**

<b>Well No.</b>	<b>KY South State Plane Northing NAD 27</b>	<b>KY South State Plane Easting NAD 27</b>	<b>Compliance Monitoring</b>	<b>Voluntary Monitoring</b>	<b>UST Well</b>	<b>Open But Not Sampled</b>	<b>Closed Well</b>
D-37	311540.22	1118235.91					X
D-38	311564.80	1118272.45					X
D-40	311599.90	1118250.41					X
D-41	314104.30	115019.78					X
D-42	314189.92	1114691.45					X
D-43	314406.63	1115187.79					X
D-44	314244.23	1114960.98					X
D-45	314912.85	1114522.46					X
D-46	314339.37	1113886.72					X
D-51	not available	not available					X
D-52	not available	not available					X
D-53	not available	not available					X
D-54	not available	not available					X
D-55	not available	not available					X
D-56	not available	not available					X
D-57	not available	not available					X
D-58	318895.47	1116674.7					X
D-62	312069.82	1116852.93					X
D-66	311719.18	1116771.57					X
D-67	311796.67	1116899.43					X
D-68	311779.24	1116934.30					X
D-69	311852.85	1116942.05					X
D-70	311831.54	1116891.68					X

### SHF Groundwater Monitoring Well Inventory Continue

Well No.	KY South State Plane Northing NAD 27	KY South State Plane Easting NAD 27	Compliance Monitoring	Voluntary Monitoring	UST Well	Open But Not Sampled	Closed Well
MLS-29	317083.36	1112319.34					X
MLS-31	311790.76	1114067.39					X
MLS-32	314094.98	1115255.79					X
MLS-33	317131.07	1114362.30					X
D-47	312127.852	1117230.941			X		
D-48	312212.885	1117290.943			X		
D-49	312290.479	1117354.709			X		
D-50	312289.511	1117354.709			X		
D-59	312254.016	1117376.653			X		
D-71	312308.643	1117517.810			X		
D-72	312365.349	1117434.399			X		
D-73	312155.618	1117320.766			X		
USGS Well 1, AKGWA # 8004-6024 = AFBC = Well 906	310071.876	1118912.871				X	
USGS Well 2, AKGWA # 8004-6025	309888.245	1118837.583				X	

**2.0 Project Team**

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### 3.0 Well Inspection

- On June 2, 3, 4 and 5, 2014 representatives of P&CC Engineering conducted a site walk down inspection of ground water monitoring wells at TVA Shawnee Fossil Plant. They located and inspect ground water monitoring wells. The depth of the wells, size of the well casing, the size and shape of their well's protective covers, the condition of the wells concrete pads and bollards, and site conditions around the monitoring wells were also noted. Pictures were taken of the well (casing, front and side view).

The inspection team was unable to locate wells B-48, B-49II, D-1, D-3, D-5 and D-39. They also couldn't verify all monitoring wells on site had been located and inventoried. The site walk down inspection was conducted in June when tree leaves and vegetation growth were at its peak. The inspection team will return to the site the first or second quarter of FY 15 when tree leaves have fallen of trees and ground vegetation cover is dormant to look for the missed well and attempt to locate and document the condition of monitoring wells missed during the initial site inspection.

- On February 24, 2015 representatives of P&CC Engineering (Jeff Gray and Chris Hensley) conducted a second site walk down inspection of groundwater monitoring wells at TVA Shawnee Fossil Plant. The purpose of the site walk down inspection was to locate and document the condition of groundwater monitoring wells not found during the June 2014 site inspection.

Prior to the inspection team returning to the site Matt Williams found documentation that wells D-39 had been abandoned and that wells B-48 and B-49II were piezometers.

The inspection team returned to the site for the second site inspection at a time when tree leaves had fallen off and ground vegetation cover was dormant to perform a more through site inspection. No new wells were found.

#### Equipment Used for Inspection

- Hand held GPS Unit - Spectra Precision Mobile Mapper 120 GPS (P/N 990674-06). Accurate to +/- two feet. See [www.spectraprecision.com](http://www.spectraprecision.com). Well coordinates provided in KY South State Plane NAD 27.
- Panasonic Digital Camera
- Electronic Water Level Meter.
- Twenty-five Foot Tape Line
- TVA Ground Water Monitoring Well Key (Number 0896)

#### Final Survey

An as constructed survey will be performed by TVA surveyors when all the recommended repairs have been made. As constructed drawings will be produced and put in the BSL when as constructed survey information is received by P&CC Engineering.



3.01 Well Unknown #1



Plant: SHF Well Number: Unknown #1 Date Inspected: June 2, 2014

Well GPS Coordinates: KY S. St. Plane NAD 27 Northing: \_\_\_\_\_ Easting: \_\_\_\_\_

Well Location: Utility Building \_\_\_ Ash Stack X Rail Loop \_\_\_ AFBC Building \_\_\_\_\_

**Well Construction Information** (not measured)

Depth of water from top of casing measured? NA

Depth to well bottom, from top of casing measured? NA

Diameter of well pvc pipe? NA

Well bottom is \_\_\_\_\_. Sediment on bottom of probe? NA

Well status: Active

**Well Interior Condition**

Any odor noted? No

Any insects (ants, wasps, etc.) noted currently, or formerly inhabiting? No

Any indication of a film or other biological substances on the well? No

**Well Exterior Condition**

Is the well ID number displayed and easy to read? No

Is the well ID number listed on the well inventory spreadsheet provided? No

Well cap in good condition or needs replacing? Provide new well cap

Well protective cover description\dimensions? NA

Condition of well concrete pad, bollards, and protective cover? NA

Well protective cover securely attached to the concrete pad? NA

Bollards painted bright yellow? NA

Lock installed on well protective cover and easy to operate? NA

Hinges on well protective cover top intact and working properly? NA

Area around well concrete pad graded to provide drainage away from pad? Yes

Evidence of water seeping from well protective cover? NA

Evidence of a weep hole at the base of the well protective cover? NA

Area around well free of trees, brush, and tall grass? Yes

Has the well been impacted by construction activities near the well? No

Does the well pose a obstruction/threat to plant operation? No

Does the well look like it has been vandalized? No

Is the well easily accessible? Yes

## **Well Unknown #1 Continue**

### **Comments**

1. No concrete pad or bollards..
2. Cut grass around well.
3. Provide well ID sign
4. Add well to well inventory list.

### **Recommendations**

1. Add new concrete pad with protective bollards, well ID sign and lock.
2. Mow grass 10 feet out from all sides of well concrete pad.
3. Add well to well inventory list

3.02 Well B-50



Plant: SHF Well Number: B-50 Date Inspected: June 2, 2014

Well GPS Coordinates: KY S. St. Plane NAD 27 Northing: 313462.862 Easting: 1114338.825

Well Location: Utility Building      Ash Stack X Rail Loop      AFBC Building     

**Well Construction Information** (couldn't open lock)

Depth of water from top of casing measured? NA  
Depth to well bottom, from top of casing measured? NA  
Diameter of well pvc pipe? NA  
Well bottom is     . Sediment on bottom of probe? NA  
Well status: Active

**Well Interior Condition**

Any odor noted? NA  
Any insects (ants, wasps, etc.) noted currently, or formerly inhabiting? NA  
Any indication of a film or other biological substances on the well? NA

**Well Exterior Condition**

Is the well ID number displayed and easy to read? No  
Is the well ID number listed on the well inventory spreadsheet provided? No  
Well cap in good condition or needs replacing? NA  
Well protective cover description\dimensions? PVC  
Condition of well concrete pad, bollards, and protective cover? NA  
Well protective cover securely attached to the concrete pad? NA  
Bollards painted bright yellow? NA  
Lock installed on well protective cover and easy to operate? NA  
Hinges on well protective cover top intact and working properly? NA  
Area around well concrete pad graded to provide drainage away from pad? Yes  
Evidence of water seeping from well protective cover? NA  
Evidence of a weep hole at the base of the well protective cover? NA  
Area around well free of trees, brush, and tall grass? Yes  
Has the well been impacted by construction activities near the well? No  
Does the well pose a obstruction/threat to plant operation? No  
Does the well look like it has been vandalized? No  
Is the well easily accessible? Yes

## **Well B-50 Continue**

### **Comments**

1. No concrete pad or bollards..
2. Cut grass around well.
3. Provide well ID sign

### **Recommendations**

1. Add new concrete pad with protective bollards, well ID sign and lock.
2. Mow grass 10 feet out from all sides of well concrete pad.

**3.03 Well R43**



**Plant:** SHF                      **Well Number:** R43                      **Date Inspected:** June 2, 2014

**Well GPS Coordinates:** KY S. St. Plane NAD 27 Northing: 309826.973 Easting: 1117583.279

**Well Location:** Utility Building      Ash Stack      Rail Loop      AFBC Building X

**Well Construction Information**

Depth of water from top of casing measured?  
Depth to well bottom, from top of casing measured?  
Diameter of well pvc pipe? 8 inch  
Well bottom is firm. Sediment on bottom of probe? No  
Well status: Active

**Well Interior Condition**

Any odor noted? No  
Any insects (ants, wasps, etc.) noted currently, or formerly inhabiting? No  
Any indication of a film or other biological substances on the well? No

**Well Exterior Condition**

Is the well ID number displayed and easy to read? Yes  
Is the well ID number listed on the well inventory spreadsheet provided? No  
Well cap in good condition or needs replacing? Need cap  
Well protective cover description\dimensions? NA  
Condition of well concrete pad, bollards, and protective cover? NA  
Well protective cover securely attached to the concrete pad? NA  
Bollards painted bright yellow? NA

## Well R 45 Continue

Lock installed on well protective cover and easy to operate? NA  
Hinges on well protective cover top intact and working properly? NA  
Area around well concrete pad graded to provide drainage away from pad? Yes  
Evidence of water seeping from well protective cover? NA  
Evidence of a weep hole at the base of the well protective cover? NA  
Area around well free of trees, brush, and tall grass? Yes  
Has the well been impacted by construction activities near the well? No  
Does the well pose a obstruction/threat to plant operation? No  
Does the well look like it has been vandalized? No  
Is the well easily accessible? Yes

### Comments

1. No concrete pad or bollards..
2. Cut grass around well.
3. Provide well ID sign
4. Add well to well inventory list.

### Recommendations

1. Add new concrete pad with protective bollards, well ID sign and lock.
2. Mow grass 10 feet out from all sides of well concrete pad.

3.04 Well MW-153 (DOE)



Well MW-153 and Well MW-152



MW-153

Plant: SHF Well Number: MW-153 Date Inspected: June 4, 2014

Well GPS Coordinates: KY S. St. Plane NAD 27 Northing: 311169.235 Easting: 1116362.330

Well Location: Utility Building  Ash Stack  Rail Loop  AFBC Building

**Well Construction Information** (DOE well, did not have key to well)

Depth of water from top of casing measured?

Depth to well bottom, from top of casing measured?

Diameter of well pvc pipe?   

Well bottom is   . Sediment on bottom of probe?

Well status:

**Well Interior Condition**

Any odor noted?   

Any insects (ants, wasps, etc.) noted currently, or formerly inhabiting?   

Any indication of a film or other biological substances on the well?   

**Well Exterior Condition**

Is the well ID number displayed and easy to read? Yes

Is the well ID number listed on the well inventory spreadsheet provided? Yes

Well cap in good condition or needs replacing? NA

Well protective cover description\dimensions? 8 inch square steel

Condition of well concrete pad, bollards, and protective cover? Fair

**Well MW-153 Continue**

Well protective cover securely attached to the concrete pad? Yes  
Bollards painted bright yellow? Paint  
Lock installed on well protective cover and easy to operate? \_\_\_\_\_  
Hinges on well protective cover top intact and working properly? \_\_\_\_\_  
Area around well concrete pad graded to provide drainage away from pad? Yes  
Evidence of water seeping from well protective cover? No  
Evidence of a weep hole at the base of the well protective cover? No  
Area around well free of trees, brush, and tall grass? Yes  
Has the well been impacted by construction activities near the well? No  
Does the well pose a obstruction/threat to plant operation? No  
Does the well look like it has been vandalized? No  
Is the well easily accessible? Yes

**Comments**

DOE Well

**Recommendations**

NA

3.05 Well MW -152 (DOE)



Plant: SHF Well Number: MW-152 Date Inspected: June 4, 2014

Well GPS Coordinates: KY S. St. Plane NAD 27 Northing: 311180.628 Easting: 1116370.094

Well Location: Utility Building \_\_\_ Ash Stack \_\_\_ Rail Loop \_\_\_ AFBC Building \_\_\_

**Well Construction Information** (DOE well, did not have key to well)

Depth of water from top of casing measured?  
Depth to well bottom, from top of casing measured?  
Diameter of well pvc pipe? \_  
Well bottom is \_\_\_\_\_. Sediment on bottom of probe?  
Well status: Active

**Well Interior Condition**

Any odor noted? No  
Any insects (ants, wasps, etc.) noted currently, or formerly inhabiting? No  
Any indication of a film or other biological substances on the well? No

**Well Exterior Condition**

Is the well ID number displayed and easy to read? Yes  
Is the well ID number listed on the well inventory spreadsheet provided? Yes  
Well cap in good condition or needs replacing? NA  
Well protective cover description\dimensions? 8 inch square steel  
Condition of well concrete pad, bollards, and protective cover? Fair  
Well protective cover securely attached to the concrete pad? Yes  
Bollards painted bright yellow? Needs painting  
Lock installed on well protective cover and easy to operate? \_\_\_\_\_  
Hinges on well protective cover top intact and working properly? \_\_\_\_\_  
Area around well concrete pad graded to provide drainage away from pad? Yes  
Evidence of water seeping from well protective cover? No  
Evidence of a weep hole at the base of the well protective cover? No  
Area around well free of trees, brush, and tall grass? Yes  
Has the well been impacted by construction activities near the well? No  
Does the well pose a obstruction/threat to plant operation? No  
Does the well look like it has been vandalized? No  
Is the well easily accessible? Yes

**Well MW-152 Continue**

**Comments**

DOE Well

**Recommendations**

NA

**3.06 Well MW-133 (DOE)**



Wells MW-133, MW-135, MW-137 & MW-138



MW-133

**Plant:** SHF

**Well Number:** MW-133

**Date Inspected:** June 4, 2014

**Well GPS Coordinates:** KY S. St. Plane NAD 27 Northing:307843.447 Easting: 1113921.187

**Well Location:** Utility Building  Ash Stack  Rail Loop  AFBC Building

**Well Construction Information** (DOE well, did not have key to well)

Depth of water from top of casing measured?

Depth to well bottom, from top of casing measured?

Diameter of well pvc pipe?   

Well bottom is       . Sediment on bottom of probe?

Well status: Active

**Well Interior Condition**

Any odor noted?

Any insects (ants, wasps, etc.) noted currently, or formerly inhabiting?

Any indication of a film or other biological substances on the well?

**Well Exterior Condition**

Is the well ID number displayed and easy to read? Yes

Is the well ID number listed on the well inventory spreadsheet provided? Yes

Well cap in good condition or needs replacing? NA

## Well MW-133 Continue

Well protective cover description\dimensions? 8 inch square steel  
Condition of well concrete pad, bollards, and protective cover? Fair  
Well protective cover securely attached to the concrete pad? Yes  
Bollards painted bright yellow? Needs painting  
Lock installed on well protective cover and easy to operate? NA  
Hinges on well protective cover top intact and working properly? NA  
Area around well concrete pad graded to provide drainage away from pad? Yes  
Evidence of water seeping from well protective cover? No  
Evidence of a weep hole at the base of the well protective cover? No  
Area around well free of trees, brush, and tall grass? Yes  
Has the well been impacted by construction activities near the well? No  
Does the well pose a obstruction/threat to plant operation? No  
Does the well look like it has been vandalized? No  
Is the well easily accessible? Yes

### Comments

DOE Well

### Recommendations

NA

3.07 Well MW-138 (DOE)



Plant: SHF Well Number: MW-138 Date Inspected: June 4, 2014

Well GPS Coordinates: KY S. St. Plane NAD 27 Northing: 307884.144 Easting: 1113919.708

Well Location: Utility Building      Ash Stack      Rail Loop      AFBC Building     

**Well Construction Information** (DOE well, did not have key to well)

Depth of water from top of casing measured?

Depth to well bottom, from top of casing measured?

Diameter of well pvc pipe?   

Well bottom is         . Sediment on bottom of probe?

Well status: Active

**Well Interior Condition**

Any odor noted?

Any insects (ants, wasps, etc.) noted currently, or formerly inhabiting?

Any indication of a film or other biological substances on the well?

**Well Exterior Condition**

Is the well ID number displayed and easy to read? Yes

Is the well ID number listed on the well inventory spreadsheet provided? Yes

Well cap in good condition or needs replacing? NA

Well protective cover description\dimensions? 8 inch square steel

Condition of well concrete pad, bollards, and protective cover? Fair

Well protective cover securely attached to the concrete pad? Yes

Bollards painted bright yellow? Needs painting

Lock installed on well protective cover and easy to operate? NA

Hinges on well protective cover top intact and working properly? NA

Area around well concrete pad graded to provide drainage away from pad? Yes

Evidence of water seeping from well protective cover? No

Evidence of a weep hole at the base of the well protective cover? No

Area around well free of trees, brush, and tall grass? Yes

Has the well been impacted by construction activities near the well? No

Does the well pose a obstruction/threat to plant operation? No

Does the well look like it has been vandalized? No

Is the well easily accessible? Yes

**Well MW-138 Continue**

**Comments**

DOE Well

**Recommendations**

NA

3.08 Well MW-137 (DOE)



Plant: SHF

Well Number: MW-137

Date Inspected: June 4, 2014

Well GPS Coordinates: KY S. St. Plane NAD 27 Northing: 307870.472 Easting: 1113923.253

Well Location: Utility Building  Ash Stack  Rail Loop  AFBC Building

**Well Construction Information** (DOE well, did not have key to well)

Depth of water from top of casing measured?

Depth to well bottom, from top of casing measured?

Diameter of well pvc pipe? \_

Well bottom is \_\_\_\_\_. Sediment on bottom of probe?

Well status: Active

**Well Interior Condition**

Any odor noted?

Any insects (ants, wasps, etc.) noted currently, or formerly inhabiting?

Any indication of a film or other biological substances on the well?

**Well Exterior Condition**

Is the well ID number displayed and easy to read? Yes

Is the well ID number listed on the well inventory spreadsheet provided? Yes

Well cap in good condition or needs replacing? NA

Well protective cover description\dimensions? 8 inch square steel

Condition of well concrete pad, bollards, and protective cover? Fair

Well protective cover securely attached to the concrete pad? Yes

Bollards painted bright yellow? Needs painting

Lock installed on well protective cover and easy to operate? NA

Hinges on well protective cover top intact and working properly? NA

Area around well concrete pad graded to provide drainage away from pad? Yes

Evidence of water seeping from well protective cover? No

Evidence of a weep hole at the base of the well protective cover? No

Area around well free of trees, brush, and tall grass? Yes

Has the well been impacted by construction activities near the well? No

Does the well pose a obstruction/threat to plant operation? No

Does the well look like it has been vandalized? No

Is the well easily accessible? Yes

**Well MW-137 Continue**

**Comments**

DOE Well

**Recommendations**

NA

**3.09 Well MW-135 (DOE)**



**Plant:** SHF                      **Well Number:** MW-135                      **Date Inspected:** June 4, 2014

**Well GPS Coordinates:** KY S. St. Plane NAD 27 Northing: 307857.795 Easting: 1113922.209

**Well Location:** Utility Building      Ash Stack      Rail Loop      AFBC Building     

**Well Construction Information** (DOE well, did not have key to well)

Depth of water from top of casing measured?

Depth to well bottom, from top of casing measured?

Diameter of well pvc pipe?   

Well bottom is           . Sediment on bottom of probe?

Well status: Active

**Well Interior Condition**

Any odor noted?

Any insects (ants, wasps, etc.) noted currently, or formerly inhabiting?

Any indication of a film or other biological substances on the well?

**Well Exterior Condition**

Is the well ID number displayed and easy to read? Yes

Is the well ID number listed on the well inventory spreadsheet provided? Yes

Well cap in good condition or needs replacing? NA

Well protective cover description\dimensions? 8 inch square steel

Condition of well concrete pad, bollards, and protective cover? Fair

Well protective cover securely attached to the concrete pad? Yes

Bollards painted bright yellow? Needs painting

Lock installed on well protective cover and easy to operate? NA

Hinges on well protective cover top intact and working properly? NA

Area around well concrete pad graded to provide drainage away from pad? Yes

Evidence of water seeping from well protective cover? No

Evidence of a weep hole at the base of the well protective cover? No

Area around well free of trees, brush, and tall grass? Yes

Has the well been impacted by construction activities near the well? No

Does the well pose a obstruction/threat to plant operation? No

Does the well look like it has been vandalized? No

Is the well easily accessible? Yes

**Well MW-135 Continue**

**Comments**

DOE Well

**Recommendations**

NA

**3.10 Well MW-100 (DOE)**



**Plant:** SHF      **Well Number:** MW-100      **Date Inspected:** June 4, 2014

**Well GPS Coordinates:** KY S. St. Plane NAD 27 Northing: 303577.254 Easting: 1119317.169

**Well Location:** Utility Building  Ash Stack  Rail Loop  AFBC Building

**Well Construction Information** (DOE well, did not have key to well)

Depth of water from top of casing measured?

Depth to well bottom, from top of casing measured?

Diameter of well pvc pipe? NA

Well bottom is \_\_\_\_\_. Sediment on bottom of probe?

Well status: Active

**Well Interior Condition**

Any odor noted?

Any insects (ants, wasps, etc.) noted currently, or formerly inhabiting?

Any indication of a film or other biological substances on the well?

**Well Exterior Condition**

Is the well ID number displayed and easy to read? Yes

Is the well ID number listed on the well inventory spreadsheet provided? Yes

Well cap in good condition or needs replacing? NA

Well protective cover description\dimensions? 8 inch square steel

Condition of well concrete pad, bollards, and protective cover? Fair

Well protective cover securely attached to the concrete pad? Yes

Bollards painted bright yellow? Needs painting

Lock installed on well protective cover and easy to operate? NA

**Well MW-100 Continue**

Hinges on well protective cover top intact and working properly? NA  
Area around well concrete pad graded to provide drainage away from pad? Yes  
Evidence of water seeping from well protective cover? No  
Evidence of a weep hole at the base of the well protective cover? No  
Area around well free of trees, brush, and tall grass? Yes  
Has the well been impacted by construction activities near the well? No  
Does the well pose a obstruction/threat to plant operation? No  
Does the well look like it has been vandalized? No  
Is the well easily accessible? Yes

**Comments**

DOE Well

**Recommendations**

NA

3.11 Well D-77



Plant: SHF Well Number: D-77 Date Inspected: June 3, 2014

Well GPS Coordinates: KY S. St. Plane NAD 27 Northing:312121.888 Easting: 1118846.328

Well Location: Utility Building \_\_\_ Ash Stack X Rail Loop \_\_\_ AFBC Building \_\_\_

**Well Construction Information**

Depth of water from top of casing measured? (instrument in well)

Depth to well bottom, from top of casing measured?

Diameter of well pvc pipe? 2 inch

Well bottom is \_\_\_\_\_. Sediment on bottom of probe?

Well status: Active

**Well Interior Condition**

Any odor noted? No

Any insects (ants, wasps, etc.) noted currently, or formerly inhabiting? No

Any indication of a film or other biological substances on the well? No

**Well Exterior Condition**

Is the well ID number displayed and easy to read? Lettering too small

Is the well ID number listed on the well inventory spreadsheet provided? Yes

Well cap in good condition or needs replacing? Good

Well protective cover description\dimensions? 4 inch square steel

Condition of well concrete pad, bollards, and protective cover? Replace

Well protective cover securely attached to the concrete pad? Yes

Bollards painted bright yellow? No

Lock installed on well protective cover and easy to operate? Lubricate

Hinges on well protective cover top intact and working properly? Lubricate rod

## Well D-77 Continue

Area around well concrete pad graded to provide drainage away from pad? Yes

Evidence of water seeping from well protective cover? No

Evidence of a weep hole at the base of the well protective cover? No

Area around well free of trees, brush, and tall grass? Yes

Has the well been impacted by construction activities near the well? No

Does the well pose a obstruction/threat to plant operation? No

Does the well look like it has been vandalized? No

Is the well easily accessible? Yes

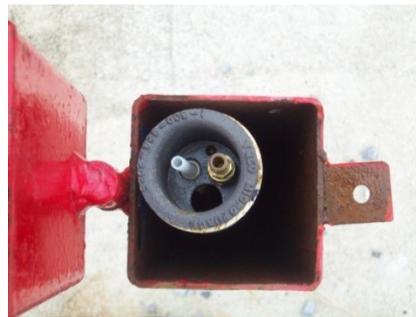
### Comments

1. Concrete pad cracked
2. Lettering on well sign too small

### Recommendations

1. Replace all.
2. Mow grass 10 feet out from all sides of well concrete pad.

3.12 Well D-76A



Plant: SHF Well Number: D-76A Date Inspected: June 3, 2014

Well GPS Coordinates: KY S. St. Plane NAD 27 Northing: 314161.922 Easting: 1113482.333

Well Location: Utility Building \_\_\_ Ash Stack X Rail Loop \_\_\_ AFBC Building \_\_\_

**Well Construction Information**

Depth of water from top of casing measured? (instrument in well)  
Depth to well bottom, from top of casing measured?  
Diameter of well pvc pipe? 2 inch  
Well bottom is \_\_\_ Sediment on bottom of probe?  
Well status: Active

**Well Interior Condition**

Any odor noted? No  
Any insects (ants, wasps, etc.) noted currently, or formerly inhabiting? No  
Any indication of a film or other biological substances on the well? No

**Well Exterior Condition**

Is the well ID number displayed and easy to read? Lettering too small on sign  
Is the well ID number listed on the well inventory spreadsheet provided? Yes  
Well cap in good condition or needs replacing? Good  
Well protective cover description\dimensions? 4 inch square steel  
Condition of well concrete pad, bollards, and protective cover? Good

## Well D-76A Continue

Well protective cover securely attached to the concrete pad? Yes  
Bollards painted bright yellow? No  
Lock installed on well protective cover and easy to operate? Lubricate  
Hinges on well protective cover top intact and working properly? Lubricate rod  
Area around well concrete pad graded to provide drainage away from pad? Yes  
Evidence of water seeping from well protective cover? No  
Evidence of a weep hole at the base of the well protective cover? No  
Area around well free of trees, brush, and tall grass? Yes  
Has the well been impacted by construction activities near the well? No  
Does the well pose a obstruction/threat to plant operation? No  
Does the well look like it has been vandalized? No  
Is the well easily accessible? Yes

### Comments

1. Cut grass around well.
2. Lettering on well sign too small.
3. Grass growing between pad and bollards.

### Recommendations

1. Replace all.
2. Mow grass 10 feet out from all sides of well concrete pad.

313 Well D-75B



Plant: SHF Well Number: D-75B Date Inspected: June 3, 2014

Well GPS Coordinates: KY S. St. Plane NAD 27 Northing: 315529.204 Easting: 1112874.703

Well Location: Utility Building \_\_\_ Ash Stack X Rail Loop \_\_\_ AFBC Building \_\_\_

**Well Construction Information**

Depth of water from top of casing measured? (instrument in well)

Depth to well bottom, from top of casing measured?

Diameter of well pvc pipe? 2 inch

Well bottom is \_\_\_. Sediment on bottom of probe?

Well status: Active

**Well Interior Condition**

Any odor noted?

Any insects (ants, wasps, etc.) noted currently, or formerly inhabiting?

Any indication of a film or other biological substances on the well?

**Well Exterior Condition**

Is the well ID number displayed and easy to read? Lettering on sign too small

Is the well ID number listed on the well inventory spreadsheet provided? Yes

Well cap in good condition or needs replacing? Good

Well protective cover description\dimensions? 4 inch square steel

Condition of well concrete pad, bollards, and protective cover? Good

Well protective cover securely attached to the concrete pad? Yes

## Well D-75B Continue

Bollards painted bright yellow? No

Lock installed on well protective cover and easy to operate? Lubricate

Hinges on well protective cover top intact and working properly? Lubricate rod

Area around well concrete pad graded to provide drainage away from pad? Yes

Evidence of water seeping from well protective cover? No

Evidence of a weep hole at the base of the well protective cover? No

Area around well free of trees, brush, and tall grass? Yes

Has the well been impacted by construction activities near the well? No

Does the well pose a obstruction/threat to plant operation? No

Does the well look like it has been vandalized? No

Is the well easily accessible? Yes

### Comments

1. Cut grass around well.
2. Lettering on well sign too small.
3. Grass growing between pad and bollards.

### Recommendations

1. Replace all.
2. Mow grass 10 feet out from all sides of well concrete pad.

3.14 Well D-75A



Plant: SHF

Well Number: D-75A

Date Inspected: June 3, 2014

Well GPS Coordinates: KY S. St. Plane NAD 27 Northing: 315536.786 Easting: 1112871.379

Well Location: Utility Building      Ash Stack X Rail Loop      AFBC Building     

**Well Construction Information**

Depth of water from top of casing measured? (instrument in well)

Depth to well bottom, from top of casing measured?

Diameter of well pvc pipe? 2 inch

Well bottom is     . Sediment on bottom of probe? NA

Well status: Active

**Well Interior Condition**

Any odor noted?

Any insects (ants, wasps, etc.) noted currently, or formerly inhabiting?

Any indication of a film or other biological substances on the well?

**Well Exterior Condition**

Is the well ID number displayed and easy to read? Lettering on sign too small

Is the well ID number listed on the well inventory spreadsheet provided? Yes

Well cap in good condition or needs replacing? Good

Well protective cover description\dimensions? 4 inch square steel

Condition of well concrete pad, bollards, and protective cover? Good

Well protective cover securely attached to the concrete pad? Yes

## Well D-75A Continue

Bollards painted bright yellow? No

Lock installed on well protective cover and easy to operate? Lubricate

Hinges on well protective cover top intact and working properly? Lubricate rod

Area around well concrete pad graded to provide drainage away from pad? Yes

Evidence of water seeping from well protective cover? No

Evidence of a weep hole at the base of the well protective cover? No

Area around well free of trees, brush, and tall grass? Yes

Has the well been impacted by construction activities near the well? No

Does the well pose a obstruction/threat to plant operation? No

Does the well look like it has been vandalized? No

Is the well easily accessible? Yes

### Comments

1. Cut grass around well.
2. Lettering on well sign too small.

### Recommendations

1. Replace all.
2. Mow grass 10 feet out from all sides of well concrete pad.

3.15 Well D-74B



Plant: SHF Well Number: D-74B Date Inspected: June 3, 2014

Well GPS Coordinates: KY S. St. Plane NAD 27 Northing:316046.248 Easting: 1115701.220

Well Location: Utility Building \_\_\_ Ash Stack X Rail Loop \_\_\_ AFBC Building \_\_\_

**Well Construction Information**

Depth of water from top of casing measured? (instrument in well)

Depth to well bottom, from top of casing measured?

Diameter of well pvc pipe? 2 inch

Well bottom is \_\_\_. Sediment on bottom of probe? NA

Well status: Active

**Well Interior Condition**

Any odor noted?

Any insects (ants, wasps, etc.) noted currently, or formerly inhabiting?

Any indication of a film or other biological substances on the well?

**Well Exterior Condition**

Is the well ID number displayed and easy to read? Lettering on sign too small

Is the well ID number listed on the well inventory spreadsheet provided? Yes

Well cap in good condition or needs replacing? Good

Well protective cover description\dimensions? 4 inch square steel

Condition of well concrete pad, bollards, and protective cover? Good

Well protective cover securely attached to the concrete pad? Yes

## Well D-74B Continue

Bollards painted bright yellow? No

Lock installed on well protective cover and easy to operate? Lubricate

Hinges on well protective cover top intact and working properly? Lubricate rod

Area around well concrete pad graded to provide drainage away from pad? Yes

Evidence of water seeping from well protective cover? No

Evidence of a weep hole at the base of the well protective cover? No

Area around well free of trees, brush, and tall grass? Yes

Has the well been impacted by construction activities near the well? No

Does the well pose an obstruction/threat to plant operation? No

Does the well look like it has been vandalized? No

Is the well easily accessible? Yes

### Comments

1. Cut grass around well.
2. Lettering on well sign too small.
3. Wood forms on pad.
4. Soil washing away from concrete bollards foundation.

### Recommendations

1. Replace all.
2. Mow grass 10 feet out from all sides of well concrete pad.

3.16 Well D-74A



Plant: SHF Well Number: D-74A Date Inspected: June 3, 2014

Well GPS Coordinates: KY S. St. Plane NAD 27 Northing: 316053.109 Easting: 1115693.702

Well Location: Utility Building    Ash Stack X Rail Loop    AFBC Building   

**Well Construction Information**

Depth of water from top of casing measured? (instrument in well)

Depth to well bottom, from top of casing measured?

Diameter of well pvc pipe? 2 inch

Well bottom is   . Sediment on bottom of probe? NA

Well status: Active

**Well Interior Condition**

Any odor noted?

Any insects (ants, wasps, etc.) noted currently, or formerly inhabiting?

Any indication of a film or other biological substances on the well?

**Well Exterior Condition**

Is the well ID number displayed and easy to read? Lettering on sign too small

Is the well ID number listed on the well inventory spreadsheet provided? Yes

Well cap in good condition or needs replacing? Good

Well protective cover description/dimensions? 4 inch square steel

Condition of well concrete pad, bollards, and protective cover? Good

Well protective cover securely attached to the concrete pad? Yes

## Well D-74A Continue

Bollards painted bright yellow? No

Lock installed on well protective cover and easy to operate? Lubricate

Hinges on well protective cover top intact and working properly? Lubricate rod

Area around well concrete pad graded to provide drainage away from pad? Yes

Evidence of water seeping from well protective cover? No

Evidence of a weep hole at the base of the well protective cover? No

Area around well free of trees, brush, and tall grass? Yes

Has the well been impacted by construction activities near the well? No

Does the well pose a obstruction/threat to plant operation? No

Does the well look like it has been vandalized? No

Is the well easily accessible? Yes

### Comments

1. Cut grass around well.
2. Lettering on well sign too small.
3. Wood forms on pad.
4. Soil washing away from concrete bollards foundation.

### Recommendations

1. Replace all.
2. Mow grass 10 feet out from all sides of well concrete pad.

3.17 UST D-73



Plant: SHF Well Number: UST D-73 Date Inspected: June 4, 2014

Well GPS Coordinates: KY S. St. Plane NAD 27 Northing: 312155.618 Easting: 1117320.766

Well Location: Utility Building X Ash Stack      Rail Loop      AFBC Building     

**Well Construction Information**

Depth of water from top of casing measured? (did not remover lid on protective cover)  
Depth to well bottom, from top of casing measured?  
Diameter of well pvc pipe?     
Well bottom is     . Sediment on bottom of probe?  
Well status: Active

**Well Interior Condition**

Any odor noted? No  
Any insects (ants, wasps, etc.) noted currently, or formerly inhabiting? No  
Any indication of a film or other biological substances on the well? No

**Well Exterior Condition**

Is the well ID number displayed and easy to read? Yes  
Is the well ID number listed on the well inventory spreadsheet provided? Yes  
Well cap in good condition or needs replacing? NA  
Well protective cover description\dimensions? NA  
Condition of well concrete pad, bollards, and protective cover? Pad cracked  
Well protective cover securely attached to the concrete pad? Yes  
Bollards painted bright yellow? NA  
Lock installed on well protective cover and easy to operate? NA  
Hinges on well protective cover top intact and working properly? NA  
Area around well concrete pad graded to provide drainage away from pad? Yes  
Evidence of water seeping from well protective cover? No  
Evidence of a weep hole at the base of the well protective cover? No  
Area around well free of trees, brush, and tall grass? Yes  
Has the well been impacted by construction activities near the well? No  
Does the well pose a obstruction/threat to plant operation? No  
Does the well look like it has been vandalized? No  
Is the well easily accessible? Yes

**UST D-73 Continue**

**Comments**

None

**Recommendations**

None

3.18 UST D-72



Plant: SHF Well Number: UST D-72 Date Inspected: June 4, 2014

Well GPS Coordinates: KY S. St. Plane NAD 27 Northing: 312365.349 Easting 1117434.399:

Well Location: Utility Building X Ash Stack      Rail Loop      AFBC Building     

**Well Construction Information**

Depth of water from top of casing measured? (did not remove lid on protective cover)

Depth to well bottom, from top of casing measured?

Diameter of well pvc pipe?   

Well bottom is     . Sediment on bottom of probe?

Well status: Active

**Well Interior Condition**

Any odor noted? No

Any insects (ants, wasps, etc.) noted currently, or formerly inhabiting? No

Any indication of a film or other biological substances on the well? No

**Well Exterior Condition**

Is the well ID number displayed and easy to read? Yes

Is the well ID number listed on the well inventory spreadsheet provided? Yes

Well cap in good condition or needs replacing? NA

Well protective cover description\dimensions? NA

Condition of well concrete pad, bollards, and protective cover? Pad cracked

Well protective cover securely attached to the concrete pad? Yes

Bollards painted bright yellow? NA

Lock installed on well protective cover and easy to operate? NA

Hinges on well protective cover top intact and working properly? NA

Area around well concrete pad graded to provide drainage away from pad? Yes

Evidence of water seeping from well protective cover? No

Evidence of a weep hole at the base of the well protective cover? No

Area around well free of trees, brush, and tall grass? Yes

Has the well been impacted by construction activities near the well? No

Does the well pose a obstruction/threat to plant operation? No

Does the well look like it has been vandalized? No

Is the well easily accessible? Yes

**UST D-72 Continue**

**Comments**

Concrete pad cracked

**Recommendations**

None

3.19 UST D-71



Plant: SHF Well Number: UST D-71 Date Inspected: June 4, 2014

Well GPS Coordinates: KY S. St. Plane NAD 27 Northing:312308.643 Easting: 1117517.810

Well Location: Utility Building X Ash Stack      Rail Loop     AFBC Building     

**Well Construction Information**

Depth of water from top of casing measured? (did not remove lid on protective cover)

Depth to well bottom, from top of casing measured?

Diameter of well pvc pipe?

Well bottom is     . Sediment on bottom of probe?

Well status: Active

**Well Interior Condition**

Any odor noted? No

Any insects (ants, wasps, etc.) noted currently, or formerly inhabiting? No

Any indication of a film or other biological substances on the well? No

**Well Exterior Condition**

Is the well ID number displayed and easy to read? Yes

Is the well ID number listed on the well inventory spreadsheet provided? Yes

Well cap in good condition or needs replacing? NA

Well protective cover description\dimensions? NA

Condition of well concrete pad, bollards, and protective cover? Pad cracked & section broke out.

Well protective cover securely attached to the concrete pad? Yes

Bollards painted bright yellow? NA

Lock installed on well protective cover and easy to operate? NA

Hinges on well protective cover top intact and working properly? NA

Area around well concrete pad graded to provide drainage away from pad? Yes

Evidence of water seeping from well protective cover? No

Evidence of a weep hole at the base of the well protective cover? No

Area around well free of trees, brush, and tall grass? Yes

Has the well been impacted by construction activities near the well? No

Does the well pose a obstruction/threat to plant operation? No

Does the well look like it has been vandalized? No

Is the well easily accessible? Yes

**UST D-71 Continue**

**Comments**

Pad cracked & section broke out.

**Recommendations**

Replace pad.

3.20 UST D-59



**Plant:** SHF                      **Well Number:** UST D-59                      **Date Inspected:** June 4, 2014

**Well GPS Coordinates:** KY S. St. Plane NAD 27    Northing: 312254.016    Easting: 1117376.653

**Well Location:** Utility Building X    Ash Stack         Rail Loop         AFBC Building     

**Well Construction Information**

Depth of water from top of casing measured? (did not remove lid on protective cover)

Depth to well bottom, from top of casing measured?

Diameter of well pvc pipe?

Well bottom is     . Sediment on bottom of probe?

Well status: Active

**Well Interior Condition**

Any odor noted? No

Any insects (ants, wasps, etc.) noted currently, or formerly inhabiting? No

Any indication of a film or other biological substances on the well? No

**Well Exterior Condition**

Is the well ID number displayed and easy to read? Yes

Is the well ID number listed on the well inventory spreadsheet provided? Yes

Well cap in good condition or needs replacing? NA

Well protective cover description\dimensions? NA

Condition of well concrete pad, bollards, and protective cover? Concrete pad cracked & section broken out.

Well protective cover securely attached to the concrete pad? Yes

Bollards painted bright yellow? NA

Lock installed on well protective cover and easy to operate? NA

Hinges on well protective cover top intact and working properly? NA

Area around well concrete pad graded to provide drainage away from pad? Yes

Evidence of water seeping from well protective cover? No

Evidence of a weep hole at the base of the well protective cover? No

Area around well free of trees, brush, and tall grass? Yes

Has the well been impacted by construction activities near the well? No

Does the well pose a obstruction/threat to plant operation? No

Does the well look like it has been vandalized? No

Is the well easily accessible? Yes

**UST D-59 Continue**

**Comments**

Pad cracked & section broke out.

**Recommendations**

Replace pad.

3.21 UST D-50



Plant: SHF Well Number: UST D-50 Date Inspected: June 4, 2014

Well GPS Coordinates: KY S. St. Plane NAD 27 Northing: 312289.511 Easting: 1117354.709

Well Location: Utility Building X Ash Stack      Rail Loop      AFBC Building     

**Well Construction Information**

Depth of water from top of casing measured? (did not remove lid on protective cover) Diesel

Depth to well bottom, from top of casing measured?

Diameter of well pvc pipe?     

Well bottom is     . Sediment on bottom of probe?

Well status: Active

**Well Interior Condition**

Any odor noted? No

Any insects (ants, wasps, etc.) noted currently, or formerly inhabiting? No

Any indication of a film or other biological substances on the well? No

**Well Exterior Condition**

Is the well ID number displayed and easy to read? Yes

Is the well ID number listed on the well inventory spreadsheet provided? Yes

Well cap in good condition or needs replacing? NA

Well protective cover description\dimensions? NA

Condition of well concrete pad, bollards, and protective cover? Concrete pad cracked

Well protective cover securely attached to the concrete pad? Yes

Bollards painted bright yellow? NA

Lock installed on well protective cover and easy to operate? NA

Hinges on well protective cover top intact and working properly? NA

Area around well concrete pad graded to provide drainage away from pad? Yes

Evidence of water seeping from well protective cover? No

Evidence of a weep hole at the base of the well protective cover? No

Area around well free of trees, brush, and tall grass? Yes

Has the well been impacted by construction activities near the well? No

Does the well pose an obstruction/threat to plant operation? No

Does the well look like it has been vandalized? No

Is the well easily accessible? Yes

**UST D-50 Continue**

**Comments**

Concrete pad cracked

**Recommendations**

Replace concrete pad

3.22 UST D-49



Plant: SHF Well Number: UST D-49 Date Inspected: June 4, 2014

Well GPS Coordinates: KY S. St. Plane NAD 27 Northing: \_\_\_\_\_ Easting: \_\_\_\_\_

Well Location: Utility Building \_\_\_ Ash Stack \_\_\_ Rail Loop \_\_\_ AFBC Building \_\_\_\_\_

**Well Construction Information**

Depth of water from top of casing measured? (did not remover lid on protective cover)

Depth to well bottom, from top of casing measured?

Diameter of well pvc pipe? \_

Well bottom is \_\_\_. Sediment on bottom of probe?

Well status: Active

**Well Interior Condition**

Any odor noted? No

Any insects (ants, wasps, etc.) noted currently, or formerly inhabiting? No

Any indication of a film or other biological substances on the well? No

**Well Exterior Condition**

Is the well ID number displayed and easy to read? Yes

Is the well ID number listed on the well inventory spreadsheet provided? Yes

Well cap in good condition or needs replacing? NA

Well protective cover description\dimensions? NA

Condition of well concrete pad, bollards, and protective cover? Concrete pad cracked

Well protective cover securely attached to the concrete pad? Yes

Bollards painted bright yellow? NA

Lock installed on well protective cover and easy to operate? NA

Hinges on well protective cover top intact and working properly? NA

Area around well concrete pad graded to provide drainage away from pad? Yes

Evidence of water seeping from well protective cover? No

Evidence of a weep hole at the base of the well protective cover? No

Area around well free of trees, brush, and tall grass? Yes

Has the well been impacted by construction activities near the well? No

Does the well pose a obstruction/threat to plant operation? No

Does the well look like it has been vandalized? No

Is the well easily accessible? Yes

**UST D-49 Continue**

**Comments**

Concrete pad cracked

**Recommendations**

Replace concrete pad

3.23 UST D-48



**Plant:** SHF                      **Well Number:** UST D-48                      **Date Inspected:** June 4, 2014

**Well GPS Coordinates:** KY S. St. Plane NAD 27 Northing:312212.885 Easting:1117290.943

**Well Location:** Utility Building X Ash Stack      Rail Loop      AFBC Building     

**Well Construction Information**

Depth of water from top of casing measured? (did not remover lid on protective cover)

Depth to well bottom, from top of casing measured?

Diameter of well pvc pipe?

Well bottom is     . Sediment on bottom of probe?

Well status: Active

**Well Interior Condition**

Any odor noted? No

Any insects (ants, wasps, etc.) noted currently, or formerly inhabiting? No

Any indication of a film or other biological substances on the well? No

**Well Exterior Condition**

Is the well ID number displayed and easy to read? Yes

Is the well ID number listed on the well inventory spreadsheet provided? Yes

Well cap in good condition or needs replacing? NA

Well protective cover description\dimensions? NA

Condition of well concrete pad, bollards, and protective cover? Concrete pad cracked

Well protective cover securely attached to the concrete pad? Yes

Bollards painted bright yellow? NA

Lock installed on well protective cover and easy to operate? NA

Hinges on well protective cover top intact and working properly? NA

Area around well concrete pad graded to provide drainage away from pad? Yes

Evidence of water seeping from well protective cover? No

Evidence of a weep hole at the base of the well protective cover? No

Area around well free of trees, brush, and tall grass? Yes

Has the well been impacted by construction activities near the well? No

Does the well pose a obstruction/threat to plant operation? No

Does the well look like it has been vandalized? No

Is the well easily accessible? Yes

**UST D-48 Continue**

**Comments**

Concrete pad cracked

**Recommendations**

Replace concrete pad

3.24 Well D-47(W-1)



Plant: SHF Well Number: D-47 (W-1) Date Inspected: June 4, 2014

Well GPS Coordinates: KY S. St. Plane NAD 27 Northing:306196.660 Easting:1117007.516

Well Location: Utility Building  Ash Stack  Rail Loop:  AFBC Building

**Well Construction Information**

Depth of water from top of casing measured? 46.58 ft.

Depth to well bottom, from top of casing measured? 58.80 ft.

Diameter of well pvc pipe? 2 inch

Well bottom is firm. Sediment on bottom of probe? No

Well status: Active

**Well Interior Condition**

Any odor noted? No

Any insects (ants, wasps, etc.) noted currently, or formerly inhabiting? No

Any indication of a film or other biological substances on the well? No

**Well Exterior Condition**

Is the well ID number displayed and easy to read? Yes

Is the well ID number listed on the well inventory spreadsheet provided? Yes

Well cap in good condition or needs replacing? Good

Well protective cover description\dimensions? 4 inch square steel

Condition of well concrete pad, bollards, and protective cover? No bollards. Replace all.

Well protective cover securely attached to the concrete pad? Yes

Bollards painted bright yellow? NA

Lock installed on well protective cover and easy to operate? Lubricate

## Well D-47(W-1) Continue

Hinges on well protective cover top intact and working properly? Lubricate  
Area around well concrete pad graded to provide drainage away from pad? Yes  
Evidence of water seeping from well protective cover? No  
Evidence of a weep hole at the base of the well protective cover? No  
Area around well free of trees, brush, and tall grass? No  
Has the well been impacted by construction activities near the well? No  
Does the well pose a obstruction/threat to plant operation? No  
Does the well look like it has been vandalized? No  
Is the well easily accessible? No

### Comments

1. Well lock and protective cover hard to open.
2. Need to cut grass, weeds, brush around well. Clear walk way to well.
3. Need new concrete pad, protective cover, and bollards.

### Recommendations

1. Mow access path to well. Mow grass, cut weeds and small trees 10 feet out from all sides of well concrete pad.
2. Add geotextile fabric (24 inches wide) on the ground around the concrete pad and cover with minimum 4 inch layer of crusher run.
3. Provide new concrete pad, cover, and bollards.
4. Provide well ID sign.

3.25 UST D-47



Plant: SHF Well Number: UST D-47 Date Inspected: June 4, 2014

Well GPS Coordinates: KY S. St. Plane NAD 27 Northing: 312127.852 Easting: 1117230.941

Well Location: Utility Building X Ash Stack      Rail Loop      AFBC Building     

**Well Construction Information**

Depth of water from top of casing measured? (did not remove lid on protective cover)

Depth to well bottom, from top of casing measured?

Diameter of well pvc pipe?

Well bottom is     . Sediment on bottom of probe?

Well status: Active

**Well Interior Condition**

Any odor noted? No

Any insects (ants, wasps, etc.) noted currently, or formerly inhabiting? No

Any indication of a film or other biological substances on the well? No

**Well Exterior Condition**

Is the well ID number displayed and easy to read? Yes

Is the well ID number listed on the well inventory spreadsheet provided? Yes

Well cap in good condition or needs replacing? NA

Well protective cover description\dimensions? NA

Condition of well concrete pad, bollards, and protective cover? Concrete pad cracked

Well protective cover securely attached to the concrete pad? Yes

Bollards painted bright yellow? NA

Lock installed on well protective cover and easy to operate? NA

Hinges on well protective cover top intact and working properly? NA

Area around well concrete pad graded to provide drainage away from pad? Yes

Evidence of water seeping from well protective cover? No

Evidence of a weep hole at the base of the well protective cover? No

Area around well free of trees, brush, and tall grass? Yes

Has the well been impacted by construction activities near the well? No

Does the well pose a obstruction/threat to plant operation? No

Does the well look like it has been vandalized? No

Is the well easily accessible? Yes

**UST D-47 Continue**

**Comments**

Concrete pad cracked

**Recommendations**

Replace concrete pad

3.26 Well D-33A



Plant: SHF Well Number: D-33A Date Inspected: June 3, 2014

Well GPS Coordinates: KY S. St. Plane NAD 27 Northing: 317079.240 Easting: 1114475.266

Well Location: Utility Building \_\_\_ Ash Stack X Rail Loop \_\_\_ AFBC Building \_\_\_

**Well Construction Information**

Depth of water from top of casing measured? (instrument in well)

Depth to well bottom, from top of casing measured? NA

Diameter of well pvc pipe? 2 inch

Well bottom is \_\_\_\_. Sediment on bottom of probe? NA

Well status: Active

**Well Interior Condition**

Any odor noted? No

Any insects (ants, wasps, etc.) noted currently, or formerly inhabiting? No

Any indication of a film or other biological substances on the well? No

**Well Exterior Condition**

Is the well ID number displayed and easy to read? Yes. Lettering too small on sign

Is the well ID number listed on the well inventory spreadsheet provided? Yes

Well cap in good condition or needs replacing? Good

Well protective cover description\dimensions? 4 inch square steel

Condition of well concrete pad, bollards, and protective cover? Fair

Well protective cover securely attached to the concrete pad? Yes

Bollards painted bright yellow? No

## Well D-33A Continue

Lock installed on well protective cover and easy to operate? Lubricate  
Hinges on well protective cover top intact and working properly? Lubricate rod  
Area around well concrete pad graded to provide drainage away from pad? No.  
Evidence of water seeping from well protective cover? No  
Evidence of a weep hole at the base of the well protective cover? No  
Area around well free of trees, brush, and tall grass? No  
Has the well been impacted by construction activities near the well? No  
Does the well pose a obstruction/threat to plant operation? No  
Does the well look like it has been vandalized? No  
Is the well easily accessible? No

### Comments

1. Cut grass, weeds, brush around well.
2. Well ID sign hard to read
3. Area floods during heavy rain.
4. Wood form on concrete pad.
5. Well installed in low area. Rain water ponds on concrete pad.

### Recommendations

1. Replace all.
2. Mow grass 10 feet out from all sides of well concrete pad.

3.27 Well D-30B



**Plant:** SHF      **Well Number:** D-30B      **Date Inspected:** June 2, 2014

**Well GPS Coordinates:** KY S. St. Plane NAD 27 Northing: 315120.787 Easting: 1117171.180

**Well Location:** Utility Building     Ash Stack   X   Rail Loop     AFBC Building    

**Well Construction Information**

Depth of water from top of casing measured? (instrument in well)

Depth to well bottom, from top of casing measured? NA

Diameter of well pvc pipe? 2 inch

Well bottom is    . Sediment on bottom of probe? NA

Well status: Active

**Well Interior Condition**

Any odor noted? No

Any insects (ants, wasps, etc.) noted currently, or formerly inhabiting? No

Any indication of a film or other biological substances on the well? No

**Well Exterior Condition**

Is the well ID number displayed and easy to read? Yes. Lettering too small on sign

Is the well ID number listed on the well inventory spreadsheet provided? Yes

Well cap in good condition or needs replacing? Good

Well protective cover description\dimensions? 4 inch square steel

Condition of well concrete pad, bollards, and protective cover? Fair

Well protective cover securely attached to the concrete pad? Yes

Bollards painted bright yellow? No

## Well D-30B Continue

Lock installed on well protective cover and easy to operate? Lubricate  
Hinges on well protective cover top intact and working properly? Lubricate rod  
Area around well concrete pad graded to provide drainage away from pad? No.  
Evidence of water seeping from well protective cover? No  
Evidence of a weep hole at the base of the well protective cover? No  
Area around well free of trees, brush, and tall grass? No  
Has the well been impacted by construction activities near the well? No  
Does the well pose a obstruction/threat to plant operation? No  
Does the well look like it has been vandalized? No  
Is the well easily accessible? No

### Comments

1. Well lock and protective cover hard to open.
2. Well ID sign hard to read
3. Area floods during heavy rain.
4. Wood forms on concrete pad.
5. Water ponds on concrete pad. Concrete pad lower than ground around it.

### Recommendations

1. Replace all.
2. Mow grass 10 feet out from all sides of well concrete pad.

3.28 Well D-30A



**Plant:** SHF                      **Well Number:** D-30A                      **Date Inspected:** June 2, 2014

**Well GPS Coordinates:** KY S. St. Plane NAD 27 Northing: 315115.911 Easting: 1117180.208

**Well Location:** Utility Building     Ash Stack X Rail Loop     AFBC Building    

**Well Construction Information**

Depth of water from top of casing measured? (instrument in well)

Depth to well bottom, from top of casing measured? NA

Diameter of well pvc pipe? 2 inch

Well bottom is    . Sediment on bottom of probe? NA

Well status: Active

**Well Interior Condition**

Any odor noted? No

Any insects (ants, wasps, etc.) noted currently, or formerly inhabiting? No

Any indication of a film or other biological substances on the well? No

**Well Exterior Condition**

Is the well ID number displayed and easy to read? Yes. Lettering too small on sign

Is the well ID number listed on the well inventory spreadsheet provided? Yes

Well cap in good condition or needs replacing? Good

Well protective cover description\dimensions? 4 inch square steel

Condition of well concrete pad, bollards, and protective cover? Fair

Well protective cover securely attached to the concrete pad? Yes

Bollards painted bright yellow? No

## Well D-30A Continue

Lock installed on well protective cover and easy to operate? Lubricate  
Hinges on well protective cover top intact and working properly? Lubricate rod  
Area around well concrete pad graded to provide drainage away from pad? No.  
Evidence of water seeping from well protective cover? No  
Evidence of a weep hole at the base of the well protective cover? No  
Area around well free of trees, brush, and tall grass? No  
Has the well been impacted by construction activities near the well? No  
Does the well pose a obstruction/threat to plant operation? No  
Does the well look like it has been vandalized? No  
Is the well easily accessible? No

### Comments

1. Well lock and protective cover hard to open.
2. Well ID sign hard to read
3. Area floods during heavy rain.
4. Wood forms on concrete pad.
5. Water ponds on concrete pad. Concrete pad lower than ground around it.

### Recommendations

1. Replace all.
2. Mow grass 10 feet out from all sides of well concrete pad.

3.29 Well D-28



Plant: SHF Well Number: D-28 Date Inspected: June 3, 2014

Well GPS Coordinates: KY S. St. Plane NAD 27 Northing: 315767.108 Easting: 113837.365

Well Location: Utility Building \_\_\_ Ash Stack X Rail Loop \_\_\_ AFBC Building \_\_\_

**Well Construction Information**

Depth of water from top of casing measured? 49.95 ft.

Depth to well bottom, from top of casing measured? 67.75 ft.

Diameter of well pvc pipe? 2 inch

Well bottom is firm. Sediment on bottom of probe? Yes, small amount.

Well status: Active

**Well Interior Condition**

Any odor noted? No

Any insects (ants, wasps, etc.) noted currently, or formerly inhabiting? No

Any indication of a film or other biological substances on the well? No

**Well Exterior Condition**

Is the well ID number displayed and easy to read? No

Is the well ID number listed on the well inventory spreadsheet provided? Yes

Well cap in good condition or needs replacing? Good

Well protective cover description\dimensions? 4 inch diameter steel

Condition of well concrete pad, bollards, and protective cover? Poor. Replace

Well protective cover securely attached to the concrete pad? Yes

Bollards painted bright yellow? No

## Well D-28 Continue

Lock installed on well protective cover and easy to operate? Lubricate  
Hinges on well protective cover top intact and working properly? No  
Area around well concrete pad graded to provide drainage away from pad? Yes  
Evidence of water seeping from well protective cover? No  
Evidence of a weep hole at the base of the well protective cover? No  
Area around well free of trees, brush, and tall grass? No  
Has the well been impacted by construction activities near the well? No  
Does the well pose a obstruction/threat to plant operation? No  
Does the well look like it has been vandalized? No  
Is the well easily accessible? No

### Comments

1. Well lock and protective cover hard to open.
2. Need to cut grass, weeds, brush around well. Clear walk way to well.
3. Need well ID sign. Existing hard to read.
4. Need new pad, protective cover and bollards.

### Recommendations

1. Replace all.
2. Mow grass 10 feet out from all sides of well concrete pad.

3.30 Well D-25



Plant: SHF Well Number: D-25 Date Inspected: June 3, 2014

Well GPS Coordinates: KY S. St. Plane NAD 27 Northing: 312454.680 Easting: 1115373.758

Well Location: Utility Building      Ash Stack X Rail Loop      AFBC Building     

**Well Construction Information**

Depth of water from top of casing measured? 47.95 ft.  
Depth to well bottom, from top of casing measured? 84.35 ft.  
Diameter of well pvc pipe? 2 inch  
Well bottom is firm. Sediment on bottom of probe? No  
Well status: Active

**Well Interior Condition**

Any odor noted? No  
Any insects (ants, wasps, etc.) noted currently, or formerly inhabiting? No  
Any indication of a film or other biological substances on the well? No

**Well Exterior Condition**

Is the well ID number displayed and easy to read? No  
Is the well ID number listed on the well inventory spreadsheet provided? Yes  
Well cap in good condition or needs replacing? Good  
Well protective cover description/dimensions? 6 inch diameter steel  
Condition of well concrete pad, bollards, and protective cover? Poor  
Well protective cover securely attached to the concrete pad? Yes  
Bollards painted bright yellow? No

## Well D-25 Continue

Lock installed on well protective cover and easy to operate? Lubricate  
Hinges on well protective cover top intact and working properly? No, hinge broken.  
Area around well concrete pad graded to provide drainage away from pad? Yes  
Evidence of water seeping from well protective cover? No  
Evidence of a weep hole at the base of the well protective cover? No  
Area around well free of trees, brush, and tall grass? No  
Has the well been impacted by construction activities near the well? No  
Does the well pose a obstruction/threat to plant operation? No  
Does the well look like it has been vandalized? No  
Is the well easily accessible? No

### Comments

1. Well lock hard to open.
2. Need to cut grass, weeds, brush around well. Clear walk way to well.
3. Replace bollards, pad, and protective cover.
4. Need well ID sign.
5. Hinge broken on well protective cover lid.

### Recommendations

1. Replace all.
2. Mow grass 10 feet out from all sides of well concrete pad.

3.31 Well D-24



Plant: SHF Well Number: D-24 Date Inspected: June 4, 2014

Well GPS Coordinates: KY S. St. Plane NAD 27 Northing: 312052.258 Easting: 1116579.975

Well Location: Utility Building \_\_\_ Ash Stack \_\_\_ Rail Loop X AFBC Building \_\_\_

**Well Construction Information**

Depth of water from top of casing measured? 41.30 ft.

Depth to well bottom, from top of casing measured? 60.35 ft.

Diameter of well pvc pipe? 2 inch

Well bottom is soft. Sediment on bottom of probe? Yes, lots of sediment.

Well status: Active

**Well Interior Condition**

Any odor noted? No

Any insects (ants, wasps, etc.) noted currently, or formerly inhabiting? No

Any indication of a film or other biological substances on the well? No

**Well Exterior Condition**

Is the well ID number displayed and easy to read? No

Is the well ID number listed on the well inventory spreadsheet provided? Yes

Well cap in good condition or needs replacing? Good

Well protective cover description\dimensions? 4 inch diameter steel pipe.

Condition of well concrete pad, bollards, and protective cover? Poor

Well protective cover securely attached to the concrete pad? Yes

Bollards painted bright yellow? No

### Well D-24 Continue

Lock installed on well protective cover and easy to operate? Lubricate  
Hinges on well protective cover top intact and working properly? Lubricate  
Area around well concrete pad graded to provide drainage away from pad? No  
Evidence of water seeping from well protective cover? No  
Evidence of a weep hole at the base of the well protective cover? No  
Area around well free of trees, brush, and tall grass? Yes  
Has the well been impacted by construction activities near the well? No  
Does the well pose a obstruction/threat to plant operation? No  
Does the well look like it has been vandalized? No  
Is the well easily accessible? Yes

#### Comments

1. Well lock hard to open.
2. Well in low area.
3. Replace bollards, pad, and protective cover.
4. Need well ID sign.

#### Recommendations

1. Replace all.
2. Mow grass 10 feet out from all sides of well concrete pad.

### 3.32 Well D-27



**Plant:** SHF                      **Well Number:** D-27                      **Date Inspected:** June 4, 2014

**Well GPS Coordinates:** KY S. St. Plane NAD 27 Northing: 311215.277 Easting: 1116372.534

**Well Location:** Utility Building      Ash Stack      Rail Loop X AFBC Building     

**Well Construction Information**

Depth of water from top of casing measured? (instrument in well)

Depth to well bottom, from top of casing measured? NA

Diameter of well pvc pipe? 2 inch

Well bottom is     . Sediment on bottom of probe? NA

Well status: Active

**Well Interior Condition**

Any odor noted? No

Any insects (ants, wasps, etc.) noted currently, or formerly inhabiting? No

Any indication of a film or other biological substances on the well? No

**Well Exterior Condition**

Is the well ID number displayed and easy to read? Yes, but hard to read.

Is the well ID number listed on the well inventory spreadsheet provided? Yes

Well cap in good condition or needs replacing? Good

Well protective cover description\dimensions? 4 inch diameter steel pipe.

Condition of well concrete pad, bollards, and protective cover? Good

Well protective cover securely attached to the concrete pad? Yes

Bollards painted bright yellow? No

## Well D-27 Continue

Lock installed on well protective cover and easy to operate? Lubricate  
Hinges on well protective cover top intact and working properly? Lubricate  
Area around well concrete pad graded to provide drainage away from pad? Yes  
Evidence of water seeping from well protective cover? No  
Evidence of a weep hole at the base of the well protective cover? No  
Area around well free of trees, brush, and tall grass? No  
Has the well been impacted by construction activities near the well? No  
Does the well pose a obstruction/threat to plant operation? No  
Does the well look like it has been vandalized? No  
Is the well easily accessible? No

### Comments

1. Well lock and protective cover hard to open.
2. Need to cut grass, weeds, brush around well. Clear walk way to well.
3. Well sign hard to read.
4. Form still on concrete pad.

### Recommendations

1. Replace all.
2. Mow grass 10 feet out from all sides of well concrete pad.

3.33 Well D-19



Plant: SHF Well Number: D-19 Date Inspected: June 4, 2014

Well GPS Coordinates: KY S. St. Plane NAD 27 Northing: 306445.091 Easting: 1116555.366

Well Location: Utility Building      Ash Stack      Rail Loop X AFBC Building     

**Well Construction Information**

Depth of water from top of casing measured? 41.38 ft.  
Depth to well bottom, from top of casing measured? 51.45 ft  
Diameter of well pvc pipe? 2 inch  
Well bottom is firm. Sediment on bottom of probe? No  
Well status: Active

**Well Interior Condition**

Any odor noted? No  
Any insects (ants, wasps, etc.) noted currently, or formerly inhabiting? No  
Any indication of a film or other biological substances on the well? No

**Well Exterior Condition**

Is the well ID number displayed and easy to read? Yes, hard to read.  
Is the well ID number listed on the well inventory spreadsheet provided? Yes  
Well cap in good condition or needs replacing? Good  
Well protective cover description\dimensions? 4 inch diameter steel pipe.  
Condition of well concrete pad, bollards, and protective cover? Good  
Well protective cover securely attached to the concrete pad? Yes  
Bollards painted bright yellow? No  
Lock installed on well protective cover and easy to operate? Lubricate

## Well D-19 Continue

Hinges on well protective cover top intact and working properly? Lubricate  
Area around well concrete pad graded to provide drainage away from pad? Yes  
Evidence of water seeping from well protective cover? No  
Evidence of a weep hole at the base of the well protective cover? No  
Area around well free of trees, brush, and tall grass? No  
Has the well been impacted by construction activities near the well? No  
Does the well pose a obstruction/threat to plant operation? No  
Does the well look like it has been vandalized? No  
Is the well easily accessible? No

### Comments

1. Need to cut grass, weeds, brush around well.
2. Need geotextile fabric and crusher run around well pad.
3. Form is still on concrete pad. Remove.
4. Bollards bent

### Recommendations

1. Replace all.
2. Mow grass 10 feet out from all sides of well concrete pad.

3.34 Well D-17



**Plant:** SHF      **Well Number:** D-17      **Date Inspected:** June 3, 2014

**Well GPS Coordinates:** KY S. St. Plane NAD 27 Northing: 309569.496 Easting: 1118389.515

**Well Location:** Utility Building      Ash Stack      Rail Loop      AFBC Building X

**Well Construction Information**

Depth of water from top of casing measured? 45.7 ft.  
Depth to well bottom, from top of casing measured? 56.2 ft.  
Diameter of well pvc pipe? 2 inch  
Well bottom is firm. Sediment on bottom of probe? Little sediment.  
Well status: Active

**Well Interior Condition**

Any odor noted? No  
Any insects (ants, wasps, etc.) noted currently, or formerly inhabiting? No  
Any indication of a film or other biological substances on the well? No

**Well Exterior Condition**

Is the well ID number displayed and easy to read? No  
Is the well ID number listed on the well inventory spreadsheet provided? Yes  
Well cap in good condition or needs replacing? Good  
Well protective cover description/dimensions? 4 inch diameter steel pipe.  
Condition of well concrete pad, bollards, and protective cover? Poor  
Well protective cover securely attached to the concrete pad? Yes  
Bollards painted bright yellow? No

## Well D-17 Continue

Lock installed on well protective cover and easy to operate? Lubricate  
Hinges on well protective cover top intact and working properly? No  
Area around well concrete pad graded to provide drainage away from pad? Yes  
Evidence of water seeping from well protective cover? No  
Evidence of a weep hole at the base of the well protective cover? No  
Area around well free of trees, brush, and tall grass? No  
Has the well been impacted by construction activities near the well? No  
Does the well pose a obstruction/threat to plant operation? No  
Does the well look like it has been vandalized? No  
Is the well easily accessible? No

### Comments

1. Well lock and protective cover hard to open.
2. Need to cut grass, weeds, brush around well. Clear walk way to well.
3. Need geotextile fabric and crusher run around well pad.
4. Need well ID sign.

### Recommendations

1. Replace all.
2. Mow grass 10 feet out from all sides of well concrete pad.

3.35 Well D-15



Plant: SHF Well Number: D-15 Date Inspected: June 2, 2014

Well GPS Coordinates: KY S. St. Plane NAD 27 Northing: 312862.553 Easting: 1117276.189

Well Location: Utility Building      Ash Stack X Rail Loop      AFBC Building     

**Well Construction Information**

Depth of water from top of casing measured? 34.35 ft.

Depth to well bottom, from top of casing measured? 47.75 ft.

Diameter of well pvc pipe? 2 inch

Well bottom is firm. Sediment on bottom of probe? No

Well status: Active

**Well Interior Condition**

Any odor noted? No

Any insects (ants, wasps, etc.) noted currently, or formerly inhabiting? No

Any indication of a film or other biological substances on the well? No

**Well Exterior Condition**

Is the well ID number displayed and easy to read? No

Is the well ID number listed on the well inventory spreadsheet provided? Yes

Well cap in good condition or needs replacing? Good

Well protective cover description\dimensions? 4 inch diameter steel pipe

Condition of well concrete pad, bollards, and protective cover? Poor

Well protective cover securely attached to the concrete pad? NA

Bollards painted bright yellow? No

## Well D-15 Continue

Lock installed on well protective cover and easy to operate? Lubricate  
Hinges on well protective cover top intact and working properly? Lubricate  
Area around well concrete pad graded to provide drainage away from pad? No  
Evidence of water seeping from well protective cover? No  
Evidence of a weep hole at the base of the well protective cover? No  
Area around well free of trees, brush, and tall grass? Yes  
Has the well been impacted by construction activities near the well? No  
Does the well pose a obstruction/threat to plant operation? No  
Does the well look like it has been vandalized? No  
Is the well easily accessible? Yes

### Comments

1. Well lock and protective cover hard to open.
2. Soil washing away from around foundation.
3. Two inch diameter bollards bent.
4. Need well sign.

### Recommendations

1. Replace all.

3.36 Well D-14B



Plant: SHF Well Number: D-14B Date Inspected: June 3, 2014

Well GPS Coordinates: KY S. St. Plane NAD 27 Northing: 311757.961 Easting: 1114450.688

Well Location: Utility Building      Ash Stack X Rail Loop      AFBC Building     

**Well Construction Information**

Depth of water from top of casing measured? 33.84 ft.  
Depth to well bottom, from top of casing measured? 98.9 ft.  
Diameter of well pvc pipe? 4 inch  
Well bottom is soft. Sediment on bottom of probe? Yes  
Well status: Active

**Well Interior Condition**

Any odor noted? No  
Any insects (ants, wasps, etc.) noted currently, or formerly inhabiting? No  
Any indication of a film or other biological substances on the well? No

**Well Exterior Condition**

Is the well ID number displayed and easy to read? Yes  
Is the well ID number listed on the well inventory spreadsheet provided? Yes  
Well cap in good condition or needs replacing? Good  
Well protective cover description\dimensions? 6 inch square steel  
Condition of well concrete pad, bollards, and protective cover? Good  
Well protective cover securely attached to the concrete pad? Yes  
Bollards painted bright yellow? No

## Well D-14B Continue

Lock installed on well protective cover and easy to operate? Lubricate  
Hinges on well protective cover top intact and working properly? Lubricate rod on cover top  
Area around well concrete pad graded to provide drainage away from pad? Yes  
Evidence of water seeping from well protective cover? No  
Evidence of a weep hole at the base of the well protective cover? No  
Area around well free of trees, brush, and tall grass? No  
Has the well been impacted by construction activities near the well? No  
Does the well pose a obstruction/threat to plant operation? No  
Does the well look like it has been vandalized? No  
Is the well easily accessible? Yes

### Comments

1. Well lock and protective cover hard to open.
2. Cut grass, weeds, brush around well.
3. Bollards and protective cover rusty.
4. Remove debris off concrete pad.
5. Need well ID sign.

### Recommendations

1. Replace all.
2. Mow access path to well. Mow grass, cut weeds and small trees 10 feet out from all sides of well concrete pad.

3.37 Well D-14



Plant: SHF Well Number: D-14 Date Inspected: June 3, 2014

Well GPS Coordinates: KY S. St. Plane NAD 27 Northing: 311762.329 Easting: 1114431.260

Well Location: Utility Building      Ash Stack X Rail Loop      AFBC Building     

**Well Construction Information**

Depth of water from top of casing measured? 34.16 ft.  
Depth to well bottom, from top of casing measured? 62.08 ft  
Diameter of well pvc pipe? 2 inch  
Well bottom is soft. Sediment on bottom of probe? Yes  
Well status: Active

**Well Interior Condition**

Any odor noted? No  
Any insects (ants, wasps, etc.) noted currently, or formerly inhabiting? No  
Any indication of a film or other biological substances on the well? No

**Well Exterior Condition**

Is the well ID number displayed and easy to read? No  
Is the well ID number listed on the well inventory spreadsheet provided? Yes  
Well cap in good condition or needs replacing? Good  
Well protective cover description\dimensions? 6 inch diameter steel pipe  
Condition of well concrete pad, bollards, and protective cover? Poor  
Well protective cover securely attached to the concrete pad? Yes  
Bollards painted bright yellow? No

## Well D-14 Continue

Lock installed on well protective cover and easy to operate? Lubricate  
Hinges on well protective cover top intact and working properly? Lubricate  
Area around well concrete pad graded to provide drainage away from pad? Yes  
Evidence of water seeping from well protective cover? No  
Evidence of a weep hole at the base of the well protective cover? No  
Area around well free of trees, brush, and tall grass? No  
Has the well been impacted by construction activities near the well? No  
Does the well pose a obstruction/threat to plant operation? No  
Does the well look like it has been vandalized? No  
Is the well easily accessible? No

### Comments

1. Well lock and protective cover hard to open.
2. Need to cut grass, weeds, brush around well. Clear walk way to well.
3. Two inch diameter bollards bent.
4. Need well ID sign.
5. Concrete pad cracked

### Recommendations

1. Replace all.
2. Mow access path to well. Mow grass, cut weeds and small trees 10 feet out from all sides of well concrete pad.

3.38 Well D-13



Plant: SHF Well Number: D-13 Date Inspected: June 3, 2014

Well GPS Coordinates: KY S. St. Plane NAD 27 Northing: 313871.704 Easting: 1117198.222

Well Location: Utility Building      Ash Stack X Rail Loop      AFBC Building     

**Well Construction Information**

Depth of water from top of casing measured? 4.48 ft.  
Depth to well bottom, from top of casing measured? 20.20 ft  
Diameter of well pvc pipe? 2 inch  
Well bottom is firm. Sediment on bottom of probe? No  
Well status: Active

**Well Interior Condition**

Any odor noted? No  
Any insects (ants, wasps, etc.) noted currently, or formerly inhabiting? No  
Any indication of a film or other biological substances on the well? No

**Well Exterior Condition**

Is the well ID number displayed and easy to read? No  
Is the well ID number listed on the well inventory spreadsheet provided? Yes  
Well cap in good condition or needs replacing? Good  
Well protective cover description\dimensions? 4 inch diameter steel pipe  
Condition of well concrete pad, bollards, and protective cover? Poor  
Well protective cover securely attached to the concrete pad? Yes  
Bollards painted bright yellow? No

## Well D-13 Continue

Lock installed on well protective cover and easy to operate? Lubricate  
Hinges on well protective cover top intact and working properly? Lubricate  
Area around well concrete pad graded to provide drainage away from pad? Yes  
Evidence of water seeping from well protective cover? No  
Evidence of a weep hole at the base of the well protective cover? No  
Area around well free of trees, brush, and tall grass? No  
Has the well been impacted by construction activities near the well? No  
Does the well pose a obstruction/threat to plant operation? No  
Does the well look like it has been vandalized? No  
Is the well easily accessible? No

### Comments

1. Well lock and protective cover hard to open.
2. Need to cut grass, weeds, brush around well. Clear walk way to well.
3. Bollards bent badly.
4. Bollards and cover not painted yellow.
5. Cover and pad in poor condition

### Recommendations

1. Replace all.
2. Mow access path to well. Mow grass, cut weeds and small trees 10 feet out from all sides of well concrete pad.

3.39 Well D-11B



Plant: SHF Well Number: D-11B Date Inspected: June 3, 2014

Well GPS Coordinates: KY S. St. Plane NAD 27 Northing:318034.625 Easting: 1113003.665

Well Location: Utility Building      Ash Stack X Rail Loop      AFBC Building     

**Well Construction Information**

Depth of water from top of casing measured? (instrument in well)

Depth to well bottom, from top of casing measured?

Diameter of well pvc pipe? 2 inch

Well bottom is     . Sediment on bottom of probe?

Well status: Active

**Well Interior Condition**

Any odor noted? No

Any insects (ants, wasps, etc.) noted currently, or formerly inhabiting? No

Any indication of a film or other biological substances on the well? No

**Well Exterior Condition**

Is the well ID number displayed and easy to read? Yes, hard to read.

Is the well ID number listed on the well inventory spreadsheet provided? Yes

Well cap in good condition or needs replacing? Good

Well protective cover description/dimensions? 4 inch diameter steel pipe.

Condition of well concrete pad, bollards, and protective cover? Fair

Well protective cover securely attached to the concrete pad? Yes

Bollards painted bright yellow? No

Lock installed on well protective cover and easy to operate? Lubricate

## Well D-11B Continue

Hinges on well protective cover top intact and working properly? Lubricate rod  
Area around well concrete pad graded to provide drainage away from pad? Yes  
Evidence of water seeping from well protective cover? No  
Evidence of a weep hole at the base of the well protective cover? No  
Area around well free of trees, brush, and tall grass? No  
Has the well been impacted by construction activities near the well? No  
Does the well pose a obstruction/threat to plant operation? No  
Does the well look like it has been vandalized? No  
Is the well easily accessible? No

### Comments

1. Lubricate well lock and rod on protective cover top.
2. Need to cut grass, weeds, brush around well. Clear walk way to well.
3. Need geotextile fabric and crusher run around well pad.
4. Wood form still on concrete pad. Remove.

### Recommendations

1. Mow access path to well Mow grass, cut weeds and small trees 10 feet out from all sides of well concrete pad.
2. Replace all.

3.40 Well D-11



Plant: SHF Well Number: D-11 Date Inspected: June 3, 2014

Well GPS Coordinates: KY S. St. Plane NAD 27 Northing: 318046.613 Easting: 1112997.076

Well Location: Utility Building      Ash Stack X Rail Loop      AFBC Building     

**Well Construction Information**

Depth of water from top of casing measured? (instrument in well)

Depth to well bottom, from top of casing measured?

Diameter of well pvc pipe? 2 inch

Well bottom is     . Sediment on bottom of probe?

Well status: Active

**Well Interior Condition**

Any odor noted? No

Any insects (ants, wasps, etc.) noted currently, or formerly inhabiting? No

Any indication of a film or other biological substances on the well? No

**Well Exterior Condition**

Is the well ID number displayed and easy to read? Yes, hard to read.

Is the well ID number listed on the well inventory spreadsheet provided? Yes

Well cap in good condition or needs replacing? Good

Well protective cover description\dimensions? 4 inch diameter steel pipe.

Condition of well concrete pad, bollards, and protective cover? Fair

Well protective cover securely attached to the concrete pad? Yes

Bollards painted bright yellow? No

Lock installed on well protective cover and easy to operate? Lubricate

### Well D-11 Continue

Hinges on well protective cover top intact and working properly? Lubricate  
Area around well concrete pad graded to provide drainage away from pad? No  
Evidence of water seeping from well protective cover? No  
Evidence of a weep hole at the base of the well protective cover? No  
Area around well free of trees, brush, and tall grass? No  
Has the well been impacted by construction activities near the well? No  
Does the well pose a obstruction/threat to plant operation? No  
Does the well look like it has been vandalized? No  
Is the well easily accessible? No

### Comments

1. Well lock and protective cover hard to open.
2. Poor drainage around well. Soil washing from under concrete pad.
3. Need to cut grass, weeds, brush around well.
4. Need geotextile fabric and crusher run around well pad.

### Recommendations

1. Replace all. Install pad on top of 6 inch thick layer of compacted crusher run.
2. Mow access path to well. Mow grass, cut weeds and small trees 10 feet out from all sides of well concrete pad.

3.41 Well D-10



Plant: SHF Well Number: D-10 Date Inspected: June 3, 2014

Well GPS Coordinates: KY S. St. Plane NAD 27 Northing: 316205.485 Easting: 1112528.984

Well Location: Utility Building      Ash Stack X Rail Loop      AFBC Building     

**Well Construction Information**

Depth of water from top of casing measured? 39.8 ft.  
Depth to well bottom, from top of casing measured? 48.9 ft.  
Diameter of well pvc pipe? 4 inch  
Well bottom is soft. Sediment on bottom of probe? Yes  
Well status: Active

**Well Interior Condition**

Any odor noted? No  
Any insects (ants, wasps, etc.) noted currently, or formerly inhabiting? No  
Any indication of a film or other biological substances on the well? No

**Well Exterior Condition**

Is the well ID number displayed and easy to read? No  
Is the well ID number listed on the well inventory spreadsheet provided? Yes  
Well cap in good condition or needs replacing? Good  
Well protective cover description\dimensions? 6 inch diameter steel pipe  
Condition of well concrete pad, bollards, and protective cover? Poor  
Well protective cover securely attached to the concrete pad? NA  
Bollards painted bright yellow? Paint

## Well D-10 Continue

Lock installed on well protective cover and easy to operate? Lubricate  
Hinges on well protective cover top intact and working properly? Broken  
Area around well concrete pad graded to provide drainage away from pad? Yes  
Evidence of water seeping from well protective cover? No  
Evidence of a weep hole at the base of the well protective cover? No  
Area around well free of trees, brush, and tall grass? Yes  
Has the well been impacted by construction activities near the well? No  
Does the well pose a obstruction/threat to plant operation? No  
Does the well look like it has been vandalized? No  
Is the well easily accessible? Yes

### Comments

1. Hinge broken on protective cover top
2. Two bollards provided.
3. Paint faded.
4. Well protective cover bent. Protective cover is 13 inches high.
5. Need well ID sign.

### Recommendations

1. Replace all.

3.42 Well D-8A



Plant: SHF Well Number: D-8A Date Inspected: June 3, 2014

Well GPS Coordinates: KY S. St. Plane NAD 27 Northing: 313144.802 Easting: 1113639.802

Well Location: Utility Building      Ash Stack X Rail Loop      AFBC Building     

**Well Construction Information**

Depth of water from top of casing measured? (instrument in well)

Depth to well bottom, from top of casing measured? NA

Diameter of well pvc pipe? 4 inch

Well bottom is     . Sediment on bottom of probe?

Well status: Active

**Well Interior Condition**

Any odor noted? No

Any insects (ants, wasps, etc.) noted currently, or formerly inhabiting? No

Any indication of a film or other biological substances on the well? No

**Well Exterior Condition**

Is the well ID number displayed and easy to read? Yes, hard to read.

Is the well ID number listed on the well inventory spreadsheet provided? Yes

Well cap in good condition or needs replacing? Good

Well protective cover description\dimensions? 6 inch diameter steel pipe.

Condition of well concrete pad, bollards, and protective cover? Good

Well protective cover securely attached to the concrete pad? Yes

Bollards painted bright yellow? No

Lock installed on well protective cover and easy to operate? Lubricate

### **Well D-8A Continue**

Hinges on well protective cover top intact and working properly? Lubricate  
Area around well concrete pad graded to provide drainage away from pad? No  
Evidence of water seeping from well protective cover? No  
Evidence of a weep hole at the base of the well protective cover? No  
Area around well free of trees, brush, and tall grass? Yes  
Has the well been impacted by construction activities near the well? No  
Does the well pose a obstruction/threat to plant operation? No  
Does the well look like it has been vandalized? No  
Is the well easily accessible? Yes

### **Comments**

1. Lubricate well lock and hinge on protective cover top.
2. Need geotextile fabric and crusher run between pad and bollards.
3. Need new well ID sign.

### **Recommendations**

1. Paint all.

3.43 Well D-7



Plant: SHF Well Number: D-7 Date Inspected: June 3, 2014

Well GPS Coordinates: KY S. St. Plane NAD 27 Northing: 316024.246 Easting: 1115559.431

Well Location: Utility Building      Ash Stack X Rail Loop      AFBC Building     

**Well Construction Information**

Depth of water from top of casing measured? (couldn't open top on cover)

Depth to well bottom, from top of casing measured? NA

Diameter of well pvc pipe? NA

Well bottom is     . Sediment on bottom of probe? NA

Well status: Active

**Well Interior Condition**

Any odor noted? NA

Any insects (ants, wasps, etc.) noted currently, or formerly inhabiting? NA

Any indication of a film or other biological substances on the well? NA

**Well Exterior Condition**

Is the well ID number displayed and easy to read? No

Is the well ID number listed on the well inventory spreadsheet provided? Yes

Well cap in good condition or needs replacing? NA

Well protective cover description\dimensions? NA

Condition of well concrete pad, bollards, and protective cover? Poor

Well protective cover securely attached to the concrete pad? NA

Bollards painted bright yellow? Paint

## Well D-7 Continue

Lock installed on well protective cover and easy to operate? No  
Hinges on well protective cover top intact and working properly? NA  
Area around well concrete pad graded to provide drainage away from pad? Yes  
Evidence of water seeping from well protective cover? No  
Evidence of a weep hole at the base of the well protective cover? No  
Area around well free of trees, brush, and tall grass? Yes  
Has the well been impacted by construction activities near the well? No  
Does the well pose a obstruction/threat to plant operation? No  
Does the well look like it has been vandalized? No  
Is the well easily accessible? Yes

### Comments

1. Couldn't open top on cover. Handle broken.
2. Need to cut grass around well.
3. Paint faded.
4. Need new well sign.
5. Protective cover 18 inches tall.

### Recommendations

1. Replace all.
2. Mow grass 10 feet out from all sides of well concrete pad.

3.44 Well D-5



Plant: SHF Well Number: D-5 Date Inspected: June 4, 2014

Well GPS Coordinates: KY S. St. Plane NAD 27 Northing: 315084.711 Easting: 1111031.116

Well Location: Utility Building      Ash Stack      Off Site X AFBC Building     

**Well Construction Information**

Depth of water from top of casing measured? 5.5 ft.  
Depth to well bottom, from top of casing measured? 27.56 ft.  
Diameter of well pvc pipe? 4 inch  
Well bottom is firm. Sediment on bottom of probe? No  
Well status: Active

**Well Interior Condition**

Any odor noted? No  
Any insects (ants, wasps, etc.) noted currently, or formerly inhabiting? No  
Any indication of a film or other biological substances on the well? No

**Well Exterior Condition**

Is the well ID number displayed and easy to read? Yes  
Is the well ID number listed on the well inventory spreadsheet provided? Yes  
Well cap in good condition or needs replacing? Good  
Well protective cover description\dimensions? 6 inch diameter steel pipe  
Condition of well concrete pad, bollards, and protective cover? Poor  
Well protective cover securely attached to the concrete pad? Yes  
Bollards painted bright yellow? No

## Well D-5 Continue

Lock installed on well protective cover and easy to operate? Lubricate  
Hinges on well protective cover top intact and working properly? Lubricate  
Area around well concrete pad graded to provide drainage away from pad? Yes  
Evidence of water seeping from well protective cover? No  
Evidence of a weep hole at the base of the well protective cover? No  
Area around well free of trees, brush, and tall grass? No  
Has the well been impacted by construction activities near the well? No  
Does the well pose a obstruction/threat to plant operation? No  
Does the well look like it has been vandalized? No  
Is the well easily accessible? No

### Comments

1. Well lock and protective cover hard to open.
2. Need to cut grass, weeds, brush around well. Clear walk way to well.
3. Paint chipped/flaking off bollards and cover. Also very rusty.
4. Need well ID sign
5. Bollards bent.
6. Concrete pad damaged.

### Recommendations

1. Replace all.
2. Mow access path to well. Mow grass, cut weeds and small trees 10 feet out from all sides of well concrete pad.

3.45 Well D-3



**Plant:** SHF                      **Well Number:** D-3                      **Date Inspected:** June 2, 2014

**Well GPS Coordinates:** KY S. St. Plane NAD 27    Northing: 311942.410    Easting: 1112207.246

**Well Location:**    Utility Building        Ash Stack        Off Site X    AFBC Building    

**Well Construction Information**

Depth of water from top of casing measured? 38.61 ft.  
Depth to well bottom, from top of casing measured? 69.8 ft.  
Diameter of well pvc pipe? 4 inch  
Well bottom is soft. Sediment on bottom of probe? Yes  
Well status: Active

**Well Interior Condition**

Any odor noted? No  
Any insects (ants, wasps, etc.) noted currently, or formerly inhabiting? No  
Any indication of a film or other biological substances on the well? No

**Well Exterior Condition**

Is the well ID number displayed and easy to read? Yes  
Is the well ID number listed on the well inventory spreadsheet provided? Yes  
Well cap in good condition or needs replacing? Need new cap  
Well protective cover description\dimensions? 6 inch diameter steel pipe  
Condition of well concrete pad, bollards, and protective cover? Poor  
Well protective cover securely attached to the concrete pad? Yes  
Bollards painted bright yellow? Paint

### Well D-3 Continue

Lock installed on well protective cover and easy to operate? Lubricate  
Hinges on well protective cover top intact and working properly? Lubricate  
Area around well concrete pad graded to provide drainage away from pad? Yes  
Evidence of water seeping from well protective cover? No  
Evidence of a weep hole at the base of the well protective cover? No  
Area around well free of trees, brush, and tall grass? No  
Has the well been impacted by construction activities near the well? No  
Does the well pose a obstruction/threat to plant operation? No  
Does the well look like it has been vandalized? No  
Is the well easily accessible? No

### Comments

1. Well lock and protective cover hard to open.
2. Need to cut grass, weeds, brush around well. Clear walk way to well.
3. Well cap missing.
4. Need well ID sign.
5. Bollards bent. Replace.

### Recommendations

1. Replace all.
2. Mow access path to well. Mow grass, cut weeds and small trees 10 feet out from all sides of well concrete pad.
3. Install new well cap.

3.46 Well D-1



Plant: SHF Well Number: D-1 Date Inspected: June 5, 2014

Well GPS Coordinates: KY S. St. Plane NAD 27 Northing: 307424.926 Easting: 1112971.090

Well Location: Utility Building      Ash Stack      Off Site X AFBC Building     

**Well Construction Information**

Depth of water from top of casing measured? 31.28 ft.  
Depth to well bottom, from top of casing measured? 76.7 ft.  
Diameter of well pvc pipe? 4 inch  
Well bottom is firm. Sediment on bottom of probe? No  
Well status: Active

**Well Interior Condition**

Any odor noted? No  
Any insects (ants, wasps, etc.) noted currently, or formerly inhabiting? No  
Any indication of a film or other biological substances on the well? No

**Well Exterior Condition**

Is the well ID number displayed and easy to read? Yes  
Is the well ID number listed on the well inventory spreadsheet provided? Yes  
Well cap in good condition or needs replacing? Replace  
Well protective cover description\dimensions? 6 inch diameter steel pipe  
Condition of well concrete pad, bollards, and protective cover? Poor  
Well protective cover securely attached to the concrete pad? Yes  
Bollards painted bright yellow? Paint

## Well D-1 Continue

Lock installed on well protective cover and easy to operate? Lubricate  
Hinges on well protective cover top intact and working properly? Lubricate  
Area around well concrete pad graded to provide drainage away from pad? Yes  
Evidence of water seeping from well protective cover? No  
Evidence of a weep hole at the base of the well protective cover? No  
Area around well free of trees, brush, and tall grass? No  
Has the well been impacted by construction activities near the well? No  
Does the well pose a obstruction/threat to plant operation? No  
Does the well look like it has been vandalized? No  
Is the well easily accessible? No

### Comments

1. Well lock and protective cover hard to open.
2. Need to cut grass, weeds, brush around well. Clear walk way to well.
3. Need well ID sign.
4. Two inch bollards provided.
5. Well protective cover full of water.
6. Need new well cap

### Recommendations

1. Replace all.
2. Mow access path to well. Mow grass, cut weeds and small trees 10 feet out from all sides of well concrete pad.
3. Install new well cap.

3.47 Well D-23



Plant: SHF Well Number: D-23 Date Inspected: June 3, 2014

Well GPS Coordinates: KY S. St. Plane NAD 27 Northing: 313774.166 Easting: 1116479.100

Well Location: Utility Building      Ash Stack X Rail Loop      AFBC Building     

**Well Construction Information**

Depth of water from top of casing measured? 24.31 ft.  
Depth to well bottom, from top of casing measured? 42.73 ft.  
Diameter of well pvc pipe? 2 inch  
Well bottom is firm. Sediment on bottom of probe? No  
Well status: Active

**Well Interior Condition**

Any odor noted? No  
Any insects (ants, wasps, etc.) noted currently, or formerly inhabiting? No  
Any indication of a film or other biological substances on the well? No

**Well Exterior Condition**

Is the well ID number displayed and easy to read? No  
Is the well ID number listed on the well inventory spreadsheet provided? Yes  
Well cap in good condition or needs replacing? Good  
Well protective cover description\dimensions?  
Condition of well concrete pad, bollards, and protective cover? Good  
Well protective cover securely attached to the concrete pad? Yes  
Bollards painted bright yellow? No

## Well D-23 Continue

Lock installed on well protective cover and easy to operate? Lubricate  
Hinges on well protective cover top intact and working properly? Lubricate  
Area around well concrete pad graded to provide drainage away from pad? Yes  
Evidence of water seeping from well protective cover? No  
Evidence of a weep hole at the base of the well protective cover? No  
Area around well free of trees, brush, and tall grass? No  
Has the well been impacted by construction activities near the well? No  
Does the well pose a obstruction/threat to plant operation? No  
Does the well look like it has been vandalized? No  
Is the well easily accessible? No

### Comments

1. Well lock and protective cover hard to open.
2. Need to cut grass, weeds, brush around well. Clear walk way to well.
3. Need well ID sign.
4. Two inch bollards provided.

### Recommendations

1. Replace all.
2. Mow access path to well. Mow grass, cut weeds and small trees 10 feet out from all sides of well concrete pad.

3.48 USGS Well-2, 8004-6025



Plant: SHF Well Number: USGS Well-2, 8004-6025 Date Inspected: June 5, 2014

Well GPS Coordinates: KY S. St. Plane NAD 27 Northing: 309888.245 Easting: 1118837.583

Well Location: Utility Building  Ash Stack  Rail Loop  Off Site

**Well Construction Information**

Depth to water? 57.8 ft.

Depth to oil? 45.4 ft.

Oil in well? 12.4 ft.

Total Depth? 81.65 ft.

Well bottom is     . Sediment on bottom of probe? NA

Well status: Active

**Well Interior Condition**

Any odor noted? NA

Any insects (ants, wasps, etc.) noted currently, or formerly inhabiting? NA

Any indication of a film or other biological substances on the well? NA

**Well Exterior Condition**

Is the well ID number displayed and easy to read? Yes

Is the well ID number listed on the well inventory spreadsheet provided? No

Well cap in good condition or needs replacing? NA

Well protective cover description\dimensions? NA

Condition of well concrete pad, bollards, and protective cover? NA

Well protective cover securely attached to the concrete pad? NA

Bollards painted bright yellow? NA

**Well USGS Well-2, 8004-6025 Continue**

Lock installed on well protective cover and easy to operate? NA

Hinges on well protective cover top intact and working properly? NA

Area around well concrete pad graded to provide drainage away from pad? Yes

Evidence of water seeping from well protective cover? NA

Evidence of a weep hole at the base of the well protective cover? NA

Area around well free of trees, brush, and tall grass? Yes

Has the well been impacted by construction activities near the well? NA

Does the well pose a obstruction/threat to plant operation? NA

Does the well look like it has been vandalized? Yes per plant Environmental Scientist

Is the well easily accessible? Yes

**Comments**

NA

**Recommendations**

NA

**3.49 USGS Well-1, 8004-6024**



**Plant:** SHF      **Well Number:** USGS Well-1,8004-6024      **Date Inspected:** June 5, 2014

**Well GPS Coordinates:** KY S. St. Plane NAD 27    Northing: 310071.876    Easting: 1118912.871

**Well Location:** Utility Building         Ash Stack         Rail Loop         Off Site   X  

**Well Construction Information**

Depth to water? 53.5 ft.

Depth to oil? 44.9 ft.

Oil in well? 8.6 ft.

Total Depth? 85.1 ft.

Well bottom is     . Sediment on bottom of probe? NA

Well status: Active

**Well Interior Condition**

Any odor noted? NA

Any insects (ants, wasps, etc.) noted currently, or formerly inhabiting? NA

Any indication of a film or other biological substances on the well? NA

**Well Exterior Condition**

Is the well ID number displayed and easy to read? Yes

Is the well ID number listed on the well inventory spreadsheet provided? No

Well cap in good condition or needs replacing? NA

Well protective cover description\dimensions? NA

Condition of well concrete pad, bollards, and protective cover? NA

Well protective cover securely attached to the concrete pad? NA

Bollards painted bright yellow? NA

## Well USGS Well-1, 8004-6024 Continue

Lock installed on well protective cover and easy to operate? NA

Hinges on well protective cover top intact and working properly? NA

Area around well concrete pad graded to provide drainage away from pad? Yes

Evidence of water seeping from well protective cover? NA

Evidence of a weep hole at the base of the well protective cover? NA

Area around well free of trees, brush, and tall grass? Yes

Has the well been impacted by construction activities near the well? NA

Does the well pose a obstruction/threat to plant operation? NA

Does the well look like it has been vandalized? Yes per plant Environmental Scientist

Is the well easily accessible? Yes

### Comments

NA

### Recommendations

NA

## 4.0 Attachments

# **Attachment A**

## Definitions and Terms

## 1.0 Definitions and Terms for This Report

**Groundwater Monitoring Wells** – An instrument installed to monitor a specific subsurface saturated vertical interval. Typically installed to a given interval to monitor targeted aquifer(s) of interest, to collect information on physical or chemical properties of water within that strata. Monitoring wells usually consist of a screened section below ground with riser above connecting to a surface feature (i.e. well pipe stick-up); the screened section is typically surrounded by an annulus of sand which acts as a physical filter against suspended material in groundwater, and the riser is enclosed by a medium which seals direct hydraulic communication between the surface and the screened interval.

**Compliance Wells** – Wells used for compliance and assessment groundwater monitoring. Construction, location and monitoring dictated by regulations and normally associated with a permitted activity.

**Voluntary Monitored** – Wells used for monitoring independent of any compliance program requirements.

**UST Wells** – Wells associated with monitoring or remediation activity at an active or closed underground storage tank (UST). These wells normally are connected to a regulatory action.

**Open But Not Sampled** – Existing groundwater monitoring wells which are not associated with any currently active project or regulatory activity.

**Closed Wells** – Wells which have been closed by filling and sealing the borehole/well PVC casing, and normally involves removing all above ground features.

**Dedicated Well Pump** – A pump installed in a given well, to be used solely in that well, for the purpose of environmental sampling. The benefits of using a dedicated pump include minimizing cross-contamination between wells, and minimizing disturbance resulting from lowering a pump into the well prior to sampling.

### Abbreviations

USWAG - Utility Solid Waste Activities Group  
CCP – Coal Combustion Products  
GWM – Groundwater Monitoring  
TOC – Top of Casing

## 2.0 Report Legend

Replace All	Remove existing concrete pad, bollards, and well protective cover. Place geotextile fabric on the ground and install a minimum four inch layer of crusher run. Install new movable 4 ft. x 6 ft. x 1 ft. equipment concrete pad with built in bollards, lifting lugs and galvanized well protective cover (unpainted). Install a new lock and well ID sign.
Site Maintenance	Cut grass, weeds and/or brush on four sides of well six feet from outside edge of bollards. Install geotextile fabric on ground outside bollards (twelve inches wide) and cover with crusher run. Mow 8 foot wide path from access road to well.
Paint All	Paint four bollards and well protective cover (1 coat primer, 2 coats yellow paint) unless noted otherwise.
Paint Bollards	Paint four bollards only. Do not paint the galvanized well protective cover.
Grading	Grade area around wells as need to insure positive drainage away from the well. Re-seed area disturbed and add straw.
Backfill Around Concrete Pad	Backfill and compact soil around the existing concrete pad to prevent rain run-off from ponding at pad. Put geotextile fabric on the ground between the bollards and the concrete pad. Cover geotextile fabric with crusher run. Slope to insure drainage away from the well.

### 3.0 Commonly Used Definitions and Terms for Groundwater Monitoring Well Program

**Baseline Monitoring** – Monitoring of a given set or subset of wells to establish ambient conditions. Baseline monitoring is typically employed before the operational period of a facility, to establish water quality concentrations and chemical conditions before the influence of waste materials. The list of constituents to be monitored is typically set by regulations, and potentially augmented by a groundwater professional to include certain indicator or macro-constituents for enhancing interpretation.

**Frequency of Readings** – Baseline monitoring is administered on a period as established by regulations or by the recommendation of a groundwater professional, but is typically either on a quarterly or semi-annual basis.

**Compliance (Detection) Monitoring** – Monitoring of a given set of wells to establish both background and down-gradient water quality concentrations and chemistry conditions during the operational and post-closure period of a facility. The list of constituents to be monitored for is typically set by regulations, and potentially augmented by a groundwater professional to include certain indicator or macro-constituents for enhancing interpretation. Down-gradient water quality results are usually compared to a regulatory or voluntary limit, as well as the background water quality for that facility. Results are typically submitted to a regulatory agency.

**Frequency of Readings** – Compliance (Detection) monitoring is administered on a period as established by regulations or by the applicable regulator, but is typically on a semi-annual basis.

**Assessment Monitoring** – More rigorous monitoring of a given set of wells to establish both background and down-gradient water quality concentrations and chemistry conditions during the operational and post-closure period of a facility, usually after exceeding some water quality threshold during compliance (detection) monitoring. The list of constituents to be monitored for is typically set by regulations, potentially expanded beyond the compliance (detection) monitoring list, and potentially augmented by a groundwater professional to include certain indicator or macro-constituents for enhancing interpretation. Down-gradient water quality results are usually compared to a site-specific limit. Results are typically submitted to a regulatory agency.

**Frequency of Readings** – Assessment monitoring is administered on a period as established by regulations or by the applicable regulator, but is typically either on a quarterly or semi-annual basis.

**Well Development** – This activity involves a combination of agitating and consolidating the sand pack around the well screen to improve well yield performance and efficiency of the sand pack in filtering out suspended solids material. This is accomplished typically through alternating cycles of pumping to pull water and annulus materials towards the well, and surging to displace water back into the aquifer formation. The effect of this combination should remove fines and re-sort annulus materials directly around the well screen and remove sediment which collected in the well casing during installation and monitoring. This process is typically implemented following initial well installation, or anytime declining well performance (measured by increased sediment or colloidal material) is observed.

**Well Abandonment (or Well Closure)** – The process of properly closing a well, to remove any potential direct hydraulic communication from the surface to the screened section of the

aquifer. Any existing surface feature of the well should be removed to prevent it from being a nuisance to activities over the former well location; subsurface portions of the well may or may not require removal/excavation, but does require completely sealing the former borehole/well riser with near impermeable material. Commonly well closures must be completed by a well driller who is certified by the applicable State.

CCP – Coal Combustion Products

EPA – US Environmental Protection Agency

DSWM – Division of Solid Waste Management

GWM – Groundwater Monitoring

MCL – Maximum Contaminant Level

TOC – Top of Casing

TDEC – Tennessee Department of Environment and Conservation

USWAG - Utility Solid Waste Activities Group

## **Attachment B**

### SHF Well Water Depth Measured versus Design

Name	Type	KY South State Plane Northing NAD 27 (ft)	KY South State Plane Easting NAD 27 (ft)	Difference between measured and real (ft)	Measured Well Depth from TOC (ft)	Design Well Depth from TOC (ft)	Notes on the bottom of well	Status (active/closed)	Install Date	Top of Casing (ft-msl)	Top of Ground (ft-msl)	Stickup (ft)	Total Well Depth (ft)
A-1	piezometer	312129.49	1112324.73	111.40		111.40			10/88	347.90	344.40	3.50	107.90
A-2	piezometer	313136.64	1112977.16	94.50		94.50			10/88	336.20	334.20	2.00	92.50
A-3	piezometer	313964.39	1112435.08	93.50		93.50			10/88	333.30	330.80	2.50	91.00
A-4	piezometer	315337.21	1110315.89	121.00		121.00			10/88	360.80	358.40	2.40	118.60
AFBC	monitoring well	309374.70	1118033.00	0.99		0.99		active		361.99	361.00	0.99	
B-48	piezometer	315180.10	1114685.90	90.00		90.00		active	5/23/2000	354.50	350.50	4.00	86.00
B-49II	piezometer	313434.60	1115191.20	75.00		75.00		active	6/6/2000	351.50	347.50	4.00	71.00
B-50	piezometer	313461.60	1114336.80	?	?	179.50	firm	active	6/1/2000	448.90	444.90	4.00	175.50
C-1	piezometer			76.70		76.70				357.10	355.10	2.00	74.70
D-1	monitoring well	307420.83	1112969.32	-2.88	76.70	73.82	firm	active	07/80	358.20	356.59	1.61	72.21
D-10	monitoring well	316201.17	1112527.80	-0.15	48.90	48.75	soft	active	12/86	351.75	351.00	0.75	48.00
D-11	monitoring well	318044.21	1112997.54	N/A	?	33.12	?	active	03/88	323.80	318.99	4.80	28.32
D-11B	monitoring well	318037.67	1113012.25	N/A	?	45.08	?	active	6/9/2008	321.79	319.21	2.58	42.50
D-13	monitoring well	313868.65	1117197.45	0.24	20.20	20.44	firm	active	04/88	332.64	330.21	2.43	18.01
D-14	monitoring well	311759.57	1114431.43	0.69	62.08	62.77	soft	active	04/88	354.66	351.90	2.76	60.01
D-14B	monitoring well	311756.50	1114448.70	3.20	98.90	102.10	soft	active	4/25/2000	354.00	351.90	2.10	100.00
D-15	monitoring well	312857.85	1117277.37	0.09	47.75	47.84	firm	active	04/88	349.80	346.98	2.82	45.02
D-17	monitoring well	309572.05	1118386.54	0.43	56.20	56.63	firm	active	05/88	365.42	362.79	2.62	54.01
D-19	monitoring well	306443.31	1116555.88	7.48	51.54	59.02	firm	active	04/88	363.22	360.99	2.23	56.79
D-23	monitoring well	313771.13	1116479.88	0.15	42.73	42.88	firm	active	04/88	340.49	338.10	2.39	40.49
D-24	monitoring well	312052.05	1116579.63	0.09	60.35	60.44	soft	active	05/88	358.73	355.30	3.44	56.99
D-25	monitoring well	312451.19	1115373.88	-36.48	84.35	47.87	firm	active	04/88	353.37	351.01	2.36	45.51
D-27	monitoring well	311213.08	1116372.29	N/A	?	50.30	?	active	04/88	353.60	350.80	2.80	47.50
D-28	monitoring well	315764.59	1113837.07	-0.03	67.75	67.72	firm	active	05/88	363.83	361.10	2.72	64.99
D-3	monitoring well	311940.30	1112206.79	-0.80	69.80	69.00	soft	active	07/80	360.86	358.36	2.49	66.50
D-30A	monitoring well	315114.49	1117179.65	N/A	?	32.99	?	active	6/10/2008	323.87	320.38	3.49	29.50
D-30B	monitoring well	315119.65	1117171.40	N/A	?	53.22	?	active	6/10/2008	324.61	320.89	3.72	49.50
D-33A	monitoring well	317078.51	1114474.37	N/A	?	32.25	?	active	6/10/2008	322.25	319.50	2.75	29.50
D-47	monitoring well	312131.67	1117231.62	N/A	?	?	?	active	2/20/1996	346.30			19.70
D-48	monitoring well	312208.44	1117293.09	N/A	?	?	?	active	2/22/1996	344.94			20.60
D-5	monitoring well	315081.42	1111031.13	10.24	27.56	37.80	firm	active	07/80	331.46	330.77	0.69	37.11
D-50	monitoring well	312261.79	1117333.23	N/A	?	?	?	active	2/21/1996	346.18	?	?	24.70
D-59	monitoring well	312209.86	1117338.44	N/A	?	29.70	?	active	3/19/1996	345.02			29.70
D-60	monitoring well	312005.90	1116806.44	51.62		51.62		active	3/10/1996	356.62	360.00	-3.38	55.00
D-61	monitoring well	312067.89	1116779.32	52.21		52.21		active	3/9/1996	357.21	358.00	-0.79	53.00
D-63	monitoring well	312075.64	1116897.49	52.71		52.71		active	3/9/1996	355.71	358.00	-2.29	55.00
D-64	monitoring well	312120.19	1116806.44	54.62		54.62		active	3/9/1996	354.62	355.00	-0.38	55.00
D-65	monitoring well	312234.49	1116742.51	60.88		60.88		active	3/5/1996	350.88	350.00	0.88	60.00
D-7	monitoring well	316023.52	1115558.76	N/A	?	56.69	?	active	08/85	351.67	349.96	1.71	54.99
D-71	monitoring well	312215.43	1117436.59	32.60		32.60		active	4/9/1996	344.51			32.60
D-72	monitoring well	312316.77	1117389.85	N/A	?	30.50	?	active	4/11/1996	345.60			30.50
D-73	monitoring well	312155.21	1117326.16	N/A	?	29.96	?	active	7/30/1996	344.96	345.00	-0.04	30.00
D-74A	monitoring well	316052.48	1115694.81	N/A	?	31.21	?	active	6/6/2008	331.75	328.54	3.21	28.00
D-74B	monitoring well	316046.08	1115702.82	N/A	?	52.54	?	active	6/6/2008	331.99	328.95	3.04	49.50
D-75A	monitoring well	315537.31	1112870.87	N/A	?	45.83	?	active	6/5/2008	353.27	350.44	2.83	43.00
D-75B	monitoring well	315527.95	1112874.62	N/A	?	61.14	?	active	6/4/2008	353.08	350.44	2.64	58.50
D-76A	monitoring well	314160.02	1113482.43	N/A	?	39.05	?	active	6/12/2008	352.06	349.51	2.55	36.50
D-77	monitoring well	312119.71	1118848.29	N/A	?	37.52	?	active	6/3/2008	331.77	329.75	2.02	35.50

D-8A	monitoring well	313143.12	1113637.53	N/A	?	43.35	?	active	09/87	340.85	328.00	12.85	30.50
LB6Y	Well	311474.37	1114382.82	N/A	?	?	?	?	?	?	?	?	?
LB6Z	Well	311474.37	1114382.82	N/A	?	?	?	?	?	?	?	?	?
LB7Y	Well	298307.75	1114769.51	N/A	?	?	?	?	?	?	?	?	?
LBC-1	monitoring well (UK)	318556.48	1111311.35	N/A	?	?	?	active	?	?	?	?	?
LBC-2	monitoring well (UK)	313935.00	1113457.00	N/A	?	?	?	active	?	329.47	?	?	?
LBC-3	monitoring well (UK)	307214.06	1114444.88	N/A	?	?	?	active	?	334.94	?	?	?
LBC-4/EB1	monitoring well (UK)	311391.14	1114453.03	N/A	?	?	?	?	?	?	?	?	?
LBC-5/WB3	monitoring well (UK)	310634.48	1114704.26	N/A	?	?	?	?	?	?	?	?	?
LBC-6	monitoring well (UK)	310382.36	1114671.86	N/A	?	?	?	?	?	?	?	?	?
LBC-7	monitoring well (UK)	309261.50	1114034.56	N/A	?	?	?	?	?	?	?	?	?
LBC-8	monitoring well (UK)	307763.30	1113991.20	N/A	?	?	?	?	?	?	?	?	?
MW100	DOE monitoring well	303577.25	1119317.17	N/A	?	?	?	?	?	?	?	?	?
MW133	DOE monitoring well	307841.20	1113925.29	N/A	?	?	?	?	?	?	?	?	?
MW135	DOE monitoring well	307779.96	1114111.48	N/A	?	?	?	?	?	?	?	?	?
MW137	DOE monitoring well	307869.60	1113924.75	N/A	?	?	?	?	?	?	?	?	?
MW138	DOE monitoring well	307883.88	1113922.26	N/A	?	?	?	?	?	?	?	?	?
MW146	Well	313425.88	1111891.87	N/A	?	?	?	?	?	?	?	?	?
MW147	Well	313419.90	1111905.52	N/A	?	?	?	?	?	?	?	?	?
MW152	Well	311182.71	1116369.87	N/A	?	?	?	?	?	?	?	?	?
MW153	Well	311170.60	1116362.10	N/A	?	?	?	?	?	?	?	?	?
MW99	Well	304382.67	1116370.44	N/A	?	?	?	?	?	?	?	?	?
R43	Well	309728.68	1117557.62	N/A	?	?	?	?	?	?	?	?	?
RP-8	monitoring well			N/A	?	?	?	?	?	?	?	?	?
W1 (D-47)	monitoring well	306192.39	1117010.35	1.65	58.80	60.45	firm	active	?	368.85	366.5	2.35	58.10
8004-6024	monitoring well	310071.88	1118912.87	N/A	?	?	?	?	?	?	?	?	?
8004-6025	monitoring well	309888.25	1118837.58	N/A	?	?	?	?	?	?	?	?	?
MW-152	DOE monitoring well	311180.63	1116370.09	N/A	?	?	?	?	?	?	?	?	?
MW-153	DOE monitoring well	311169.24	1116362.33	N/A	?	?	?	?	?	?	?	?	?
R43	monitoring well	309826.97	1117583.28	N/A	?	?	firm	?	?	?	?	?	?
Unknown Well	?	?	?	N/A	?	N/A	firm	active	?	?	?	?	?

missing info

## **Attachment C**

### Ground Water Monitoring Wells Location Sketches & Reference Materials



UST Wells

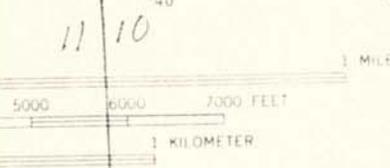
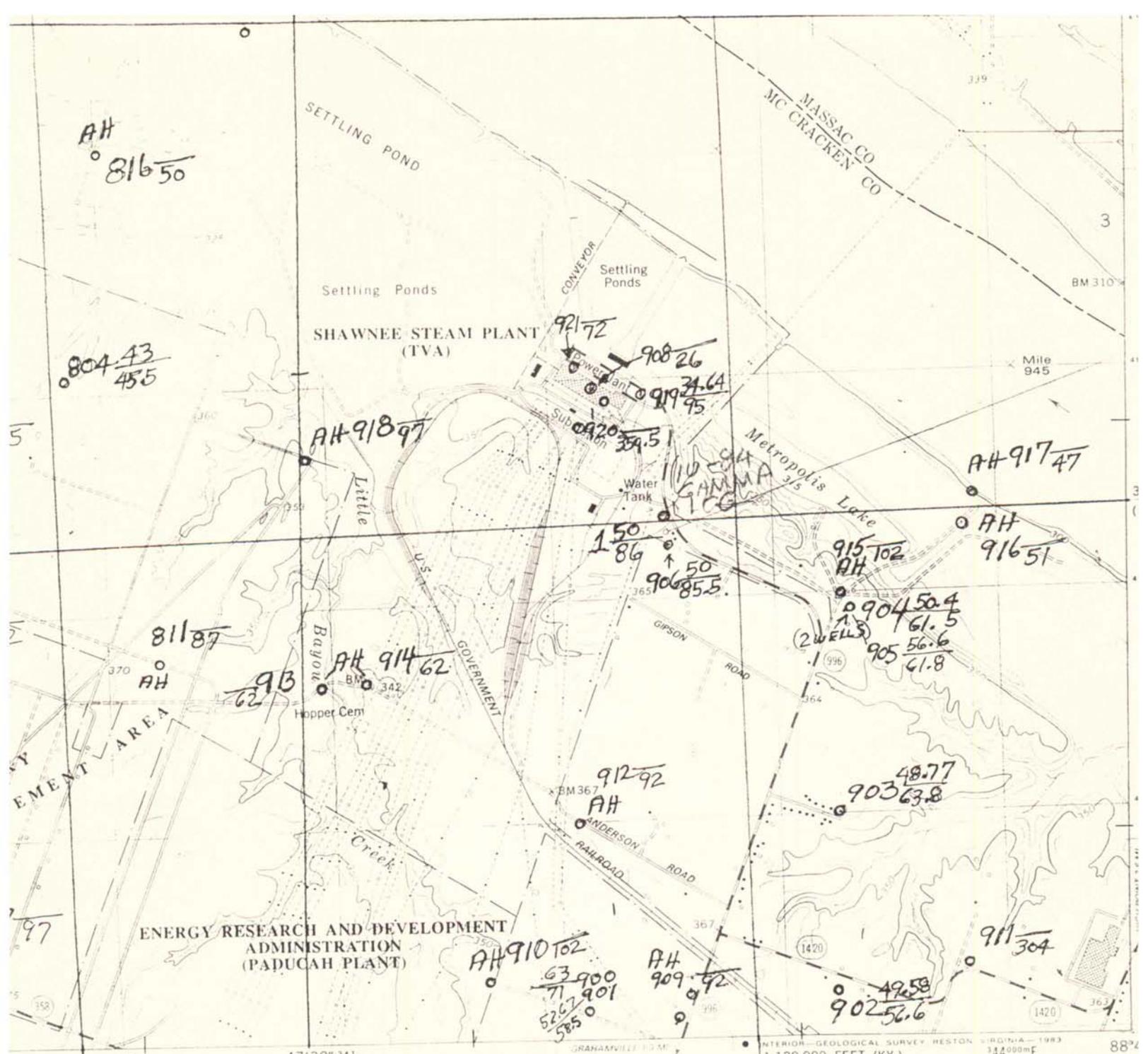




Name	KY South State Plane Northing NAD 27 (ft)	KY South State Prime Easting NAD 27 (ft)	Status (advice/bed)	Geologic Unit Screened	Diameter (in)	Diameter (cm)	Install Date	Top of Casing (ft/msl)	Top of Casing (m-msl)	Top of Ground (ft/msl)	Top of Ground (m-msl)	Stickup (ft)	Stickup (m)	Depth to TOS/Open Borehole from Grade (ft)	Depth to TOS/Open Borehole from Grade (m)	Depth to BOS/Open Borehole from Grade (ft)	Depth to BOS/Open Borehole from Grade (m)	Total Well Depth (ft)	Total Well Depth (m)	Depth to Top of Rock (ft)	Depth to Top of Rock (m)	Information Source
A-1	312129.49	112324.73	closed	sand	2.00	5.00	10/88	347.90	106.04	344.40	104.97	3.93	1.07					107.90	32.89			
A-2	313136.64	112297.16	closed	sand	2.00	5.00	10/88	336.20	107.47	334.20	107.86	2.00	0.61					92.50	28.19			
A-3	313964.39	112243.05	closed	sand	2.00	5.00	10/88	333.30	101.59	330.80	100.83	2.50	0.76					91.00	27.74			
A-4	315037.21	112051.89	active	sand	2.00	5.00	10/88	360.80	109.97	358.40	109.24	2.40	0.73					118.60	36.15			
B-48	315180.10	112485.90	active	sand	2.00	5.00	5/23/2000	354.50	108.05	350.50	106.83	4.00	1.22					96.00	29.21			Law 2000
B-49	315247.60	115191.20	closed	sand	2.00	5.00	6/8/2000	351.50	107.14	347.50	106.52	4.00	1.22					97.15	29.56			Law 2000
B-50	315481.60	114336.60	active	sand	2.00	5.00	6/12/2000	448.90	136.82	444.80	135.61	4.00	1.22					175.50	53.48			Law 2000
C-1	307420.83	112296.32	closed	granular backfill	3.84	10.00	07/80	358.20	109.18	356.59	108.69	1.61	0.49					74.70	22.77			
D-2	310514.00	112456.00	closed	Upper RGA	3.84	10.00	07/80	360.86	109.99	358.36	109.23	2.49	0.78					67.30	20.51			
D-3	312206.79	112206.79	active	Upper RGA	3.84	10.00	07/80	360.86	109.99	358.36	109.23	2.49	0.78					67.30	20.51			
D-4	312206.79	112206.79	active	Upper RGA	3.84	10.00	07/80	360.86	109.99	358.36	109.23	2.49	0.78					67.30	20.51			
D-5	312206.79	112206.79	active	Upper RGA	3.84	10.00	07/80	360.86	109.99	358.36	109.23	2.49	0.78					67.30	20.51			
D-6	316586.56	110874.81	closed	granular backfill	3.84	10.00	07/80	328.67	100.15	326.67	99.57	1.80	0.56					11.34	3.42			
D-7	316223.52	115545.68	active	McNary	3.84	10.00	08/85	351.67	107.19	349.96	106.67	1.71	0.52					54.99	16.76			
D-8	313215.74	113716.84	closed (2000)	sand	3.84	10.00	08/85	349.67	106.43	347.67	105.97	1.65	0.46					40.49	12.34			
D-8A	313143.12	113637.53	active	sand	3.84	10.00	09/87	331.82	101.14	328.96	100.27	2.86	0.87					27.99	8.53			
D-8B	313143.12	113637.53	closed (6/12/2008)	sand	4.00	10.00	5/13/2000	350.40	108.80	348.40	106.19	2.00	0.61					89.00	27.22			Law 2000
D-9	312071.17	113297.60	closed (6/12/2008)	sand	3.84	10.00	07/80	361.13	107.21	357.40	106.38	4.75	1.43					48.00	14.63			
D-10	312071.17	113297.60	active	sand	3.84	10.00	07/80	361.13	107.21	357.40	106.38	4.75	1.43					48.00	14.63			
D-11	316044.21	112697.54	active	sand	1.97	5.00	03/88	321.39	97.46	318.99	97.23	2.39	0.73					28.32	8.63			
D-11B	316037.67	113012.25	active	sand	2.00	5.00	6/9/2008	321.79	96.08	319.21	97.20	2.58	0.79					42.00	12.80			Maestec 2008
D-13	315868.65	117197.45	active	sand	1.97	5.00	04/88	332.64	101.39	330.21	100.65	2.43	0.74					17.52	5.34			
D-14	317599.57	114431.43	active	sand	1.97	5.00	04/88	354.66	108.10	351.90	107.26	2.76	0.84					18.01	5.49			
D-14B	317599.57	114431.43	active	sand	1.97	5.00	4/25/2000	354.66	108.10	351.90	107.26	2.76	0.84					18.01	5.49			Law 2000
D-15	317599.57	114431.43	active	sand	1.97	5.00	4/25/2000	354.66	108.10	351.90	107.26	2.76	0.84					18.01	5.49			Law 2000
D-17	306572.58	118356.54	active	sand	1.97	5.00	05/88	366.79	111.36	362.76	110.58	4.02	1.22					53.51	16.46			
D-19	306443.31	118355.88	active	sand	1.97	5.00	04/88	363.22	110.71	360.99	110.03	2.23	0.68					17.31	5.29			
D-20	313782.04	114546.66	closed (11/7/1993)	clay	1.97	5.00	04/88	348.29	108.16	346.80	105.40	2.49	0.76					56.79	17.31			
D-23	313771.13	116479.88	active	sand	1.97	5.00	04/88	348.29	108.16	346.80	105.40	2.49	0.76					56.79	17.31			
D-24	312052.05	116579.63	active	sand	1.97	5.00	05/88	358.73	109.34	356.30	108.30	3.44	1.05					17.22	5.29			
D-25	312451.19	115373.88	active	sand	1.97	5.00	04/88	359.37	107.71	357.01	106.50	2.86	0.87					45.01	13.72			
D-26	315742.59	113307.07	active	sand	1.97	5.00	05/88	363.83	110.94	361.50	110.16	2.72	0.83					64.99	19.81			
D-30	316833.09	117193.72	closed (6/11/2008)	sand	1.97	5.00	04/88	322.67	96.32	319.88	97.63	2.59	0.79					35.00	10.67			
D-30A	315114.49	117179.65	active	sand	2.00	5.00	6/10/2008	326.72	96.72	320.38	97.65	3.49	1.06					29.50	8.99			Maestec 2008
D-30B	315114.49	117179.65	active	sand	2.00	5.00	6/10/2008	326.72	96.72	320.38	97.65	3.49	1.06					29.50	8.99			Maestec 2008
D-33A	317078.51	114474.37	active	sand	2.00	5.00	6/10/2008	322.25	96.24	319.89	97.81	3.72	1.13					14.84	4.50			
D-34	316897.08	118215.90	closed (11/22/99)	sand	1.97	5.00	4/15/1991	344.81	105.10	342.14	105.20	3.03	0.93					30.51	9.30			Law 1991
D-35	316897.08	118215.90	closed	sand	1.97	5.00	4/15/1991	344.81	105.10	342.14	105.20	3.03	0.93					30.51	9.30			Law 1991
D-36	316446.63	118174.40	closed	sand	1.97	5.00	4/16/1991	346.90	105.74	344.83	104.80	3.07	0.94					30.50	9.30			Law 1991
D-37	311540.22	118235.91	closed	sand	1.97	5.00	4/16/1991	346.78	105.70	344.20	104.91	2.53	0.78					35.50	10.82			Law 1991
D-38	311554.80	118272.45	not located	sand	1.97	5.00	4/16/1991	344.81	105.10	342.14	105.20	3.03	0.93					35.50	10.82			Law 1991
D-39	311598.90	118250.41	closed	sand	1.97	5.00	4/16/1991	344.81	105.10	342.14	105.20	3.03	0.93					35.50	10.82			Law 1991
D-40	311598.90	118250.41	closed	sand	1.97	5.00	4/16/1991	344.81	105.10	342.14	105.20	3.03	0.93					35.50	10.82			Law 1991
D-41	311598.90	118250.41	closed	sand	1.97	5.00	4/16/1991	344.81	105.10	342.14	105.20	3.03	0.93					35.50	10.82			Law 1991
D-42	314496.63	115187.76	closed	granular backfill	4.00	10.00	5/13/1992	356.50	108.95	354.00	107.90	2.60	0.79					26.50	8.04			Law 1992
D-43	314496.63	115187.76	closed	granular backfill	4.00	10.00	5/13/1992	356.50	108.95	354.00	107.90	2.60	0.79					26.50	8.04			Law 1992
D-44	314244.23	114860.98	closed	granular backfill	2.00	5.00	5/8/1992	348.85	108.23	346.85	105.42	3.00	0.91					17.77	5.30			Field 1992
D-45	314912.85	114822.46	closed	sand	2.00	5.00	5/8/1992	355.09	108.33	352.09	107.32	3.00	0.91					18.00	5.49			Field 1992
D-46	314339.37	117321.62	closed	sand	2.00	5.00	5/7/1992	356.39	108.63	353.39	107.71	3.00	0.91					36.00	10.97			Field 1992
D-47	312731.67	117211.62	active	sand	2.00	5.00	2/20/1996	346.30	105.55									19.20	5.85			Law 1996
D-48	312731.67	117211.62	active	sand	2.00	5.00	2/20/1996	346.30	105.55									19.20	5.85			Law 1996
D-49	312731.67	117211.62	active	sand	2.00	5.00	2/20/1996	346.30	105.55									19.20	5.85			Law 1996
D-50	312261.78	117333.23	active	sand	2.00	5.00	2/21/1996	346.18	105.52									24.70	7.53			Law 1996
D-51			closed	sand	2.00	5.00	2/21/1996			345.00	105.16							24.40	7.44			Law 1996
D-52			closed	sand	2.00	5.00	2/21/1996			370.00	112.78							40.00	12.19			Law 1996
D-53			closed	sand	2.00	5.00	2/21/1996			370.00	112.78							30.40	9.27			Law 1996
D-54			closed	sand	2.00	5.00	2/21/1996			370.00	112.78							35.00	10.67			Law 1996
D-55			closed	sand	2.00	5.00	2/21/1996			350.00	103.42							24.70	7.53			Law 1996
D-56			closed	sand	2.00	5.00	2/21/1996			370.00	112.78							25.10	7.65			Law 1996
D-57			closed	sand	2.00	5.00	2/21/1996			370.00	112.78							25.10	7.65			Law 1996
D-58	316959.47	116697.40	closed	sand	2.00	5.00	2/24/1996	356.63	108.70	370.00	112.78							37.50	11.43			Law 1996
D-59	317209.86	117338.44	active	sand	2.00	5.00	3/19/1996	350.16	108.16									29.70	9.05			Law 1996
D-60	317005.50	116806.44	active	sand	2.00	5.00	3/19/1996	356.62	108.40	360.00	109.73	3.38	1.03					55.00	16.76			Law 1996







ROAD CLASSIFICATION

Primary highway hard surface	Light-duty road, hard or improved surface
Secondary highway hard surface	Unimproved road
Interstate Route	U.S. Route
	State Route



AH = AUGER HOLE - GEOLOGIC DATA  
 JOPPA, ILL.-KY.  
 NE/4 LA CENTER 15' QUADRANGLE  
 N3707.5 - W8845/7.5

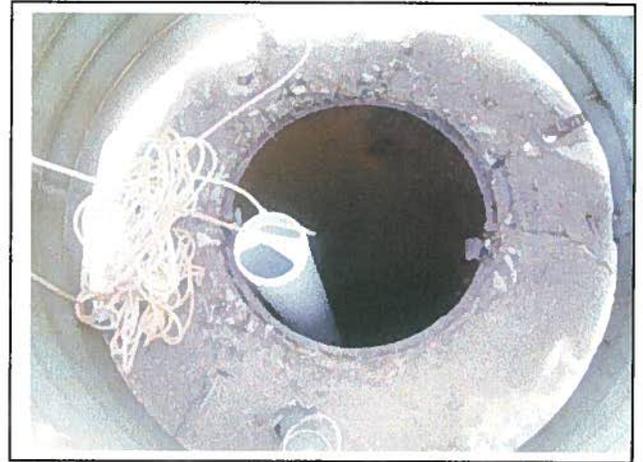
WELL NUMBER → 902 ← WINTER LEVEL 1982  
 → 99.58 ←  
 → 50.6 ← DEPTH  
 DMA 3258 III NE - SERIES V863

COPIES AVAILABLE ON REQUEST

# PHOTOGRAPHS OF WELLS



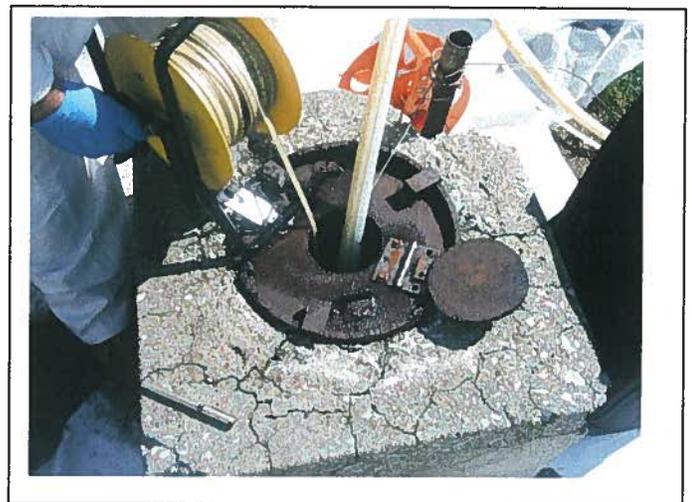
Well USGS-1, AKGWA # 8004-6024



Well USGS-1, AKGWA # 8004-6024



Well USGS-1, AKGWA # 8004-6024

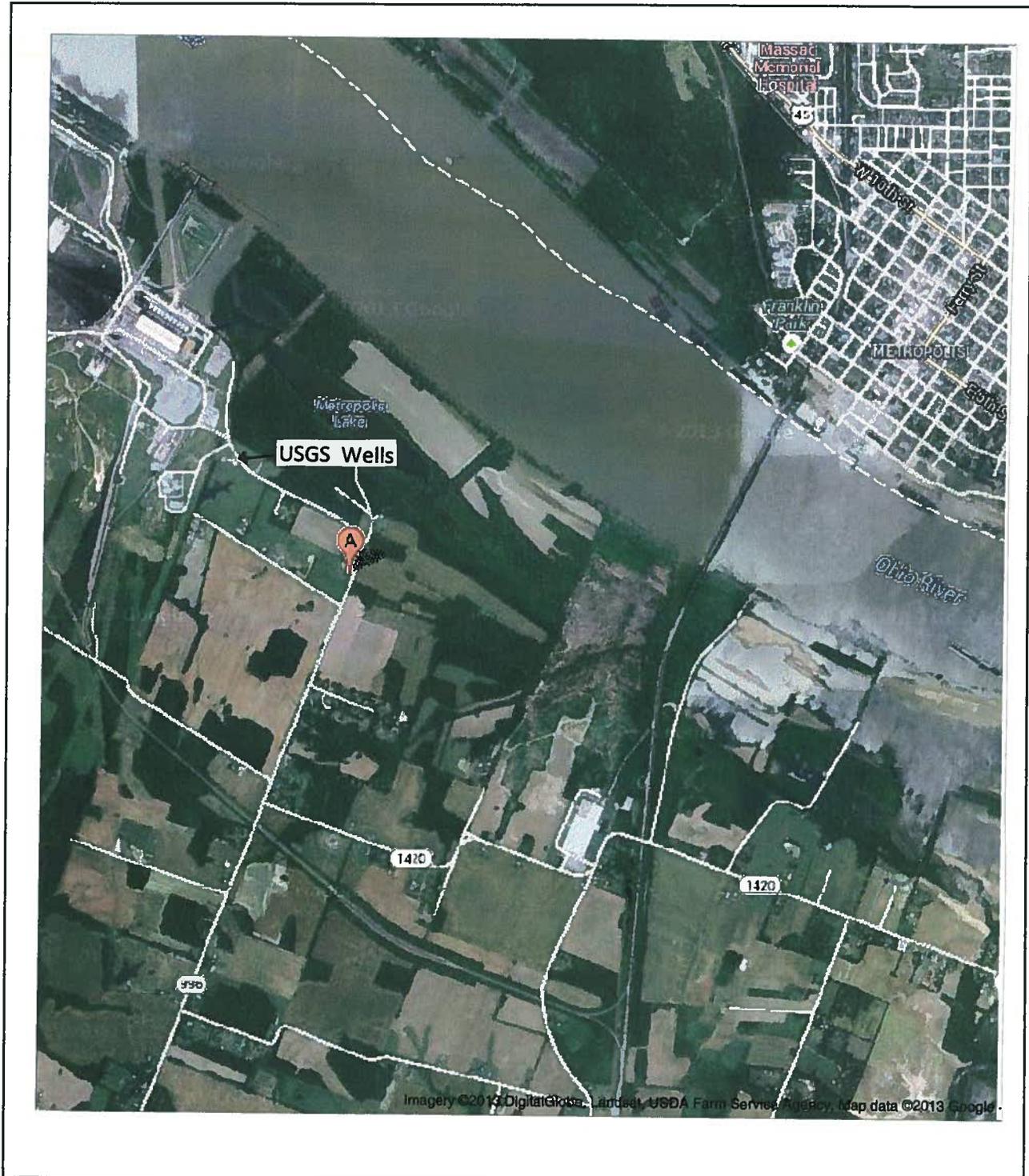


Well USGS-2, AKGWA # 8004-6025



**Stantec Consulting Services Inc.**  
1500 Lake Shore Drive Suite 100  
Columbus OH 43204  
Tel: (614) 486-4383  
Fax: (614) 486-4387

**Stantec**

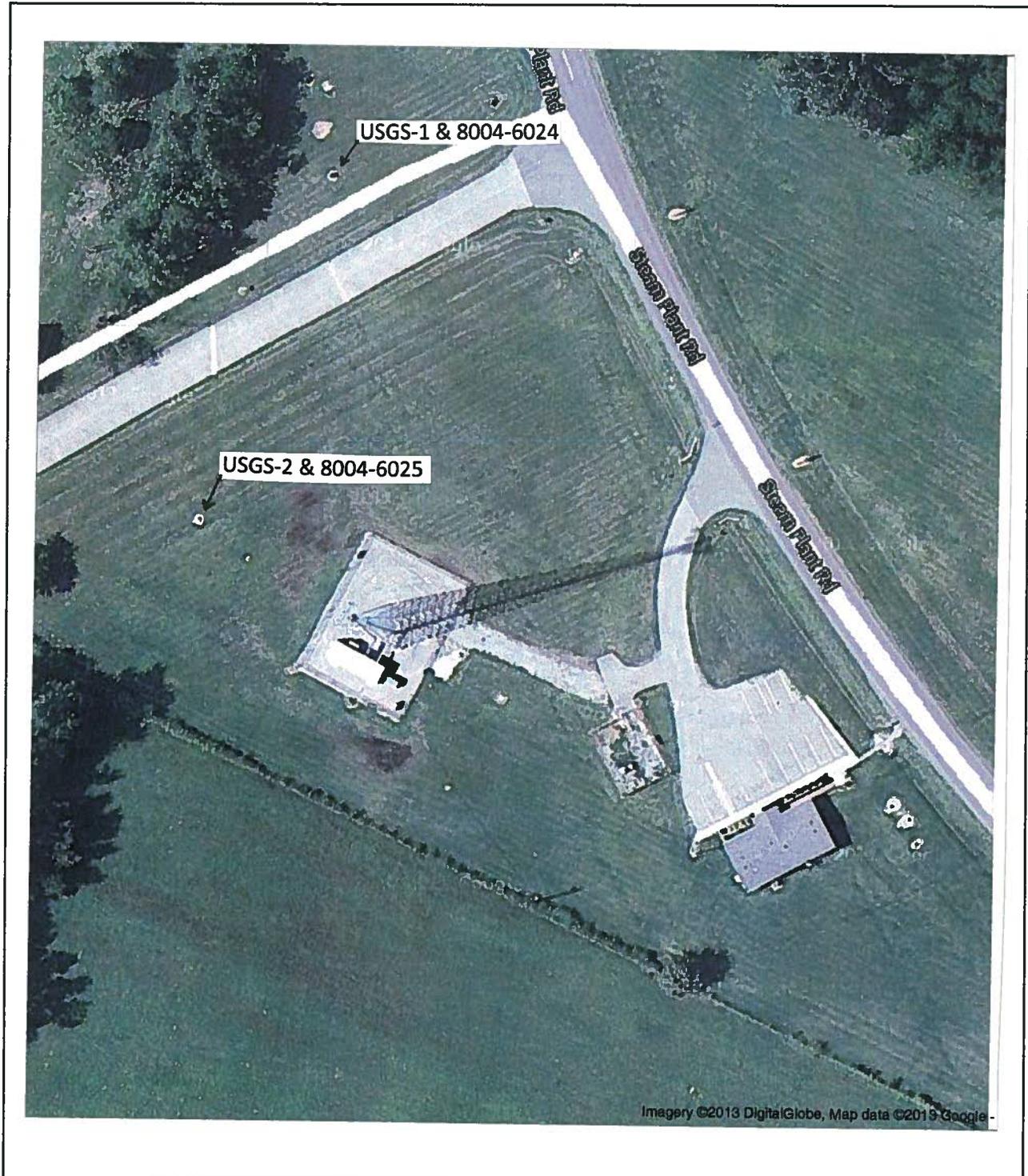


**LOCATION MAP 1 USGS WELLS  
TVA SHAWNEE FOSSIL PLANT WEST PADUCAH, KENTUCKY**



**Stantec**

**Stantec Consulting Services Inc.**  
1500 Lake Shore Drive Suite 100  
Columbus OH 43204  
Tel: (614) 486-4383  
Fax: (614) 486-4387



**LOCATION MAP 2 USGS WELLS  
TVA SHAWNEE FOSSIL PLANT WEST PADUCAH, KENTUCKY**

**UNIFORM KENTUCKY WELL CONSTRUCTION RECORD**

Use this form only to report installation of monitoring or water wells.  
 Original copy must be submitted to Division of Water within 60 days of completion.  
 See instructions on reverse of form.  
 Record must be typed or neatly printed or it will be returned to the driller as unacceptable.  
 One copy to Division of Water, one copy to owner, one copy to driller's files.

**Attach Well Identification Number (AKGWA) Label Here**

Water wells: yellow labels  
 Monitoring wells: blue labels

4. Owner name: **TVA Shawnee Fossil Pt**  
 5. Owner address: **7900 Metropolis Lake**  
 6. City: **W Paducah** 7. State: **KY** 8. Zip: **42086**  
 9. Site name: \_\_\_\_\_  
 10. Site address: \_\_\_\_\_  
 11. City: \_\_\_\_\_ 12. State: \_\_\_\_\_ 13. Zip: \_\_\_\_\_

1. Kentucky Well ID (AKGWA) Number: **8004-6024**  
 2. Owner well ID#: **USGS-1**  
 3. Attachments Required:  
 1. Site plan or sketch map   
 2. Well location:  
 On topographic map, OR   
 Obtained by GPS unit   
 Conditionally Required:  
 3. Well diagram (monitoring well)   
 4. Coliform analysis (if applicable)   
 5. Signed Variance (if applicable)   
 Optional:  
 6. Other laboratory analysis report

14. Agency Interest (AI) Number: \_\_\_\_\_  
 15. Facility type:  CERCLA  Solid Waste  Drinking Water  
 RCRA  UST  Mining  
 & ID Number: \_\_\_\_\_

16. Owner phone: **270-575-8024** 17. Site phone: **502-575-8145**

23. Install start date: **unknown**  
 24. Install end date: \_\_\_\_\_  
 Please report depths in feet below ground surface, not as relative elevations.

18. USGS topo map: **JOPPA Kentucky, IL**  
 19. County: **McCracken** 21. Surface elevation (ft): **361.0**

25. Total depth: **87.0**  
 26. Depth to bedrock: \_\_\_\_\_  
 27. Static water level: **48.0**  
 28. Casing height above surface (ft): \_\_\_\_\_

20. Physiographic Region:  Blue Grass  Ohio River Alluvium  
 E. Coal Field  W. Coal Field  GPS  Map  Prior report  
 Miss. Plateau  Jackson Purchase  Survey  Prior well log

29. Well use:  Agriculture  Geothermal  Commercial  Heat pump  Domestic  HVAC  Industrial **01**  Injection  Mining  Monitoring/Remed  Public  Unused  
 30. Drilling method:  Auger - HS  Jet wash  Auger - SS  Push/probe  Auger - bucket  Rotary - air  Auger - hand  Rotary - mud  Cable tool  Rotary - reverse  Core  Sand point  Driven Casing  Sonic  Excavation  Unknown  Combined - HS auger and air rotary  Combined - other (specify): \_\_\_\_\_  
 31. Well status:  Active  Inactive  Unsuitable for intended use  
 32. Wellhead:  Flush  Well cap  Locking  Sanitary seal  
 33. Well development method:  Surging  Jetting  Pumping  Backwashing  Bailing  Compressed air  Combination of methods (specify): **Unknown**

**WATER WELLS ONLY**  
 34. Estimated well yield: \_\_\_\_\_  gpm  gph  gpd  
 35. Well service: \_\_\_\_\_ # of people served

46. Well completion: Casing and screens

From depth (feet)	To depth (feet)	Borehole diameter (inches)	Casing diam (in)	Casing type	Screen slot size	From depth (feet)	To depth (feet)	Material
0	87	10	X	Steel	?			unknown

47. Annulus fill and seal

36. Disinfectant amount: \_\_\_\_\_ 37. Type:  Bleach  Hypochlorite  
 oz  qt  cups  lb  gal  
 38. Fitters adapter installed:  Yes  No  
 39. Pump installed:  Submersible  Jet  Bailer or bucket  Turbine  Hand  No pump

48. Lithologic log (if more space is needed, continue on separate page)

From depth (ft)	To depth (ft)	Description
0	87	Overburden of unknown type

49. Sketch map: **see attached with photos**

40. Depth to intake (ft): \_\_\_\_\_  
 41. Apparent quality and odor:  
 APPEARANCE:  Clear  Cloudy  Muddy  Turbid  
 ODOR:  none  slight  mod.  high  
 Iron  Sulfur  Salt  
**COLIFORM TEST**  
 42. Coliform test type:  fecal  fecal and total  
 43. Coliform test results:  0 or <1.0  TNTC  Confluent  
 or \_\_\_\_\_ # colonies per 100 mL  
 44. Date sampled: \_\_\_\_\_  
 45. Date analyzed: \_\_\_\_\_

50. Comments: **Well was installed prior to 1957 when USGS started using it. Unknown construction**

Latitude: **37.14648**  
 Longitude: **-088.77329**  
 Lat/Long Method:  INT  GPS  SUR  REP  
 Date Received: \_\_\_\_\_

51. Affirmation: The work described above was done under my supervision, and this report is true and correct to the best of my knowledge. Note: the driller is not responsible for natural groundwater quality or quantity encountered while drilling or completing this well.  
 Signature of certified driller: \_\_\_\_\_ Date signed: \_\_\_\_\_  
 Certification number: **0450-0572-00** Drilling company: **Stantec Consulting Service**

# UNIFORM KENTUCKY WELL CONSTRUCTION RECORD

Use this form only to report installation of monitoring or water wells.  
Original copy must be submitted to Division of Water within 60 days of completion.  
See instructions on reverse of form.

Record must be typed or neatly printed or it will be returned to the driller as unacceptable.  
One copy to Division of Water, one copy to owner, one copy to driller's files.

## Attach Well Identification Number

(AKGWA) Label Here

Water wells: yellow labels  
Monitoring wells: blue labels

4. Owner name: TVA Shawnee Fossil Pt  
5. Owner address: 7900 Metropolis Lake  
6. City: W Paducah 7. State: KY 8. Zip: 42086  
9. Site name: \_\_\_\_\_  
10. Site address: \_\_\_\_\_  
11. City: \_\_\_\_\_ 12. State: \_\_\_\_\_ 13. Zip: \_\_\_\_\_

14. Agency Interest (AI) Number: \_\_\_\_\_  
15. Facility type:  CERCLA  Solid Waste  Drinking Water &  RCRA  UST  Mining  
ID Number: \_\_\_\_\_

16. Owner phone: 270-575-8024 17. Site phone: 502-575-8145

18. USGS topo map: Joppa Kentucky, IL  
19. County: McCracken 21. Surface elevation (ft): 366.0

20. Physiographic Region:  Blue Grass  Ohio River Alluvium  E. Coal Field  W. Coal Field  Miss. Plateau  Jackson Purchase  
22. Elevation determined by:  GPS  Map  Prior report  Survey  Prior well log

29. Well use:  Agriculture  Commercial  Domestic  Industrial  Monitoring/Remed  Public  
OT  
 Geothermal  Heat pump  HVAC  Injection  Mining  Unused  
30. Drilling method:  Auger - HS  Jet wash  Auger - SS  Push/probe  Auger - bucket  Rotary - air  Auger - hand  Rotary - mud  Cable tool  Rotary - reverse  Core  Sand point  Driven Casing  Sonic  Excavation  Unknown  Combined - HS auger and air rotary  Combined - other (specify): \_\_\_\_\_  
31. Well status:  Active  Inactive  Unsuitable for intended use  
32. Wellhead:  Flush  Well cap  Locking  Sanitary seal  
33. Well development method:  Surging  Jetting  Pumping  Backwashing  Bailing  Compressed air  Combination of methods (specify): \_\_\_\_\_  
Unknown

46. Well completion: Casing and screens

From depth (feet)	To depth (feet)	Borehole diameter (inches)	Casing diam (in) ID	Casing type	Screen	From depth (feet)	To depth (feet)	Material
0	87	10	X	Steel				unknown

48. Lithologic log (if more space is needed, continue on separate page)

From depth (ft)	To depth (ft)	Description
0	87	Overburden of unknown type

49. Sketch map: see attached with photos

50. Comments: Well was installed prior to 1957 when USGS started using it. Unknown construction

51. Affirmation: The work described above was done under my supervision, and this report is true and correct to the best of my knowledge. Note: the driller is not responsible for natural groundwater quality or quantity encountered while drilling or completing this well.  
Signature of certified driller: \_\_\_\_\_ Date signed: \_\_\_\_\_  
Certification number: 0450-0572-00 Drilling company: Stantec Consulting Service

1. Kentucky Well ID (AKGWA) Number: 8004-6025

2. Owner well ID#: USGS-2

3. Attachments Required:  
1. Site plan or sketch map   
2. Well location:  On topographic map, OR  Obtained by GPS unit  
Conditionally Required:  
3. Well diagram (monitoring well)   
4. Coliform analysis (if applicable)   
5. Signed Variance (if applicable)   
Optional:  
6. Other laboratory analysis report

23. Install start date: unknown  
Month: \_\_\_\_\_ Day: \_\_\_\_\_ Year: \_\_\_\_\_

24. Install end date: \_\_\_\_\_

Please report depths in feet below ground surface, not as relative elevations.

25. Total depth: 87.0

26. Depth to bedrock: \_\_\_\_\_  
27. Static water level: 49.2

28. Casing height above surface (in): \_\_\_\_\_

### WATER WELLS ONLY

34. Estimated well yield: \_\_\_\_\_  gpm  gph  gpd

35. Well service: \_\_\_\_\_ # of people served

36. Disinfectant amount: \_\_\_\_\_ 37. Type:  Bleach  Hypochlorite  
 oz  qt  cups  lb  gal

38. Pitless adapter installed:  Yes  No

39. Pump installed:  Submersible  Jet  Turbine  Hand  No pump  
 Bailer or bucket

40. Depth to intake (ft): \_\_\_\_\_

41. Apparent quality and odor:  
APPEARANCE:  Clear  Cloudy  Muddy  Turbid  
ODOR:  None  slight  mod.  high  
 Iron  Sulfur  Salt

### COLIFORM TEST

42. Coliform test type:  fecal  fecal and total

43. Coliform test results:  0 or <1.0  TNTC  Confluent  
or \_\_\_\_\_ # colonies per 100 mL

44. Date sampled: \_\_\_\_\_  
Month: \_\_\_\_\_ Day: \_\_\_\_\_ Year: \_\_\_\_\_

45. Date analyzed: \_\_\_\_\_

Latitude: 37.14582

Longitude: -088.77376

Lat/Long Method:  INT  GPS  SUR  REP

Date Received: \_\_\_\_\_



**Stantec**

July 3, 2013  
Shawnee Fossil Plant  
Page 2 of 5

**Reference: USGS Well Assessment, Shawnee Fossil Plant**

Possibly both wells were installed by cable tool. Inspection logs and video recordings are included.

Attachments: Photographs  
Video Logs  
Video

Reference: USGS Well Assessment, Shawnee Fossil Plant

**PHOTOGRAPHS**



**Bailing USGS-1**



**USGS-1 closeup**



**USGS-1 view to W**



**USGS-1 interior**

Reference: USGS Well Assessment, Shawnee Fossil Plant

## PHOTOGRAPHS



**Pumping USGS-2**



**USGS-2 oil recovery**



**Well head of USGS**



**Pumping USGS-2**

**Stantec**

July 3, 2013

Shawnee Fossil Plant

Page 5 of 5

**Reference: USGS Well Assessment, Shawnee Fossil Plant**

## **VIDEO LOGS**



FIELD BOREHOLE LOG

BOREHOLE NO.: USGS-1

TOTAL DEPTH: 87

PROJECT INFORMATION

DRILLING INFORMATION

PROJECT: TVA Shawnee Fossil Plant  
SITE LOCATION: Paducah, KY  
JOB NO.: 175553007  
LOGGED BY: Chris Krumm  
PROJECT MANAGER: Randy Roberts  
DATE OF LOG: 6/27/13

DRILLING CO.: Not Known  
DRILLER: Not Known  
RIG TYPE: Not Known  
METHOD OF DRILLING: Cable Tool?  
SAMPLING METHODS: None Taken  
CAMERA TYPE: Well-Vu WV500C

○ Oil level in well

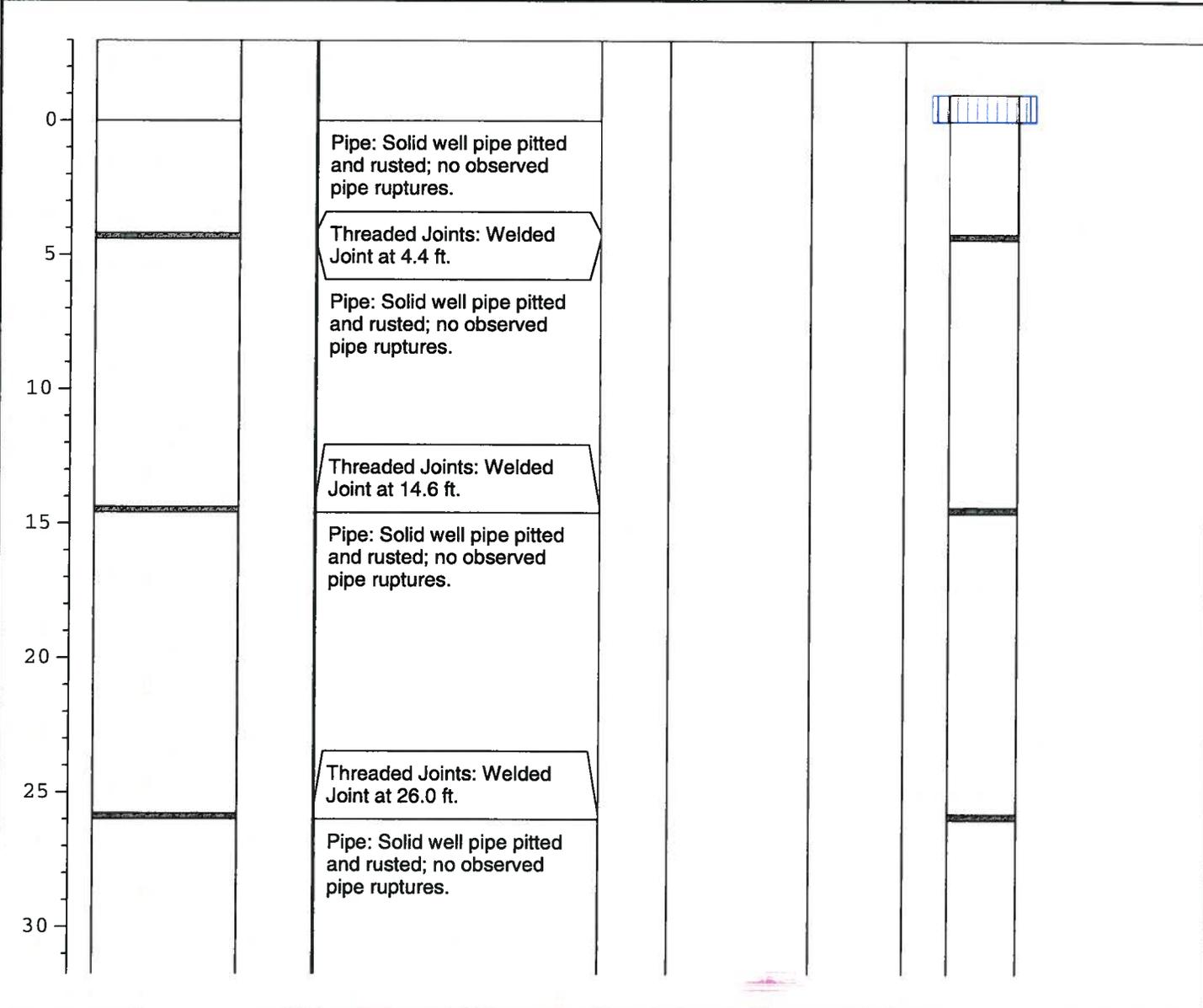
≡ Water level in well

37° 8' 47" Lat.

361 Elev (ft MSL)

088° 46' 24" Long.

DEPTH	SOIL SYMBOLS	USCS	VIDEO DESCRIPTION	REC in.	Blow Count	PID ppm	WELL CONST	WELL CONST
-------	--------------	------	-------------------	---------	------------	---------	------------	------------





FIELD BOREHOLE LOG

BOREHOLE NO.: USGS-1

TOTAL DEPTH: 87

PROJECT INFORMATION

DRILLING INFORMATION

PROJECT: TVA Shawnee Fossil Plant  
SITE LOCATION: Paducah, KY  
JOB NO.: 175553007  
LOGGED BY: Chris Krumm  
PROJECT MANAGER: Randy Roberts  
DATE OF LOG: 6/27/13

DRILLING CO.: Not Known  
DRILLER: Not Known  
RIG TYPE: Not Known  
METHOD OF DRILLING: Cable Tool?  
SAMPLING METHODS: None Taken  
CAMERA TYPE: Well-Vu WV500C

Oil level in well

Water level in well

37° 8' 47" Lat.

361 Elev (ft MSL)

088° 46' 24" Long.

DEPTH	SOIL SYMBOLS	USCS	VIDEO DESCRIPTION	REC in.	Blow Count	PID ppm	WELL CONST	WELL CONST
-------	--------------	------	-------------------	---------	------------	---------	------------	------------

35								
40								
45			Threaded Joints: Welded Joint at 45.9 ft.					
47.5			Pipe: Well pipe, video undistinguishable, pipe unknown condition, unknown if screened. Oil level at 47.5 ft. Water level at 48.2 ft.					
50								
55								
60			Pipe: Well pipe, Video ended at 57 ft, pipe unknown condition, unknown if screened.					
65								



**Stantec Consulting Services Inc.**

**One Team. Infinite Solutions**

1500 Lake Shore Drive, Suite 100  
Columbus, OH 43204

**Stantec**

# FIELD BOREHOLE LOG

BOREHOLE NO.: **USGS-1**

TOTAL DEPTH: **87**

## PROJECT INFORMATION

## DRILLING INFORMATION

PROJECT: **TVA Shawnee Fossil Plant**  
 SITE LOCATION: **Paducah, KY**  
 JOB NO.: **175553007**  
 LOGGED BY: **Chris Krumm**  
 PROJECT MANAGER: **Randy Roberts**  
 DATE OF LOG: **6/27/13**

DRILLING CO.: **Not Known**  
 DRILLER: **Not Known**  
 RIG TYPE: **Not Known**  
 METHOD OF DRILLING: **Cable Tool?**  
 SAMPLING METHODS: **None Taken**  
 CAMERA TYPE: **Well-Vu WV500C**

○ Oil level in well

≍ Water level in well

37° 8' 47" Lat.

361 Elev (ft MSL)

088° 46' 24" Long.

DEPTH	SOIL SYMBOLS	USCS	VIDEO DESCRIPTION	REC in.	Blow Count	PID ppm	WELL CONST	WELL CONST
70								
75								
80								
85								
90								



FIELD BOREHOLE LOG

BOREHOLE NO.: USGS-2

TOTAL DEPTH: 87

PROJECT INFORMATION

DRILLING INFORMATION

PROJECT: TVA Shawnee Fossil Plant  
SITE LOCATION: Paducah, KY  
JOB NO.: 175553007  
LOGGED BY: Chris Krumm  
PROJECT MANAGER: Randy Roberts  
DATE OF LOG: 6/27/13

DRILLING CO.: Not Known  
DRILLER: Not Known  
RIG TYPE: Not Known  
METHOD OF DRILLING: Cable Tool?  
SAMPLING METHODS: None Taken  
CAMERA TYPE: Well-Vu WV500C

○ Oil level in well

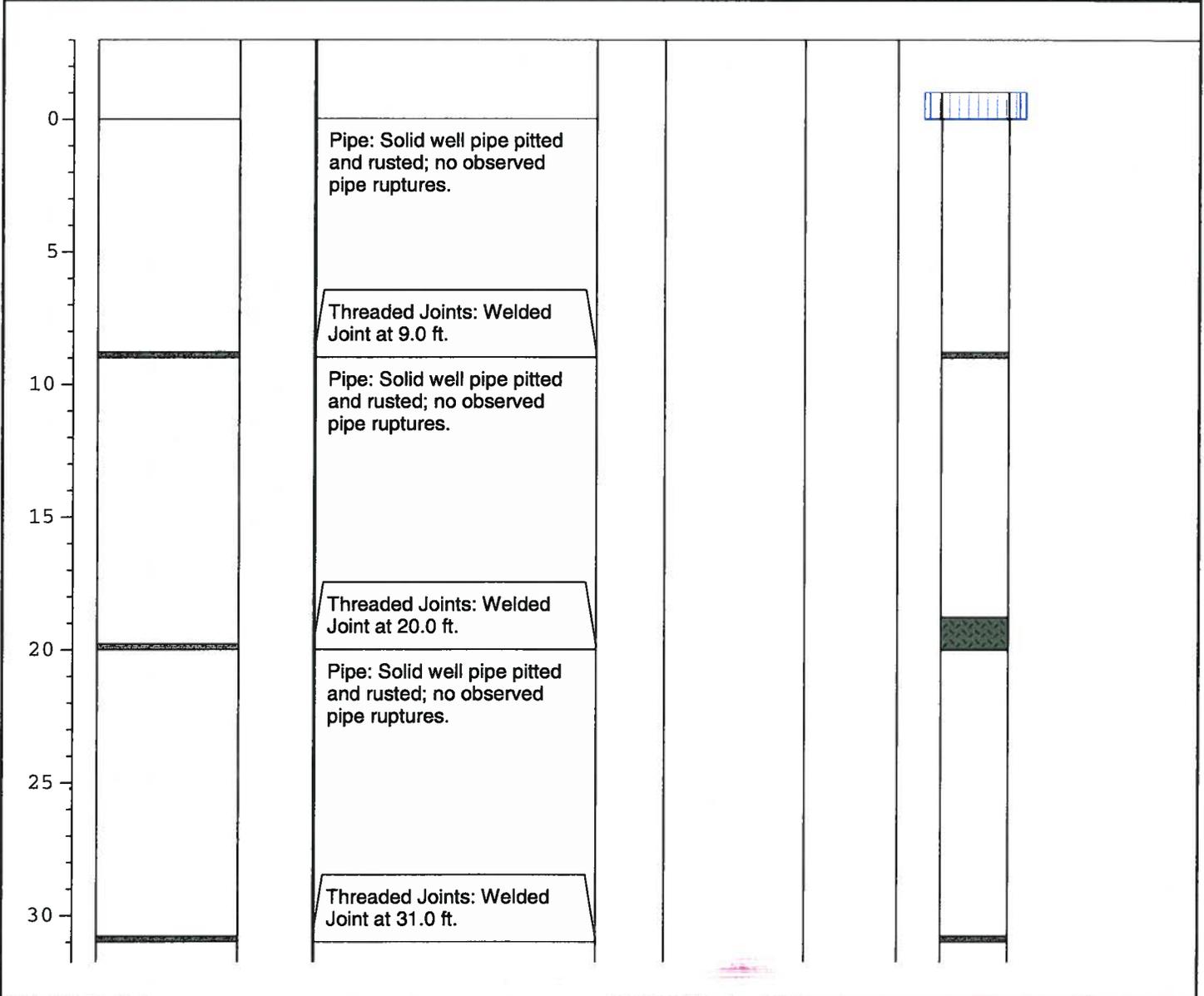
⊗ Water level in well

37° 8' 47" Lat.

365 Elev (ft MSL)

088° 46' 26" Long.

DEPTH	SOIL SYMBOLS	USCS	VIDEO DESCRIPTION	REC in	Blow Count	PID ppm	WELL CONST	WELL CONST
-------	--------------	------	-------------------	--------	------------	---------	------------	------------





FIELD BOREHOLE LOG

BOREHOLE NO.: USGS-2

TOTAL DEPTH: 87

PROJECT INFORMATION

DRILLING INFORMATION

PROJECT: TVA Shawnee Fossil Plant  
SITE LOCATION: Paducah, KY  
JOB NO.: 175553007  
LOGGED BY: Chris Krumm  
PROJECT MANAGER: Randy Roberts  
DATE OF LOG: 6/27/13

DRILLING CO.: Not Known  
DRILLER: Not Known  
RIG TYPE: Not Known  
METHOD OF DRILLING: Cable Tool?  
SAMPLING METHODS: None Taken  
CAMERA TYPE: Well-Vu WV500C

Oil level in well

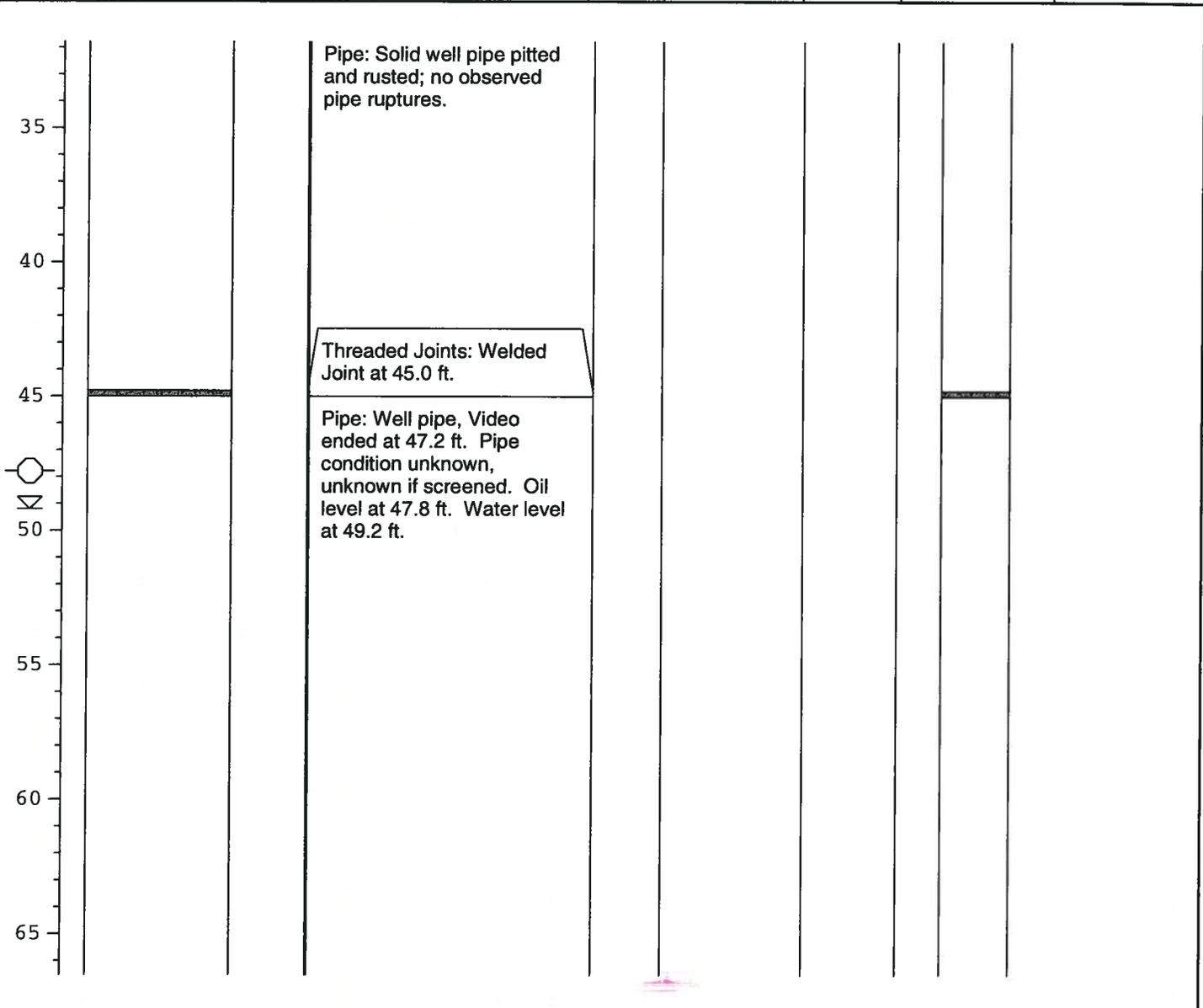
Water level in well

37° 8' 47" Lat.

365 Elev (ft MSL)

088° 46' 26" Long.

DEPTH	SOIL SYMBOLS	USCS	VIDEO DESCRIPTION	REC in.	Blow Count	PID ppm	WELL CONST	WELL CONST
-------	--------------	------	-------------------	---------	------------	---------	------------	------------





FIELD BOREHOLE LOG

BOREHOLE NO.: USGS-2

TOTAL DEPTH: 87

PROJECT INFORMATION

DRILLING INFORMATION

PROJECT: TVA Shawnee Fossil Plant  
SITE LOCATION: Paducah, KY  
JOB NO.: 175553007  
LOGGED BY: Chris Krumm  
PROJECT MANAGER: Randy Roberts  
DATE OF LOG: 6/27/13

DRILLING CO.: Not Known  
DRILLER: Not Known  
RIG TYPE: Not Known  
METHOD OF DRILLING: Cable Tool?  
SAMPLING METHODS: None Taken  
CAMERA TYPE: Well-Vu WV500C

Oil level in well

Water level in well

37° 8' 47" Lat.

365 Elev (ft MSL)

088° 46' 26" Long.

DEPTH	SOIL SYMBOLS	USCS	VIDEO DESCRIPTION	REC in.	Blow Count	PID ppm	WELL CONST	WELL CONST
-------	--------------	------	-------------------	---------	------------	---------	------------	------------

70								
75								
80								
85								
90								

## **Summary of Events for USGS Well at SHF Prepared May 2, 2013**

David Jackson, a geologist with the KY Division of Water, provided the following summary to others at KDEP via email on April 24, 2013:

“Glen Beck, KGS, was recently on the grounds of the Shawnee Power Plant in McCracken County. He was inspecting an old observation well that had been used by the USGS to collect groundwater data in the area. While checking the water level in the well he noticed what he thought to be some type of petroleum product on the tape when retracted it from the well. The well does not have an AKGWA number, nor does plant personnel have any records of it.

Looking in TEMPO, I saw that UST and SWB both had investigation at the site that occurred in the past. Glen has sent several pictures of the well along with GPS coordinates. Please take a look at the attached document to see if someone in your branch has any knowledge of this well. We are trying to ascertain if anyone in your branches have dealt with an investigation that may have involved this well before we move forward with a field investigation of our own. Any help will be greatly appreciated.”

This email eventually was sent to Bill (William) McDonough with the Kentucky Division of Solid Waste (KDWM) to investigate. Bill called Matt Phillips at 3:07 CDT and Ronda Hooper (a few minutes later) on April 25 to inform TVA of potential contamination in a well located on the SHF reservation. Ronda has spoken with Mr. McDonough once or twice each workday since April 26 to coordinate the path forward and respond to any questions. Since that time, Bill has also spoken to Holly Lawrence and Monte Starks. Bill regulates the groundwater for the Special Waste Landfill at SHF, so has some familiarity with the plant.

On April 25, Matt, Holly and Traci went to look at the well. They detected an oily odor coming from the well and saw the oil residue on the sides of the corrugated pipe and on the concrete well pad. On April 26, Holly, Traci, and Chanda further investigated the well, and obtained a 10 ft sludge judge in attempts to identify the level of the oil. The sludge judge showed 10 ft of oily material. On April 26th, the TVA police and investigators were contacted, secured the area and began an investigation.

On April 26, Holly collected a sample and ran a Chlor D test on the sample, which showed no halogens. Cynthia Anderson, and Sam Hixon were contacted and brought up to speed on all the updates. Ronda Hooper was at a TDEC conference, and was copied on emails. She first telephoned Bill McDonough approximately 10 a.m. CDT on April 26th from the conference. Mr. McDonough provided the history of the well to Ronda Hooper that included:

- The USGS began using the well in 1957. He figured the well was installed as an industrial water well or drinking water well by the landowner, since it is a 10 inch diameter well that is steel cased. Traci Thompson at SHF thought it may have been a water well associated with the old Kentucky Ordinance Works from the 40's or 50's.
- The USGS installed instrumentation and used it as an observation well from 1975 until 1984.
- In 1984 the USGS turned the data over to the KYGS, and removed the instrumentation from the well. They placed plywood on top of the well to cover it.
- From 1984 to 1993 the KYGS had ownership of the well, though apparently did not access the well from 1984 until April 22, 2013. They still have the well in their inventory.

- On March 29, Glenn Beck with KYGS did a reconnaissance and approached the plant to allow access to the well.
- Glenn came on site on April 22 to observe the well and he used a tape to take the depth of the well. As he raised his tape, saw the oily material on it, and ran it along the edge of the casing to clean the tape. This caused some drippage on the outside of the corrugated pipe. It was a new tape.
- Mr. Beck had planned to drop a camera down the well to observe conditions, but after finding the level of oily material in the well, did not use the camera.
- Mr. Beck indicated the oil had a “faint engine oil smell” and “appeared to be clean - not dark like used engine oil”. He indicated there were “several feet” of oil in the well.
- He measured the well to be approximately 90 feet deep.
- After Mr. Beck’s visit on April 22, he contacted the KY EEC and the incident was eventually handed to Mr. McDonough for investigation.
- Mr. Beck’s notes and photos are attached.
- At the time of Mr. McDonough’s first call to Ronda, he said his impression was that the oil did not come from groundwater, but was poured into the well.
- Bill called DOE to discuss the location of this well with respect to the DOE contaminant plume. He indicated that, at “first blush, this well is not in the DOE plume.”
- Bill wants TVA to provide him with a complete inventory of all wells on site, so we can properly abandon any not in use. Once the oil is removed from this well and the groundwater confirmed to not be contaminated, he wants TVA to properly abandon the well.

Ronda spoke to Monte Starks (ITMA) on April 29th to coordinate a date with Mr. McDonough to do official sampling with KDWM, and allow them to collect split samples. On April 30, Ronda requested a conference call with the plant, Chanda and Monte to verify the various communications and information obtained, and to discuss the path forward.

Originally, Bill was suggesting sampling take place on May 2, but later stated he thought that may be too ambitious and worked with Monte to schedule the sampling on Tuesday, May 7th. TVA investigators will be present during the sampling. ITMA was also contacted, and will be utilizing ground penetrating radar (GPR) equipment to check for underground lines or tanks that would be near the well. They will do this work on Tuesday May 7th, as well. From records review TVA has no record of any tanks or piping ever utilized in the area of the well.

## McCracken County

### TVA Shawnee Well

Located well on 3/29/13 (Fig. 1). Well not covered (Figs 2 and 3). Contact Ken Anderson (TVA Security) for access at 931-320-0913.

Latitude: 37.146320

Longitude: -88.773529



Figure 1. Map showing the location of the TVA Shawnee well. Well was previously used as an USGS observation well. Observation equipment was removed in 1984 by the USGS.



Figure 2. A picture of the TVA-Shawnee wellhead looking northwest. Picture was taken by Glynn Beck on 3/29/13.



Figure 3. A picture of the TVA-Shawnee wellhead. Well has a 10-inch diameter steel casing. Well is approximately 90 ft deep. Picture was taken by Glynn Beck on 3/29/13.

Depth was measured by Beck (KGS) on 4/22/13. Oil like substance covered measuring tape when removed from the well water (Figures 4 and 5).



Figure 4.



Figure 5.

9-185  
(October 1950)

1

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

WATER RESOURCES DIVISION S-1118.95-310.76

WELL SCHEDULE

Date 12-17-56 Northwell, 19 Field No. 2  
Record by LMM Office No. (45-05-29)  
Source of data Inventory by W/H/W

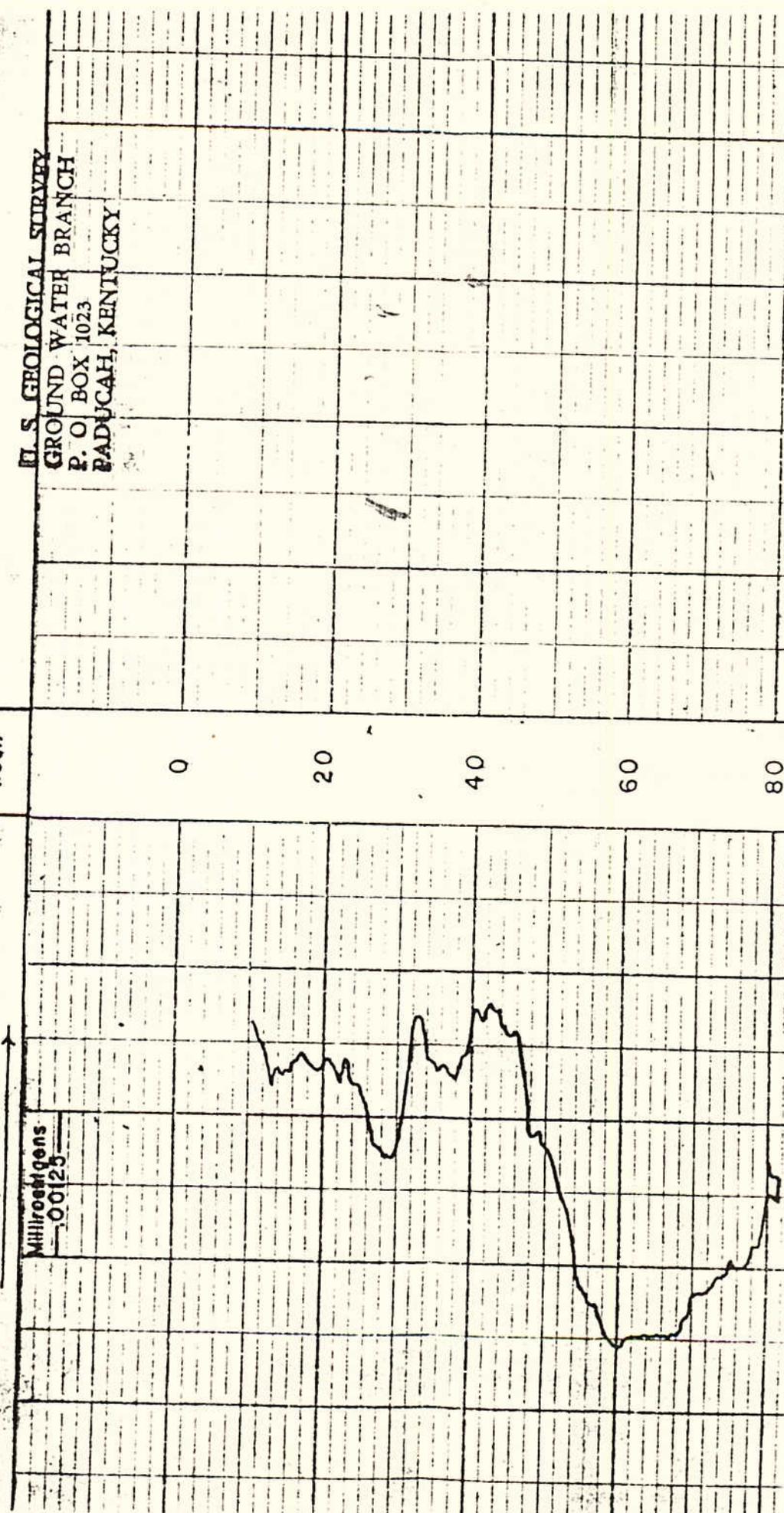
1. Location: State Ky County McCracken  
Map Jappa T4b  
-----  $\frac{1}{4}$  -----  $\frac{1}{4}$  sec. ----- T -----  $\frac{N}{S}$  R -----  $\frac{E}{W}$
2. Owner: TVA Address Showee Steam Plant  
Tenant ----- Address -----  
Driller Diehl Pump Supply Address Louisville Ky
3. Topography river terrace
4. Elevation 340+ ft. <sup>above</sup> msl <sub>below</sub>
5. Type: Dug drilled, driven, bored, jetted 5-1 1952
6. Depth: Rept. 86.0 ft. Meas. ----- ft.
7. Casing: Diam. 12 in., to ----- in., Type steel  
Depth ----- ft., Finish 10' #30 screen
8. Chief Aquifer Alluvium From 65 ft. to 80 ft.  
Others Sand & Gravel
9. Water level 50 ft. <sup>rept.</sup> 5-5 <sub>meas.</sub> 1952 <sup>above</sup> 6.6 <sub>below</sub>  
----- which is ----- ft. <sup>above</sup> <sub>below</sub> surface
10. Pump: Type Turbine Capacity 100 G. M.  
Power: Kind elect. Horsepower 5
11. Yield: Flow ----- G. M., Pump 127 G. M., Meas. Rept. Est.  
Drawdown 3 ft. after ----- hours pumping ----- G. M.
12. Use: Dom., Stock, PS., RR., Ind., Irr., Obs.  
Adequacy, permanence -----
13. Quality ----- Temp ----- °F.  
Taste, odor, color ----- Sample <sup>Yes</sup> <sub>No</sub> -----  
Unfit for -----
14. Remarks: (Log, Analyses, etc.) Elevated storage tank  
27,000 gal. Pressure tank 3000  
gal.

Location no. 21115.3-311.8  
 Location: Near old cafeteria at steam plant.  
 Datum: Land surface  
 Altitude of datum: Approx. 360  
 Depth, hole: 86' dia. 12"  
 Depth, casing: 76' dia. 12"  
 Log begins 10 ft., ends 82  
 Logging speed: 20 ft. per min.

UNITED STATES GEOLOGICAL SURVEY  
 in co-operation with  
 TENNESSEE DIVISION OF GEOLOGY  
 and  
 TENNESSEE DIVISION OF WATER RESOURCES  
 OWNER T. V. A.  
 ADDRESS Shawnee Steam Plant, Paducah, Ky.  
 DRILLER Diehl Pump & Supply Co.  
 ADDRESS Louisville, Ky.

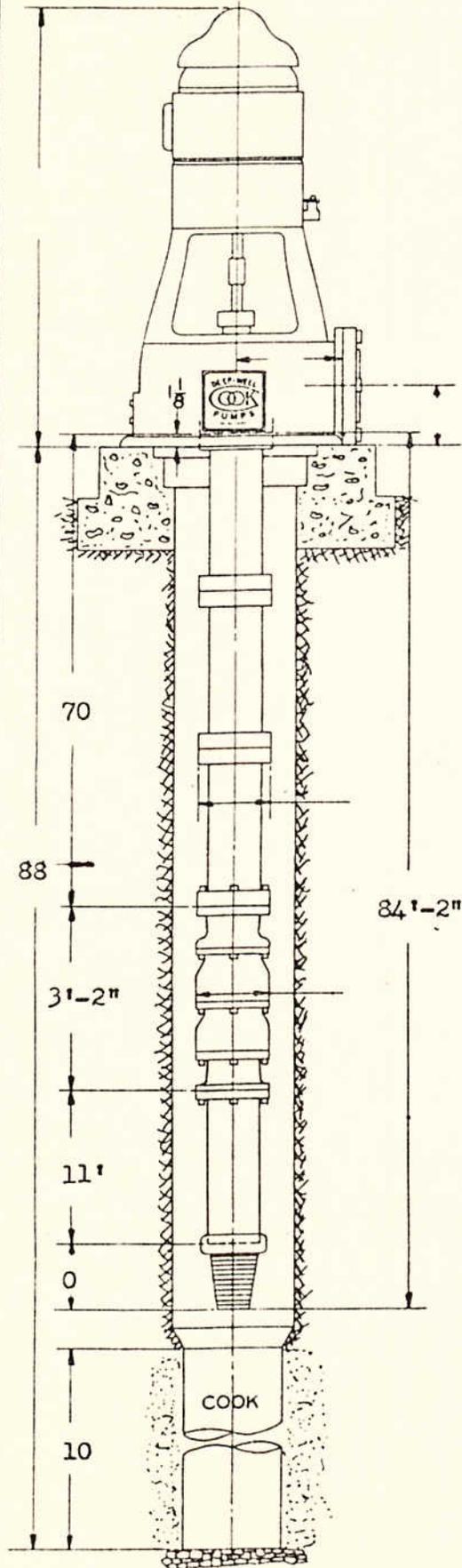
Time: 10-58 Time: 11:00AM  
 Logged by C. Currey & W. Lambert  
 Fluid in hole: water  
 Fluid level, below datum:       
 Fluid resistivity      at      °F  
 Fluid density      pounds/gal.  
 Fluid viscosity      sec      °F  
 Temperature constant 16

# GAMMA RADIATION INCREASES



U. S. GEOLOGICAL SURVEY  
 GROUND WATER BRANCH  
 P. O. BOX 1023  
 PADUCAH, KENTUCKY

**DIEHL PUMP & SUPPLY CO. INC. LOUISVILLE, 4 KENTUCKY**  
**INDUSTRIAL AND COMMERCIAL WATER ENGINEERING**



COOK TURBINE PUMP INSTALLATION FOR: T.V.A.  
 Shawnee Steam Plant - Paducah

WELL DESIGNATION No. 2

13749 SERIAL NUMBER  
100 GALLONS PER MINUTE  
140 TOTAL HEAD IN FEET  
7-5/8 6 STAGES  
1760 MOTOR SPEED  
70 FEET OF SETTING  
4" SP SIZE COLUMN  
1 1/2" OIL TUBE  
3/4" LINE SHAFT  
11' 4" SUCTION PIPE  
5 HP 220/440 VOLT 3 - 60 CURRENT  
Oil LUBRICATION  
 FEET OF AIRLINE  
5 3 51 DATE INSTALLED

12" I.D. OF WELL  
88' FEET DEEP FROM FOUNDATION  
86' FEET DEEP FROM GRADE  
10' STRAINER LENGTH - SLOT 30  
50' STATIC LEVEL - DATE \_\_\_\_\_  
 " " " \_\_\_\_\_  
 " " " \_\_\_\_\_  
 " " " \_\_\_\_\_  
5 1 51 DATE DRILLED

Wells Tested 127 GPM, 3' D. D.

PUMP REPAIRED - DATE \_\_\_\_\_  
 " " " \_\_\_\_\_  
 " " " \_\_\_\_\_

WELL ACID TREATED - DATE \_\_\_\_\_  
 " " " \_\_\_\_\_

DIEHL PUMP AND SUPPLY COMPANY, INC.  
 800 FEHR AVENUE WABASH 2374  
 LOUISVILLE, 4 KENTUCKY

JAB

370846N0884624.1. Local number KPCS-1, 119.0-310.2. U. S. Tennessee Valley Authority Shawnee Steam Plant. Drilled unused artesian well in alluvium of Quaternary age, diam 12 in, depth 86 ft, screened 76-85. Lsd about 355 ft above msl. MP top of casing, 1.50 ft above lsd. Highest water level 39.86 below lsd, Mar. 26, 1962; lowest 53.74 below lsd, Dec. 30, 1963. Records available: 1958-63.

1759

Water level at noon, from recorder graph, 1958

Table with columns: Day, Jan., Feb., Mar., Apr., May, June, July, Aug., Sept., Oct., Nov., Dec. Rows for years 1958, 1959, 1960, 1961, 1962, 1963. Includes 'Eom' (End of Month) values.

h Tape measurement.

370846N0884624.1. U. S. Tennessee Valley Authority, Shawnee Steam Plant. Drilled unused artesian well in alluvium of Quaternary age, diam 12 in, depth 86 ft, screened 76-85. Lsd about 355 ft above msl. MP top of casing, 1.50 ft above lsd. Highest water level 39.86 below lsd, Mar. 26, 1962; lowest 53.74 below lsd, Dec. 30, 1963. Records available: 1958-63.

1764

1964

Water level at noon, from recorder graph, 1964

Table with columns: Day, Jan., Feb., Mar., Apr., May, June, July, Aug., Sept., Oct., Nov., Dec. Rows for years 1964, 1965, 1966, 1967, 1968, 1969. Includes 'Eom' (End of Month) values.

370846N0884624.1. U. S. Tennessee Valley Authority, Shawnee Steam Plant. Drilled unused artesian well in alluvium of Quaternary age, diam 12 in, depth 86 ft, screened 76-85. Lsd about 355 ft above msl. MP top of casing, 1.50 ft above lsd. Highest water level 39.86 below lsd, Mar. 26, 1962; lowest 53.74 below lsd, Dec. 30, 1963. Records available: 1958-63.

1764

Water level at noon, from recorder graph, 1964

Table with columns: Day, Jan., Feb., Mar., Apr., May, June, July, Aug., Sept., Oct., Nov., Dec. Rows for years 1964, 1965, 1966, 1967, 1968, 1969. Includes 'Eom' (End of Month) values.

h Affected by atmospheric pressure.

1.  $\frac{1}{4}$  sec. T N R E  
 S S W W

2. Owner: Address  
 Tenant: Address  
 Driller: Address

3. Topography (100' 100' 100' 100')

4. Elevation 36.5 ft. above  
 below

5. Type: Dug, drilled, driven, bored, jetted 19

6. Depth: Rept. 20 ft. Meas. ft.

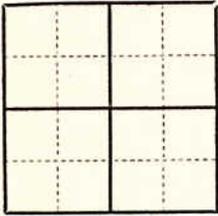
7. Casing: Diam. 1.7 in. to 1.3 in., Type  
 Depth 10 ft., Finish

8. Chief Aquifer From ft. to ft.

Others

9. Water level 50 ft. meas. 19 ft. above  
 below

10. Pump: Type which is ft. above surface  
 below  
 Capacity G. M.  
 Power: Kind Horsepower  
 11. Yield: Flow G. M., Pump G. M., Meas., Rept. Est.



GROUND-WATER LEVELS

MCCRACKEN COUNTY

370848088462401.  
 LOCATION.--Lat 37°08'48", long 88°46'24", Hydrologic Unit 05140206, County Code 145, Joppa quadrangle, at Tennessee Valley Authority Shawnee Steam Electric Generating Plant, 4.5 mi (7.2 km) north of Heath. C Tennessee Valley Authority.  
 AQUIFER.--Alluvium of Quaternary age. Aquifer code: 1120TSH.  
 WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 12 in (0.30 m), depth 86 ft (26.2 m), scree 76-86 ft (23.2-26.2 m).  
 DATUM.--Altitude of land-surface datum (from topographic map) is about 365 ft (111 m). Measuring point: of casing, 1.50 ft (0.46 m) above land-surface datum.  
 REMARKS.--Water levels affected by atmospheric pressure.  
 PERIOD OF RECORD.--November 1958 to current year.  
 EXTREMES FOR PERIOD OF RECORD.--Highest water level, 35.86 ft (10.93 m) below land-surface datum, May 3, lowest, 54.40 ft (16.58 m) below land-surface datum, Nov. 21, 1964.

906

PERTINENT REMARKS  
R-183\* T-

9-185  
(August 1949)

UNITED STATES - 1118.91-309.96  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY  
WATER RESOURCES DIVISION

New Card Sam

Southwell

WELL SCHEDULE

WELL CONSTRUCTION  
R-58\* T- ad

Date 7/27/52, 1952 Field No. 31  
Record by \_\_\_\_\_ Office No. \_\_\_\_\_  
Source of data \_\_\_\_\_

Name of Contractor/Driller

Method of Construction

Finish 66- C  
Bottom of Seal 68-

Special Treatment During Development

DIMENSIONS OF THE WELL  
R-72\* T-

New Card for Each Same R, T & F

CASING SCHEDULE  
R-76\* T-

Top of Casing Seal
77#
77#
77#
77#
77#

OPENINGS SCHEDULE  
R-82\* T-

Top of Section  
Bottom of Seal  
Type of Opening  
Type of Material  
Diameter of Opening  
Width of Opening  
Length of Opening

1. Location: State \_\_\_\_\_ County \_\_\_\_\_  
Map Joppla 1/4 sec. T N S R E W

2. Owner: \_\_\_\_\_ Address \_\_\_\_\_  
Tenant \_\_\_\_\_ Address \_\_\_\_\_  
Driller \_\_\_\_\_ Address \_\_\_\_\_

3. Topography Bottoms  
4. Elevation 364 ft. above ms

5. Type: Dug, drilled, driven, bored, jetted 5:219.5A

6. Depth: Rept. 85.5 ft. Meas. \_\_\_\_\_ ft.

7. Casing: Diam. 12 in., to 12 in., Type pipe  
Depth 70 ft., Finish 15' slot 20' strainer

8. Chief Aquifer Sandstone From 65 ft. to 85 ft.  
Others Alluvium

9. Water level 50 ft. Meas. May 5 1952 above/below Ground  
which is \_\_\_\_\_ ft. above/below surface

10. Pump: Type Turbine Capacity 100 G. M.  
Power: Kind \_\_\_\_\_ Horsepower 5.0

11. Yield: Flow \_\_\_\_\_ G. M., Pump 127 G. M., Meas. Rept. Est.  
Drawdown 3.0 ft. after \_\_\_\_\_ hours pumping \_\_\_\_\_ G. M.

12. Use: Dom., Stock, PS., RR., Ind., Irr., Obs. Steam plant  
Adequacy, permanence ~~month, 1952~~

13. Quality \_\_\_\_\_ Temp \_\_\_\_\_ °F.  
Taste, odor, color \_\_\_\_\_ Sample Yes/No

14. Remarks: (Log, Analyses, etc.) Total pumpage of 32,860,000 gallons per year from wells 1 & 2 (see back of this sheet)

SITE VISIT DATA (1)  
R=186\* T= A D M \*  
add, delete, modify

187# / 19 \*  
month / day / year

188# \_\_\_\_\_ \*  
Name of Inventor

FIELD WATER QUALITY MEASUREMENTS (1)  
R=192\* T= A D M \*  
add, delete, modify

S M T W T F S  
193# / 19 \*  
month / day / year

GEOHYDROLOGIC UNIT  
195# \_\_\_\_\_ \*

TEMPERATURE 196.00010 \* DEGREES C 197= \_\_\_\_\_ \*

CONDUCTANCE 196.00095 \* MHOS 197= \_\_\_\_\_ \*

pH 196.00400 \* VALUE 197= \_\_\_\_\_ \*

OTHER (STORE) PARAMETER 196# \_\_\_\_\_ \* VALUE 197= \_\_\_\_\_ \*

Warning: Repeat all completed fields at left for completed fields at right.

Location  
40140007

PERTINENT REMARK:  
R-183 \* T-

9-194  
November 1949

UNITED STATES 8845-3705-28  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY  
WATER RESOURCES DIVISION

New Card Sam

WATER LEVEL MEASUREMENTS (Field) Measured by W. H. Walker

Location of Project TVA Shawnee Steam Plant Well #1

WELL CONSTRUCTION

R-58 \* T-

Name of Construction

Method of Construction

Finish 66 - 1

Bottom of Seal 68 -

Special Treatment During Development

DIMENSIONS OF T-

R-72 \* T-

New Card for E Same R, T & I

CASING SCHEDULE

R-76 \* T-

Top of Casing:

77 #
77 #
77 #
77 #
77 #

OPENINGS SCHED

R-82 \* T

Top of Secti

Bottom of

Type of Op

Type of M

Diameter o

Width of O

Length of t

DATE	HOUR	WELL NO.	TAPE READING AT-		DEPTH TO WATER	REMARKS
			Meas. point	Water level		
12-22	9:20	1	75	11.45	63.55	pump on at 6:00am
	:50		75	11.60	63.40	and off at 10am
	:51		65	2.20	62.80	
	:53		65	1.16	63.84	
	10:20		65	4.93	60.07	
	10:25		65	4.95	60.05	
	10:50		63	3.03	59.97	
	10:53		62	2.04	59.86	
	10:55		62	2.04	59.86	
	11:10		62	2.07	59.93	
	11:25		62	2.12	59.88	
	11:35		62	2.14	59.86	
	11:58		62	2.18	59.82	
	12:00:30	66?	62	4.94	62.06	
	12:02		66	3.84	62.16	
	12:03		66	3.82	62.18	
	12:04		65	2.77	62.23	
	12:05		65	2.75	62.25	
	12:06		65	2.725	62.275	
	12:07		65	2.72	62.28	
	12:08		65	2.70	62.30	
	12:09		65	2.675	62.325	
	12:10		65	2.66	62.34	

U. S. GOVERNMENT PRINTING OFFICE 16-51005-2

SITE VISIT DATA (1)

R=186 \* T= A D M \*

187# / / 19 \*  
month day year

Last Initial  
188 =  
Name of Inventor

FIELD WATER QUALITY MEASUREMENTS (1)

R=192 \* T= A D M \*

S M T W T F S  
193# / / 19 \*  
month day year

GEOHYDROLOGIC UNIT  
195 #

Warning: Repeat all completed fields at left for completed fields at right.

TEMPERATURE 196.00010 \* DEGREES C 197 =

CONDUCTANCE 196.00095 \* MHOS 197 =

pH 196.00400 \* VALUE 197 =

OTHER (STORE) PARAMETER 196. VALUE 197 =

40

40

40

64 - \*

Z \*

C G Z \*

clay, cement, other grout

ment

Thickness of Casing

WATER RESOURCES DIVISION  
 GEOLOGICAL SURVEY  
 UNITED STATES DEPARTMENT OF THE INTERIOR

PERTINENT REMARK:  
 R-183 \* T-

9-194  
 November 1949

UNITED STATES  
 DEPARTMENT OF THE INTERIOR  
 GEOLOGICAL SURVEY 8845-3705-28  
 WATER RESOURCES DIVISION

New Card Sam

WATER LEVEL MEASUREMENTS (Field) Measured by William H. Walker

Location of Project TVA Shawnee Steam Plant Well #1

WELL CONSTRUCTION  
 R-58 \* T-

Name of Contractor/Driller

Method of Construction

Finish 66 ~ C  
 conc

Bottom of Seal 68 \*

Special Treatment During Development

DIMENSIONS OF THE  
 R-72 \* T-

New Card for Eac Same R, T & F

CASING SCHEDULE  
 R-76 \* T-

Top of Casing Se  
 77#  
 77#  
 77#  
 77#  
 77#

OPENINGS SCHEDULE  
 R-82 \* T-

Top of Section  
 Bottom of Se  
 Type of Open  
 Type of Mate  
 Diameter of C  
 Width of Ope  
 Length of Op

DATE	HOUR	WELL NO.	TAPE READING AT-		DEPTH TO WATER	REMARKS
			Meas. point	Water level		
12-22-1954	12:15	1	65	2.615	62.385	
	:20		65	2.57	62.43	
	:25		65	2.57	62.43	
	:30		65	2.53	62.47	
			16	2.87	13.13	9:07
			16	3.28	12.72	13.12
	12:50		65	2.46	62.54	
	1:00		65	2.46	62.54	
	1:02		65	2.45	62.55	
	1:15		65	2.42	62.58	
	:16		65	2.45	62.55	
	:18		65	2.45	62.55	
	:30		65	2.44	62.56	
	:45		65	2.43	62.57	Q = 145
	:55		18	4.18	13.82	
	:59:40		16	2.63	13.37	62.59
	2:02		65	2.41	62.59	59.82

Can't use 59.82 as static  
 (Pre-pumping trend!)  
 2.67' dd  
 2.77  
 ADH

U. S. GOVERNMENT PRINTING OFFICE 16-51005-2

SITE VISIT DATA (1)  
 R-186 \* T= A D M \*  
 add, delete, modify

187# / / 19 \*  
 month day year

Last Initial  
 188 =  
 Name of Inventory

FIELD WATER QUALITY MEASUREMENTS (1)  
 R-192 \* T= A D M \*  
 add, delete, modify

S M T W T F S  
 193# / / 19 \*  
 month day year

GEOHYDROLOGIC UNIT  
 195 #

Warning: Repeat all completed fields at left for completed fields at right.

TEMPERATURE 196.00010 \* DEGREES C 197 =  
 CONDUCTANCE 196.00095 \* MHOS 197 =  
 pH 196.00400 \* VALUE 197 =  
 OTHER (STORE) PARAMETER 196. \* VALUE 197 =

40  
 40  
 40

64 - \*

Z \*

C G Z \*  
 clay, cement, other grout

ment  
 (cm) \*  
 \*

Thickness of Casing  
 \*

\*

\*



Location: old cafeteria

Datum: Land surface

Altitude of datum: Approx: 360 +

Depth, hole: 85' dia. 12"

Depth, casing: 70' dia. 12"

Log begins 10 ft., ends 84

Logging speed: 20 ft. per min.

in co-operation with  
**TENNESSEE DIVISION OF GEOLOGY**  
 and  
**TENNESSEE DIVISION OF WATER RESOURCES**

OWNER T. V. A.  
 ADDRESS Shawnee Steam Plant, Paducah, Ky.  
 DRILLER Diehl Pump & Supply Co.  
 ADDRESS Louisville, Ky.

Logged by C. Currey & Lambert

Fluid in hole: Water

Fluid level, below datum: \_\_\_\_\_

Fluid resistivity \_\_\_\_\_ at \_\_\_\_\_ °F

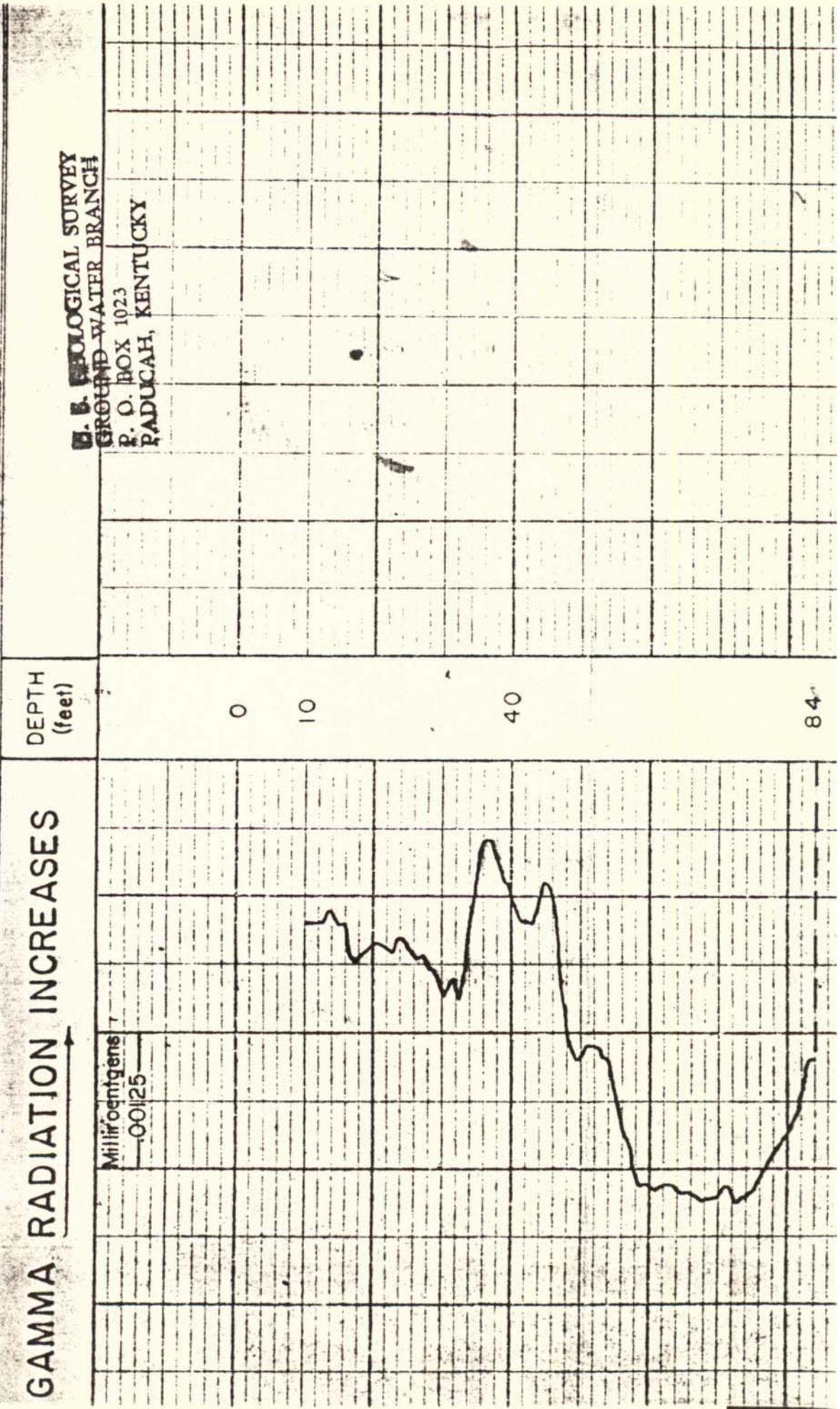
Fluid density \_\_\_\_\_ pounds/gal.

Fluid viscosity \_\_\_\_\_ sec \_\_\_\_\_ °F

Time constant 16

### GAMMA RADIATION INCREASES

**B. B. GEOLOGICAL SURVEY**  
**GROUND-WATER BRANCH**  
 P. O. BOX 1023  
**PADUCAH, KENTUCKY**



9-185  
(August 1949)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

WATER RESOURCES DIVISION  
WELL SCHEDULE

8845-3705-15

Date Jan. 3, 1951 Field No. 42  
Record by HLP Office No. \_\_\_\_\_  
Source of data TVA

1. Location: State Kentucky County McClellan  
Map LOPPA

\_\_\_\_\_  $\frac{1}{4}$  \_\_\_\_\_  $\frac{1}{4}$  sec. \_\_\_\_\_ T \_\_\_\_\_ N \_\_\_\_\_ R \_\_\_\_\_ E  
S \_\_\_\_\_ W

2. Owner: TVA Address \_\_\_\_\_  
Tenant do Address \_\_\_\_\_  
Driller Drill Pump & Supply Co. Address Louisville, Ky.

3. Topography Level near edge of bench

4. Elevation 339.3 ft. <sup>above</sup> MSL  
<sub>below</sub>

5. Type: Dug, drilled, driven, bored, jetted Dec 1950

6. Depth: Rept. 72 ft. Meas. \_\_\_\_\_ ft.

7. Casing: Diam. \_\_\_\_\_ in., to \_\_\_\_\_ in., Type \_\_\_\_\_  
Depth \_\_\_\_\_ ft., Finish \_\_\_\_\_

8. Chief Aquifer Gravel From 60 ft. to 72 ft.  
Others \_\_\_\_\_

9. Water level \_\_\_\_\_ ft. <sup>rept.</sup> \_\_\_\_\_ 19 \_\_\_\_\_ <sup>above</sup>  
<sub>meas.</sub> <sub>below</sub>  
\_\_\_\_\_ which is \_\_\_\_\_ ft. <sup>above</sup>  
<sub>below</sub> surface

10. Pump: Type \_\_\_\_\_ Capacity \_\_\_\_\_ G. M.  
Power: Kind \_\_\_\_\_ Horsepower \_\_\_\_\_

11. Yield: Flow 0 G. M., Pump 31.3 G. M., Meas., Rept. Est. \_\_\_\_\_  
Drawdown \_\_\_\_\_ ft. after \_\_\_\_\_ hours pumping \_\_\_\_\_ G. M.

12. Use: Dom., Stock, PS., RR., Ind., Irr., Obs. Test well  
Adequacy, permanence \_\_\_\_\_

13. Quality \_\_\_\_\_ Temp \_\_\_\_\_ °F.  
Taste, odor, color \_\_\_\_\_ Sample Yes  
No \_\_\_\_\_  
Unfit for \_\_\_\_\_

14. Remarks: (Log, Analyses, etc.) \_\_\_\_\_

PERTINENT REMARKS (1)

R-183 \* T-A \*

New Card Same R&T

WELL CONSTRUCTION DATA (1)

R-58 \* T-A D

Name of Contractor/Driller 63-

Method of Construction 65-

Finish 66- C F  
porous, gravel, concrete, perf.

Bottom of Seal 68- \*

Special Treatment During Development 71- cl

DIMENSIONS OF THE HOLE CON

R-72 \* T-A D

New Card for Each Hole Segment Same R, T & Field 59

CASING SCHEDULE (2)

R-76 \* T-A D N

Top of Casing Segment Below 1

77#

77#

77#

77#

77#

OPENINGS SCHEDULE (2)

R-82 \* T-A D

Top of Section Below LSD

Bottom of Section Below LS

Type of Openings 6

Type of Material 10

Diameter of Open Section

Width of Opening

Length of Opening

SITE VISIT DATA (1)

R-186 \* T-A D

FIELD WATER QUALITY MEASUREMENTS (1)

R-192 \* T-A D M \*

S M T W T F S

193# / / 19 \*  
month day year

GEOHYDROLOGIC UNIT

195 #

Warning: Repeat all completed fields at left for completed fields at right.

TEMPERATURE 196.00010 \* DEGREES C 197= \*

CONDUCTANCE 196.00095 \* MHOS 197= \*

196.00400 \* VALUE 197= \*

OTHER (STORE) PARAMETER 196. \* VALUE 197= \*

919

9-185 (August 1949)

UNITED STATES DEPARTMENT OF THE INTERIOR GEOLOGICAL SURVEY WATER RESOURCES DIVISION

WELL SCHEDULE

Date Jan. 3, 1951 Field No. #1004

Record by HLP Office No.

Source of data

1. Location: State Kentucky County Madison

Map 10 sec. T N S R E W

2. Owner: TVA Address

Tenant do Address

Driller Dickl Pump & Supply Co. Address Louisville, Ky.

3. Topography Level near edge of bench

4. Elevation 356.1 ft. above M.S.L. (Relev.)

5. Type: Dug, drilled, driven, bored, jetted Dec. 1950

6. Depth: Rept. 95 ft. Meas.

7. Casing: Diam. 3 in., to 5 in., Type Pipe

Depth 95 ft., Finish

8. Chief Aquifer Sandy gravel From 73 ft. to 94 ft.

Others

9. Water level 24.64 ft. rept. meas. 1-26-1951 above below

MP which is at ft. above below surface

10. Pump: Type Turbine Capacity G. M.

Power: Kind Horsepower

11. Yield: Flow 0 G. M., Pump 174.2 G. M., Meas., Rept. Est.

Drawdown 28.5 ft. after 54 min. hours pumping 174.2 G. M.

12. Use: Dom., Stock, PS., RR., Ind., Irr., Obs. Test well

Adequacy, permanence

13. Quality Soap hardness 78 ppm; Fe 0.2 Temp 58.0 (1-26-51) F.

Taste, odor, color Sample Yes No

Unfit for

14. Remarks: (Log, Analyses, etc.) Log attached; analysis on file

U. S. GOVERNMENT PRINTING OFFICE 16-59355-1

Name of Inventor

TENNESSEE VALLEY AUTHORITY  
HYDRAULIC DATA DIVISION  
WATER ANALYSIS LABORATORY  
**REPORT OF WATER ANALYSIS**  
MINERAL CONSTITUENTS

36  
8845-3705-12

Field No. \_\_\_\_\_

Lab. No. Z320-A

Sample From SHAWNEE STEAM PLANT - D-25100

Sta. \_\_\_\_\_

Stage \_\_\_\_\_ Discharge \_\_\_\_\_ c.f.s. Weather \_\_\_\_\_

Date 1-20-51

DETERMINATIONS MADE		ppm	HYPOTHETICAL COMBINATIONS		ppm	gr./gal.
Water Temperature (°F)		58°	Sodium Nitrate	NaNO <sub>3</sub>	6.50	0.40
Turbidity		0	Sodium Chloride	NaCl	38.00	2.22
Color (Platinum Scale)		U.F. 3 F 0	Sodium Sulphate	Na <sub>2</sub> SO <sub>4</sub>	3.52	0.22
Odor		NONE	Sodium Carbonate	Na <sub>2</sub> CO <sub>3</sub>	14.31	0.83
Iron	Unfiltered	Fe 0.2	Ammonium Nitrate	NH <sub>4</sub> NO <sub>3</sub>		
	Filtered	Fe 0.0	Ammonium Chloride	NH <sub>4</sub> Cl		
Manganese		Mn 0.00	Ammonium Sulphate	(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub>		
Silica		SiO <sub>2</sub> 11	Ammonium Carbonate	(NH <sub>4</sub> ) <sub>2</sub> CO <sub>3</sub>		
Calcium		Ca 19.0	Magnesium Nitrate	Mg(NO <sub>3</sub> ) <sub>2</sub>		
Magnesium		Mg 8.52	Magnesium Chloride	MgCl <sub>2</sub>		
Ammonium		NH <sub>4</sub>	Magnesium Sulphate	MgSO <sub>4</sub>		
Sodium		Na 25.76	Magnesium Carbonate	MgCO <sub>3</sub>	29.51	1.72
Sulphate		SO <sub>4</sub> 5.65	Calcium Chloride	CaCl <sub>2</sub>		
Nitrate		NO <sub>3</sub> 4.96	Calcium Sulphate	CaSO <sub>4</sub>		
Chloride		Cl 23	Calcium Carbonate	CaCO <sub>3</sub>	47.54	2.77
Alkalinity	Phenolphthalein	0	Calcium Silicate	CaSiO <sub>3</sub>		
	Methyl Orange	96	Iron Oxide	Fe <sub>2</sub> O <sub>3</sub>		
Non-Carbonate Hardness		0	Manganese Oxide	MnO		
Soap Hardness as CaCO <sub>3</sub>		74	Silica	SiO <sub>2</sub>		
Calculated Hardness as CaCO <sub>3</sub>		83				
pH		6.6				
Residue (Dissolved)		152				
Suspended Solids		0				
Total Solids		152	<b>TOTAL</b>		144.68	8.44

Notes:

Analyzed \_\_\_\_\_ 19    Compiled \_\_\_\_\_ 19    Checked \_\_\_\_\_ 19

Approved \_\_\_\_\_

36  
8845-3705-~~14~~

TENNESSEE VALLEY AUTHORITY  
HYDRAULIC DATA DIVISION  
WATER ANALYSIS LABORATORY  
**REPORT OF WATER ANALYSIS**  
MINERAL CONSTITUENTS

Field No. \_\_\_\_\_

Lab. No. 2320Sample From SHAWNEE STEAM PLANT - D-25100

Sta. \_\_\_\_\_

Stage \_\_\_\_\_ Discharge \_\_\_\_\_ c.f.s. Weather \_\_\_\_\_

Date 1-26-51

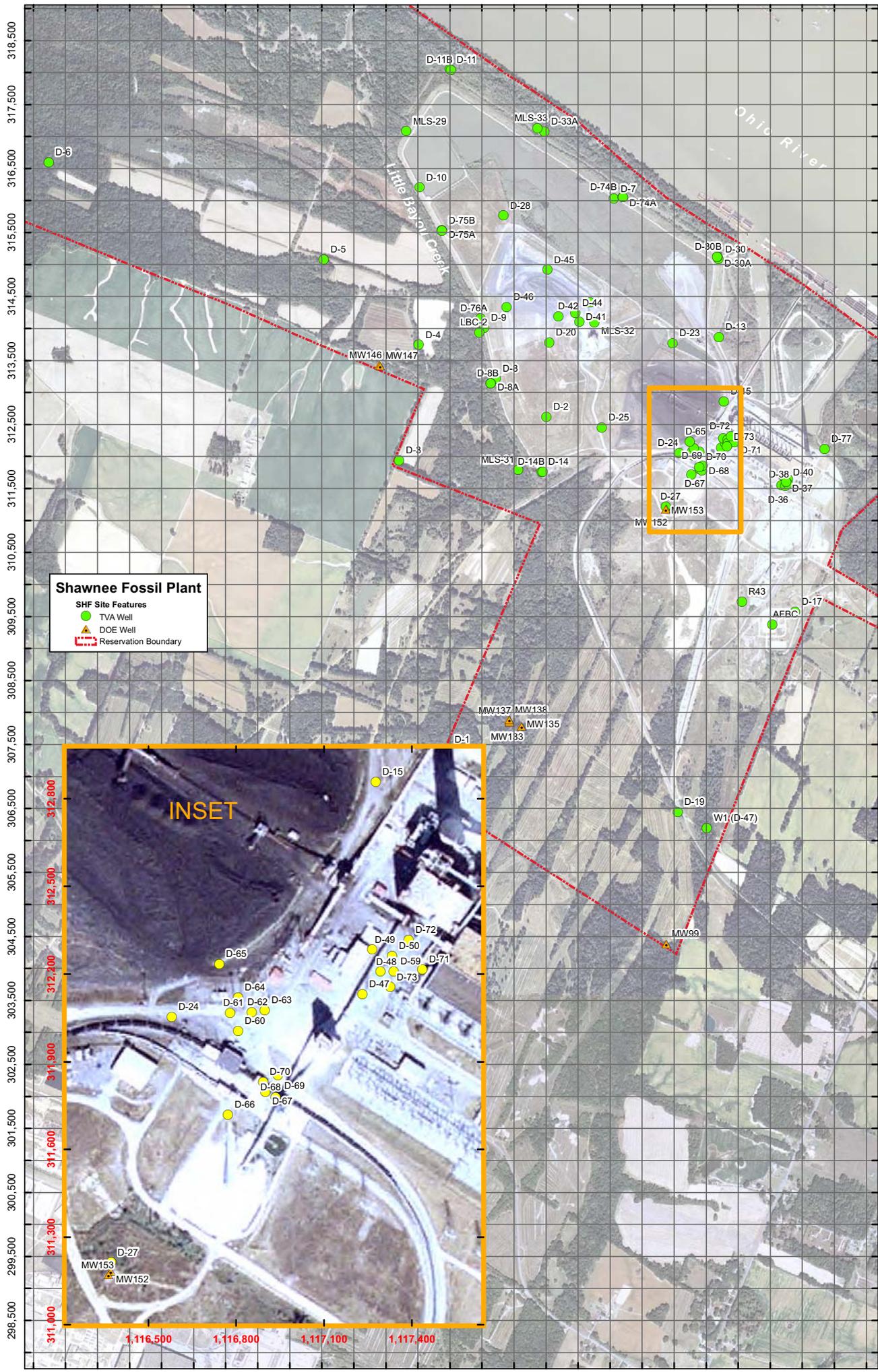
DETERMINATIONS MADE		ppm	HYPOTHETICAL COMBINATIONS		ppm	gr/gal
Water Temperature (°F)		58	Sodium Nitrate	NaNO <sub>3</sub>	5.75	0.35
Turbidity		0	Sodium Chloride	NaCl	38.00	2.22
Color (Platinum Scale)		U.F. 2 F. 0	Sodium Sulphate	Na <sub>2</sub> SO <sub>4</sub>	10.65	0.62
Odor		None 0	Sodium Carbonate	Na <sub>2</sub> CO <sub>3</sub>	11.13	0.65
Iron	Unfiltered	Fe 0.2	Ammonium Nitrate	NH <sub>4</sub> NO <sub>3</sub>		
	Filtered	Fe 0.0	Ammonium Chloride	NH <sub>4</sub> Cl		
Manganese		Mn 0.00	Ammonium Sulphate	(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub>		
Silica		SiO <sub>2</sub> 11	Ammonium Carbonate	(NH <sub>4</sub> ) <sub>2</sub> CO <sub>3</sub>		
Calcium		Ca 20.0	Magnesium Nitrate	Mg(NO <sub>3</sub> ) <sub>2</sub>		
Magnesium		Mg 9.12	Magnesium Chloride	MgCl <sub>2</sub>		
Ammonium		NH <sub>4</sub>	Magnesium Sulphate	MgSO <sub>4</sub>		
Sodium		Na 24.84	Magnesium Carbonate	MgCO <sub>3</sub>	31.62	1.84
Sulphate		SO <sub>4</sub> 7.20	Calcium Chloride	CaCl <sub>2</sub>		
Nitrate		NO <sub>3</sub> 4.43	Calcium Sulphate	CaSO <sub>4</sub>		
Chloride		Cl 23	Calcium Carbonate	CaCO <sub>3</sub>	50.04	2.92
Alkalinity	Phenolphthalein	0	Calcium Silicate	CaSiO <sub>3</sub>		
	Methyl Orange	98	Iron Oxide	Fe <sub>2</sub> O <sub>3</sub>		
Non-Carbonate Hardness		0	Manganese Oxide	MnO		
Soap Hardness as CaCO <sub>3</sub>		78	Silica	SiO <sub>2</sub>		
Calculated Hardness as CaCO <sub>3</sub>		88				
pH		6.9				
Residue (Dissolved)		153				
Suspended Solids		0				
Total Solids		153	TOTAL		147.39	8.60

Notes:

Log of this well filed under 8845-3705-~~14~~ 36

Analyzed \_\_\_\_\_ 19    Compiled \_\_\_\_\_ 19    Checked \_\_\_\_\_ 19

Approved \_\_\_\_\_



## **Attachment D**

### Ground Water Monitoring Wells Logs

MONITORING WELL INSTALLATION RECORD

PROJECT Shawnee

WELL NUMBER 1 INSTALLATION DATE July 1980

PLANT COORDINATES EAST -396.2m NORTH -1950.6m

GROUND SURFACE ELEVATION 108.69m-msl TOP OF INNER CASING 109.17m-msl

GRANULAR BACKFILL MATERIAL \_\_\_\_\_ SLOT SIZE 0.32cm perforations every .15m

CASING MATERIAL PVC CASING DIAMETER 10cm

DRILLING TECHNIQUE \_\_\_\_\_ DRILLING CONTRACTOR \_\_\_\_\_

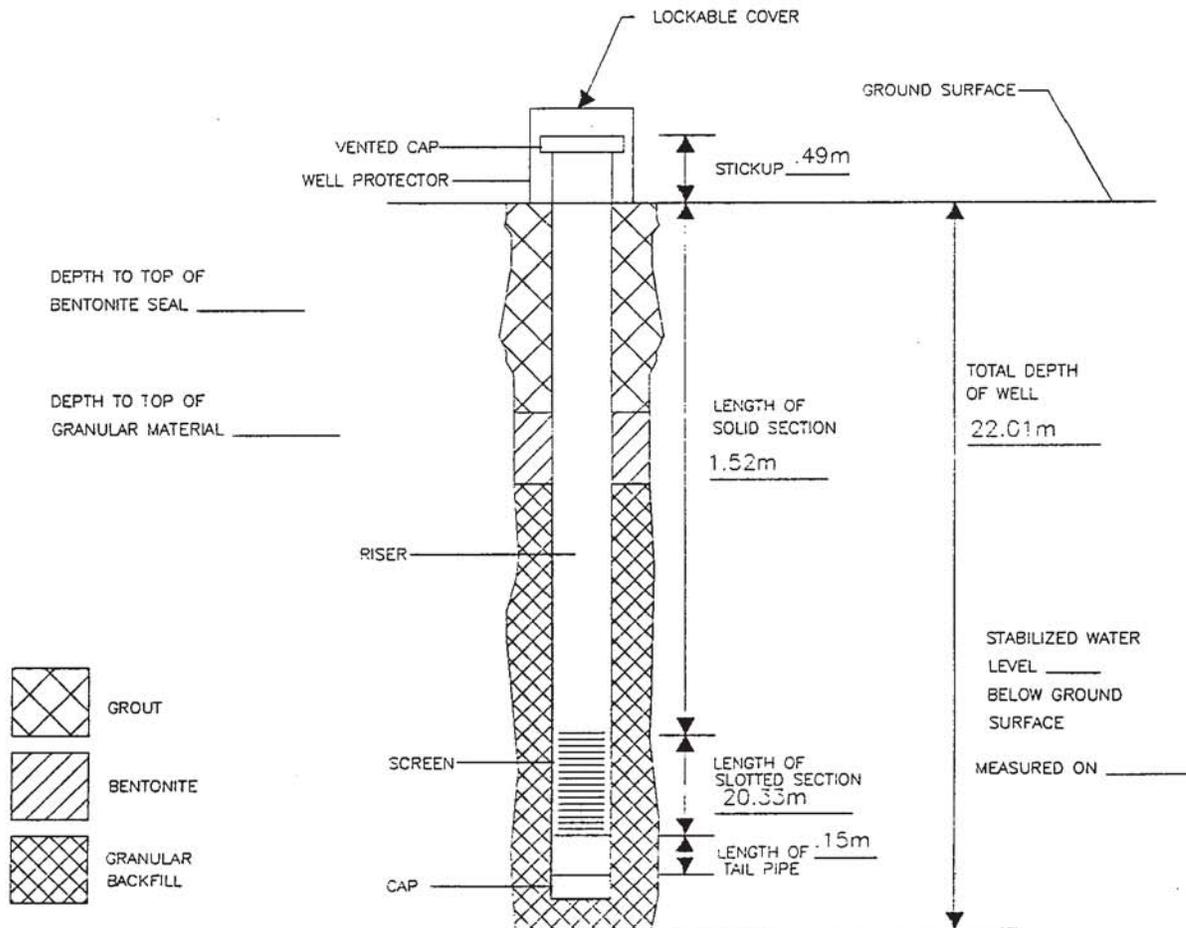
BOREHOLE DIAMETER \_\_\_\_\_ FIELD REPRESENTATIVE \_\_\_\_\_

LOCKABLE COVER ? \_\_\_\_\_ FILTER CLOTH AROUND SCREEN ? \_\_\_\_\_

DRILLING FLUID \_\_\_\_\_

COMMENTS no bentonite seal

(NOT TO SCALE)



## MONITORING WELL INSTALLATION RECORD

PROJECT Shawnee

WELL NUMBER D-1 INSTALLATION DATE July 1980

PLANT COORDINATES EAST -396.2m NORTH -1950.6m

GROUND SURFACE ELEVATION 108.69m-msl TOP OF INNER CASING 109.17m-msl

GRANULAR BACKFILL MATERIAL \_\_\_\_\_ SLOT SIZE 0.32cm perforations every .15m

CASING MATERIAL PVC CASING DIAMETER 10cm

DRILLING TECHNIQUE \_\_\_\_\_ DRILLING CONTRACTOR \_\_\_\_\_

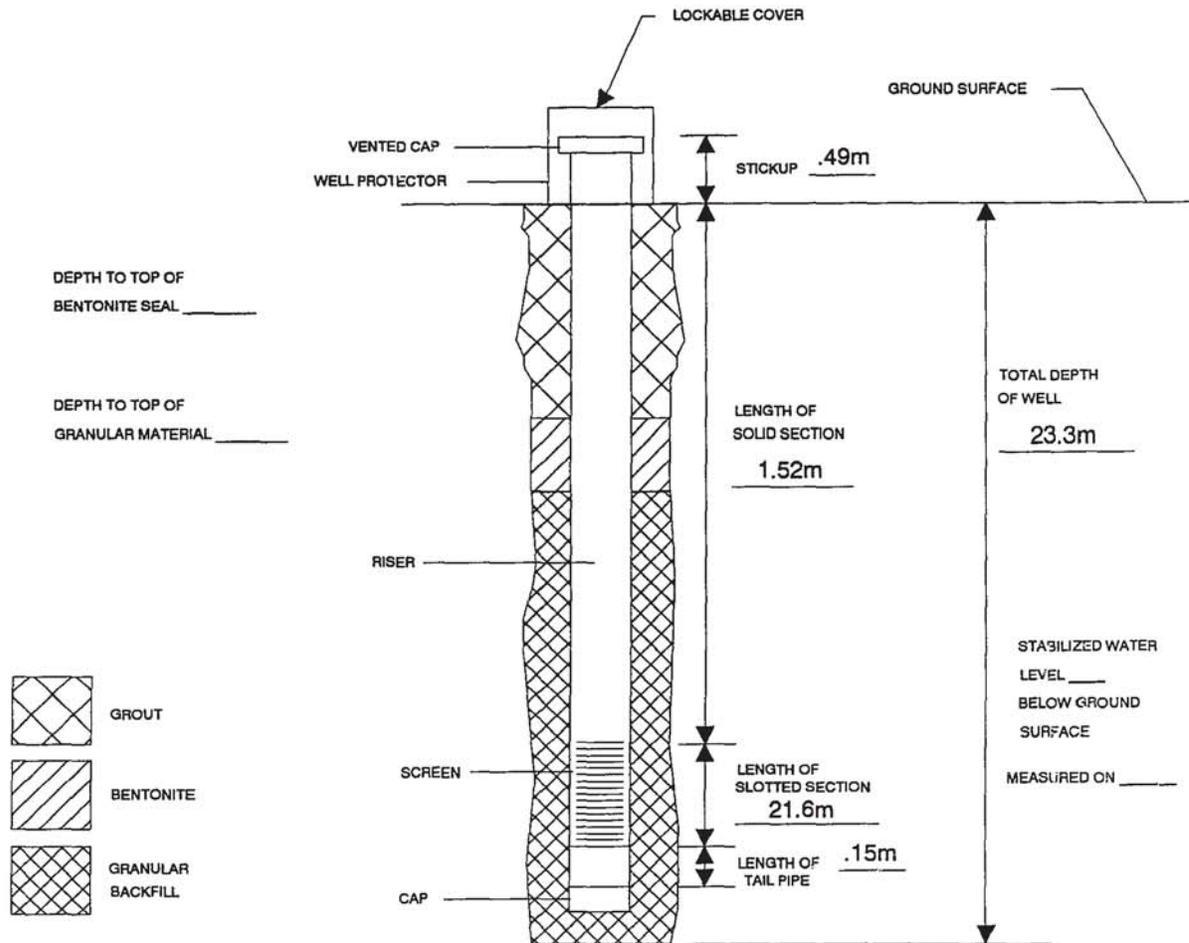
BOREHOLE DIAMETER \_\_\_\_\_ FIELD REPRESENTATIVE \_\_\_\_\_

LOCKABLE COVER ? no FILTER CLOTH AROUND SCREEN ? \_\_\_\_\_

DRILLING FLUID \_\_\_\_\_

COMMENTS no bentonite seal

(NOT TO SCALE)





**MONITORING WELL INSTALLATION RECORD**

*Abandoned*

PROJECT SHAWNEE

WELL NUMBER D-4      INSTALLATION DATE JULY 1980

PLANT COORDINATES    EAST -1559.9m      NORTH -409.3m

GROUND SURFACE ELEVATION 101.10m-msl      TOP OF INNER CASING 102.58m-msl

GRANULAR BACKFILL MATERIAL \_\_\_\_\_      SLOT SIZE 0.32cm PERFORATIONS EVERY .15m

CASING MATERIAL PVC      CASING DIAMETER 10cm

DRILLING TECHNIQUE \_\_\_\_\_      DRILLING CONTRACTOR \_\_\_\_\_

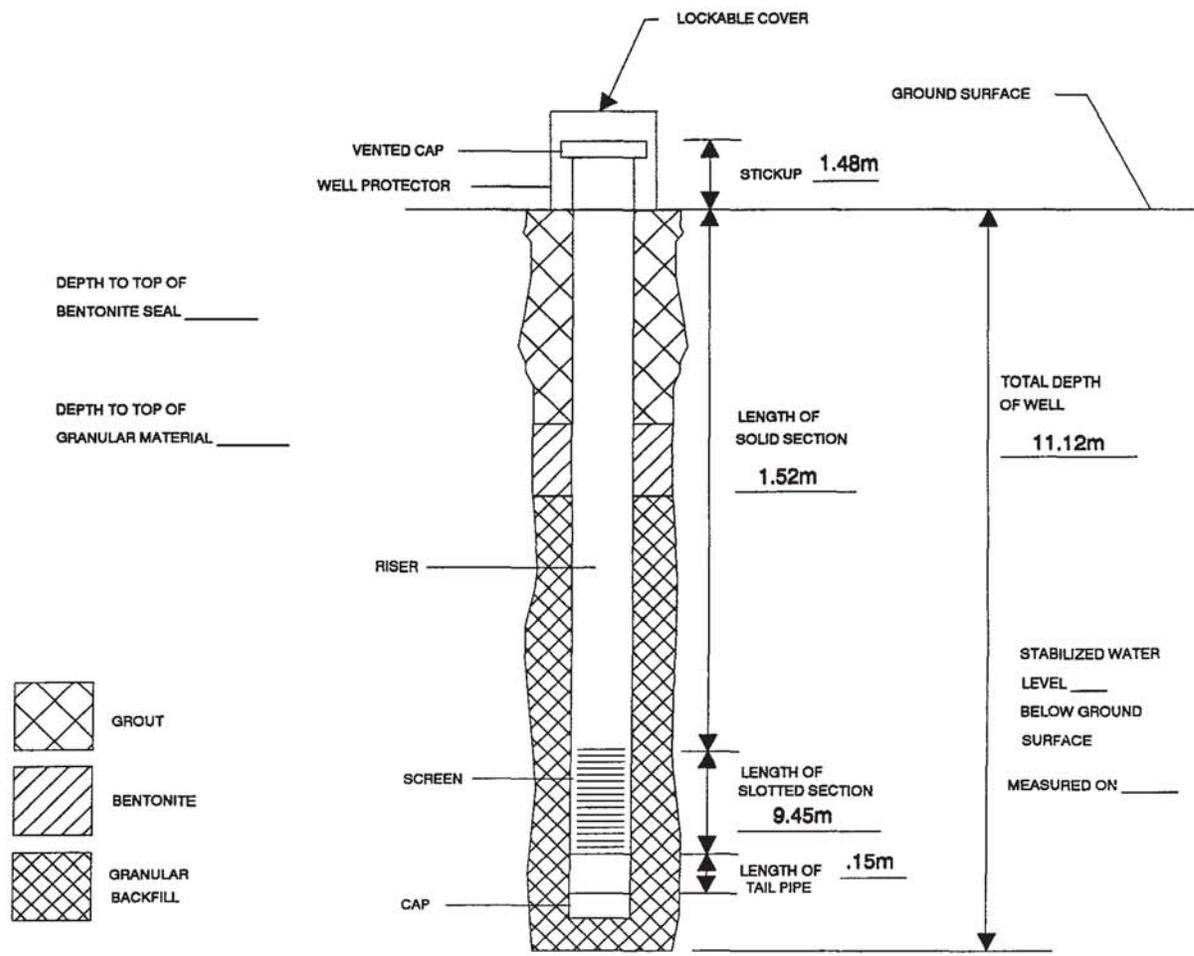
BOREHOLE DIAMETER \_\_\_\_\_      FIELD REPRESENTATIVE \_\_\_\_\_

LOCKABLE COVER ? no      FILTER CLOTH AROUND SCREEN ? \_\_\_\_\_

DRILLING FLUID \_\_\_\_\_

COMMENTS NO BENTONITE SEAL

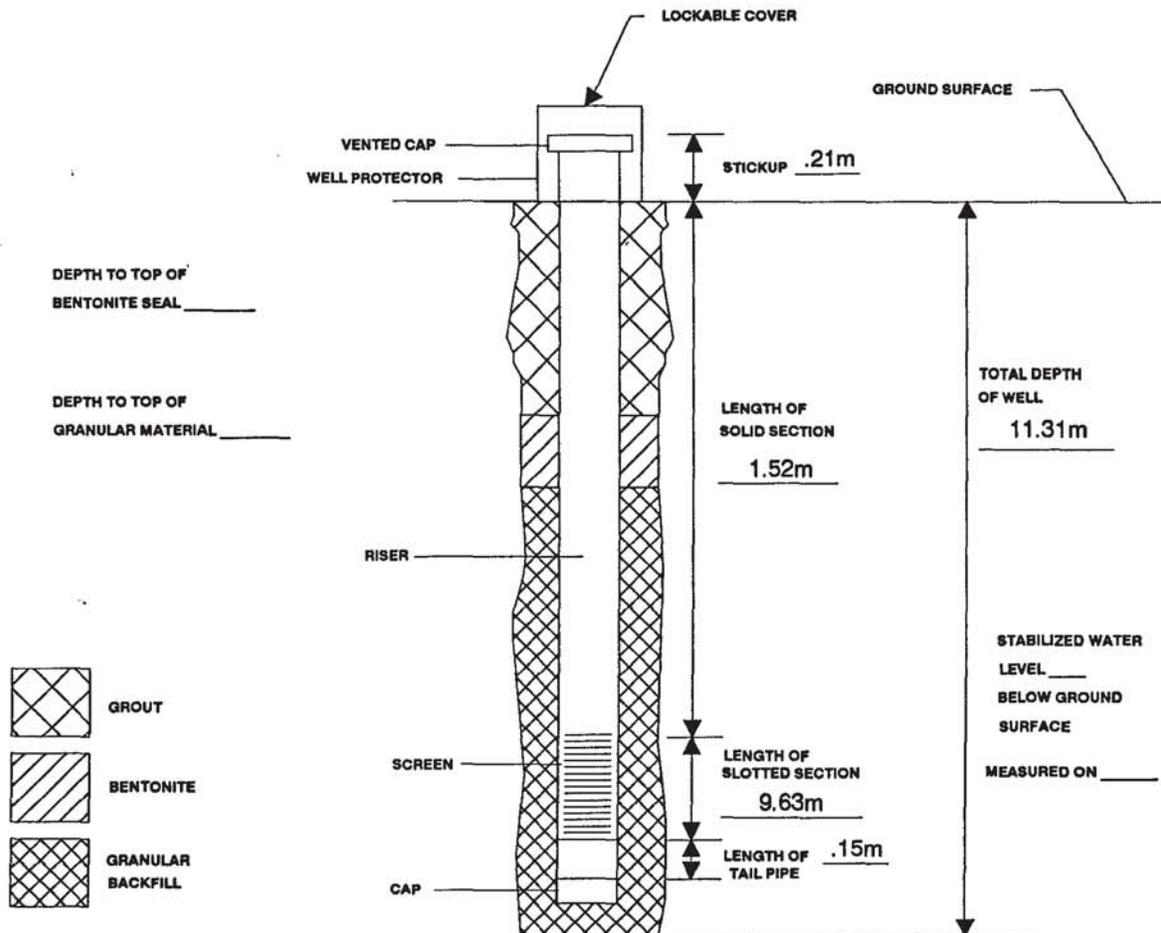
(NOT TO SCALE)



## MONITORING WELL INSTALLATION RECORD

PROJECT <u>SHAWNEE</u>	
WELL NUMBER <u>D-5</u>	INSTALLATION DATE <u>JULY 1980</u>
PLANT COORDINATES EAST <u>-2161.2m</u>	NORTH <u>-312.7m</u>
GROUND SURFACE ELEVATION <u>100.82m-msl</u>	TOP OF INNER CASING <u>100.5 m-msl</u>
GRANULAR BACKFILL MATERIAL _____	SLOT SIZE <u>0.32cm PERFORATIONS EVERY .15m</u>
CASING MATERIAL <u>PVC</u>	CASING DIAMETER <u>10cm</u>
DRILLING TECHNIQUE _____	DRILLING CONTRACTOR _____
BOREHOLE DIAMETER _____	FIELD REPRESENTATIVE _____
LOCKABLE COVER ? <u>no</u>	FILTER CLOTH AROUND SCREEN ? _____
DRILLING FLUID _____	
COMMENTS <u>NO BENTONITE SEAL</u>	

(NOT TO SCALE)



abandoned

### MONITORING WELL INSTALLATION RECORD

PROJECT Shawnee

WELL NUMBER D-8      INSTALLATION DATE July 1980

PLANT COORDINATES    EAST -3510.52m      NORTH -636.39m

GROUND SURFACE ELEVATION 99.57m-msl      TOP OF INNER CASING 100.15m-msl

GRANULAR BACKFILL MATERIAL \_\_\_\_\_      SLOT SIZE 0.32cm perforations every .15m

CASING MATERIAL PVC      CASING DIAMETER 10cm

DRILLING TECHNIQUE \_\_\_\_\_      DRILLING CONTRACTOR \_\_\_\_\_

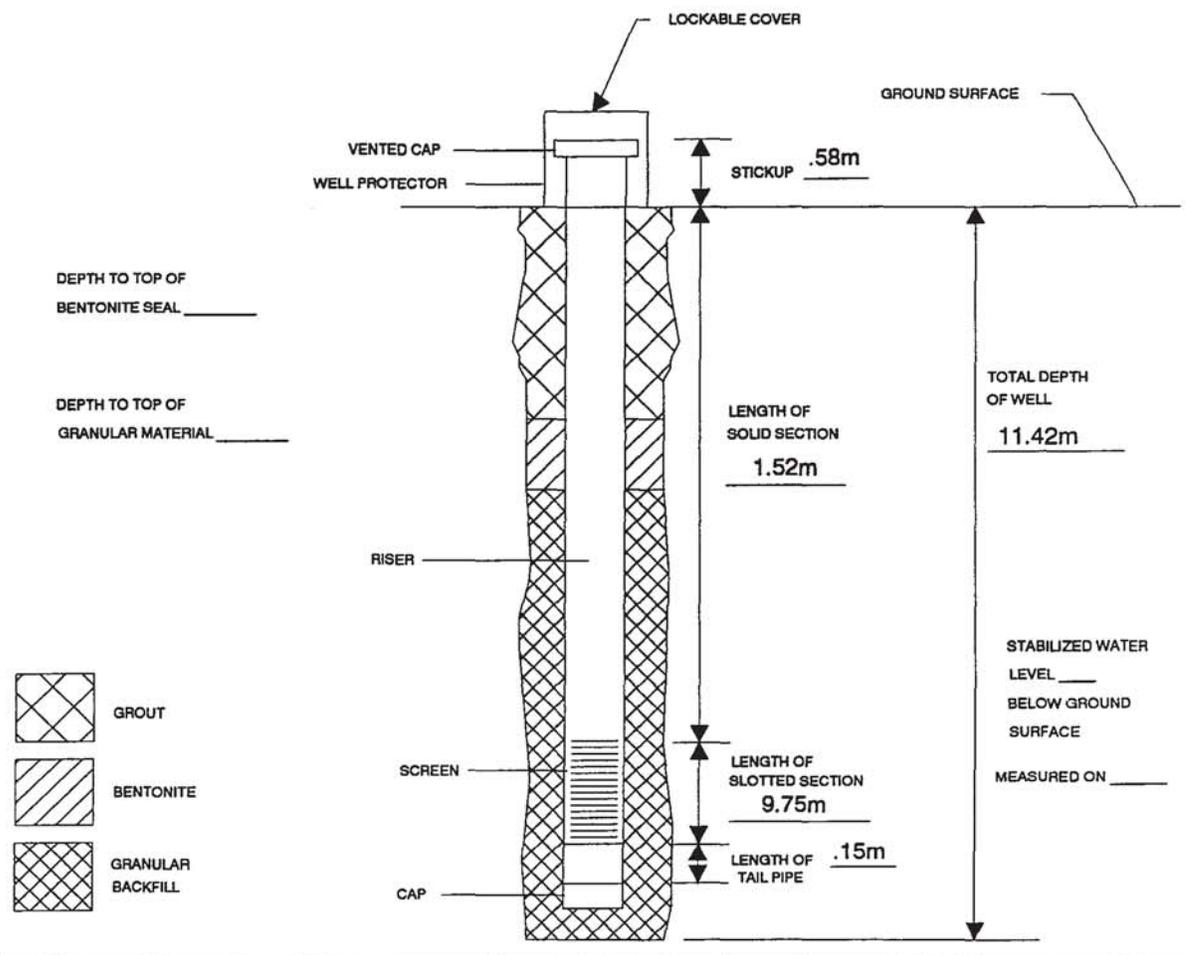
BOREHOLE DIAMETER \_\_\_\_\_      FIELD REPRESENTATIVE \_\_\_\_\_

LOCKABLE COVER ? no      FILTER CLOTH AROUND SCREEN ? \_\_\_\_\_

DRILLING FLUID \_\_\_\_\_

COMMENTS no bentonite seal

(NOT TO SCALE)



### MONITORING WELL INSTALLATION RECORD

PROJECT Shawnee

WELL NUMBER 6 INSTALLATION DATE July 1980

PLANT COORDINATES EAST -3510.52m NORTH -636.39m

GROUND SURFACE ELEVATION 99.57m-msl TOP OF INNER CASING 100.15m-msl

GRANULAR BACKFILL MATERIAL \_\_\_\_\_ SLOT SIZE 0.32cm perforations every .15m

CASING MATERIAL PVC CASING DIAMETER 10cm

DRILLING TECHNIQUE \_\_\_\_\_ DRILLING CONTRACTOR \_\_\_\_\_

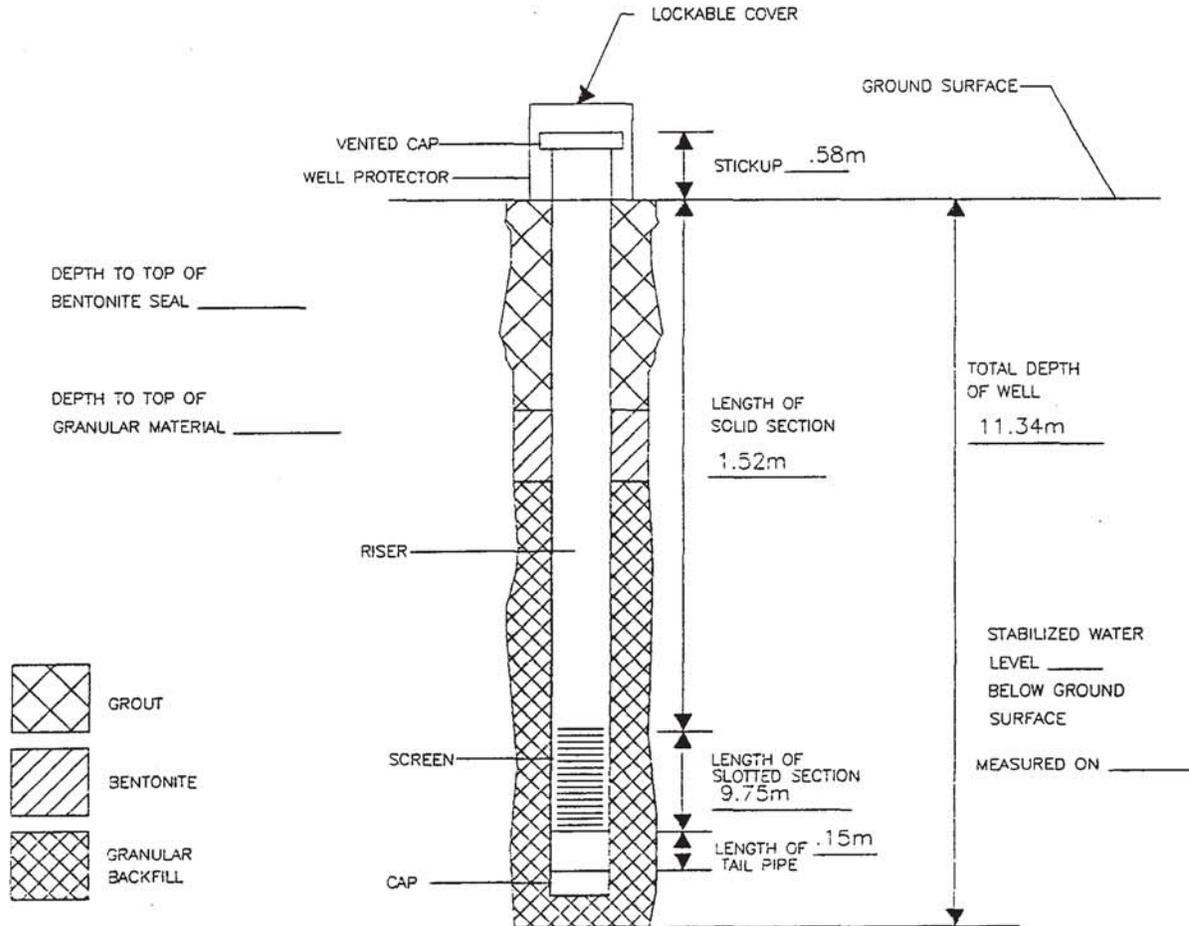
BOREHOLE DIAMETER \_\_\_\_\_ FIELD REPRESENTATIVE \_\_\_\_\_

LOCKABLE COVER ? \_\_\_\_\_ FILTER CLOTH AROUND SCREEN ? \_\_\_\_\_

DRILLING FLUID \_\_\_\_\_

COMMENTS no bentonite seal

(NOT TO SCALE)



## MONITORING WELL INSTALLATION RECORD

PROJECT Shawnee

WELL NUMBER J D-7 INSTALLATION DATE August 1985

PLANT COORDINATES EAST -1158.2m NORTH 678.8m

GROUND SURFACE ELEVATION 106.67m-msl TOP OF INNER CASING 107.53m-msl

GRANULAR BACKFILL MATERIAL filter sand SLOT SIZE 0.03cm

CASING MATERIAL PVC CASING DIAMETER 10cm

DRILLING TECHNIQUE Gardener-Denver Rotary DRILLING CONTRACTOR J. Jones of Paducah

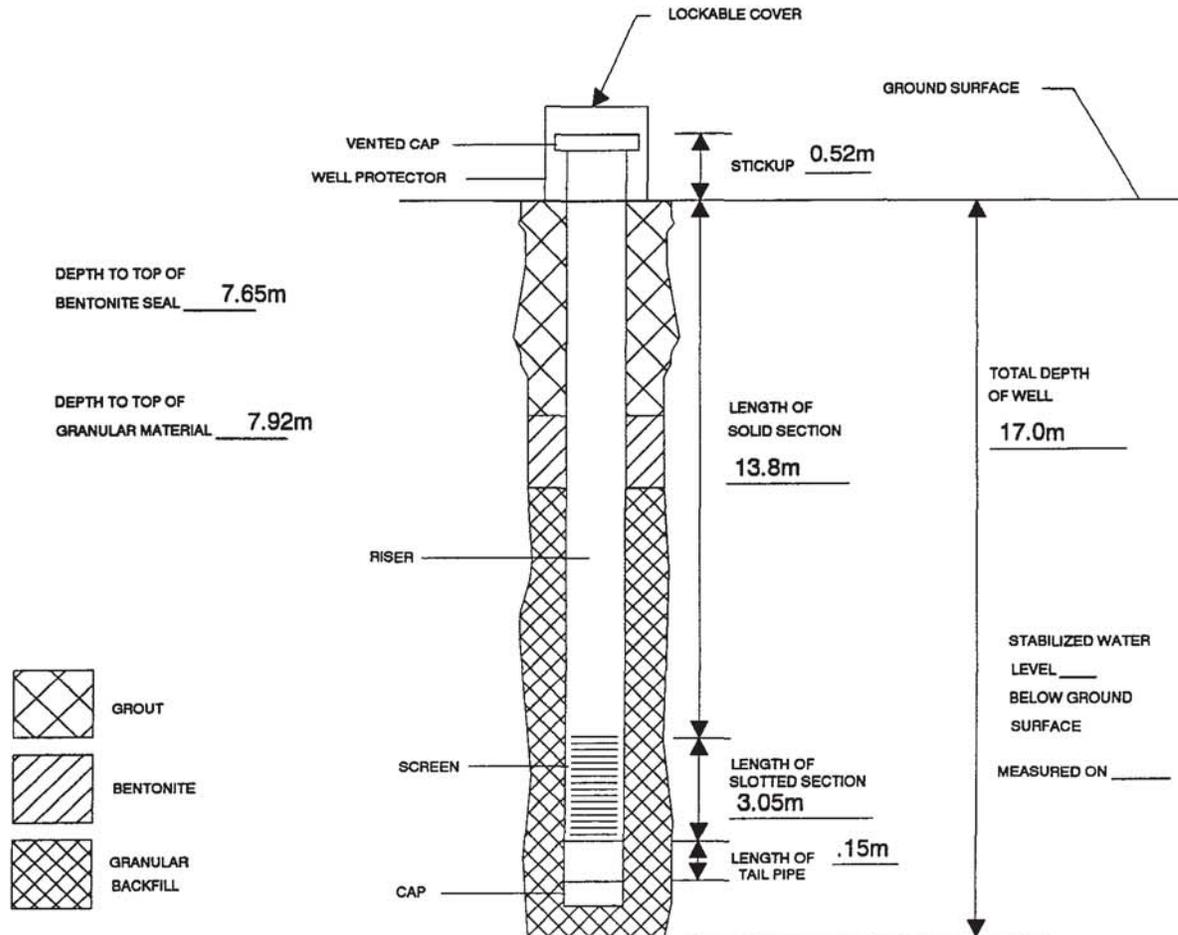
BOREHOLE DIAMETER 20cm FIELD REPRESENTATIVE Hal Robinson

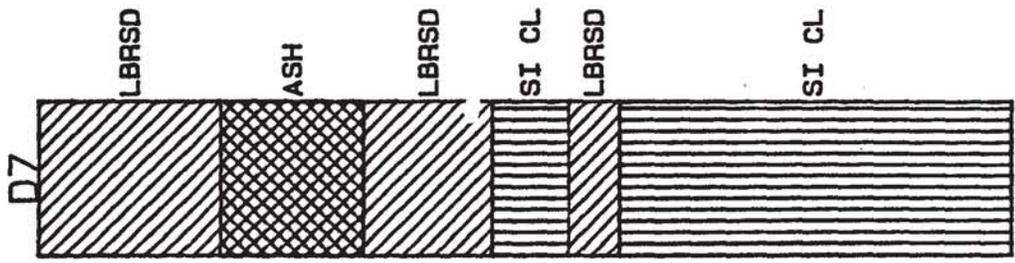
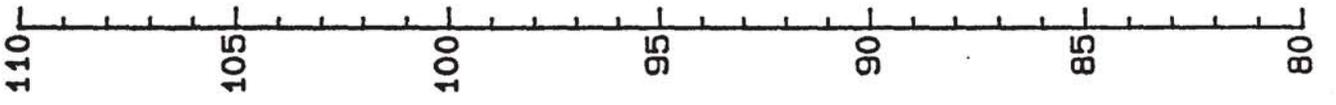
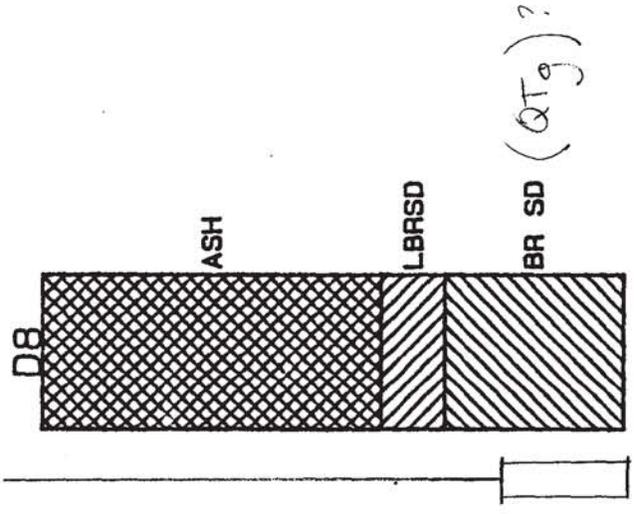
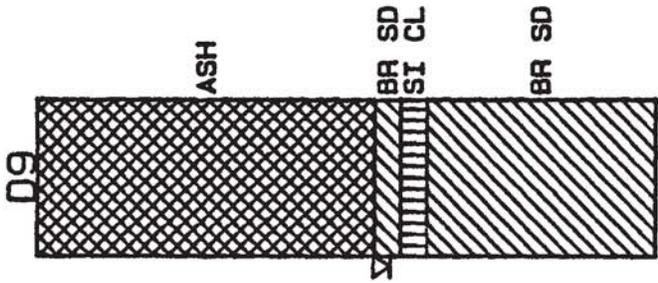
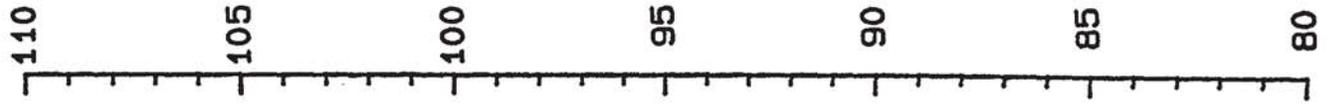
LOCKABLE COVER ? Threaded Steel Cap FILTER CLOTH AROUND SCREEN ? \_\_\_\_\_

DRILLING FLUID Spink-gel Bentonite

COMMENTS \_\_\_\_\_

(NOT TO SCALE)





Elevation MSL (m)

*closed space*

### MONITORING WELL INSTALLATION RECORD

PROJECT Shawnee

WELL NUMBER 8 D-8 INSTALLATION DATE August 1985

PLANT COORDINATES EAST -1164.9m NORTH -345.0m

GROUND SURFACE ELEVATION 105.97m-msl TOP OF INNER CASING 106.43m-msl

GRANULAR BACKFILL MATERIAL Sand SLOT SIZE 0.03cm

CASING MATERIAL PVC CASING DIAMETER 10cm

DRILLING TECHNIQUE Gardener-Denver Rotary DRILLING CONTRACTOR J. Jones of Paducah

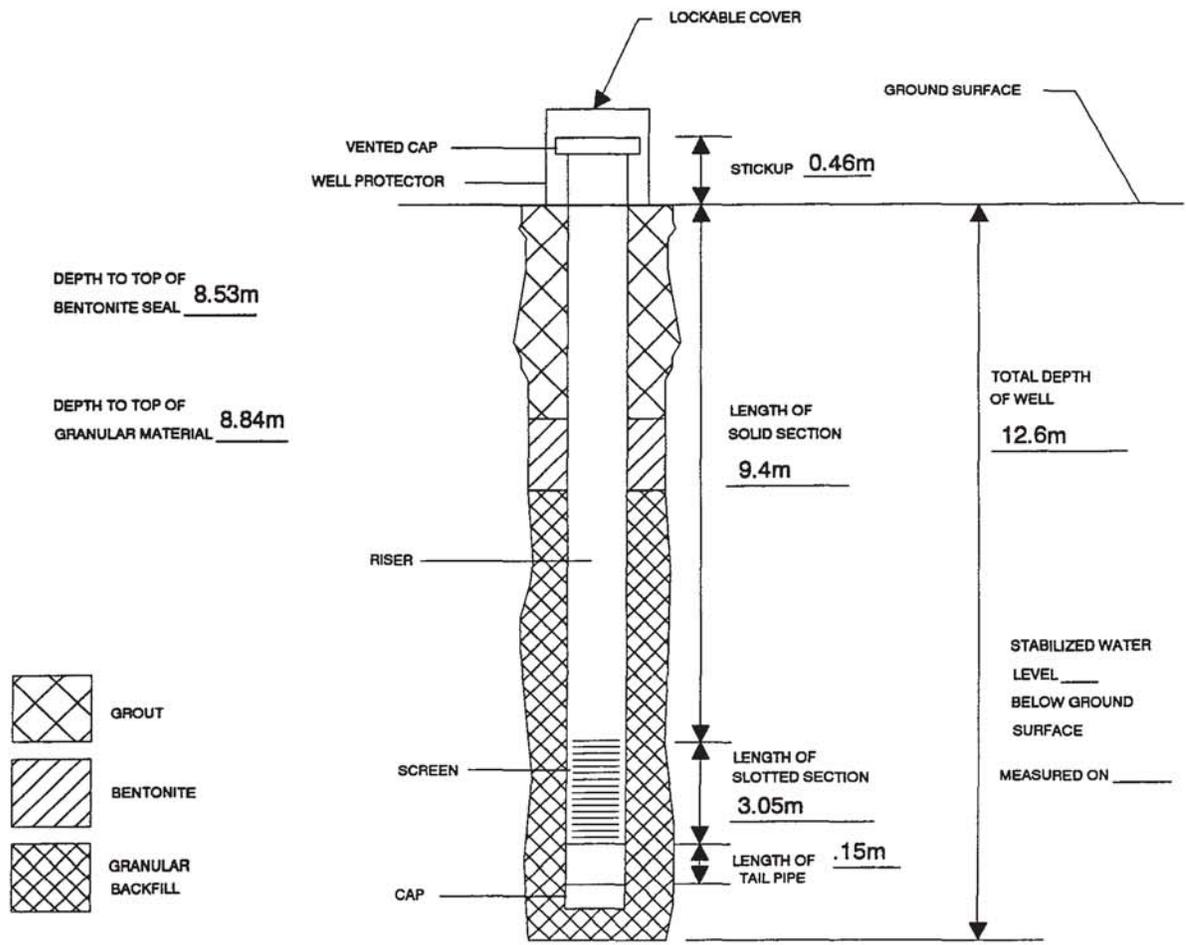
BOREHOLE DIAMETER 20cm FIELD REPRESENTATIVE Hal Robinson

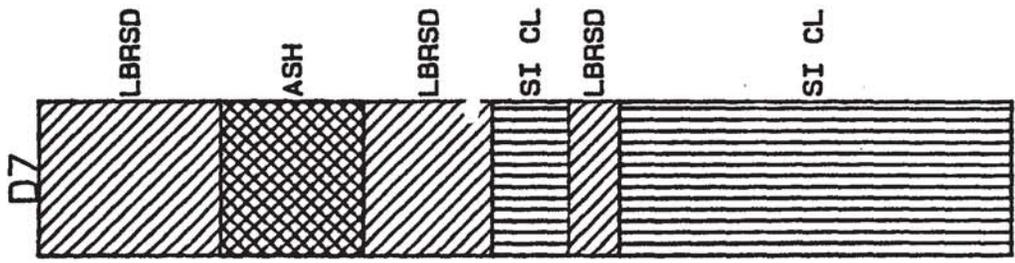
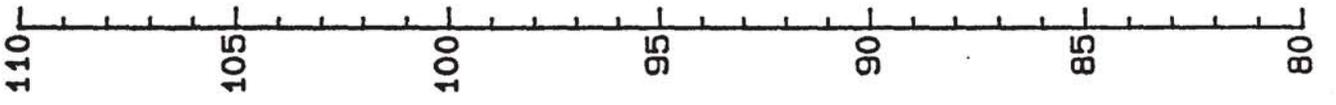
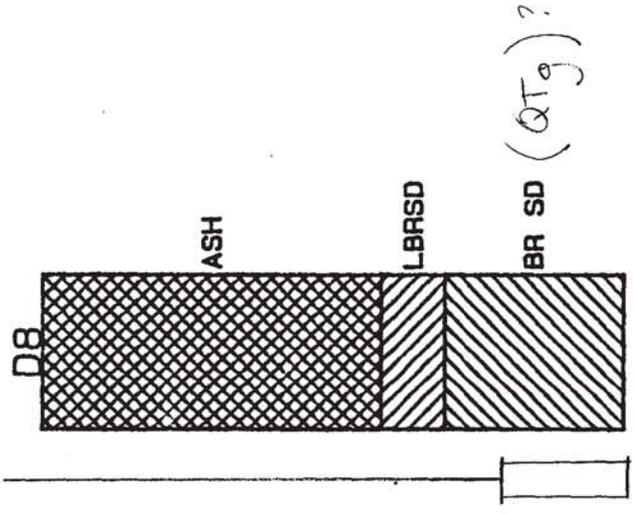
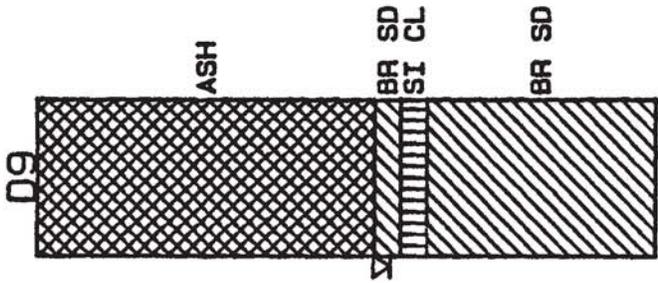
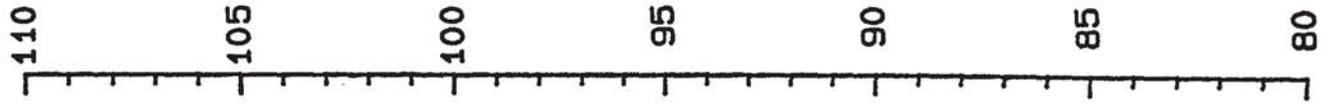
LOCKABLE COVER ? no FILTER CLOTH AROUND SCREEN ? \_\_\_\_\_

DRILLING FLUID \_\_\_\_\_

COMMENTS \_\_\_\_\_

(NOT TO SCALE)





Elevation MSL (m)

## MONITORING WELL INSTALLATION RECORD

PROJECT Shawnee

WELL NUMBER 8A D-8A ? INSTALLATION DATE Sept 1987

PLANT COORDINATES EAST -1173.1m NORTH -376.7m

GROUND SURFACE ELEVATION 99.97m-msl TOP OF INNER CASING 103.89m-msl

GRANULAR BACKFILL MATERIAL Sand SLOT SIZE 0.03cm

CASING MATERIAL PVC Sch 40 CASING DIAMETER 10cm

DRILLING TECHNIQUE Gardener-Denver Rotary DRILLING CONTRACTOR J. Jones Drilling Co.

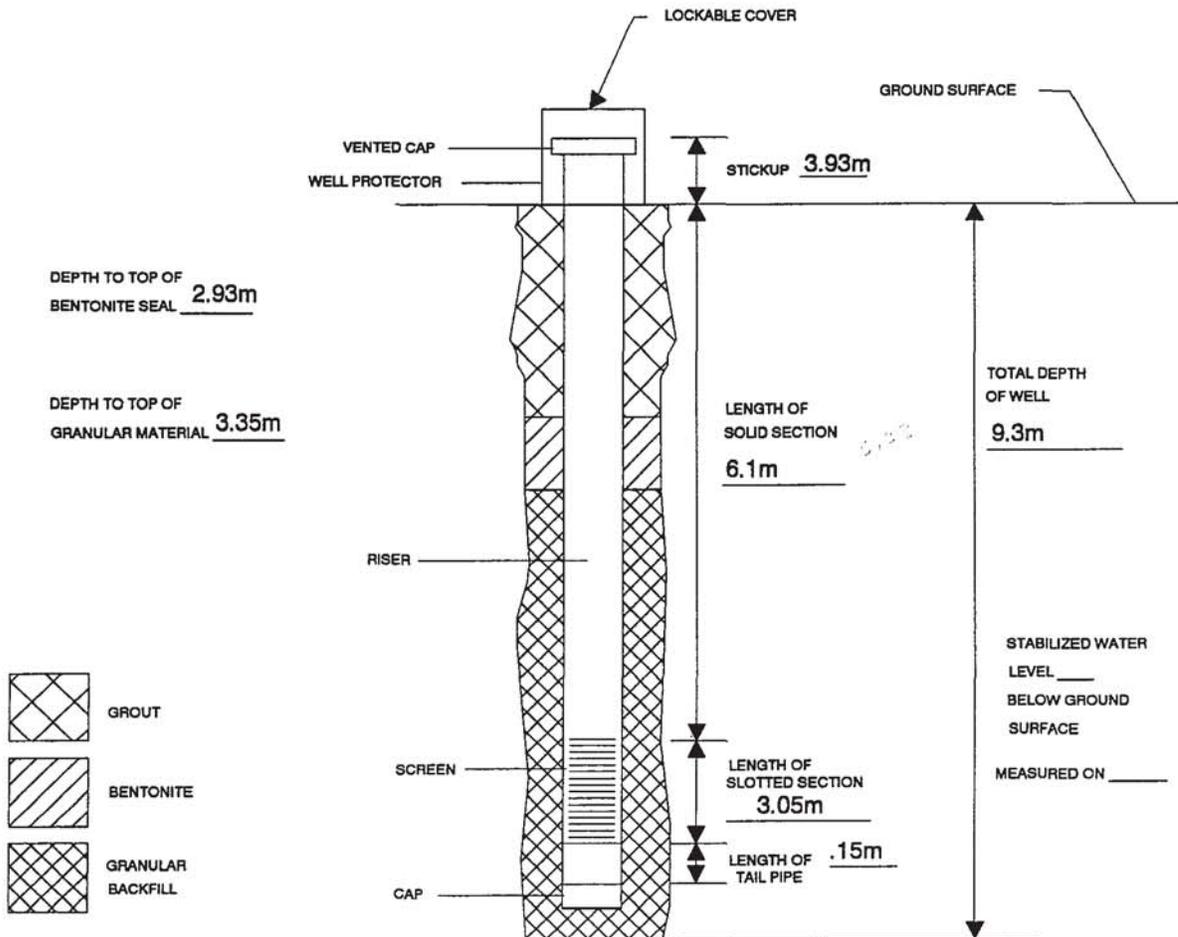
BOREHOLE DIAMETER \_\_\_\_\_ FIELD REPRESENTATIVE Hal Robinson

LOCKABLE COVER ? no FILTER CLOTH AROUND SCREEN ? \_\_\_\_\_

DRILLING FLUID Bentonite powder

COMMENTS \_\_\_\_\_

(NOT TO SCALE)

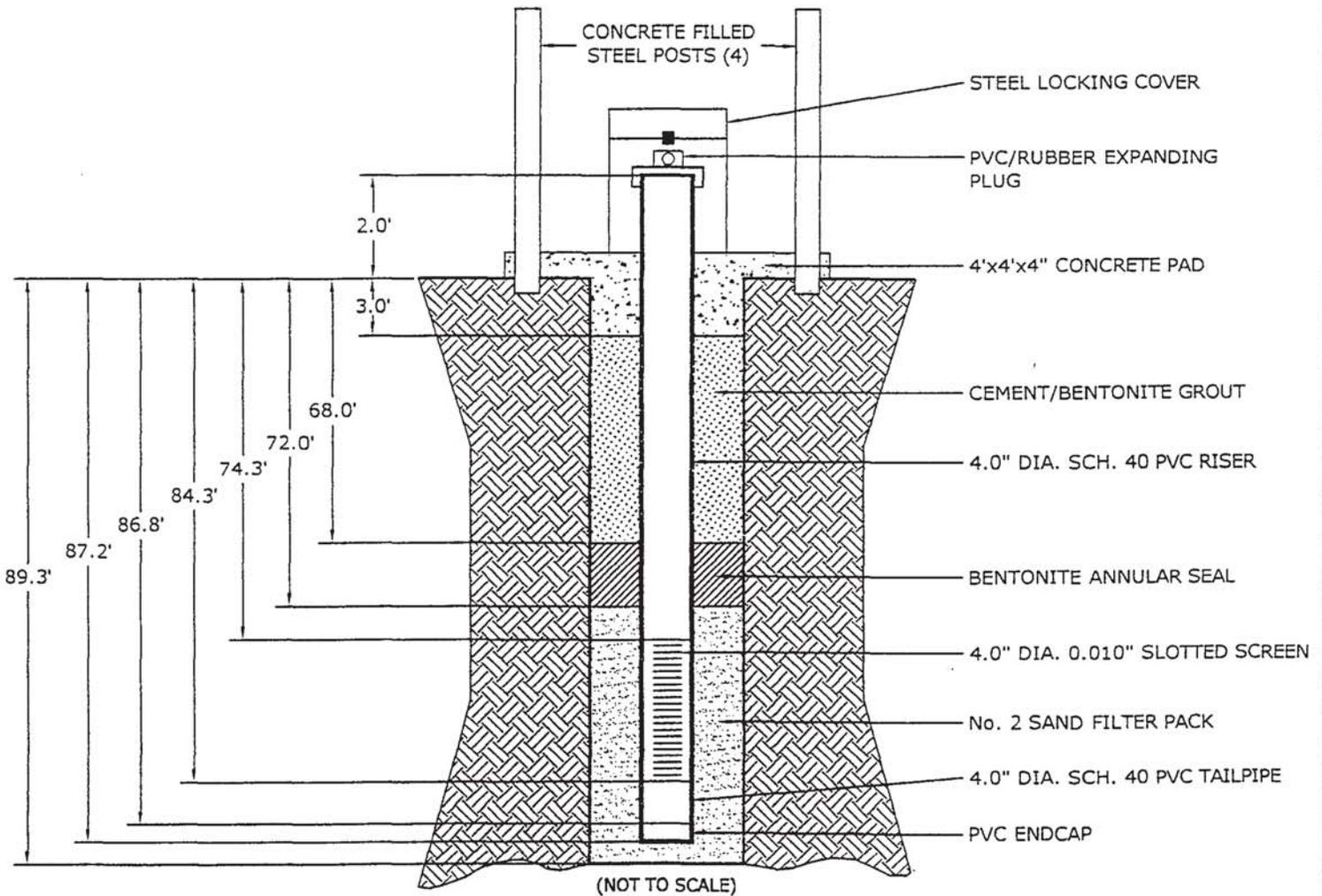




# TYPE II MONITORING WELL INSTALLATION RECORD

JOB NAME TVA SHAWNEE STEAM PLANT  
 TVA WELL NUMBER D-8B  
 KENTUCKY WELL NUMBER 8002-6404  
 BOREHOLE DIAMETER 12.25"  
 TOTAL DEPTH 89.3'  
 FIELD REPRESENTATIVE JOHN MASON

JOB NUMBER 50300-8-2075/033/811  
 INSTALLATION DATE MAY 13, 2000  
 DRILLED BY J. WARREN (Law Engineering)  
 RISER/SCREEN  
 MATERIAL SCHEDULE 40 PVC  
 DIAMETER 4.0"  
 SLOT SIZE 0.010"



DEPTH (ft)	SOIL CLASSIFICATION AND REMARKS  SEE KEY SYMBOL SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS BELOW.	LEGEND	ELEV (ft)	SAMPLES			DRILLING REMARKS		
				IDENT	TYPE	N-COUNT			
						1st 6"		2nd 6"	3rd 6"
0	Gray-brown sandy topsoil. Fly ash: Very stiff, 2.5/N black silt to fine sand sized material. Dry. Fill.								
5				SPT		4-11-12			
10	Fly ash: Firm 2.5/N black to 4/N, silt to fine sand-sized material. Dry. Fill.			SPT		4-3-3			
15	Fly ash: Soft 3/N very dark gray, silt to fine sand-sized material. Slightly moist. Fill.			SPT		2-2-1			
20	Fly ash: Very soft 3/N very dark gray, silt to fine sand-sized material. Very moist to wet. Fill.			SPT		2-0-0			
25	Soft 5GY4/1 dark green-gray silty CLAY. 2.5/N black organic material (rootlets, small chips of wood). Slightly moist, possible alluvium.			SPT		1-1-2			
30	Firm 10Y7/1 light green-gray (top 1.1' of sample) to 10YR5/6 yellow-brown (bottom 0.4' of sample) sandy clayey GRAVEL. Sand is subangular, quartz, fU to cU sized. Gravel is rounded quartz from 1.0 to 3.5 cm. Slightly moist. Alluvium.			SPT		11-10-12			
35	Very dense, 2.5Y6/4 light yellow-brown slightly clayey sandy GRAVEL. Sand is quartz, subangular, fU to cU sized. Gravel is rounded quartz from 1.0 to 3.0 cm. Very moist to wet. Alluvium.			SPT		19-30-41			
40	Very dense 2.5Y6/4 light yellow-brown sandy GRAVEL. Sand is subangular to subrounded quartz, mL to cL sized. Gravel is typically 4.0 to 2.0 cm. Wet. Alluvium.			SPT		100/0.5			
45							Very rough drilling through boulders from approximately 41.5' to 43.5'.		

SOIL REMARKS 8207533.GPJ LAW GIBB.GDT 6/14/00

REMARKS:

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

SOIL TEST BORING RECORD	
PROJECT:	TVA Shawnee Steam Plant
DRILLED:	May 13, 2000
BORING NO.:	D- 8B
PROJ. NO.:	50300-8-2075/33/811
PAGE 1 OF 3	
	

DEPTH (ft)	SOIL CLASSIFICATION AND REMARKS  SEE KEY SYMBOL SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS BELOW.	LEGEND	ELEV (ft)	SAMPLES			DRILLING REMARKS
				IDENT	TYPE	N-COUNT	
						1st 6" 2nd 6" 3rd 6"	
45	Firm 10YR6/6 brown-yellow to 10YR4/2 dark gray-brown, slightly silty, sandy GRAVEL. Sand is predominately quartz, micaceous, subrounded, fU sized. Gravel is rounded quartz, fine to coarse (4 mm to 2.5 cm). Wet. Alluvium.			SPT		5-7-11	
50	Very dense 2.5Y5/4 light olive brown sandy GRAVEL. Sand is medium to very coarse (0.5 mm to 2.0mm). Some granules. Sand is quartz, subrounded. Gravel is rounded quartz, fine to coarse. Wet. Alluvium.			SPT		28-30-40	
55				SPT		56-49-60	
60	Firm 2.5Y5/4 light olive brown sandy GRAVEL. Sand is medium to very coarse (0.5 mm to 2.0 mm), quartz, subrounded. Gravel is rounded quartz, fine to coarse. Wet. Alluvium.			SPT		7-16-27	
65				SPT		5-7-7	
70	Very dense 10YR5/8 yellow-brown, silty sandy GRAVEL. Approximately 10% silt. Sand is very fine to very coarse, quartz, subangular to subrounded. Gravel is rounded quartz, fine to coarse. Wet. Alluvium			SPT		23-67-76	↑
75	Very dense 2.5Y6/4 light yellow-brown to 10YR6/8 brown-yellow, fine SAND. Sand is subrounded quartz, micaceous (approximately 5 to 7% mica). Wet. Sand is fL to fU, visually.			SPT		66-82/0.4	PGA 274.4
80	Dense to very dense 10YR7/1 light gray (with occasional 5 mm to 1 cm-thick horizontal bands of 10YR6/6 brown yellow) very slightly clayey, silty SAND. Sand is fine subrounded quartz, fL, and contains approximately 10% mica. Wet.			SPT		22-25-33	
85				SPT		18-34-74	
90							

SOIL REMARKS 8207533.GPJ LAW GIBB.GDT 6/14/00

REMARKS:

SOIL TEST BORING RECORD			
PROJECT:	TVA Shawnee Steam Plant		
DRILLED:	May 13, 2000	BORING NO.:	D-8B
PROJ. NO.:	50300-8-2075/33/811	PAGE 2 OF 3	
<b>LAW</b> LAWGIBB Group Member			

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SOIL REMARKS 8207533.GPJ LAW\_GIBB.GDT 6/14/00

DEPTH (ft)	SOIL CLASSIFICATION AND REMARKS  SEE KEY SYMBOL SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS BELOW.	LEGEND	ELEV (ft)	SAMPLES			DRILLING REMARKS
				IDENT	TYPE	N-COUNT	
						1st 6"	
90	Very stiff, variegated (alternating 2 mm to 1 cm thick bands of 10YR7/1 light gray and 10YR6/8 brown-yellow) sandy CLAY. Clay is sandy and predominately light gray; sand is fine, fl sized, quartz, subrounded, with about 10% mica content. Moist. Brown-yellow bands are predominately sand, and occasionally contain 1 to 2 mm thick hard, horizontal layers of 7.5YR5/8 strong brown iron concretions.			SPT		12-15-23	Boring initially sampled using 4.25" I.D. augers, and reamed with 8.25" I.D. augers to set type II monitoring wells; refer to D-8B monitoring well diagram.
95	Very stiff, 10Y7/1 to 5/N (light green-gray to gray) sandy CLAY with 10YR5/8 to 10YR4/6 (yellow-brown to dark yellow-brown) sandy layers (with occasional iron concretions). Moist. Sand is fine, fl sized, quartz, subrounded, micaceous. Boring terminated with sampling to 96.0'.			SPT		9-15-27	
100							
105							
110							
115							
120							
125							
130							
135							

REMARKS:

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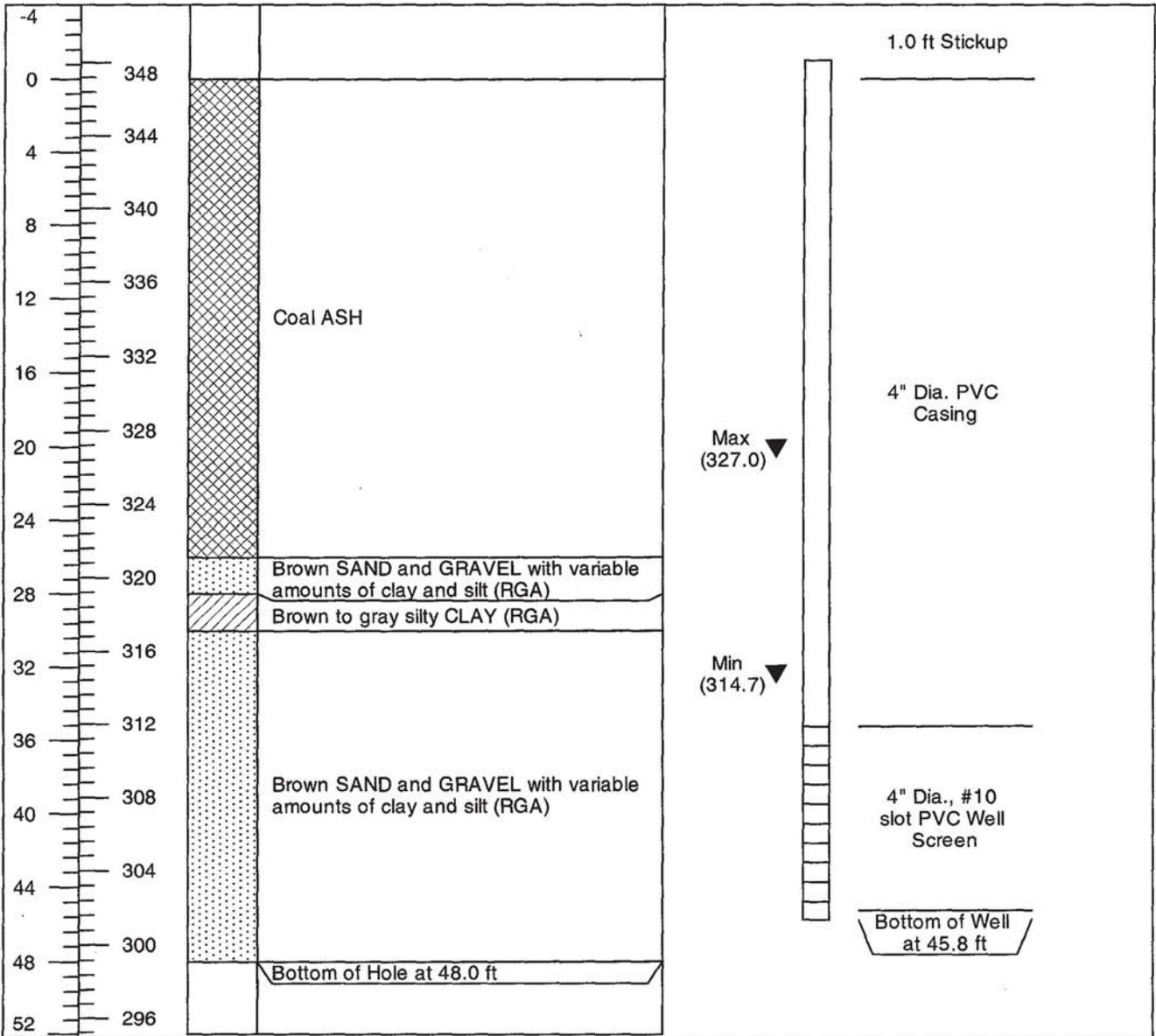
SOIL TEST BORING RECORD	
PROJECT:	TVA Shawnee Steam Plant
DRILLED:	May 13, 2000
BORING NO.:	D-8B
PROJ. NO.:	50300-8-2075/33/811
PAGE 3 OF 3	
	



# Shawnee Fossil Plant

Well ID: D-9

Depth (ft)	Elevation (ft)	Lithology	Description	Well Construction Diagram
------------	----------------	-----------	-------------	---------------------------

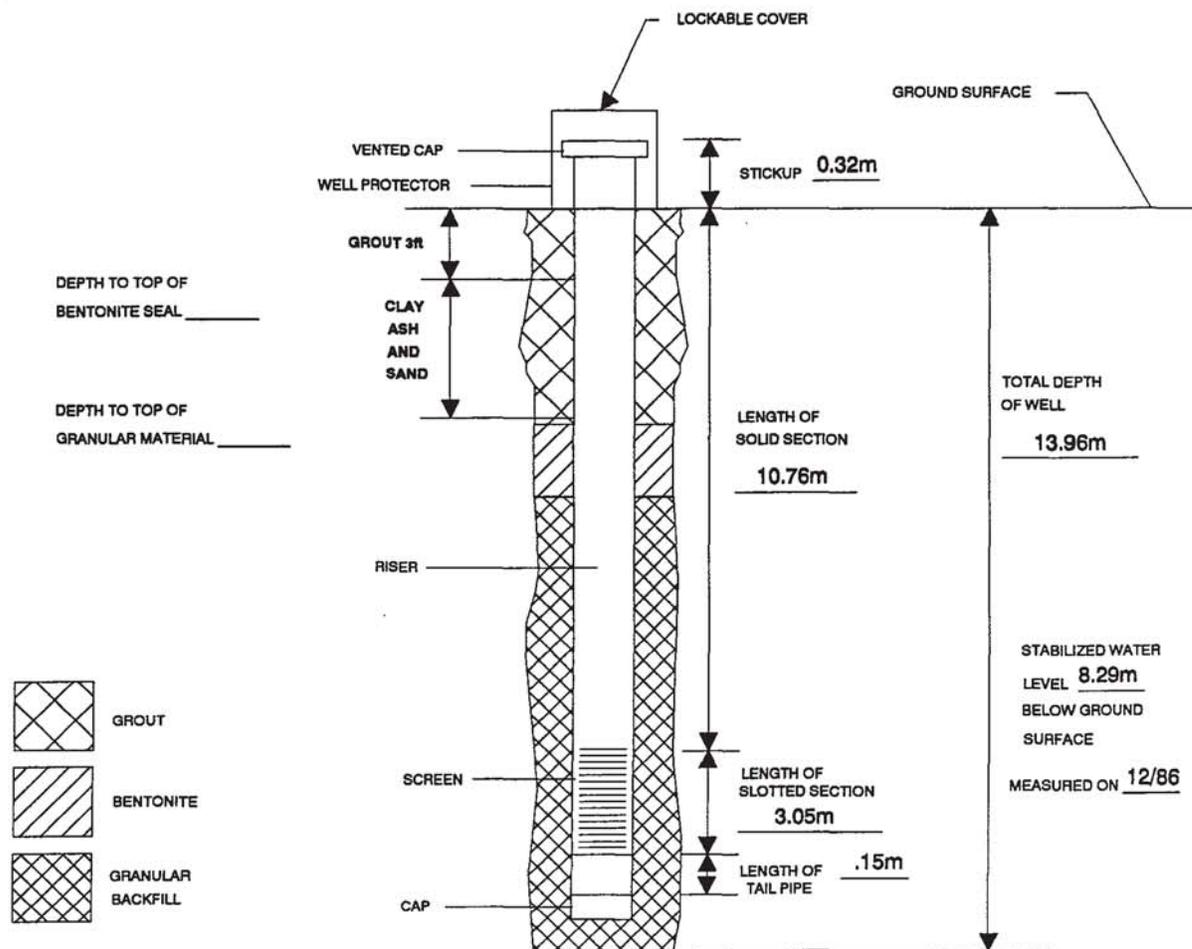


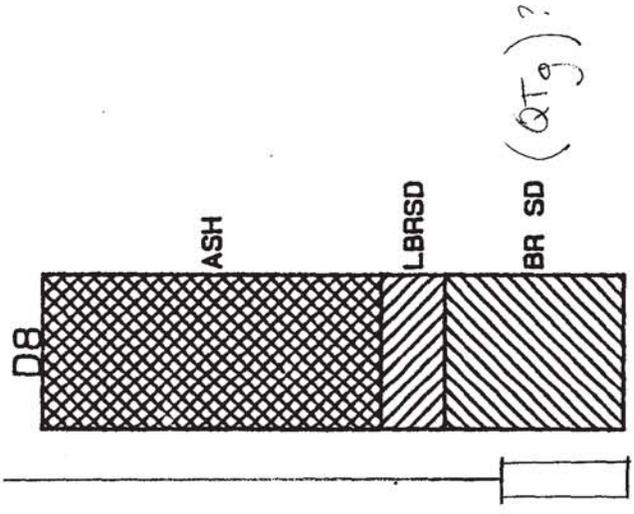
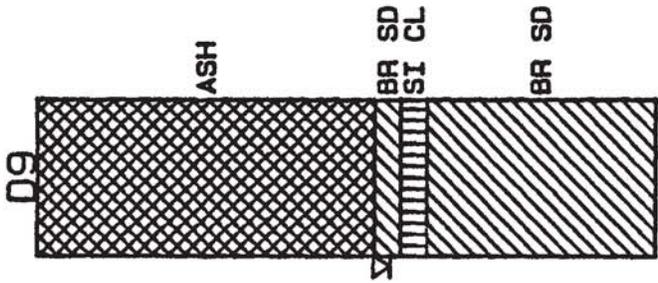
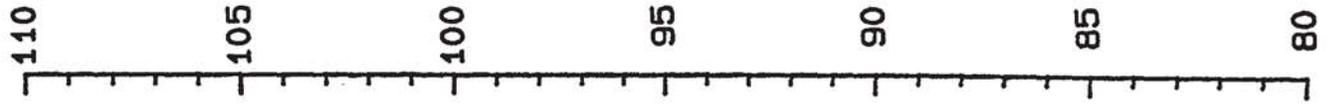
Project: Special Waste Landfill Area	Drilling Date: December 1986	Easting: 1113534.6
Company: TVA	Drilling Company: TVA	Northing: 314012.8
Location: Shawnee Fossil Plant	Well Depth (ft): 45.8	Top of Casing (ft): 348.16
		Top of Ground (ft): 347.1

## MONITORING WELL INSTALLATION RECORD

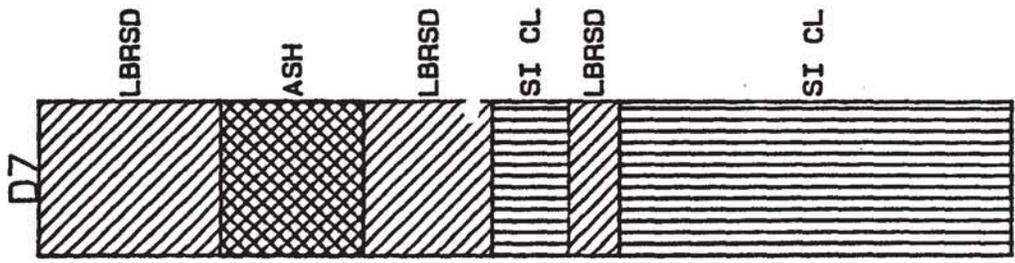
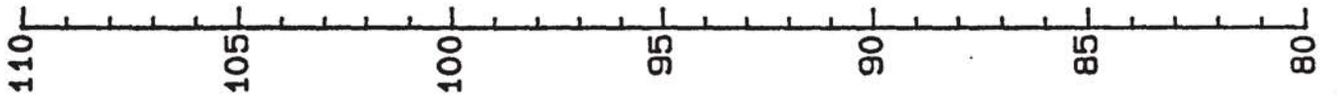
PROJECT	SHAWNEE		
WELL NUMBER	D-9	INSTALLATION DATE	DECEMBER 1986
PLANT COORDINATES	EAST -1343.8m	NORTH	-171.3m
GROUND SURFACE ELEVATION	105.79m-msl	TOP OF INNER CASING	106.11m-msl
GRANULAR BACKFILL MATERIAL	SAND	SLOT SIZE	0.03cm
CASING MATERIAL	PVC SCH 40	CASING DIAMETER	10cm
DRILLING TECHNIQUE	HOLLOW-STEM AUGER	DRILLING CONTRACTOR	TVA
BOREHOLE DIAMETER	30cm	FIELD REPRESENTATIVE	S.D.STONE
LOCKABLE COVER ?	no	FILTER CLOTH AROUND SCREEN ?	YES
DRILLING FLUID	_____		
COMMENTS	_____		

(NOT TO SCALE)





BA



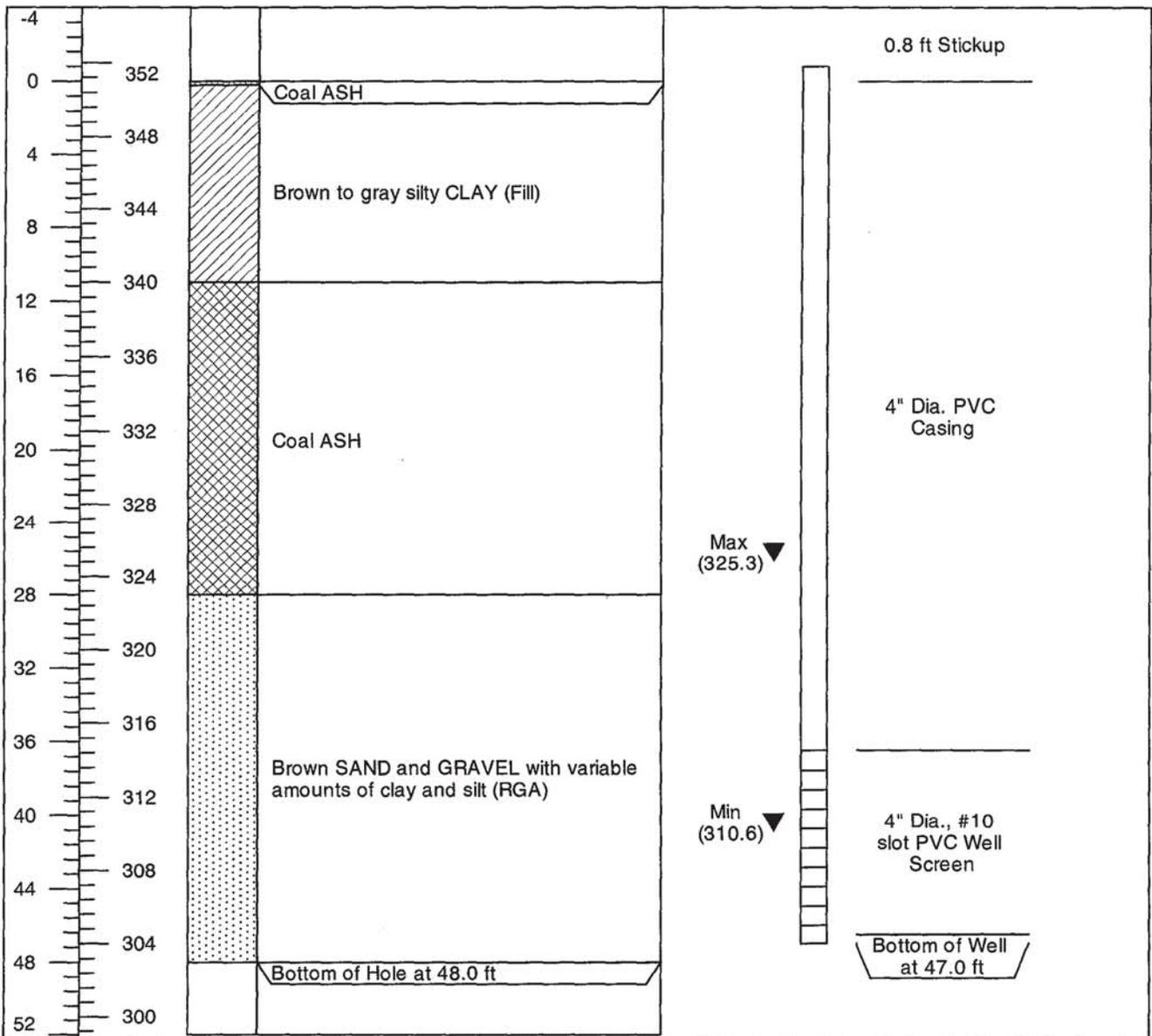
Elevation MSL (m)



### Shawnee Fossil Plant

Well ID: D-10

Depth (ft)	Elevation (ft)	Lithology	Description	Well Construction Diagram
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Project: Special Waste Landfill Area	Drilling Date: December 1986	Easting: 1112527.8
Company: TVA	Drilling Company: TVA	Northing: 316201.2
Location: Shawnee Fossil Plant	Well Depth (ft): 47.0	Top of Casing (ft): 351.74
		Top of Ground (ft): 351.0

### MONITORING WELL INSTALLATION RECORD

PROJECT Shawnee

WELL NUMBER 10 D-10 INSTALLATION DATE December 1986

PLANT COORDINATES EAST -1963.7m NORTH 221.9m

GROUND SURFACE ELEVATION 106.98m-msl TOP OF INNER CASING 107.21m-msl

GRANULAR BACKFILL MATERIAL Sand SLOT SIZE 0.03cm

CASING MATERIAL PVC CASING DIAMETER 10cm

DRILLING TECHNIQUE Hollow-Stem Auger DRILLING CONTRACTOR TVA

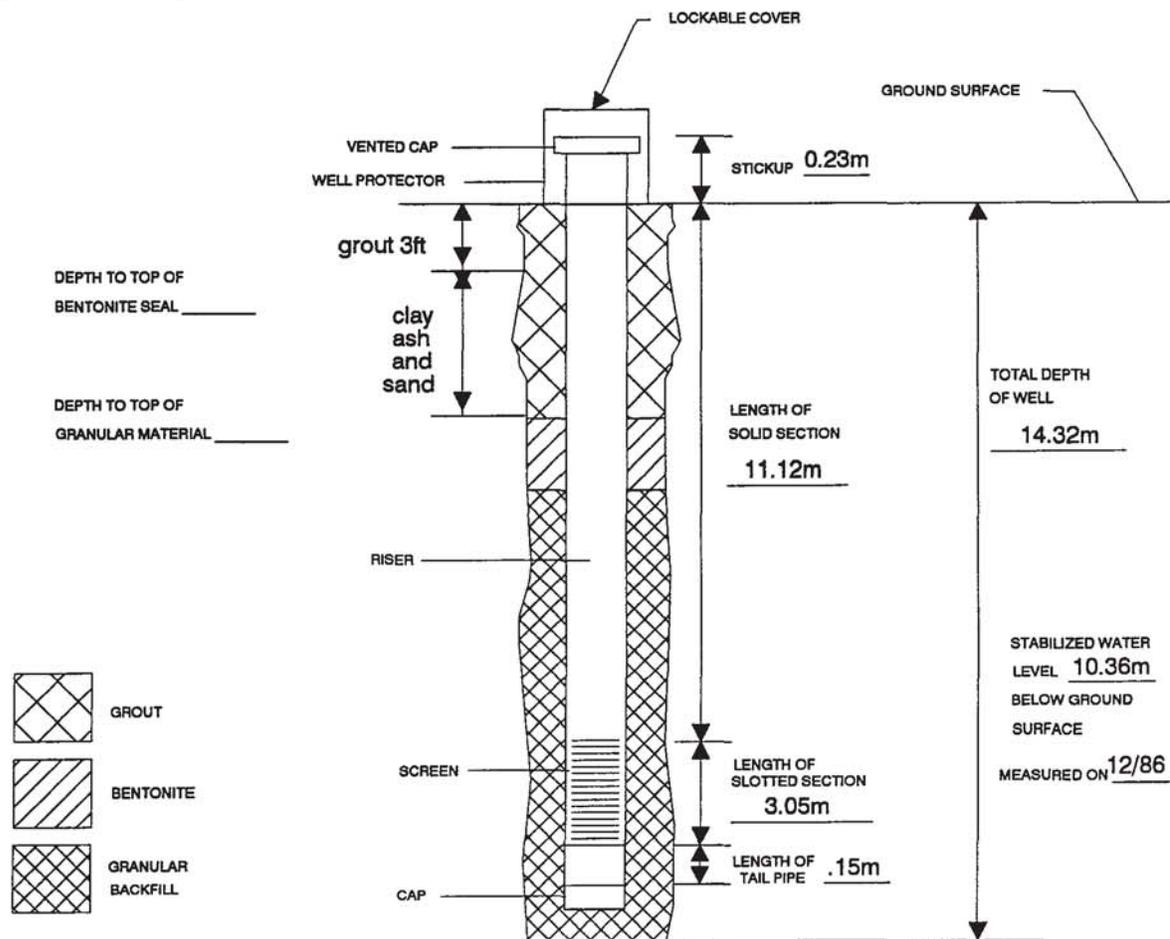
BOREHOLE DIAMETER 30cm FIELD REPRESENTATIVE S. D. Stone

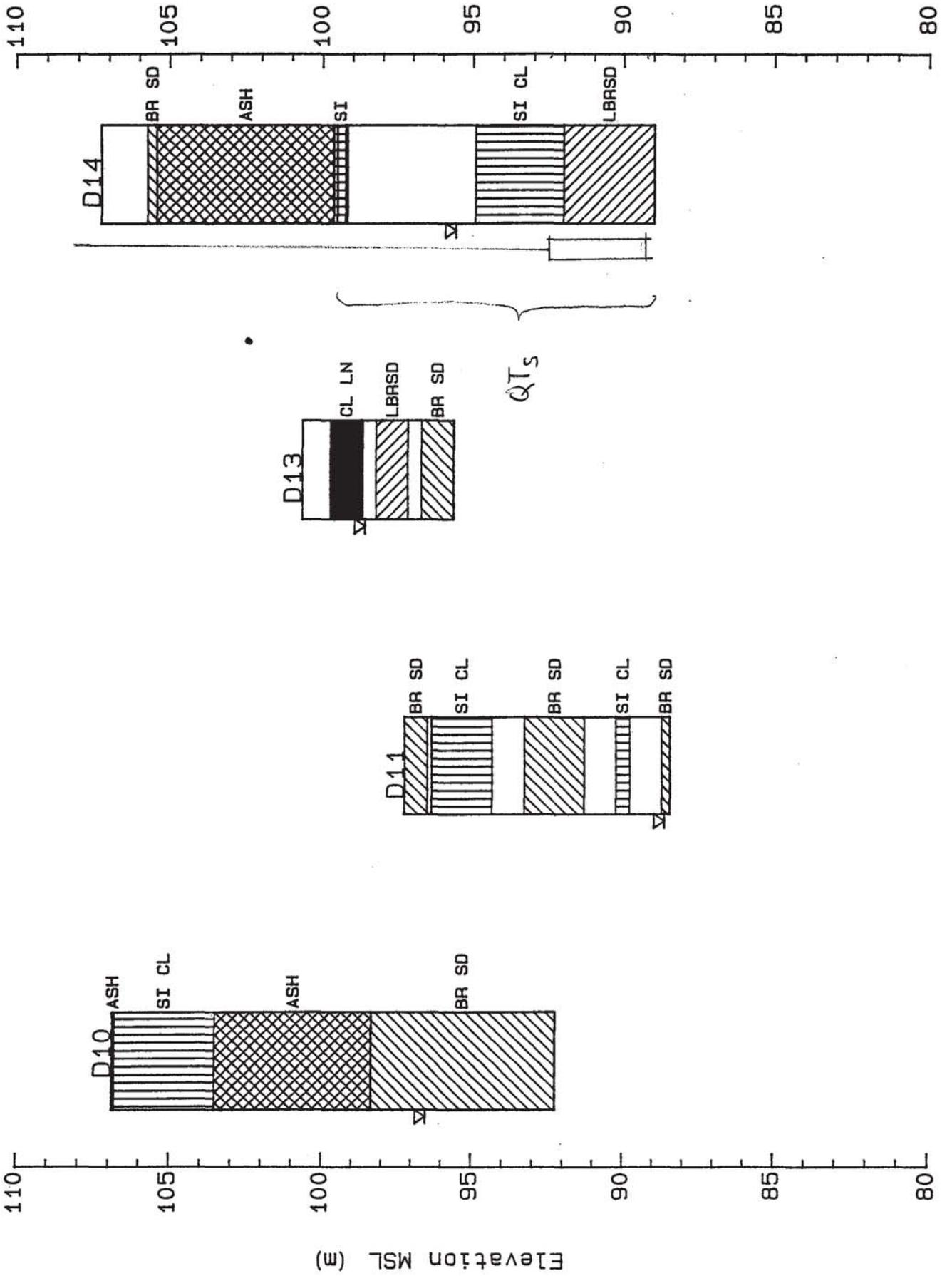
LOCKABLE COVER ? no FILTER CLOTH AROUND SCREEN ? yes

DRILLING FLUID \_\_\_\_\_

COMMENTS \_\_\_\_\_

(NOT TO SCALE)

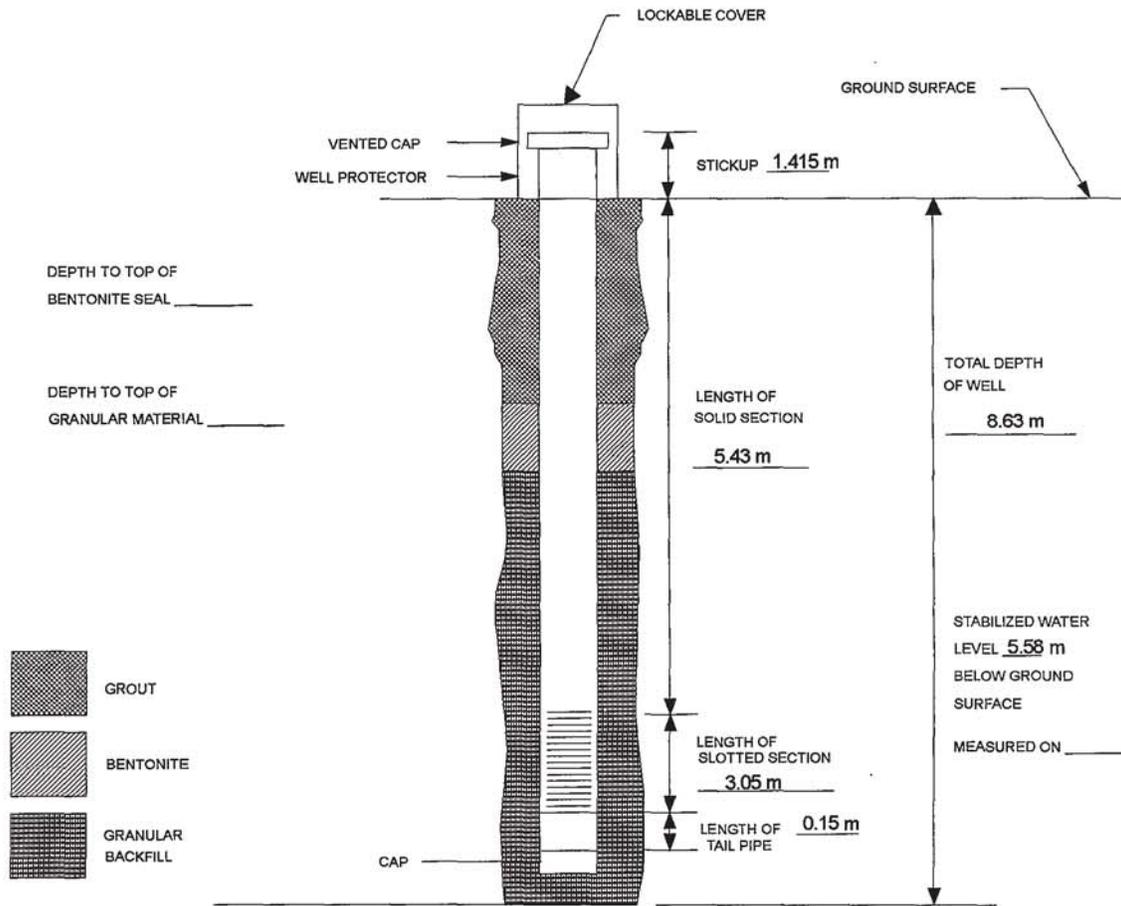




## MONITORING WELL INSTALLATION RECORD

PROJECT	Shawnee		
WELL NUMBER	D-11	INSTALLATION DATE	3 / 88
PLANT COORDINATES	EAST -2149.0m	SOUTH	771.1m
GROUND SURFACE ELEVATION	97.24 m-msl	TOP OF INNER CASING	98.69 m-msl (323.78') (as of 1/1/94)
GRANULAR BACKFILL MATERIAL	Sand	SLOT SIZE	0.025 cm
CASING MATERIAL	PVC Sch 80	CASING DIAMETER	5 cm
DRILLING TECHNIQUE	Hollow-Stem Auger	DRILLING CONTRACTOR	TVA
BOREHOLE DIAMETER	8.6 cm	FIELD REPRESENTATIVE	George Gunn
LOCKABLE COVER ?	no	FILTER CLOTH AROUND SCREEN ?	
DRILLING FLUID			
COMMENTS	Top of 8" steel casing Elevation 98.77 m (324.13') as of 1/1/94 Surveyed 3/13/96		

(NOT TO SCALE)



### MONITORING WELL INSTALLATION RECORD

PROJECT Shawnee

WELL NUMBER 11 INSTALLATION DATE March 1988

PLANT COORDINATES EAST -2149.0m NORTH 771.1m

GROUND SURFACE ELEVATION 97.23m TOP OF INNER CASING 97.95m-msl

GRANULAR BACKFILL MATERIAL Sand SLOT SIZE 0.03cm

CASING MATERIAL PVC Sch 80 CASING DIAMETER 5cm

DRILLING TECHNIQUE Hollow-Stem Auger DRILLING CONTRACTOR TVA

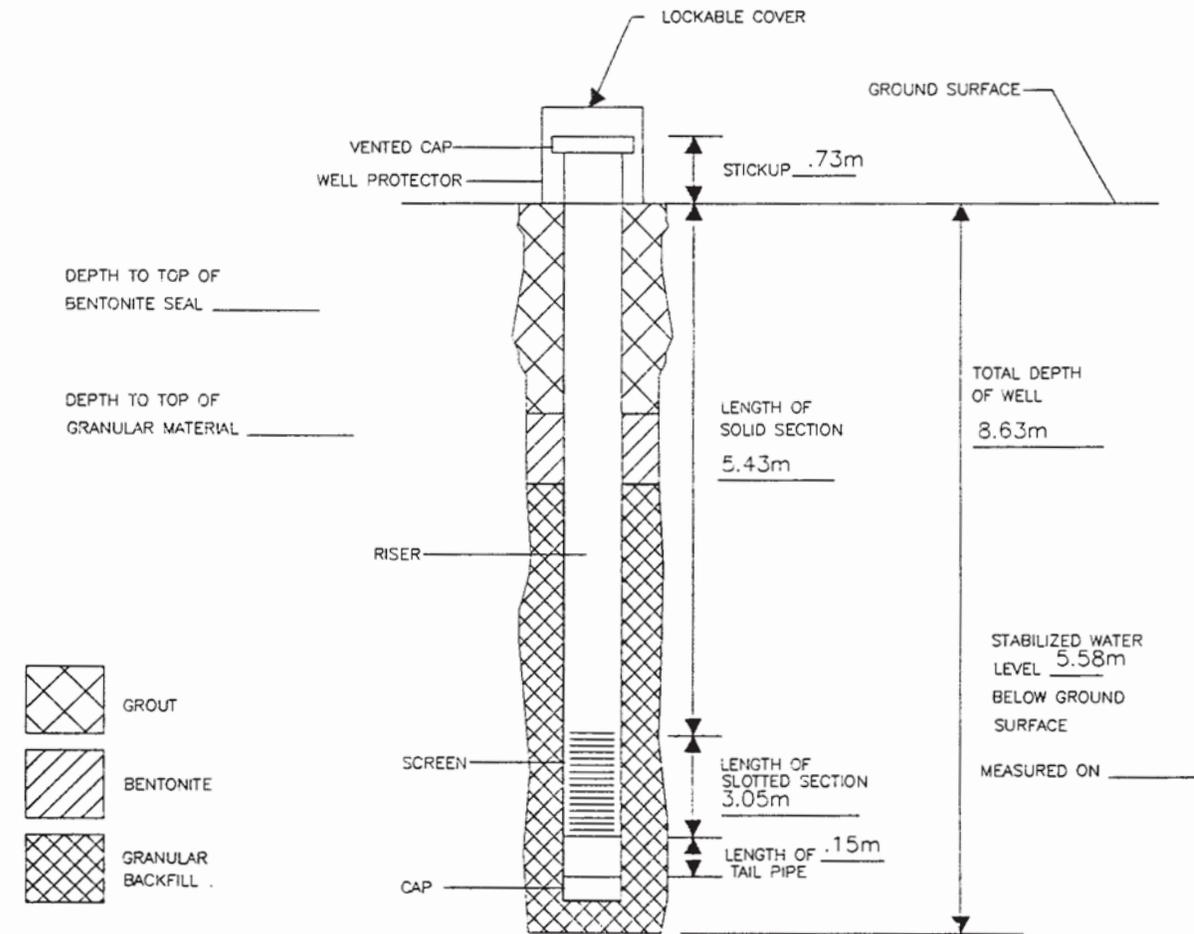
BOREHOLE DIAMETER 8.6cm FIELD REPRESENTATIVE George Gunn

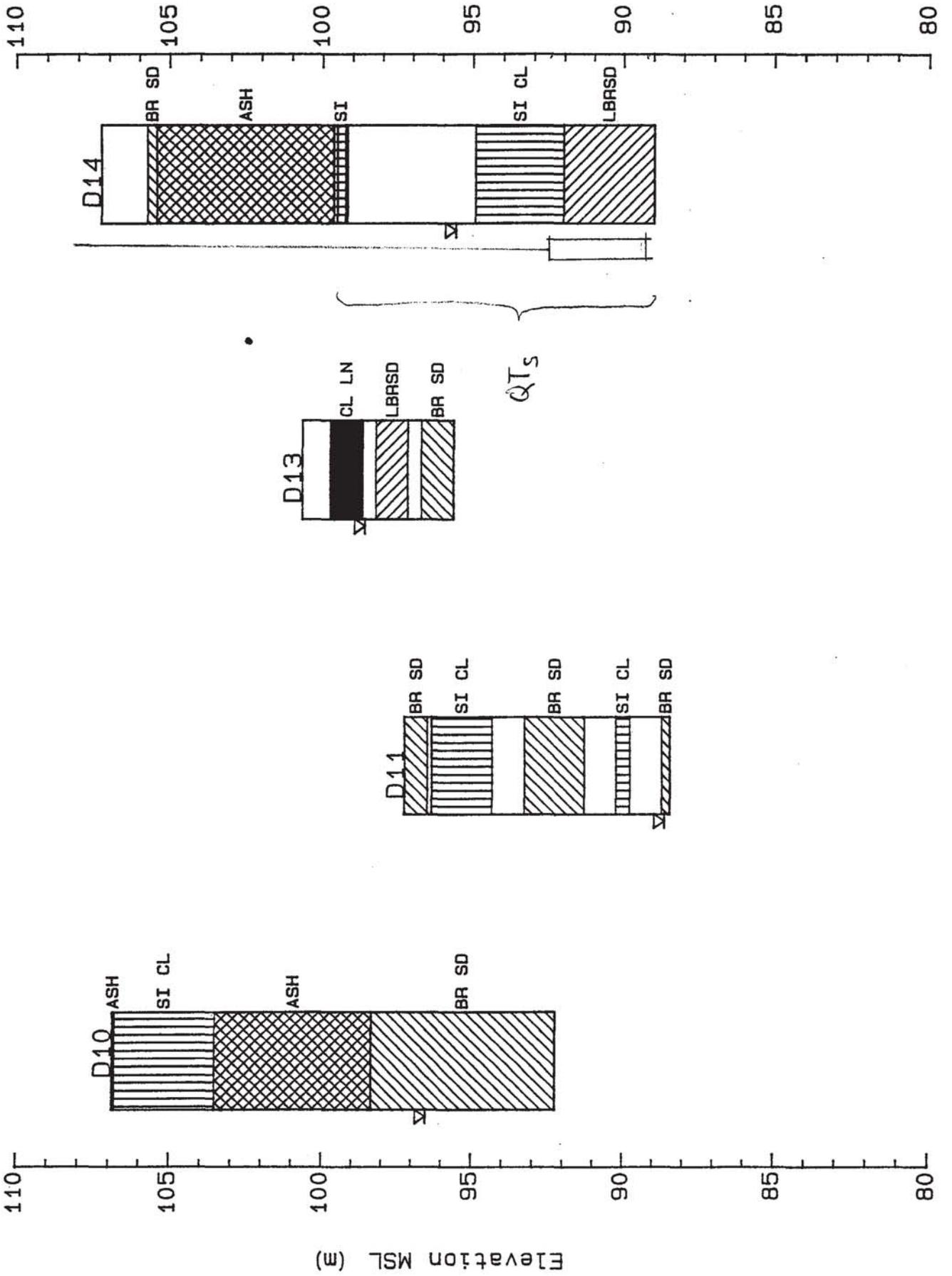
LOCKABLE COVER ?  FILTER CLOTH AROUND SCREEN ?

DRILLING FLUID \_\_\_\_\_

COMMENTS \_\_\_\_\_

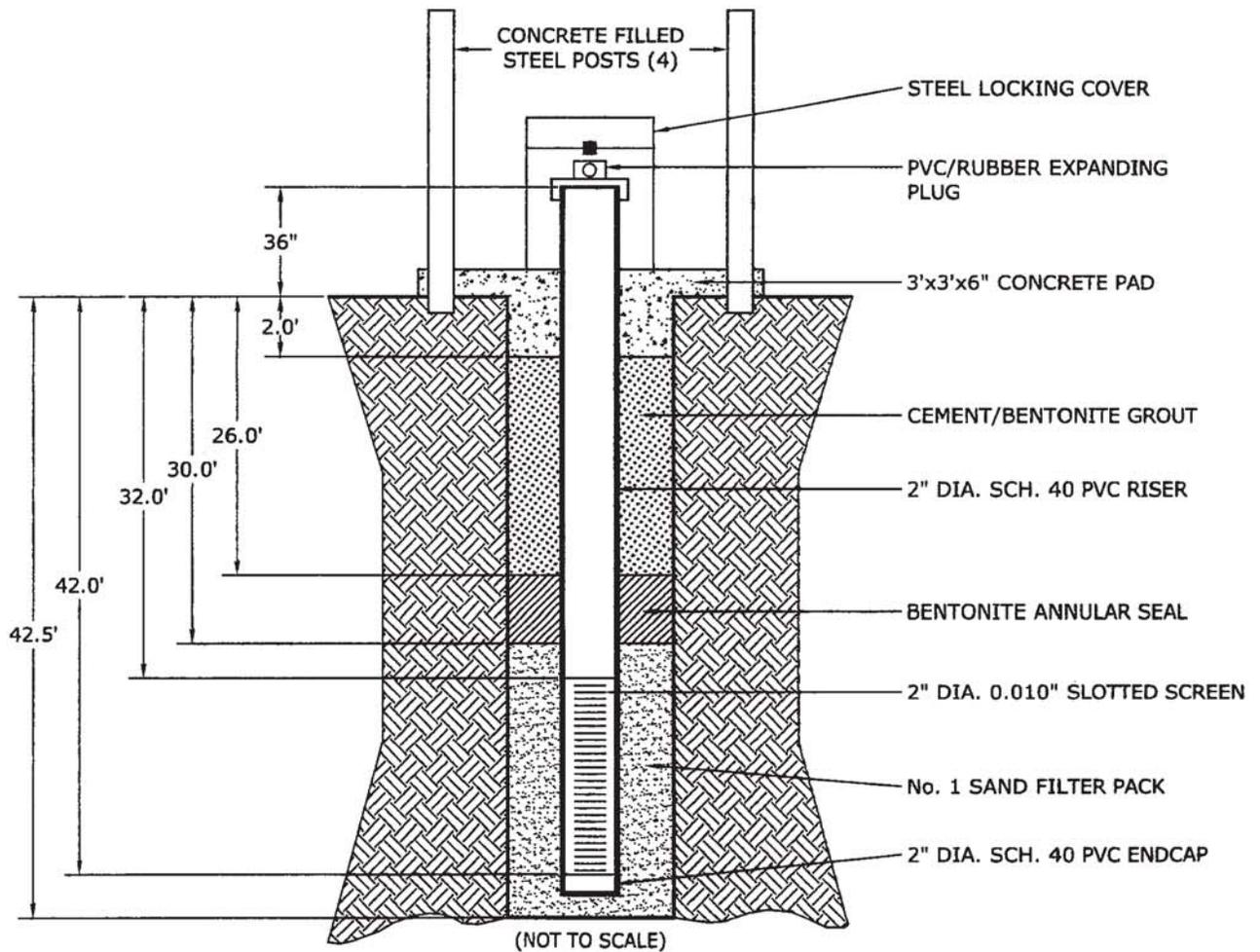
(NOT TO SCALE)





JOB NAME TVA SHAWNEE STEAM PLANT  
 TVA WELL NUMBER D-11B  
 KENTUCKY WELL NUMBER 8004-9951  
 BOREHOLE DIAMETER 7"  
 TOTAL DEPTH 42.0'  
 FIELD REPRESENTATIVE N. SIREK

JOB NUMBER 3043-08-1010-01  
 INSTALLATION DATE 06-09-2008  
 DRILLED BY MILLER DRILLING  
 RISER/SCREEN  
 MATERIAL SCHEDULE 40 PVC  
 DIAMETER 2"  
 SLOT SIZE 0.010"



PREPARED BY: *[Signature]* DATE: 17 Oct 2008 CHECKED BY: *[Signature]* DATE: 17 Oct 2008

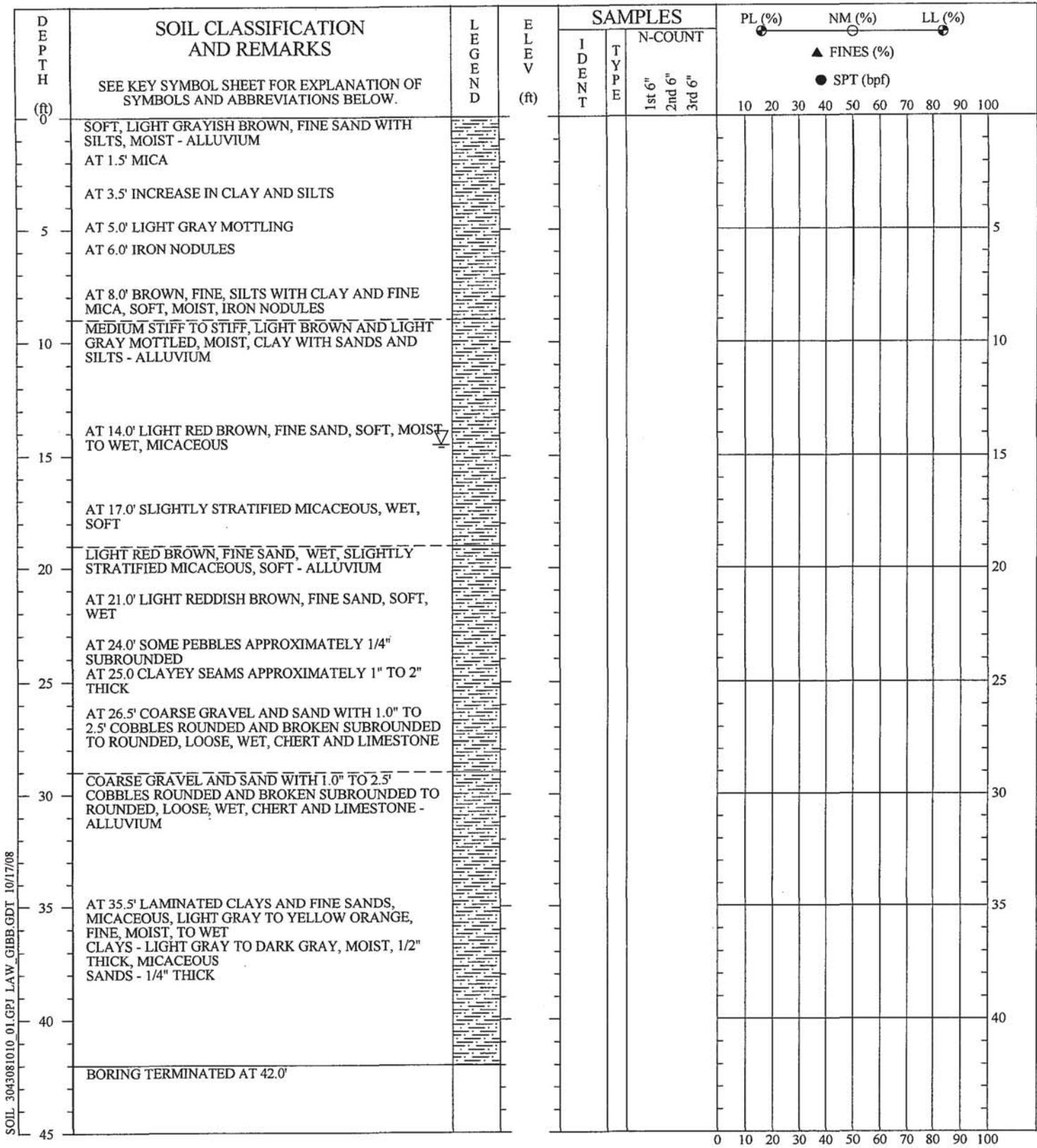
TENNESSEE VALLEY AUTHORITY

**MACTEC**  
 1725 Louisville Drive  
 Knoxville, TN 37921  
 Phone: 865-588-8544 Fax: 865-588-8026

TYPE II MONITORING WELL  
 INSTALLATION RECORD  
 TVA SHAWNEE STEAM PLANT  
 PADUCAH, KENTUCKY

PROJECT NO. 3043-08-1010 FIGURE 3

P:\ZCADD\NEW GEO\2008\3043081010 TVA Shawnee\3043081010\_D-11B\_FIG3.dwg Fri, 17 Oct 2008 9:25am reverenc



SOIL 3043081010 01.GPJ LAW\_GIBB.GDT 10/17/08

REMARKS: 4" OD Sonic Core; 6" OD Sonic Overdrill Rods. Set 2" PVC well screened from 32.0' - 42.0' bgs (0.010 slot)

SOIL TEST BORING RECORD	
<b>PROJECT:</b> TVA - Shawnee Special Waste Landfill	<b>BORING NO.:</b> D-11B
<b>DRILLED:</b> June 9, 2008	<b>PROJ. NO.:</b> 3043-08-1010-01
<b>PAGE 1 OF 1</b>	

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Driller : Rhodes  
 Logged By: Sirek  
 Checked By: K.S.C.



**KENTUCKY MONITORING WELL RECORD**

Please read all instructions prior to completing this form. Do not write in shaded area. The original copy of this form must be submitted within 30 days of well completion to the Kentucky Natural Resources and Environmental Protection Cabinet, Division of Water - Groundwater Branch, 14 Reilly Road, Frankfort, KY 40601. Telephone (502) 564-3410.

(TYPE OR PRINT CLEARLY)

D-11B

(1) Attach Monitoring Well Identification Number Label Here (if applicable)

(2) GENERAL INFORMATION:

Facility Name Shannon Waste Landfill Facility Address same  
 Mailing Address 7900 Metropolitan Right Way City \_\_\_\_\_  
 City Paducah State \_\_\_\_\_ Zip \_\_\_\_\_  
 State Kentucky Zip 42036 Owner's Phone (270) 488-3133

Date Received:

(3) IDENTIFICATION NUMBER

8 0 0 4 - 9 9 5 1

(4) WELL LOCATION: USGS Quadrangle Name \_\_\_\_\_ County \_\_\_\_\_ Latitude N 37.16772 Longitude W 88.74459

(5) GENERAL WELL CONSTRUCTION:  
 Start Date: 6-9-08  
 Finish Date: 6-9-08  
 Drilling Method:  
 Auger HS  Reverse Rotary  Push/probe  
 Auger SS  Cable Tool  Excavation  
 Air Rotary  Hand Auger  Sonic  
 Mud Rotary  Other: \_\_\_\_\_  
 Work Type:  
 New Well  Nested Well  Rework  Plug  
 Surface Elevation: \_\_\_\_\_ Total Depth: 37.0  
 Depth to Bedrock: \_\_\_\_\_ Static Water Level: \_\_\_\_\_  
 Wellhead:  
 Flush Mount  Locking Cap  No Cap  
 Stickup; inches above surface: 36

(6) FACILITY TYPE:  
 RCRA  Mining  
 CERCLA  Site Assessment  
 TSCA  Solid Waste Landfill  
 UST  Landfarm  
 Other: \_\_\_\_\_  
 (7) WELL USE: (check all that apply)  
 Water Quality  Dry Hole  
 Ambient Monitoring  Not Used  
 Water Level Monitoring  Abandoned  
 Remediation  Destroyed  
 Other: \_\_\_\_\_

(8) PHYSIOGRAPHIC REGION:  
 Blue Grass  Ohio River Alluvium  
 E. Coal Field  W. Coal Field  
 Miss. Plateau  Jackson Purchase  
 (9) ATTACHMENTS:  
 Required  
 1. Site plan or sketch map   
 2. Well construction diagram   
 3. Well location  
     On topographic map, or   
     Obtained by GPS unit   
 Optional  
 4. Laboratory analysis report   
 5. Other: \_\_\_\_\_

(10) WELL COMPLETION INFORMATION

Feet Below Surface		Borehole		Casing		Casing Type
From	To	Diameter	Diameter			
0	32	7	2			PVC
32	42	7	2			PVC SCREEN

Well Screens:  
 I.D. (in.) 2 From 32 To 42 Type PVC Slot Size 10  
 I.D. (in.) \_\_\_\_\_ From \_\_\_\_\_ To \_\_\_\_\_ Type \_\_\_\_\_ Slot Size \_\_\_\_\_  
 I.D. (in.) \_\_\_\_\_ From \_\_\_\_\_ To \_\_\_\_\_ Type \_\_\_\_\_ Slot Size \_\_\_\_\_

Annulus Fill and Seal:  

Feet Below Surface		Material
From	To	
0	<del>30</del> 26	Grout Cement/Bentonite
26	<del>30</del> 30	Bentonite Pellets
30	42	Sand

(11) LITHOLOGIC LOG

Feet Below Surface		Description
From	To	
0	9	Light Brown Fine Sands w/silt/s
9	14	Clay with sands
14	19	Light brown fine sand
19	26	Light reddish brown sand some pebbles
26	29	Coarse gravel some limestone
29	42	Clay fine sands to sands

(12) COMMENTS  
7'00, 6'10 to 42', 12' sand pack, 4' Bentonite seal, Tremie Grouted to surface, 3x3 pad standup. D-11B

(13) AFFIRMATION: The work described above was done under my supervision, and this report is true and correct to the best of my knowledge.

Drilling Company <u>MILLER DRILLING CO.</u>	State Certification Number or Rig Operator's Number <u>0109-0318-00</u>	Signature of Responsible Certified Driller <u>Mark Miller</u>
Company Mailing Address <u>107 Helton Dr.</u>	City <u>Lawrenceburg</u>	State <u>TN.</u>
	Zip Code <u>38464</u>	Date <u>6-9-08</u> Month, Day, Year

Number of Attached Sheets 3 White Copy to Division of Water, Yellow Copy to Owner, Pink Copy to Driller's Files  
 DEP-8043  
 Printed with State Funds. Jan. 1, 1991

### MONITORING WELL INSTALLATION RECORD

PROJECT Shawnee

WELL NUMBER 18 D-13 INSTALLATION DATE April 1988

PLANT COORDINATES EAST -382.8m NORTH 399.0m

GROUND SURFACE ELEVATION 100.65m-msl TOP OF INNER CASING 101.39m-msl

GRANULAR BACKFILL MATERIAL Sand SLOT SIZE 0.03cm

CASING MATERIAL PVC Sch 80 CASING DIAMETER 5cm

DRILLING TECHNIQUE Hollow-Stem Auger DRILLING CONTRACTOR TVA

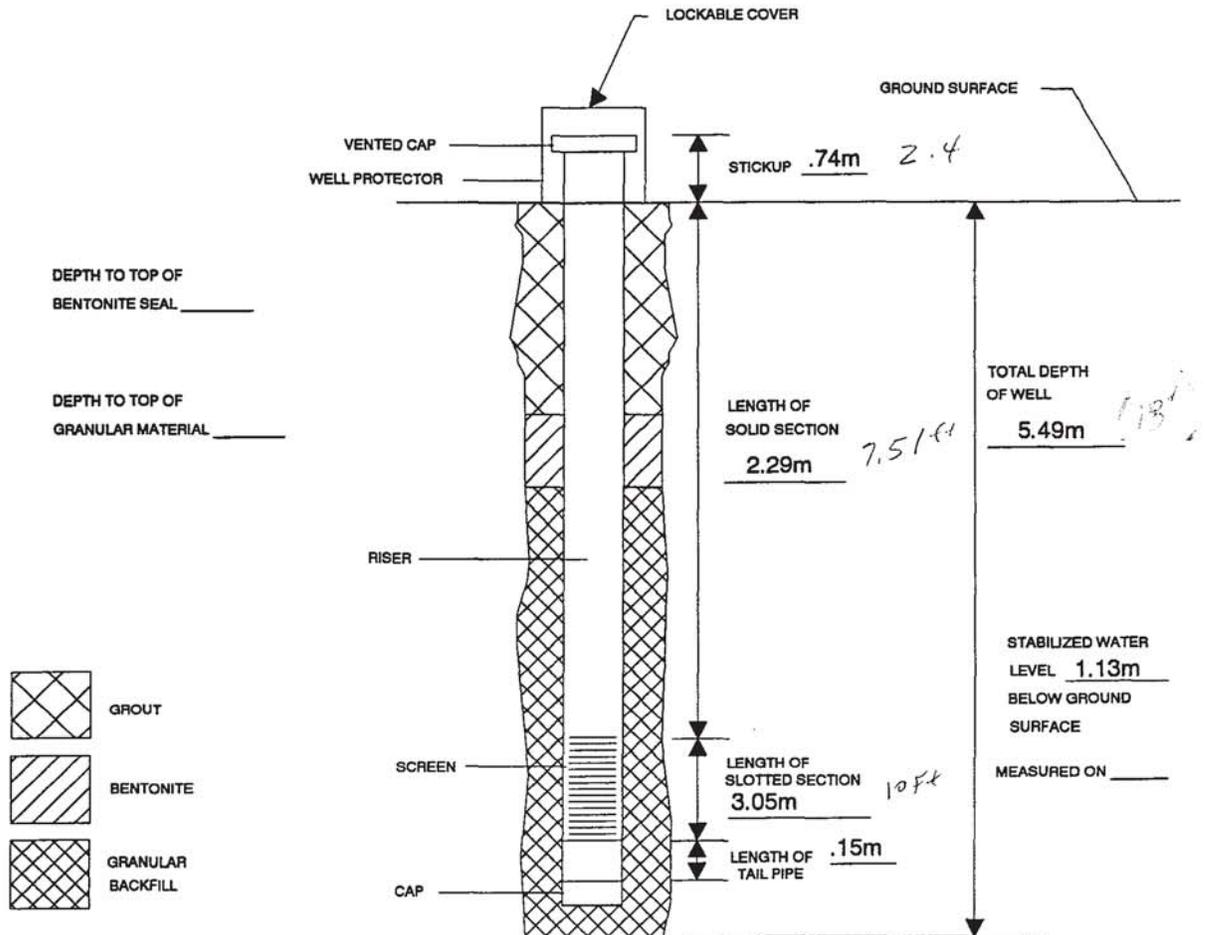
BOREHOLE DIAMETER 15.2cm FIELD REPRESENTATIVE George Gunn

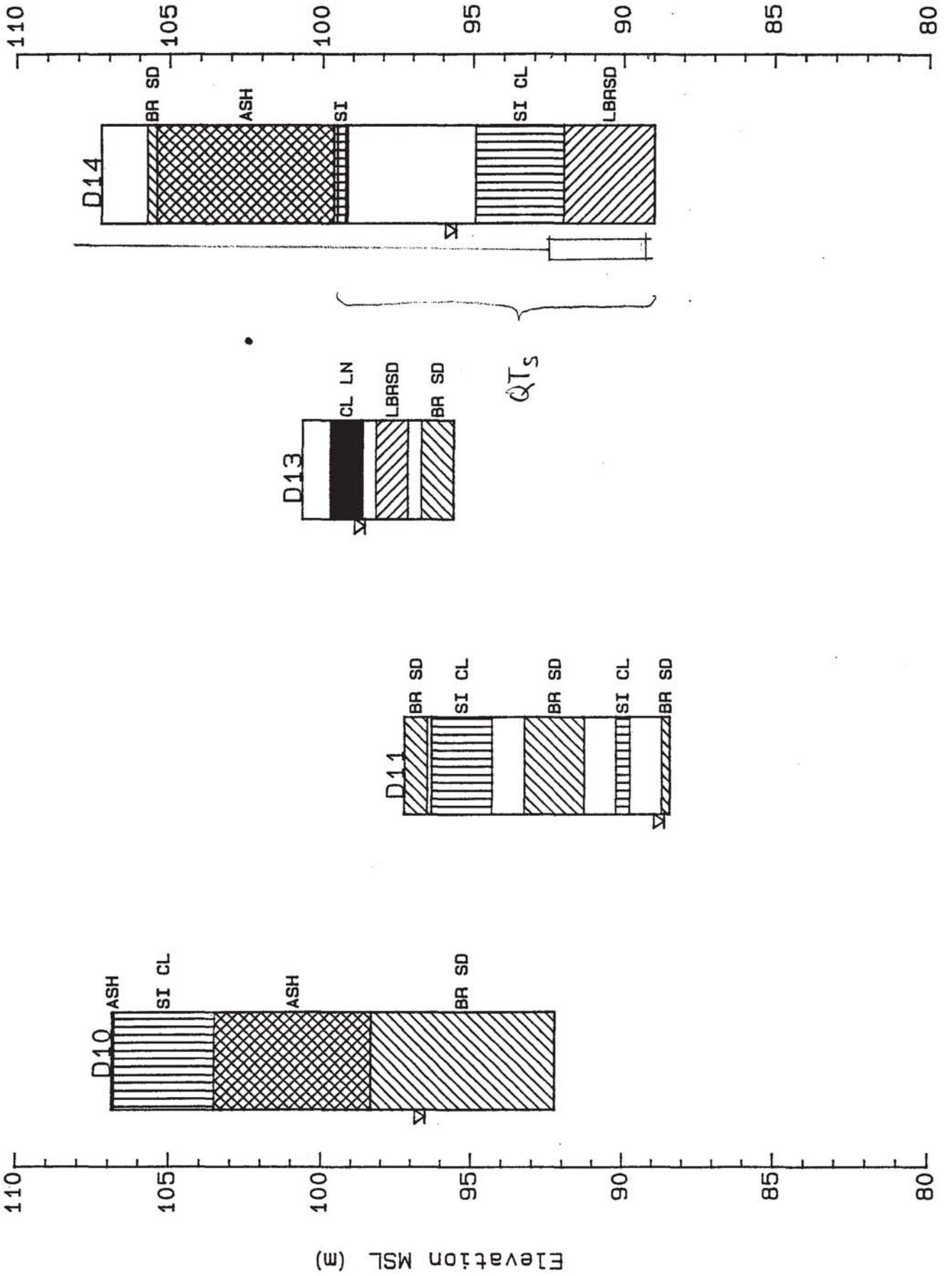
LOCKABLE COVER ? no FILTER CLOTH AROUND SCREEN ? \_\_\_\_\_

DRILLING FLUID \_\_\_\_\_

COMMENTS \_\_\_\_\_

(NOT TO SCALE)





## MONITORING WELL INSTALLATION RECORD

PROJECT Shawnee

WELL NUMBER 14 D-1A INSTALLATION DATE April 1988

PLANT COORDINATES EAST -740.9m NORTH -598.9m

GROUND SURFACE ELEVATION 107.26m-msl TOP OF INNER CASING 108.10m-msl

GRANULAR BACKFILL MATERIAL Sand SLOT SIZE 0.03cm

CASING MATERIAL PVC Sch 80 CASING DIAMETER 5cm

DRILLING TECHNIQUE Hollow-Stem Auger DRILLING CONTRACTOR TVA

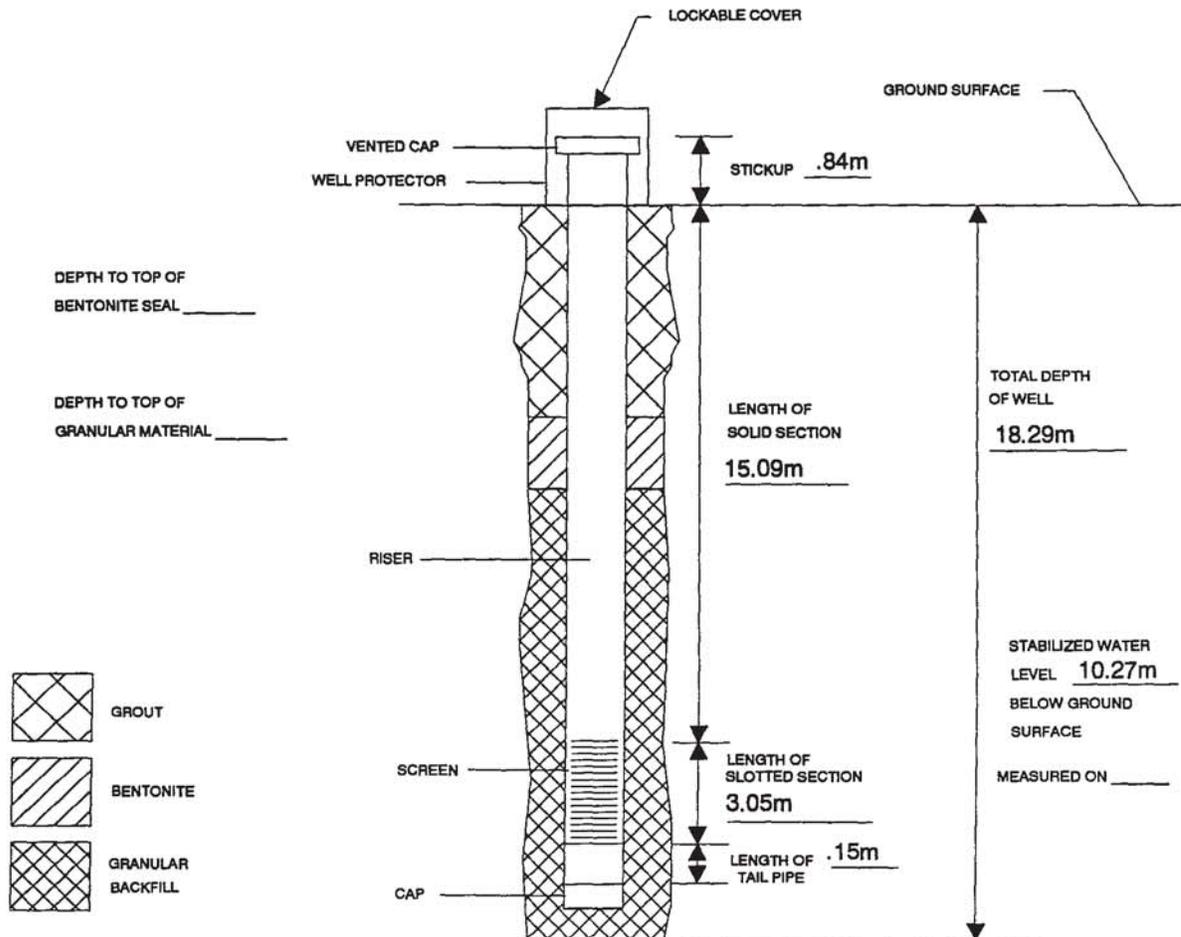
BOREHOLE DIAMETER 8.6cm FIELD REPRESENTATIVE George Gunn

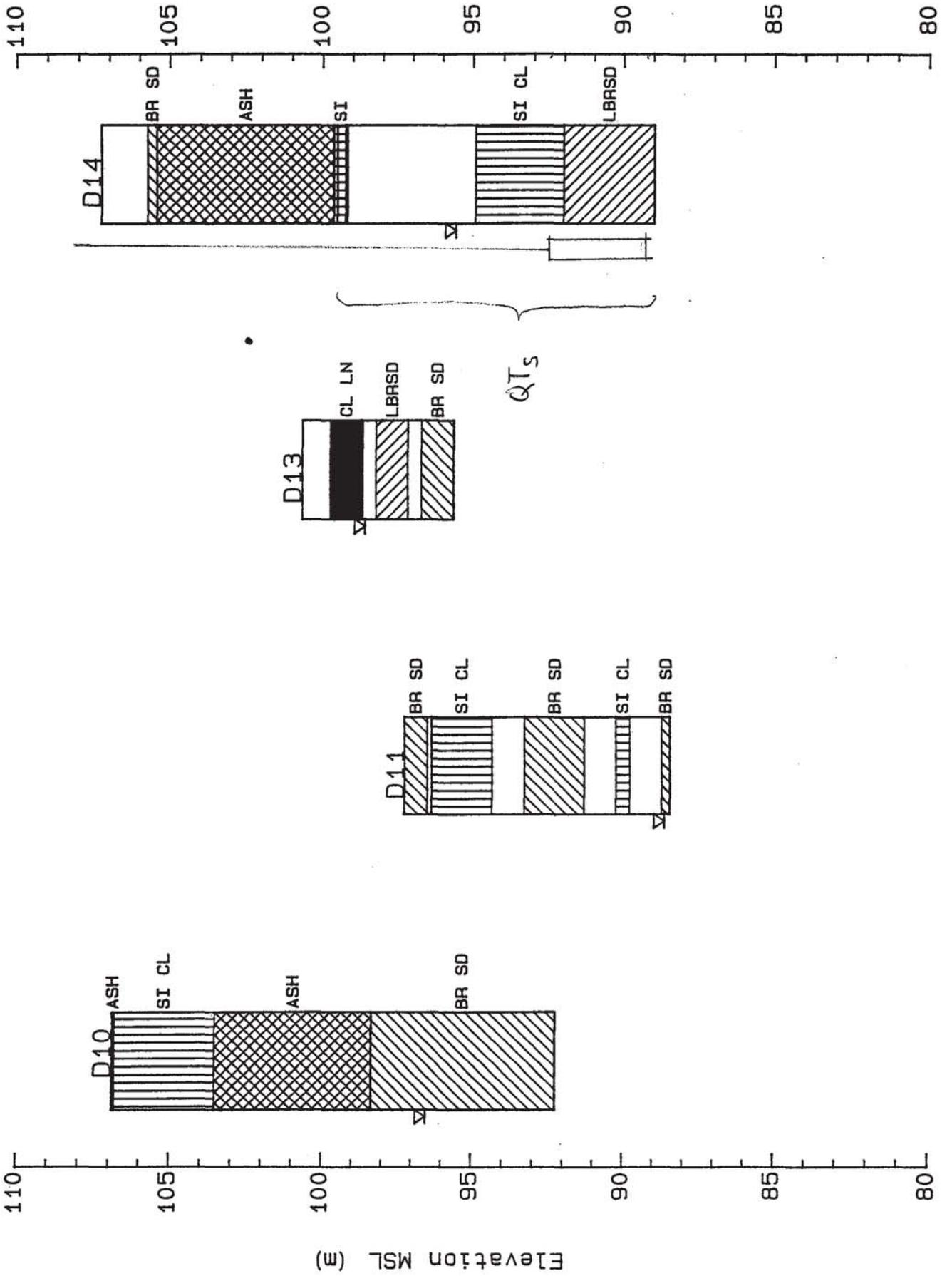
LOCKABLE COVER ? no FILTER CLOTH AROUND SCREEN ? \_\_\_\_\_

DRILLING FLUID \_\_\_\_\_

COMMENTS \_\_\_\_\_

(NOT TO SCALE)

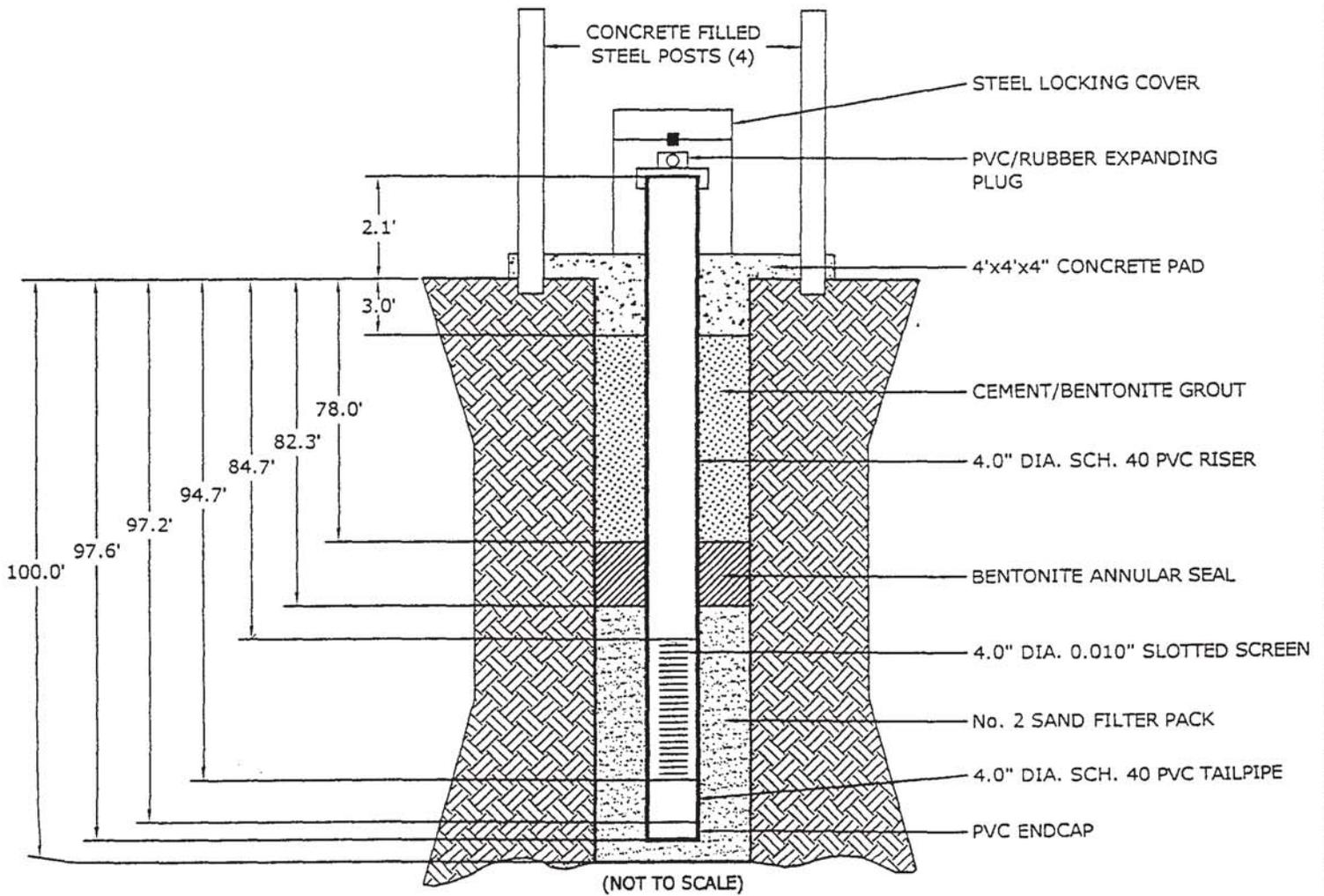




# TYPE II MONITORING WELL INSTALLATION RECORD

JOB NAME TVA SHAWNEE STEAM PLANT  
 TVA WELL NUMBER D-14B  
 KENTUCKY WELL NUMBER 8002-6401  
 BOREHOLE DIAMETER 12.25"  
 TOTAL DEPTH 100.0'  
 FIELD REPRESENTATIVE JOHN MASON

JOB NUMBER 50300-8-2075/033/811  
 INSTALLATION DATE APRIL 25, 2000  
 DRILLED BY J. WARREN (Law Engineering)  
 RISER/SCREEN  
 MATERIAL SCHEDULE 40 PVC  
 DIAMETER 4.0"  
 SLOT SIZE 0.010"



DEPTH (ft)	SOIL CLASSIFICATION AND REMARKS  SEE KEY SYMBOL SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS BELOW.	LEGEND	ELEV (ft)	SAMPLES			DRILLING REMARKS		
				IDENT	TYPE	N-COUNT			
						1st 6"		2nd 6"	3rd 6"
0	Topsoil and limestone gravel. Fly ash.								
5	Stiff, 10YR5/6 yellow-brown slightly sandy SILTY CLAY. Slightly moist. Stiff 2.5/N gravelly SILT (substantially, fly ash). Slightly moist. Fill.			SPT		2-4-6			
10	Fly ash: Firm 2.5/N black sandy SILT. Dry. Fill.			SPT		3-2-3			
15	Fly ash: Stiff, 2.5/N black SANDY SILT. Dry. Fill.			SPT		3-7-6			
20	Fly ash: Firm, 2.5/N black sandy SILT. Wet from 19.0' to 20.2', dry from 20.2' to 20.5'.			SPT		2-1-4			
25	Fly ash: Soft, 10Y3/1 dark green-gray sandy SILT. Wet. Fill.			SPT		2-2-2			
30	Firm, 5Y6/3 to 5Y5/3 pale olive to olive (with occasional 5Y2.5/1 black mottling) slightly sandy SILT. Wet. Possible fill.			SPT		1-2-5			
35	Dense, mottled (combination of 2.5Y7/2 light gray and 2.5Y6/4 light yellow-brown) slightly silty SAND. Wet.			SPT		16-19-15			
40	Firm, 10Y7/1 light green-gray SAND. Wet.			SPT		7-11-17	TC GA ↓ 312.9		
45									

SOIL REMARKS 8207533.GPJ LAW GIBB.GDT 6/14/00

REMARKS:

SOIL TEST BORING RECORD	
PROJECT:	TVA Shawnee Steam Plant
DRILLED:	April 25, 2000
BORING NO.:	D-14B
PROJ. NO.:	50300-8-2075/33/811
PAGE 1 OF 3	

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

DEPTH (ft)	SOIL CLASSIFICATION AND REMARKS  SEE KEY SYMBOL SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS BELOW.	LEGEND	ELEV (ft)	SAMPLES			DRILLING REMARKS
				IDENT	TYPE	N-COUNT	
						1st 6" 2nd 6" 3rd 6"	
45	Very dense, mottled (combination of 10YR6/6 brown-yellow and 2.5Y7/2 light gray) SAND. As in previous samples, sand is subrounded, mU. Very bottom of sample shoe contains three rounded, 1 to 1.25 cm quartz gravels.			SPT		13-24-27	
50	Dense, overall 2.5Y6/4 light yellow-brown, sandy GRAVEL. Gravel consists of 1.0 to 3.5 cm rounded chert gravel. Sand is subrounded, mU. Wet.			SPT		13-15-17	
55							The interval from 54.0' to 55.5' was not sampled. Before switching from conventional hollow stem augers / center bit to a Dietrich-style bit, the center bit head spun ahead of the augers to a depth of approximately 58.5'.
60	Very dense, 10YR5/4 yellow-brown sandy GRAVEL. Gravel is predominately rounded to subrounded quartz, ranging in size from 4 mm to 2 cm. Sand is rounded to subrounded quartz, mU sized. Wet. Bottom 0.2' of sample is iron stained.			SPT		47-67-70/0.3	
65	Very dense, 10YR5/3 brown (with interlayered 2.5Y5/1 gray, 3 cm-wide layers) silty SAND. Sand is predominately quartz, with 5% black sand grains. Subrounded, predominately mL to mU sized.			SPT		14-19-43	TZGA ↑ 287.9
70	Firm, 10YR5/3 brown (with interlayered 2.5Y5/1 gray, 3 cm-wide layers) silty SAND. Sand is predominately quartz, with 5% black sand grains. Subrounded, predominately mL to mU sized.			SPT		4-8-11	
75	Dense, 10YR5/3 brown (with interlayered 2.5Y5/1 gray, 3 cm-wide layers) silty SAND. Sand is predominately quartz, with 5% black sand grains. Subrounded, predominately mL to mU sized.			SPT		9-19-21	
80	Very dense, 2.5Y4/2 dark gray-brown, SILTY SAND. Sand is quartz, fU to mL. 10YR5/6 yellow-brown SILTY SAND at top, coarsening downwards (mL to cU). 10YR5/6 yellow-brown SANDY GRAVEL. Gravel is rounded quartz, 4 mm to 1.5 cm. Sand is quartz, cL to vCL, subrounded. Wet.			SPT		19-30-45	
85	Dense 7.5YR5/8 strong brown sandy gravel. Gravel is chert, rounded, from 4 mm to 1.25 cm. Dense mottled (combination of 7.5YR5/8 strong brown, 10YR7/6 yellow, and 10YR7/1 light gray) slightly clayey, slightly silty SAND. Clayey zones are light gray, roughly horizontal and about 5 mm wide. Sand is quartz, subrounded, mL sized. Wet.			SPT		19-19-29	
90							

SOIL REMARKS 8207533.GPJ LAW\_GIBB.GDT 6/14/00

REMARKS:

SOIL TEST BORING RECORD	
PROJECT:	TVA Shawnee Steam Plant
DRILLED:	April 25, 2000
BORING NO.:	D-14B
PROJ. NO.:	50300-8-2075/33/811
PAGE 2 OF 3	

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

DEPTH (ft)	SOIL CLASSIFICATION AND REMARKS  SEE KEY SYMBOL SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS BELOW.	LEGEND	ELEV (ft)	SAMPLES			DRILLING REMARKS
				IDENT	TYPE	N-COUNT	
						1st 6" 2nd 6" 3rd 6"	
90	Very dense 2.5Y5/4 Sand. Sand is quartz, subrounded, mL to mU sized. 2 to 3% black grains.			SPT		13-70-100/0.1	
95	Very dense 5YR5/8 yellow-red to 10YR6/6 brown-yellow SAND. Sand is quartz, fU to mL sized, subrounded to rounded.			SPT		7-33-150/0.25	
100	Very dense, mottled (in alternating 3 to 7 cm horizontal bands; colors are 2.5YR5/8 red, 7.5YR5/8 strong brown and 10YR6/8 brown-yellow) fine, MICACEOUS SAND. Sand is predominately fU sized, subrounded. Wet. Boring terminated with sampling to 100.5' with 4.25" I.D. augers. Boring reamed with 8.25" I.D. augers to set Type II monitoring well; refer to D-14B monitoring well construction diagram.			SPT		36-43-53	
105							
110							
115							
120							
125							
130							
135							

SOIL REMARKS 8207533.GPJ LAW\_GIBB.GDT 6/14/00

REMARKS:

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

SOIL TEST BORING RECORD	
PROJECT:	TVA Shawnee Steam Plant
DRILLED:	April 25, 2000
PROJ. NO.:	50300-8-2075/33/811
BORING NO.:	D-14B
PAGE 3 OF 3	
	

### MONITORING WELL INSTALLATION RECORD

PROJECT Shawnee

WELL NUMBER 15 D-15 INSTALLATION DATE April 1988

PLANT COORDINATES EAST -195.1m NORTH 153.6m

GROUND SURFACE ELEVATION 105.76m-msl TOP OF INNER CASING 106.62m-msl

GRANULAR BACKFILL MATERIAL Sand SLOT SIZE 0.03cm

CASING MATERIAL PVC Sch 80 CASING DIAMETER 5cm

DRILLING TECHNIQUE Hollow-Stem Auger DRILLING CONTRACTOR TVA

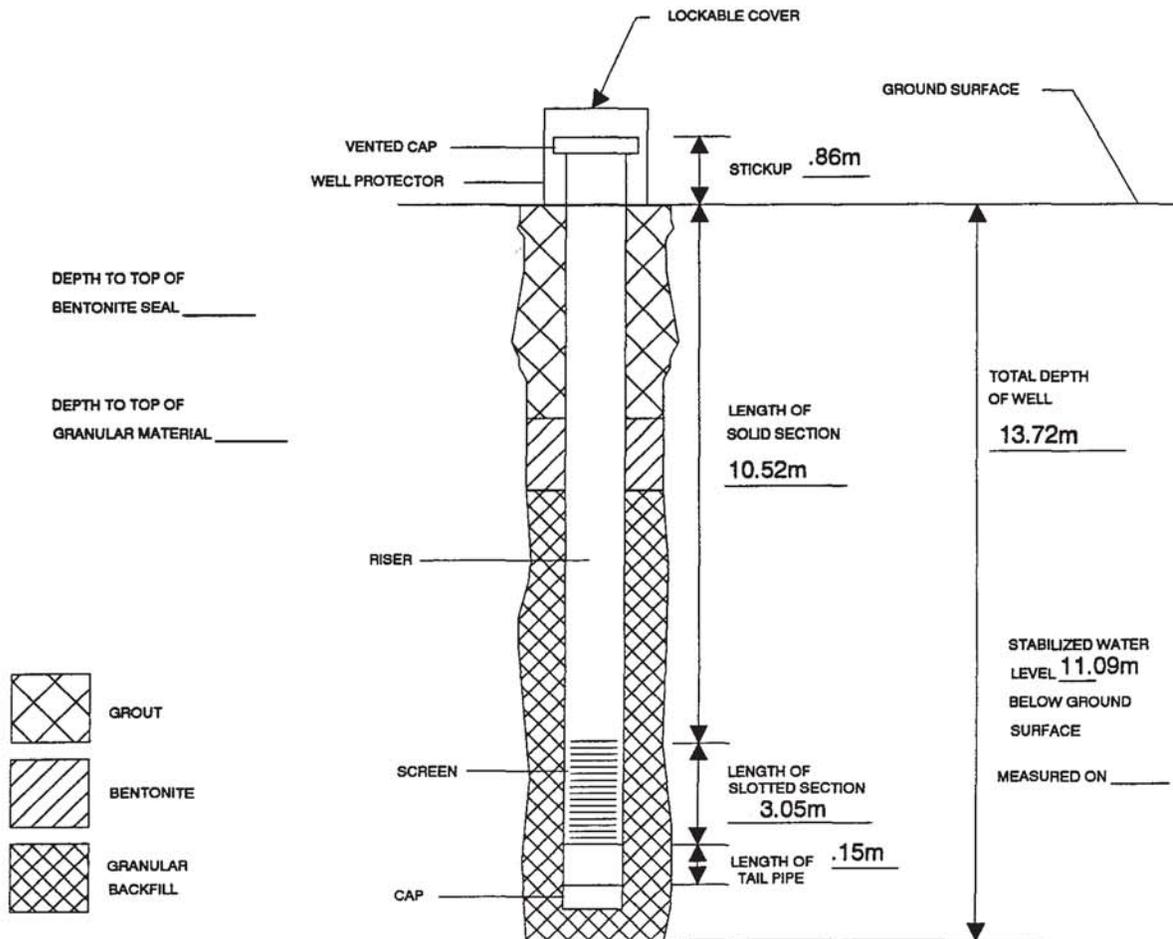
BOREHOLE DIAMETER 8.6cm FIELD REPRESENTATIVE George Gunn

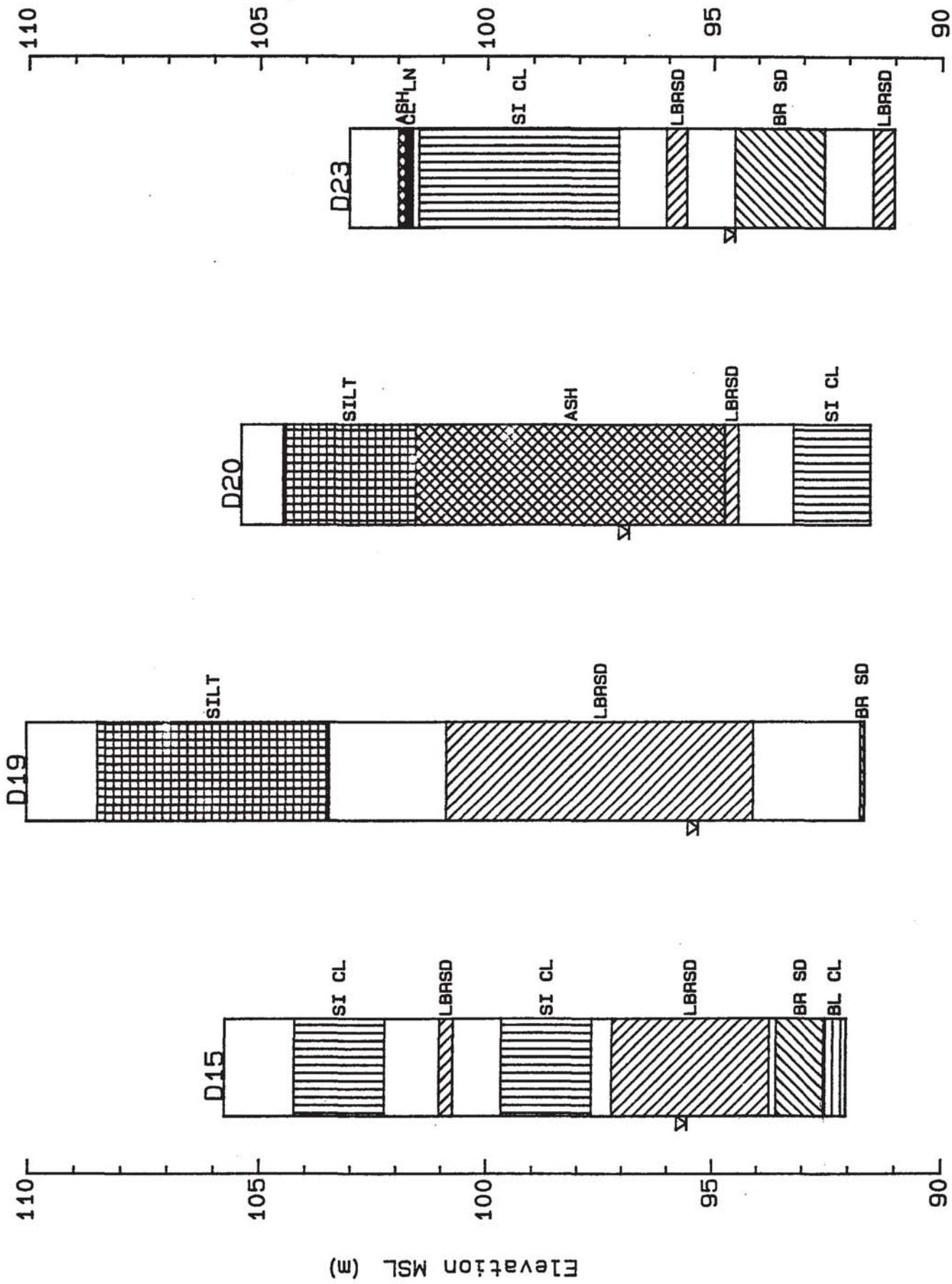
LOCKABLE COVER ? no FILTER CLOTH AROUND SCREEN ? \_\_\_\_\_

DRILLING FLUID \_\_\_\_\_

COMMENTS \_\_\_\_\_

(NOT TO SCALE)





## MONITORING WELL INSTALLATION RECORD

PROJECT Shawnee

WELL NUMBER 17 D-17 INSTALLATION DATE May 1988

PLANT COORDINATES EAST 633.3m NORTH -503.2m

GROUND SURFACE ELEVATION 110.58m-msl TOP OF INNER CASING 111.38m-msl

GRANULAR BACKFILL MATERIAL Sand SLOT SIZE 0.03cm

CASING MATERIAL PVC Sch 80 CASING DIAMETER 5cm

DRILLING TECHNIQUE fish tail DRILLING CONTRACTOR TVA

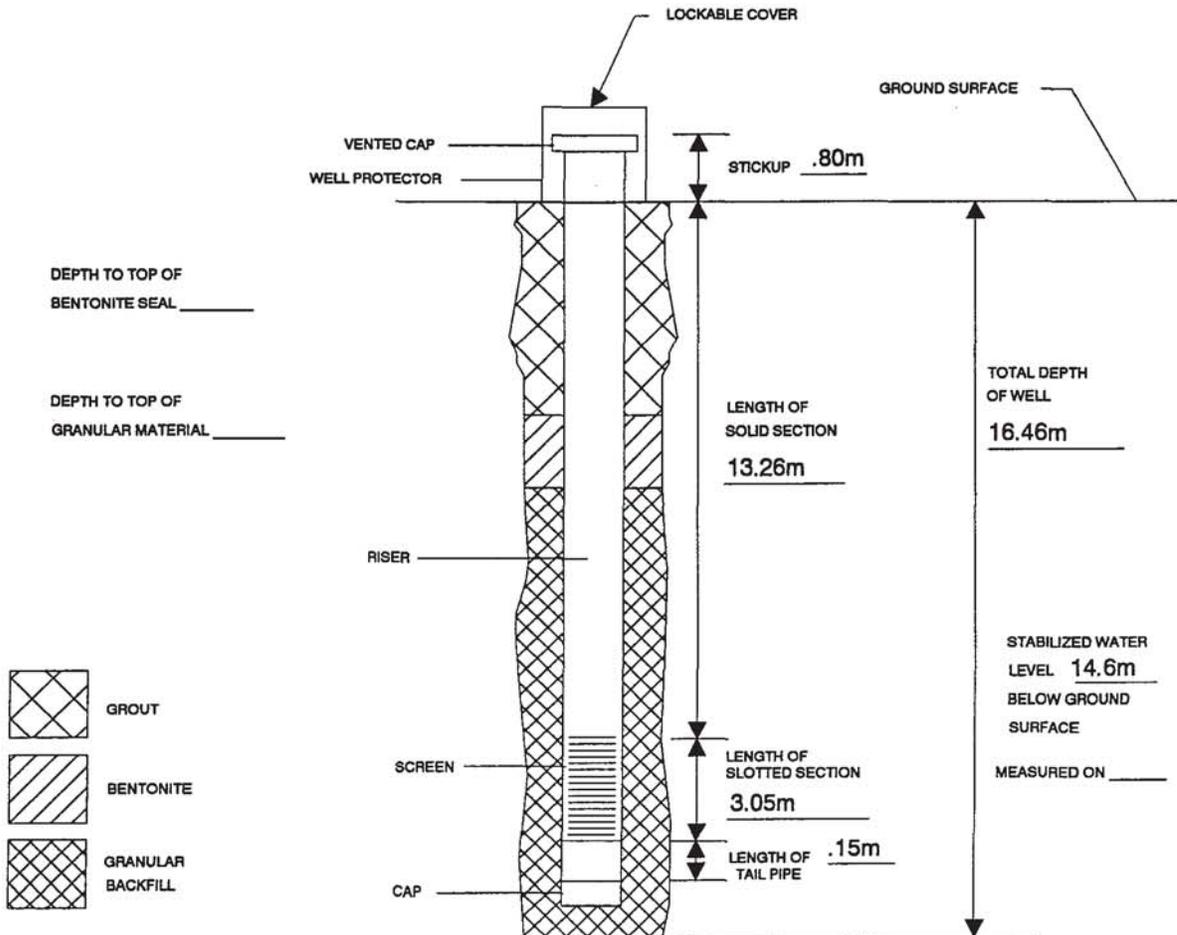
BOREHOLE DIAMETER 7.6cm FIELD REPRESENTATIVE George Gunn

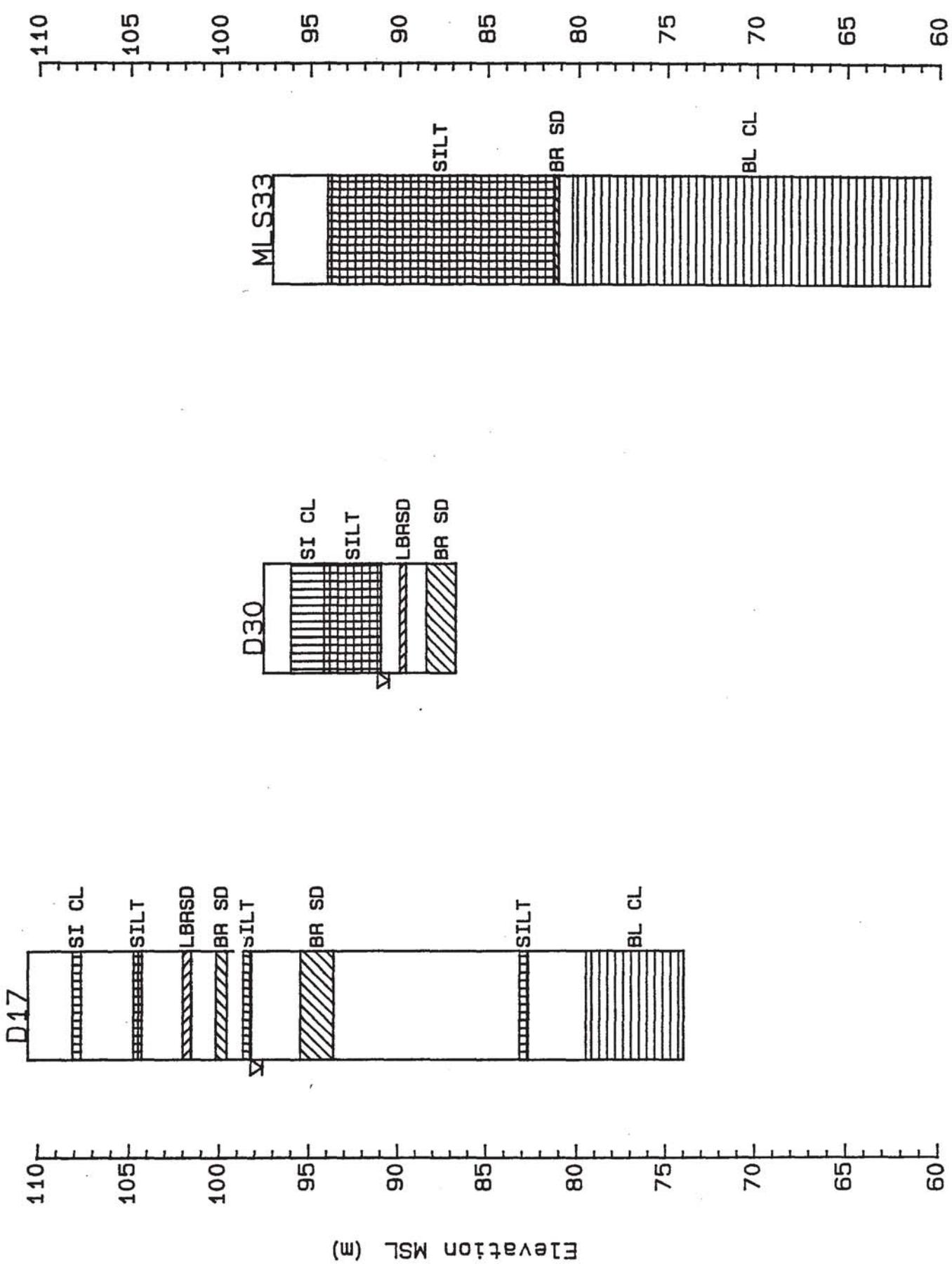
LOCKABLE COVER ? no FILTER CLOTH AROUND SCREEN ? \_\_\_\_\_

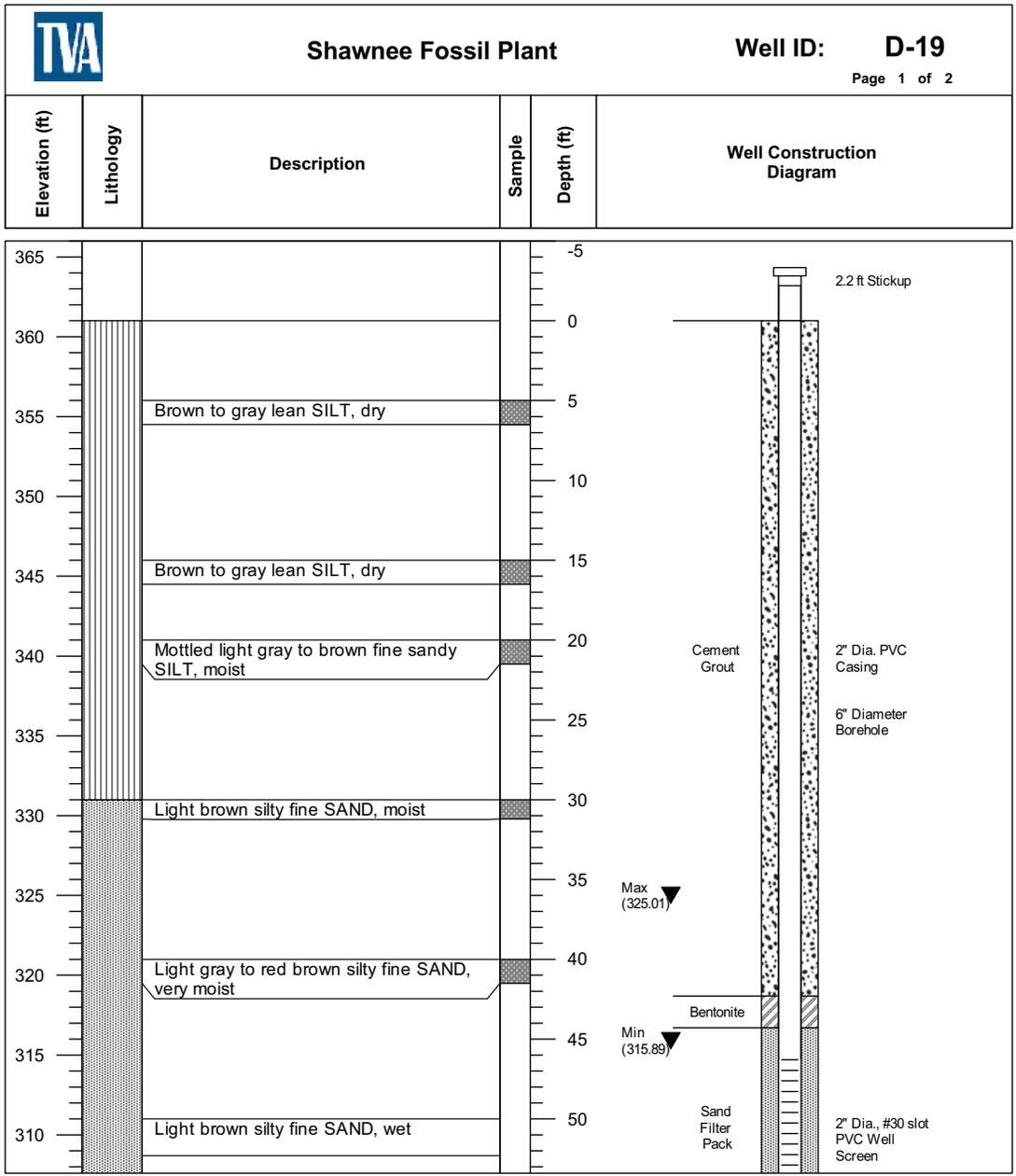
DRILLING FLUID Super Mud

COMMENTS \_\_\_\_\_

(NOT TO SCALE)







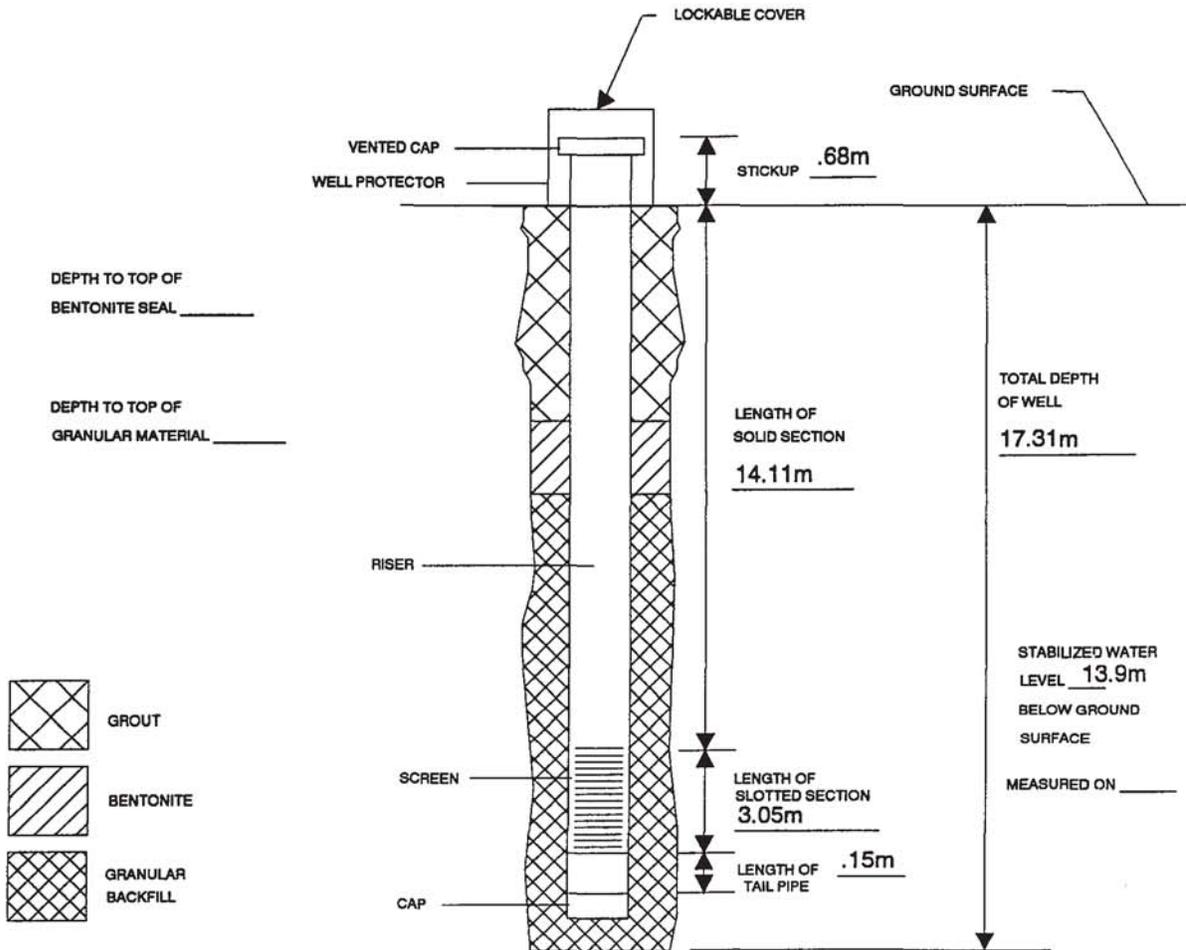
Project: Special Waste Landfill Area	Drilling Date: April 1988	Easting: 1116555.9
Company: TVA Singleton Lab	Drilling Technique: Hollow Stem Auger	Northing: 306443.3
Location: Shawnee Fossil Plant	Well Depth (ft): 56.8	Top of Casing (ft): 363.22
		Top of Ground (ft): 361.0



## MONITORING WELL INSTALLATION RECORD

PROJECT Shawnee  
 WELL NUMBER D-19 INSTALLATION DATE April 1988  
 PLANT COORDINATES EAST 683.6m NORTH -1606.8m  
 GROUND SURFACE ELEVATION 110.03m-msl TOP OF INNER CASING 110.70m-msl  
 GRANULAR BACKFILL MATERIAL Sand SLOT SIZE 0.03cm  
 CASING MATERIAL PVC Sch 80 CASING DIAMETER 5cm  
 DRILLING TECHNIQUE Hollow-Stem Auger DRILLING CONTRACTOR TVA  
 BOREHOLE DIAMETER 8.6cm FIELD REPRESENTATIVE George Gunn  
 LOCKABLE COVER ? no FILTER CLOTH AROUND SCREEN ? \_\_\_\_\_  
 DRILLING FLUID \_\_\_\_\_  
 COMMENTS \_\_\_\_\_

(NOT TO SCALE)



### MONITORING WELL INSTALLATION RECORD

PROJECT Shawnee

WELL NUMBER 19 INSTALLATION DATE April 1988

PLANT COORDINATES EAST 683.6m NORTH -1606.8m

GROUND SURFACE ELEVATION 110.03m-msl TOP OF INNER CASING 110.70m-msl

GRANULAR BACKFILL MATERIAL Sand SLOT SIZE 0.03cm

CASING MATERIAL PVC Sch 80 CASING DIAMETER 5cm

DRILLING TECHNIQUE Hollow-Stem Auger DRILLING CONTRACTOR TVA

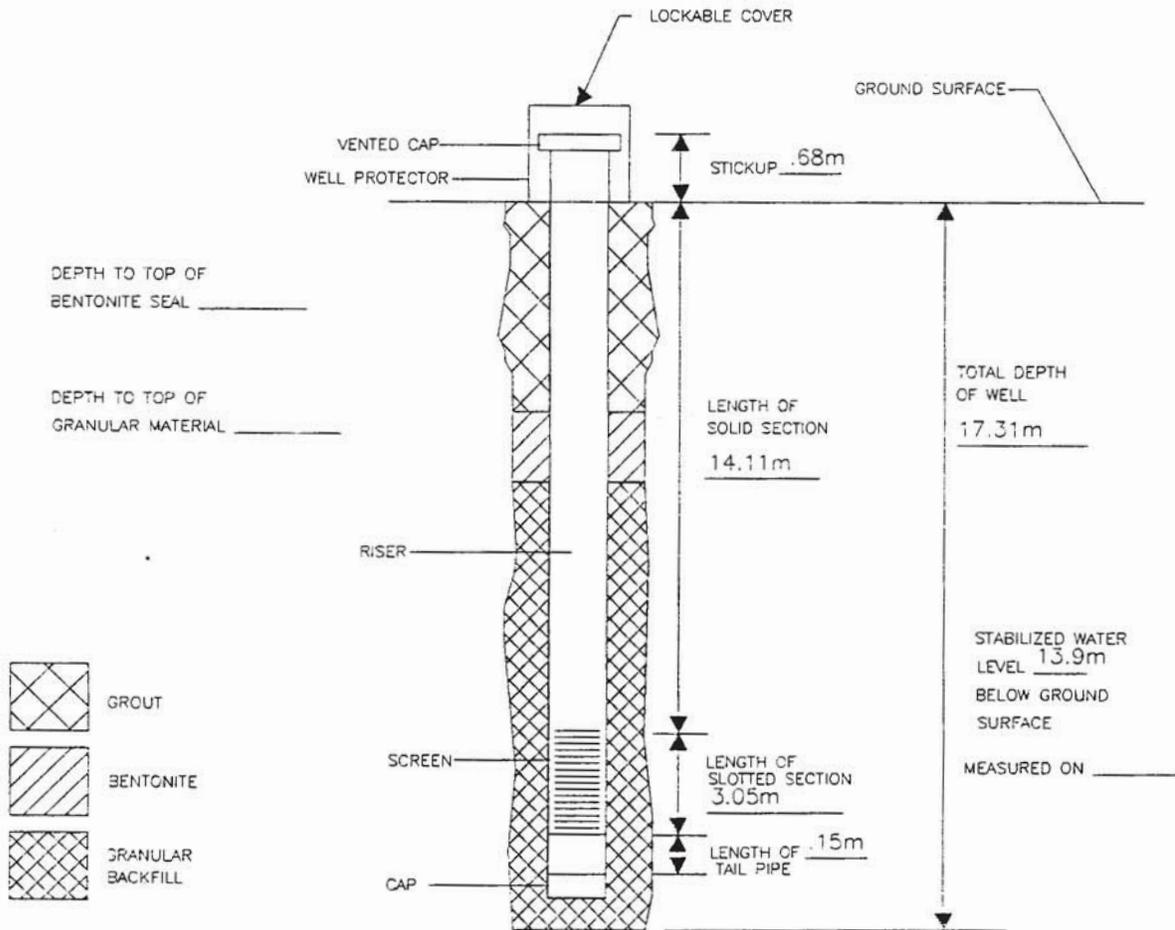
BOREHOLE DIAMETER 8.6cm FIELD REPRESENTATIVE George Gunn

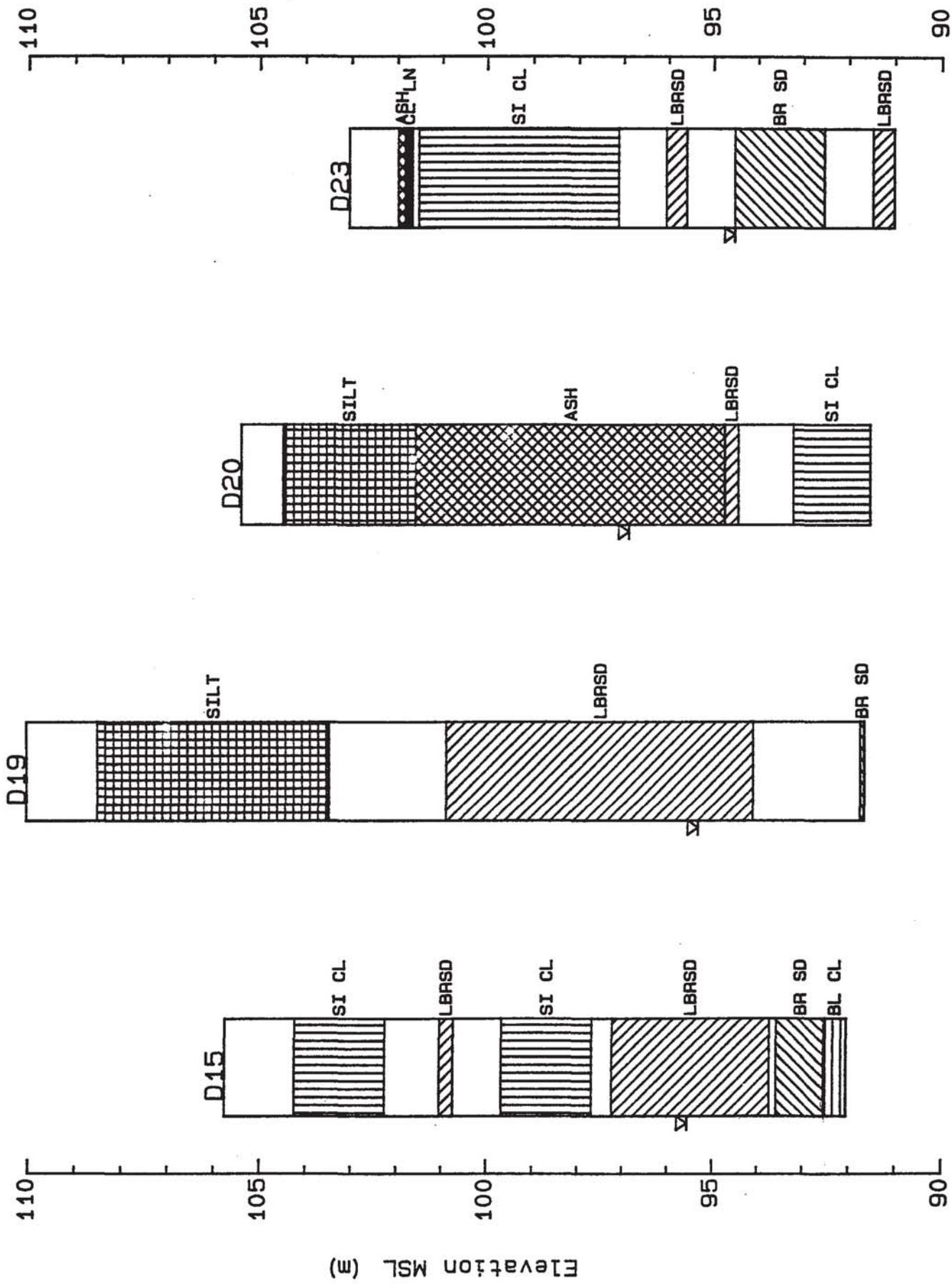
LOCKABLE COVER ? \_\_\_\_\_ FILTER CLOTH AROUND SCREEN ? \_\_\_\_\_

DRILLING FLUID \_\_\_\_\_

COMMENTS \_\_\_\_\_

(NOT TO SCALE)





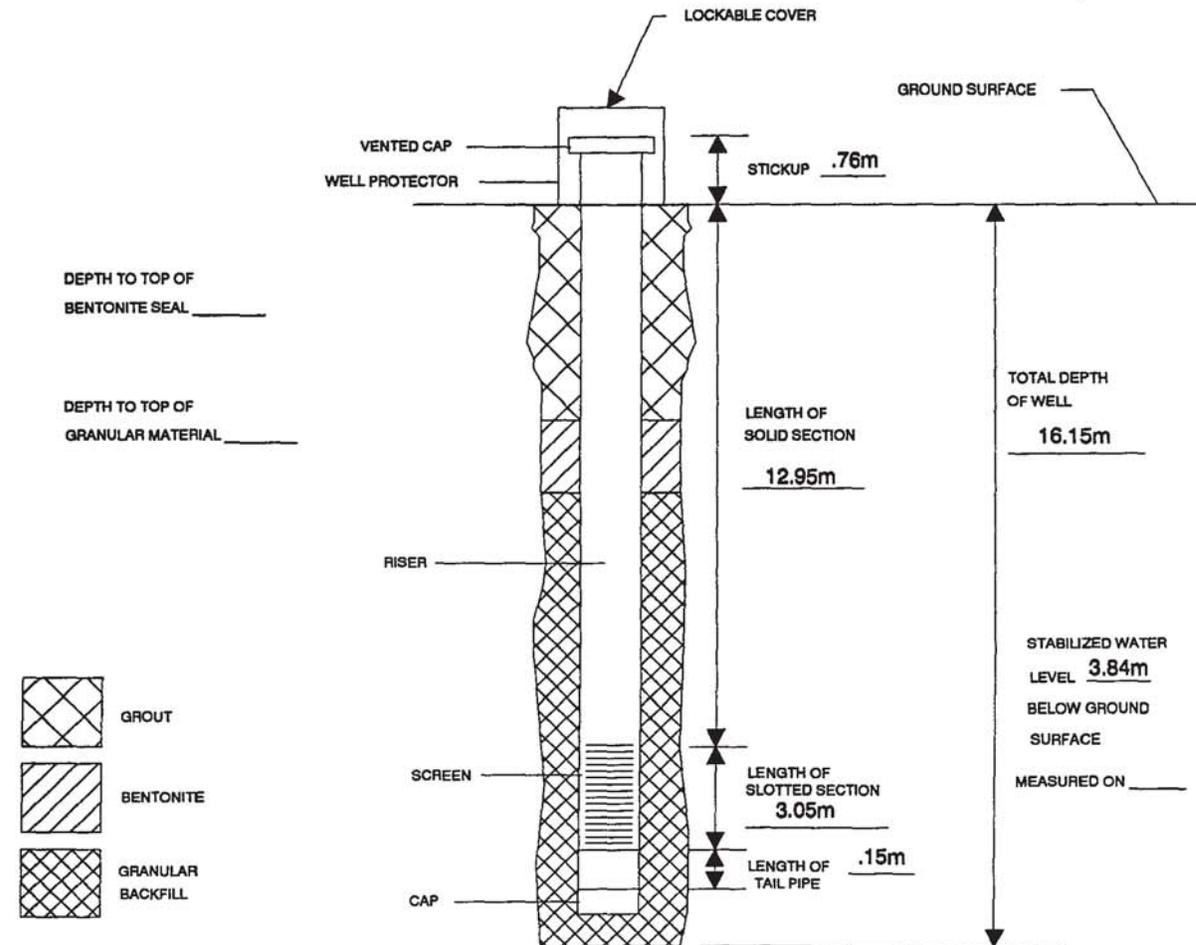
Abandoned

Grouted up and closed out on 17 NOV 1993

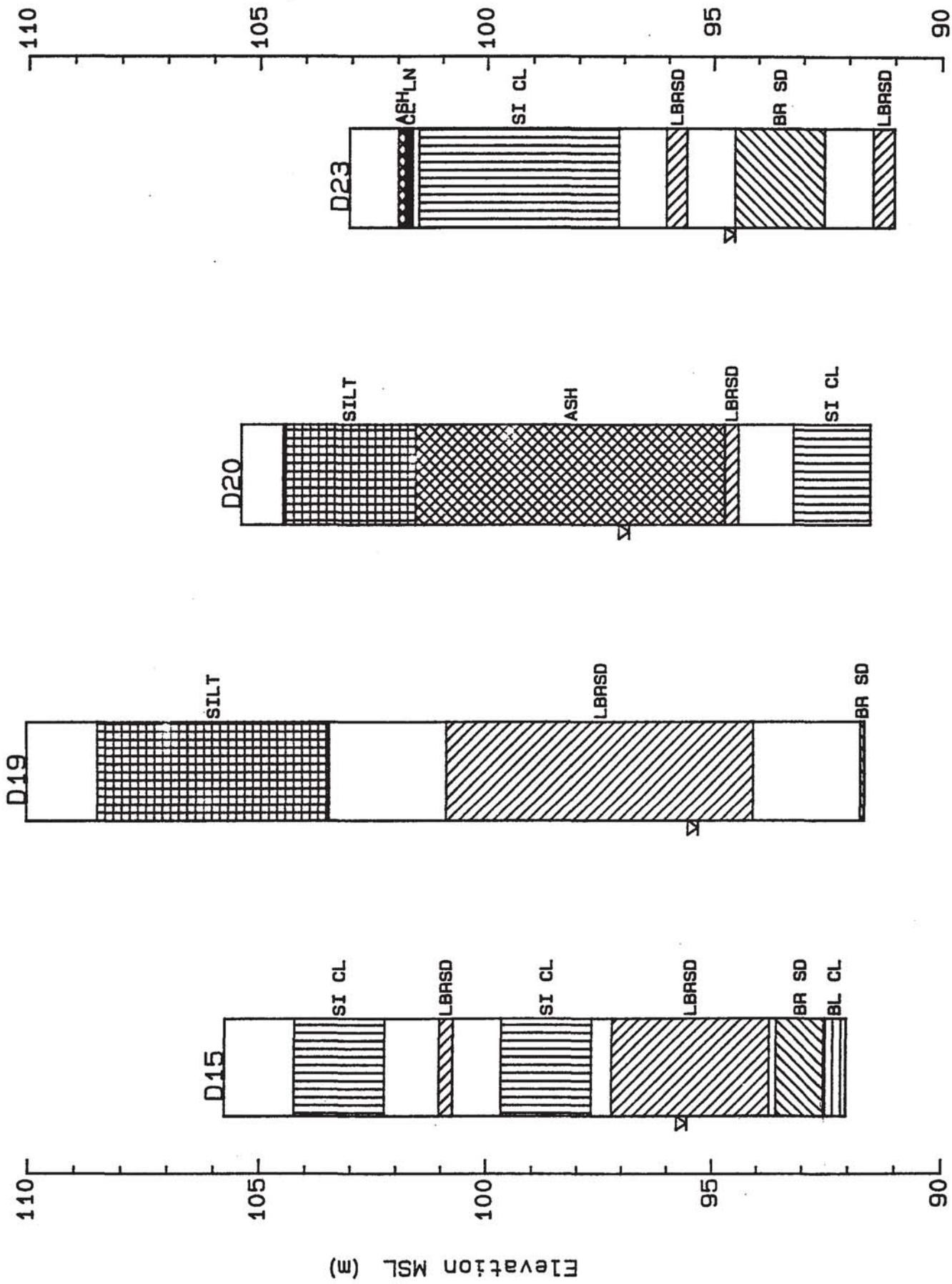
### MONITORING WELL INSTALLATION RECORD

PROJECT	SHAWNEE	INSTALLATION DATE	APRIL 1988
WELL NUMBER	D-20	PLANT COORDINATES EAST	-1046.0m
		NORTH	-62.2m
GROUND SURFACE ELEVATION	105.4m-msl	TOP OF INNER CASING	106.17m-msl
GRANULAR BACKFILL MATERIAL	SAND	SLOT SIZE	0.03cm
CASING MATERIAL	PVC SCH 80	CASING DIAMETER	5cm
DRILLING TECHNIQUE	HOLLOW-STEM AUGER	DRILLING CONTRACTOR	TVA
BOREHOLE DIAMETER	8.6cm	FIELD REPRESENTATIVE	GEORGE GUNN
LOCKABLE COVER ?	no	FILTER CLOTH AROUND SCREEN ?	
DRILLING FLUID			
COMMENTS			

(NOT TO SCALE)







## MONITORING WELL INSTALLATION RECORD

PROJECT Shawnee

WELL NUMBER D-23      INSTALLATION DATE April 1988

PLANT COORDINATES    EAST -550.1m      NORTH 255.1m

GROUND SURFACE ELEVATION 103.05m-msl      TOP OF INNER CASING 103.78m-msl

GRANULAR BACKFILL MATERIAL Sand      SLOT SIZE 0.03cm

CASING MATERIAL PVC Sch 80      CASING DIAMETER 5cm

DRILLING TECHNIQUE Hollow-Stem Auger      DRILLING CONTRACTOR TVA

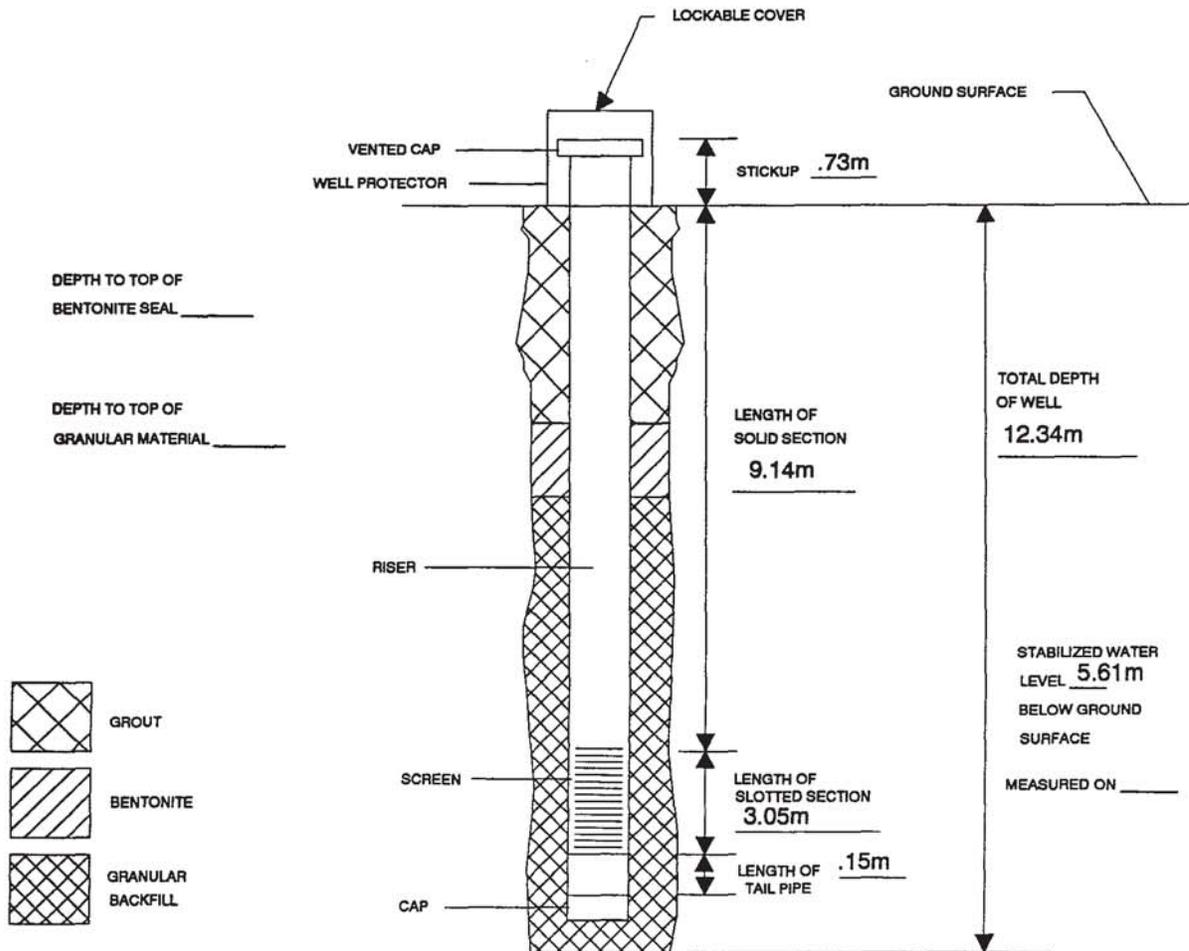
BOREHOLE DIAMETER 8.6cm      FIELD REPRESENTATIVE George Gunn

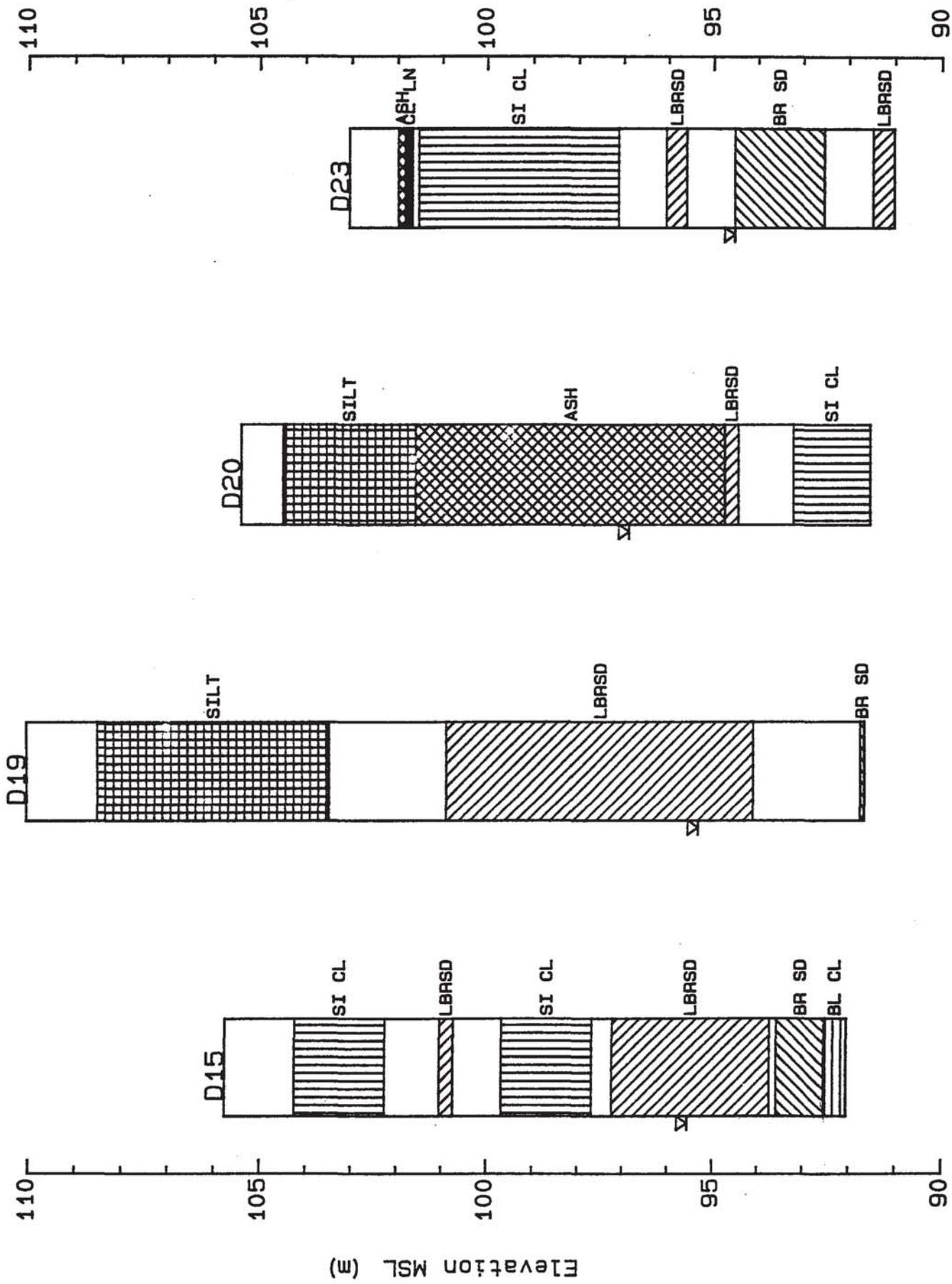
LOCKABLE COVER ? no      FILTER CLOTH AROUND SCREEN ? \_\_\_\_\_

DRILLING FLUID \_\_\_\_\_

COMMENTS \_\_\_\_\_

(NOT TO SCALE)

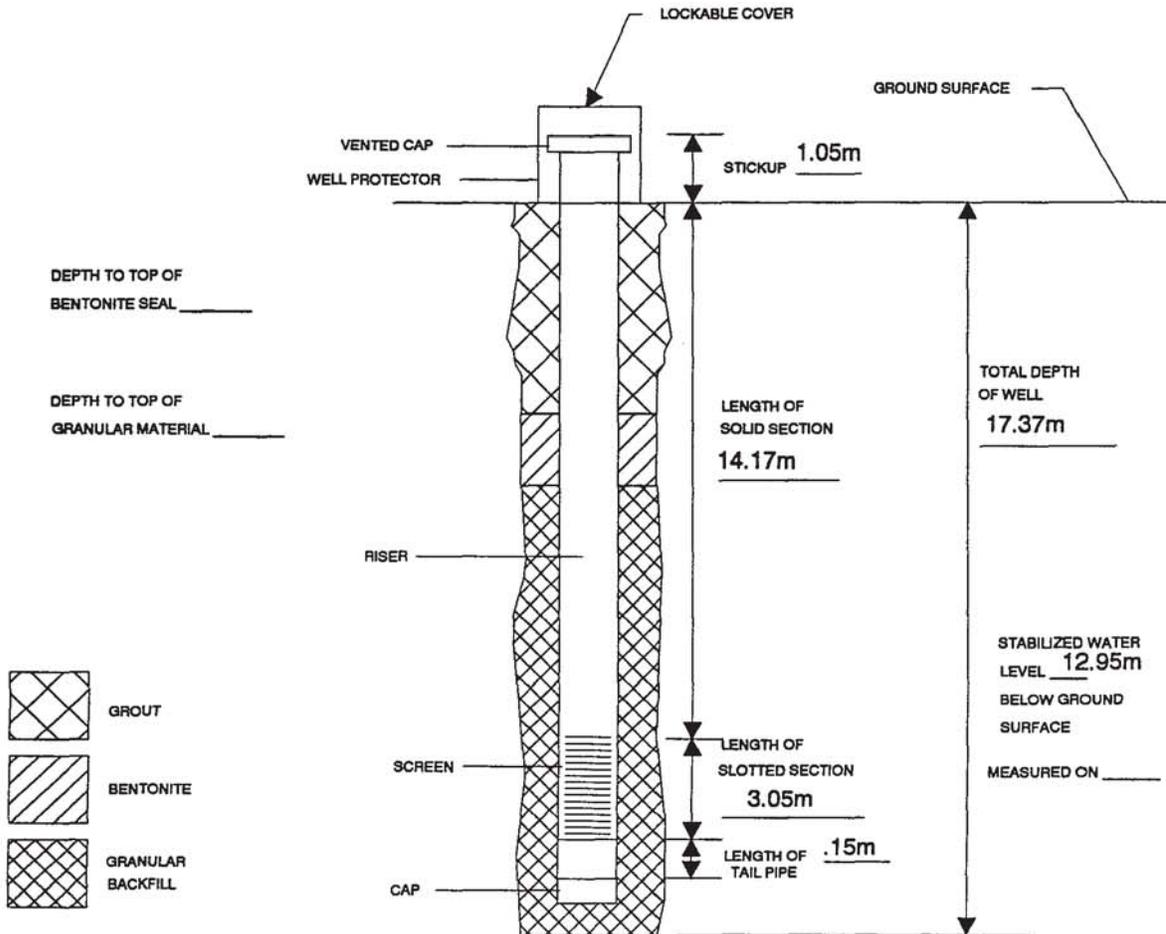


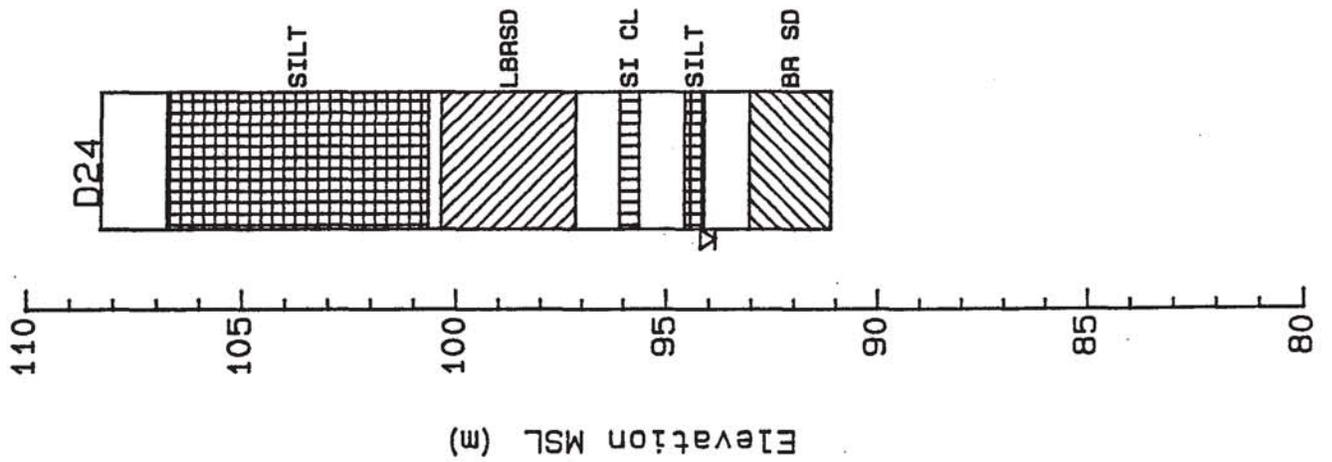
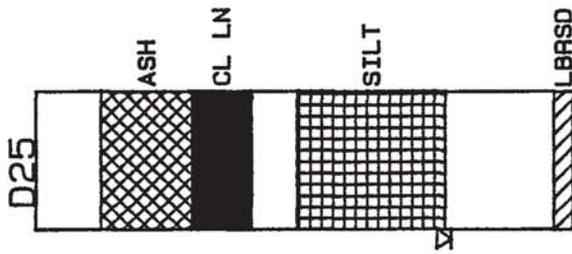
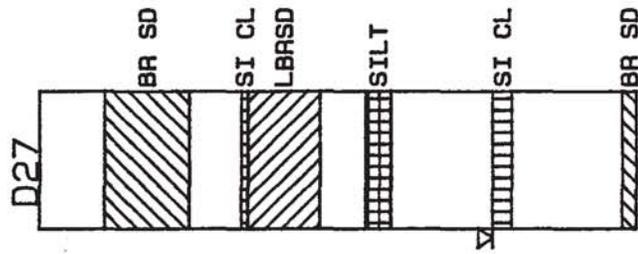
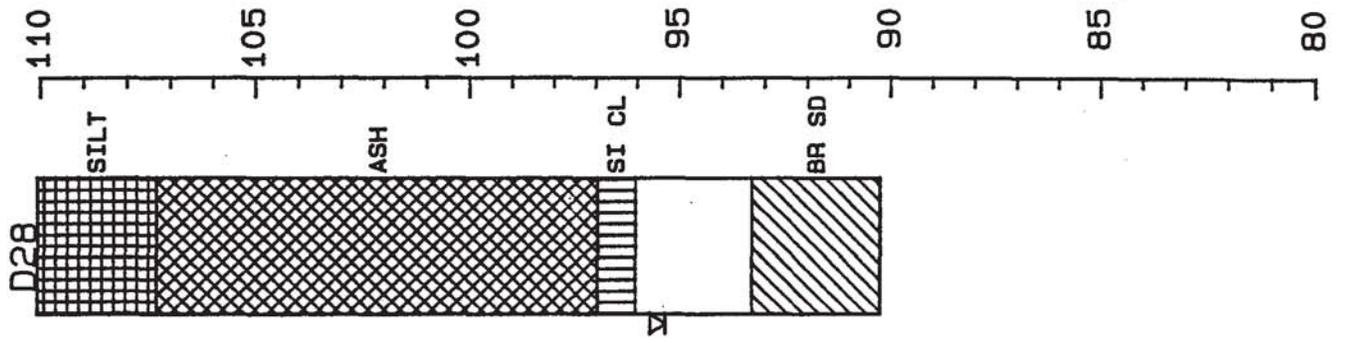


## MONITORING WELL INSTALLATION RECORD

PROJECT <u>Shawnee</u>	
WELL NUMBER <u>24 D-24</u>	INSTALLATION DATE <u>May 1988</u>
PLANT COORDINATES EAST <u>-239.9m</u>	NORTH <u>-168.2m</u>
GROUND SURFACE ELEVATION <u>108.29m-msl</u>	TOP OF INNER CASING <u>109.34m-msl</u>
GRANULAR BACKFILL MATERIAL <u>Sand</u>	SLOT SIZE <u>0.03cm</u>
CASING MATERIAL <u>PVC Sch 80</u>	CASING DIAMETER <u>5cm</u>
DRILLING TECHNIQUE <u>Hollow-Stem Auger</u>	DRILLING CONTRACTOR <u>TVA</u>
BOREHOLE DIAMETER <u>8.6cm</u>	FIELD REPRESENTATIVE <u>George Gunn</u>
LOCKABLE COVER ? <u>no</u>	FILTER CLOTH AROUND SCREEN ? _____
DRILLING FLUID _____	
COMMENTS _____	

(NOT TO SCALE)

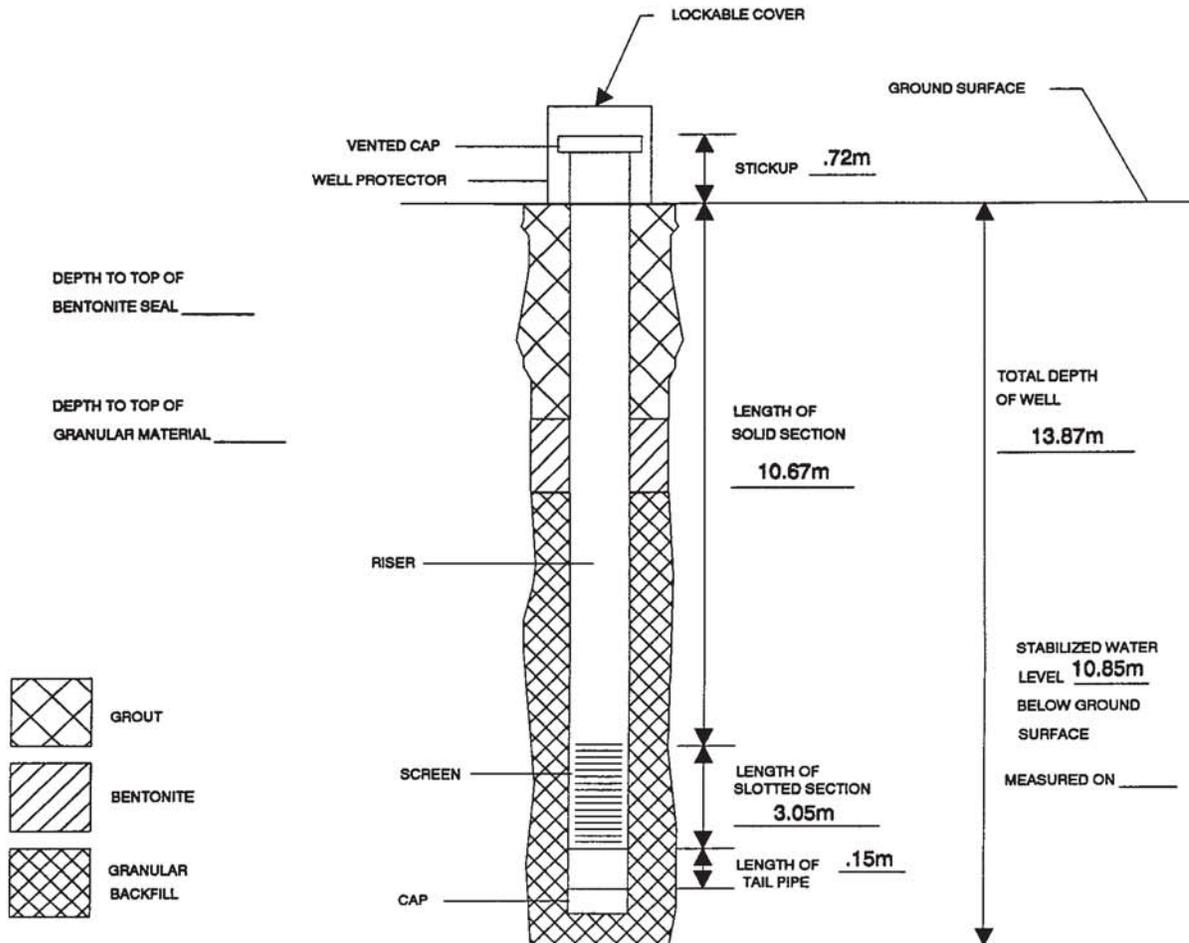


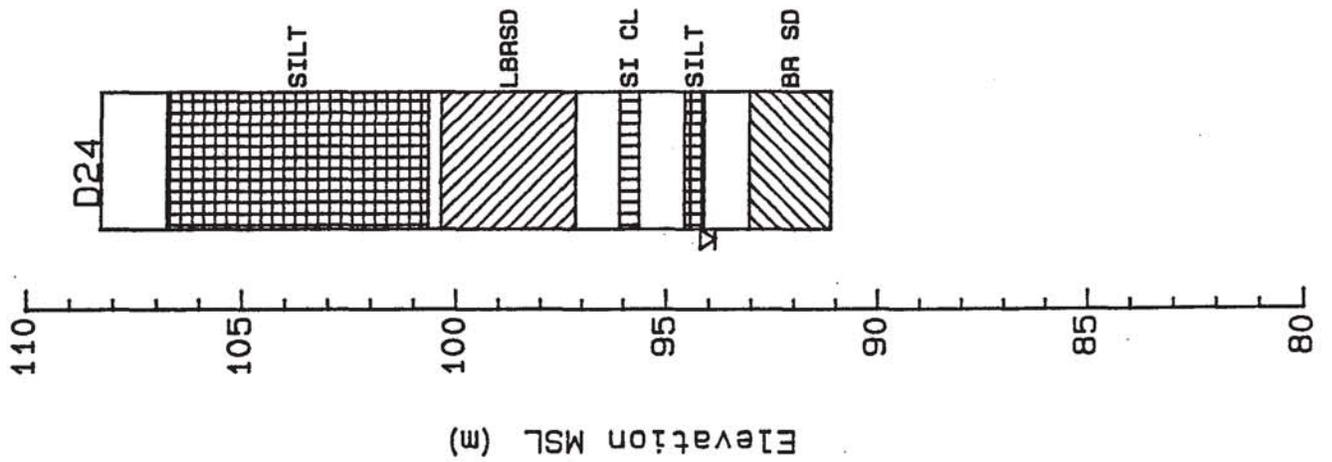
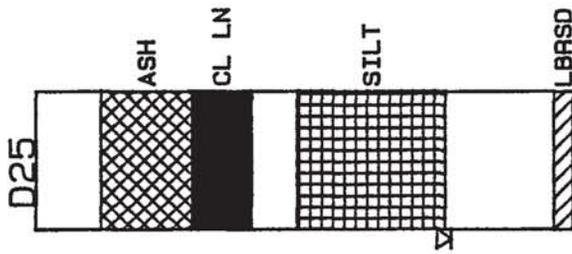
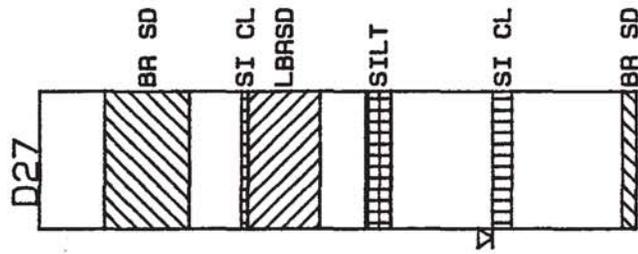
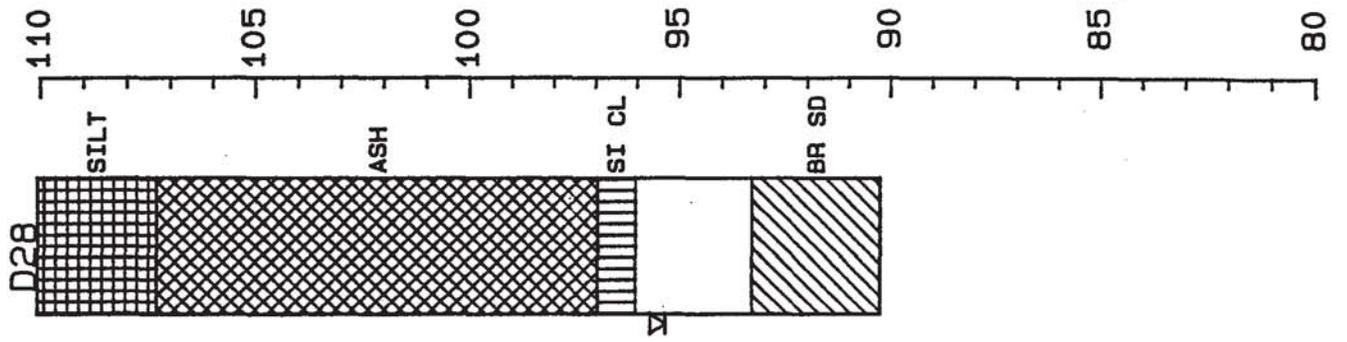


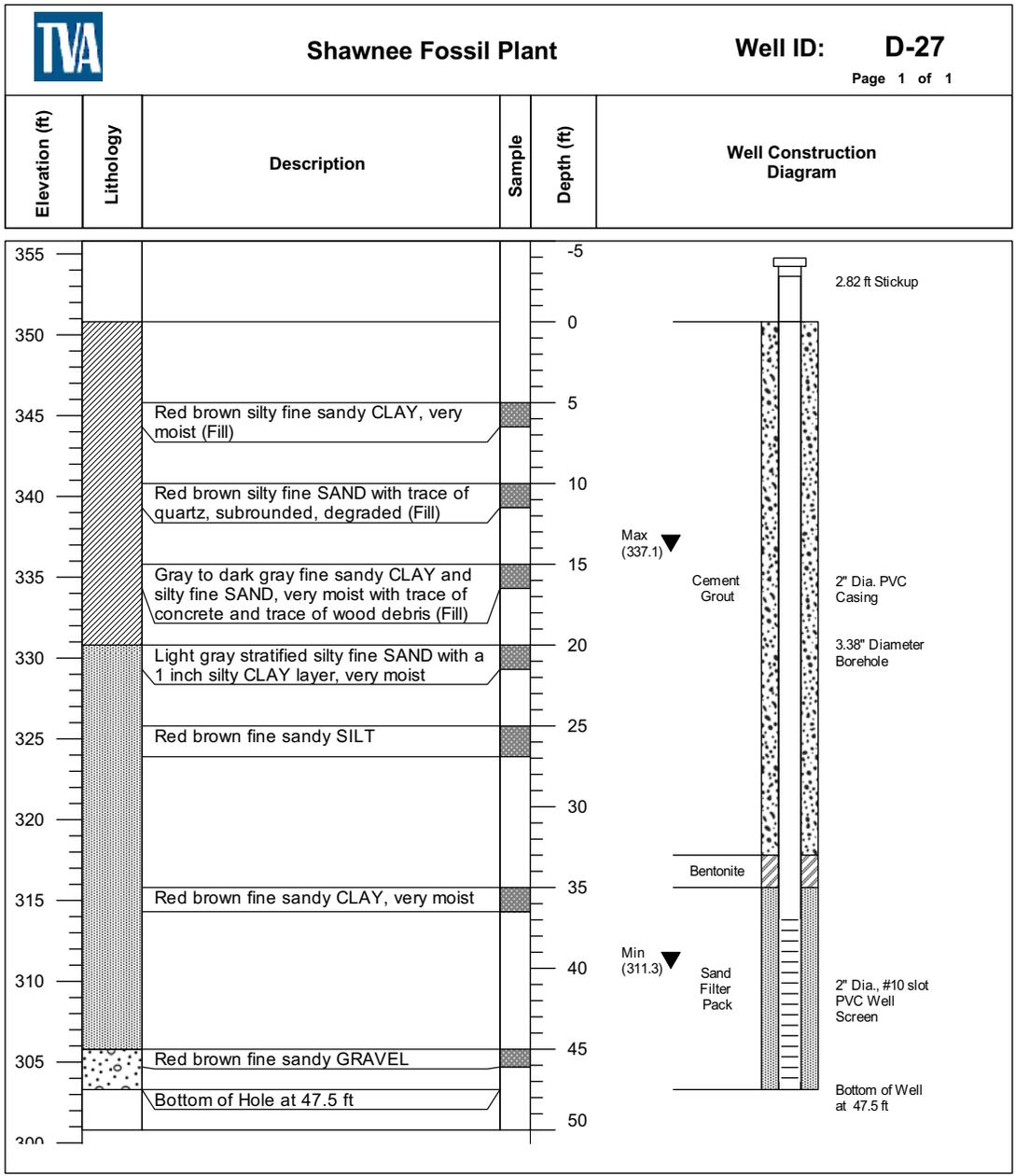
## MONITORING WELL INSTALLATION RECORD

PROJECT	SHAWNEE		
WELL NUMBER	D-25	INSTALLATION DATE	APRIL 1988
PLANT COORDINATES EAST	-614.4m	NORTH	-265.8m
GROUND SURFACE ELEVATION	106.99m-msl	TOP OF INNER CASING	107.71m-msl
GRANULAR BACKFILL MATERIAL	SAND	SLOT SIZE	0.03cm
CASING MATERIAL	PVC SCH 80	CASING DIAMETER	5cm
DRILLING TECHNIQUE	HOLLOW-STEM AUGER	DRILLING CONTRACTOR	TVA
BOREHOLE DIAMETER	8.6cm	FIELD REPRESENTATIVE	GEORGE GUNN
LOCKABLE COVER ?	no	FILTER CLOTH AROUND SCREEN ?	
DRILLING FLUID			
COMMENTS			

(NOT TO SCALE)







Project: Special Waste Landfill Area	Drilling Date: April 1988	Easting: 1116372.3
Company: TVA Singleton Lab	Drilling Technique: Hollow Stem Auger	Northing: 311213.1
Location: Shawnee Fossil Plant	Well Depth (ft): 47.5	Top of Casing (ft): 353.62
		Top of Ground (ft): 350.8

### MONITORING WELL INSTALLATION RECORD

PROJECT Shawnee

WELL NUMBER 27 D-27 INSTALLATION DATE April 1988

PLANT COORDINATES EAST -153.9m NORTH -417.3m

GROUND SURFACE ELEVATION 106.92m-msl TOP OF INNER CASING 107.78m-msl

GRANULAR BACKFILL MATERIAL \_\_\_\_\_ SLOT SIZE 0.03cm

CASING MATERIAL PVC Sch 80 CASING DIAMETER 5cm

DRILLING TECHNIQUE Hollow-Stem Auger DRILLING CONTRACTOR TVA

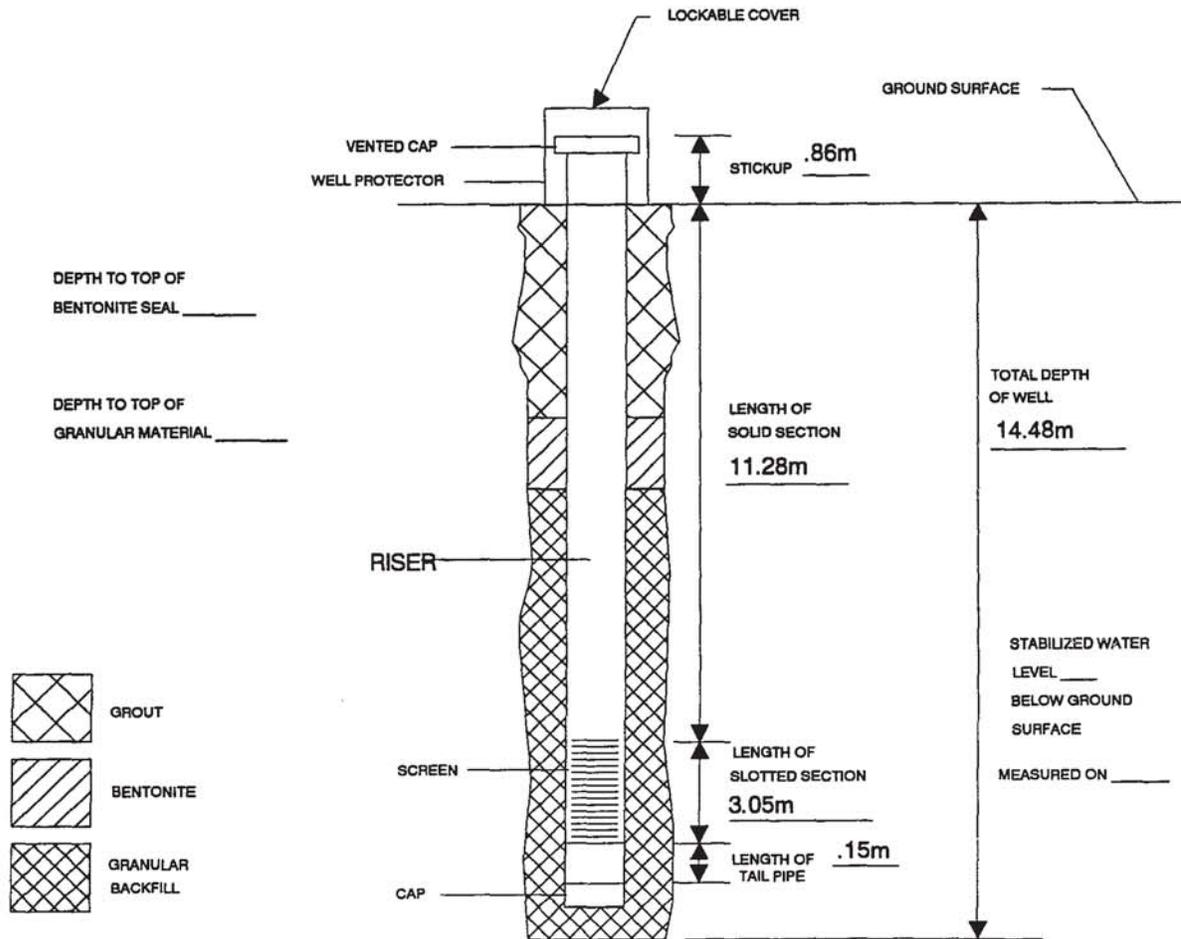
BOREHOLE DIAMETER 8.6cm FIELD REPRESENTATIVE George Gunn

LOCKABLE COVER ? no FILTER CLOTH AROUND SCREEN ? \_\_\_\_\_

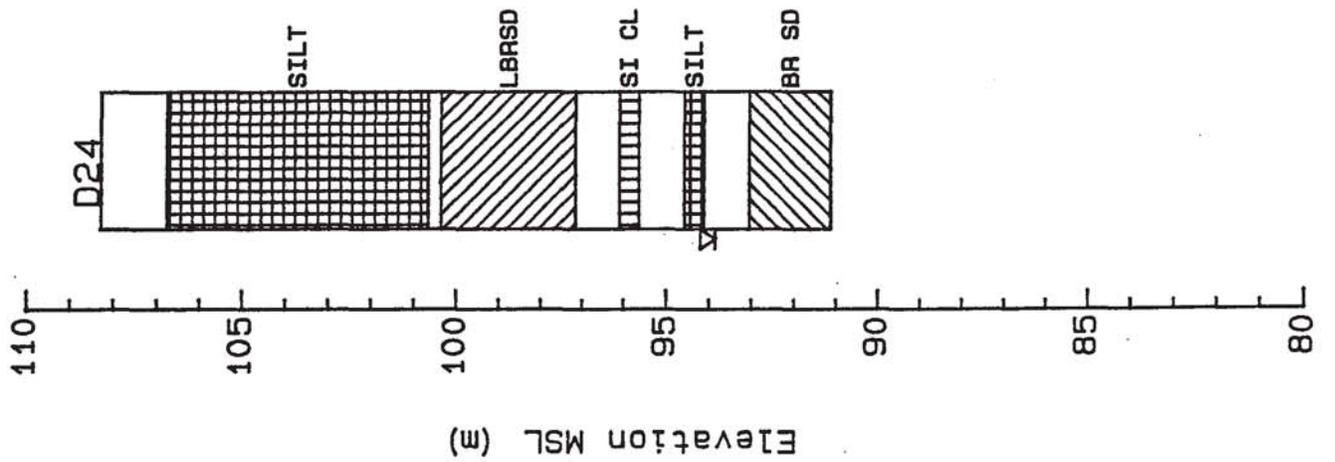
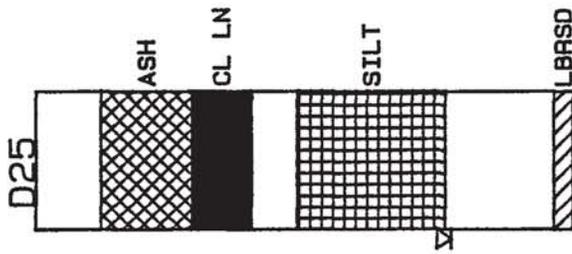
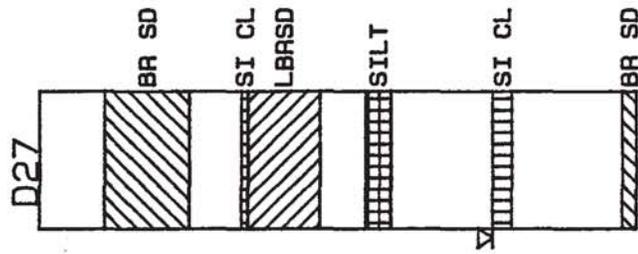
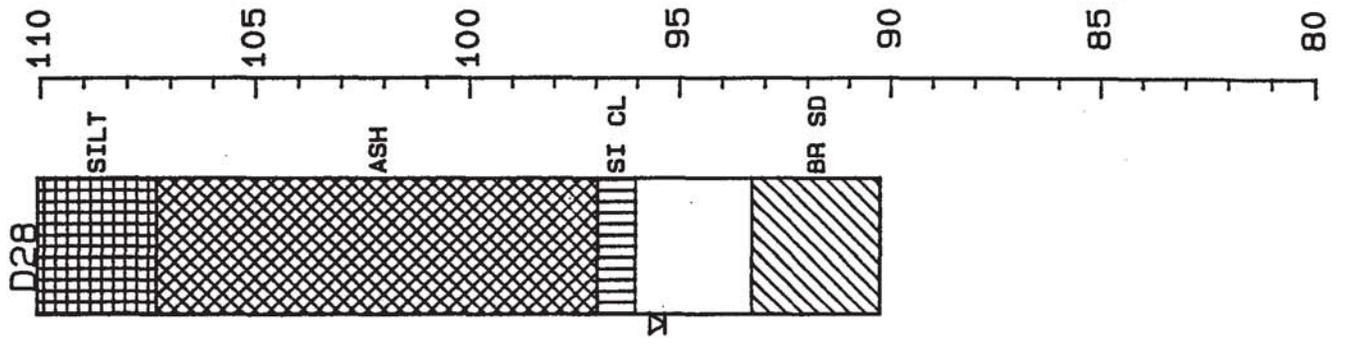
DRILLING FLUID \_\_\_\_\_

COMMENTS perched water at 10ft below surface

(NOT TO SCALE)



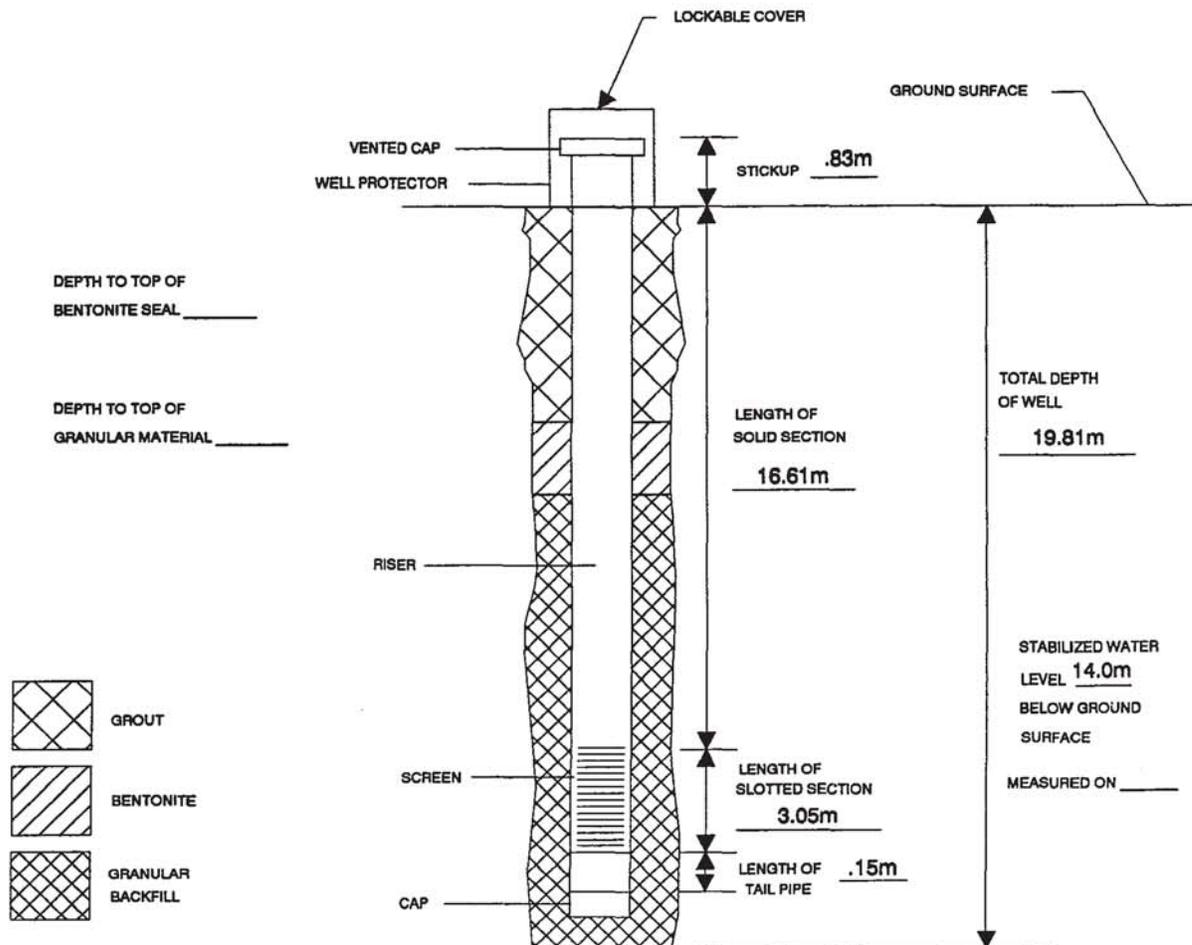


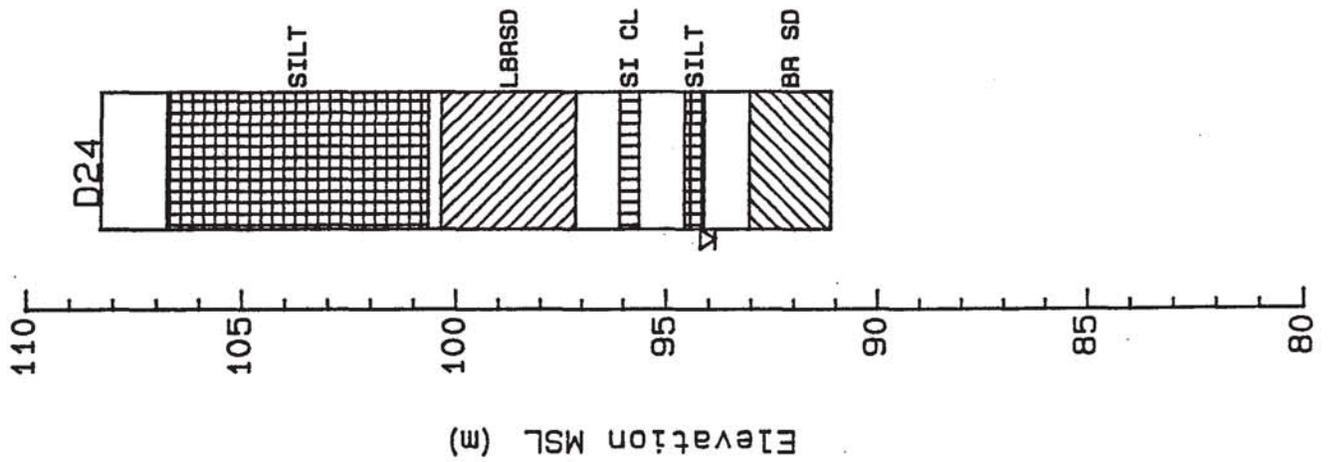
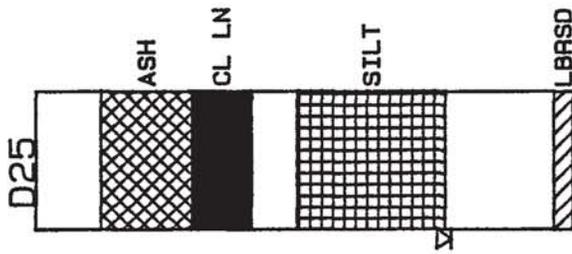
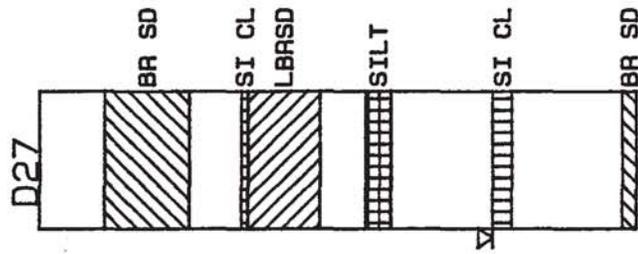
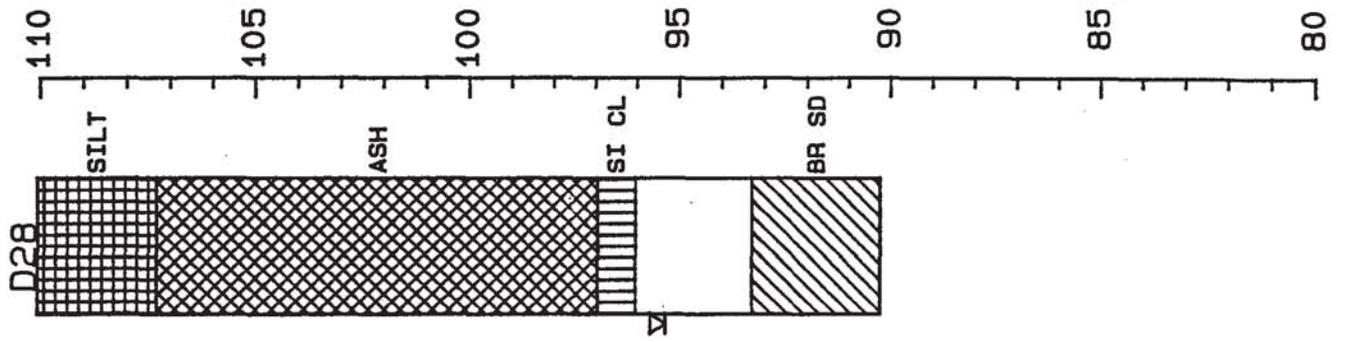


### MONITORING WELL INSTALLATION RECORD

PROJECT	SHAWNEE		
WELL NUMBER	D - 28	INSTALLATION DATE	MAY 1988
PLANT COORDINATES EAST	-1556.5m	NORTH	327.0m
GROUND SURFACE ELEVATION	110.06m-msl	TOP OF INNER CASING	110.89m-msl
GRANULAR BACKFILL MATERIAL	SAND	SLOT SIZE	0.03cm
CASING MATERIAL	PVC SCH 80	CASING DIAMETER	5cm
DRILLING TECHNIQUE	HOLLOW-STEM AUGER	DRILLING CONTRACTOR	TVA
BOREHOLE DIAMETER	8.6cm	FIELD REPRESENTATIVE	GEORGE GUNN
LOCKABLE COVER ?	no	FILTER CLOTH AROUND SCREEN ?	
DRILLING FLUID			
COMMENTS			

(NOT TO SCALE)

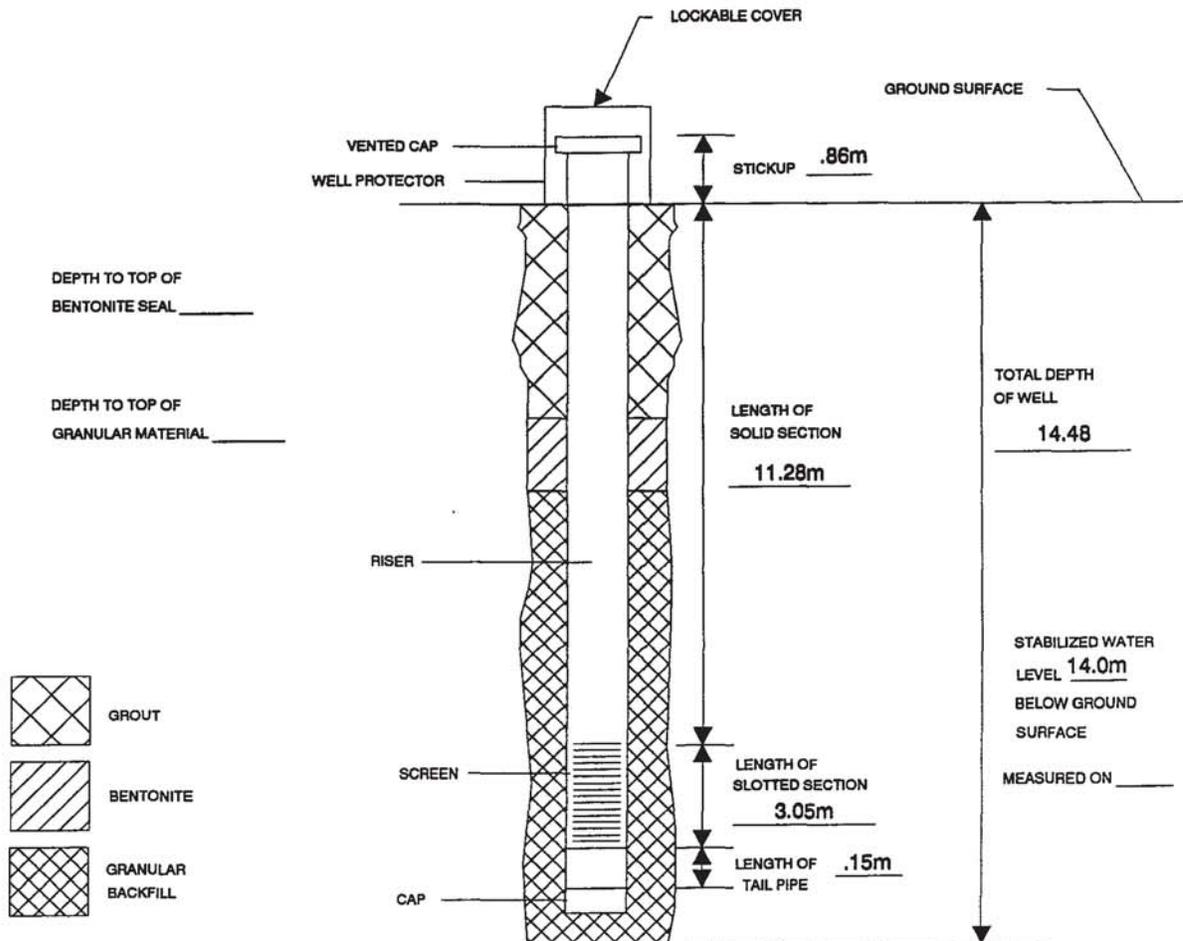




## MONITORING WELL INSTALLATION RECORD

PROJECT <u>SHAWNEE</u>	
WELL NUMBER <u>D-30</u>	INSTALLATION DATE <u>April 1988</u>
PLANT COORDINATES EAST <u>-584.9m</u>	NORTH <u>-417.3m</u>
GROUND SURFACE ELEVATION <u>97.53 m-msl</u>	TOP OF INNER CASING <u>107.78m-msl</u> <i>98.39</i> <span style="float: right;"><i>98.84</i></span>
GRANULAR BACKFILL MATERIAL <u>SAND</u>	SLOT SIZE <u>0.03cm</u>
CASING MATERIAL <u>PVC SCH 80</u>	CASING DIAMETER <u>5cm</u>
DRILLING TECHNIQUE <u>HOLLOW-STEM AUGER</u>	DRILLING CONTRACTOR <u>TVA</u>
BOREHOLE DIAMETER <u>8.6cm</u>	FIELD REPRESENTATIVE <u>GEORGE GUNN</u>
LOCKABLE COVER ? <u>no</u>	FILTER CLOTH AROUND SCREEN ? _____
DRILLING FLUID _____	
COMMENTS _____	

(NOT TO SCALE)



## MONITORING WELL INSTALLATION RECORD

PROJECT Shawnee

WELL NUMBER 30 INSTALLATION DATE May 1988

PLANT COORDINATES EAST -584.9 m SOUTH 708.9 m

GROUND SURFACE ELEVATION 97.53 m-msl TOP OF INNER CASING 98.32 m-msl until 11/93\*

GRANULAR BACKFILL MATERIAL Sand SLOT SIZE 0.025 cm

CASING MATERIAL PVC Sch 80 CASING DIAMETER 5 cm

DRILLING TECHNIQUE Hollow-Stem Auger DRILLING CONTRACTOR TVA

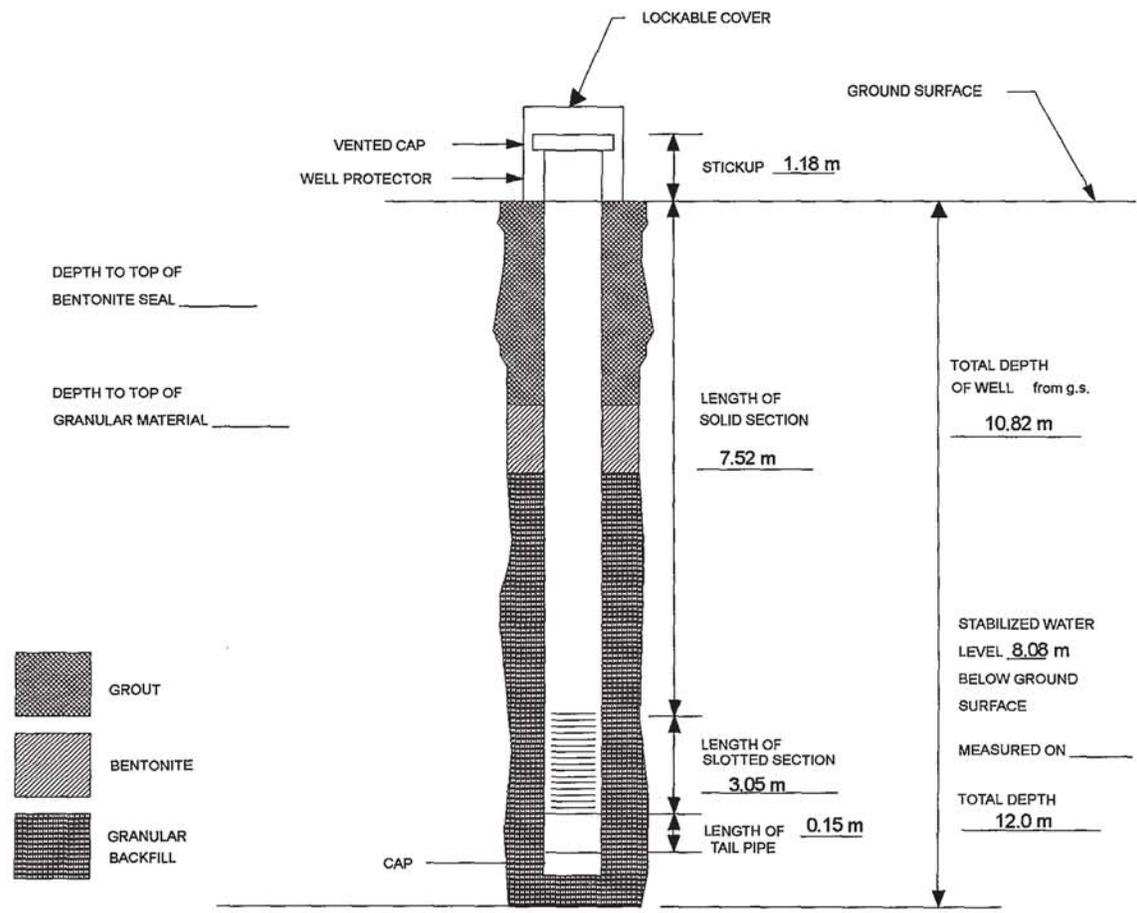
BOREHOLE DIAMETER 8.6 cm FIELD REPRESENTATIVE George Gunn

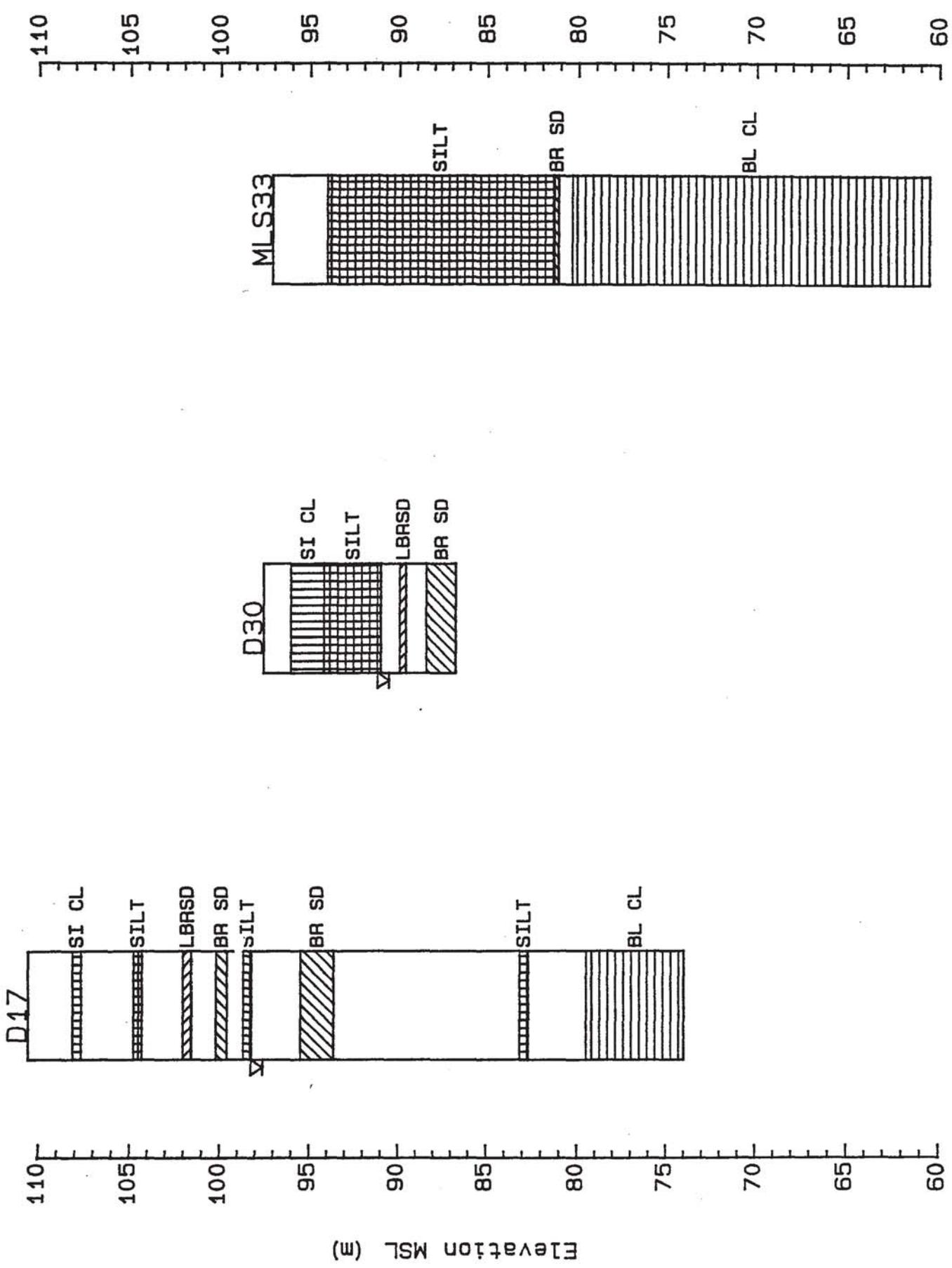
LOCKABLE COVER ? no FILTER CLOTH AROUND SCREEN ? no

DRILLING FLUID \_\_\_\_\_

COMMENTS \*Survey results 3/13/96: Top of 8" steel casing - 98.91 m (324.50');  
 Top of PVC from 11/30/93 to 04/01/96 - 98.87 m (324.37')  
 Top of PVC plate (QED system) from 04/01/96 - 98.84 m (324.29')

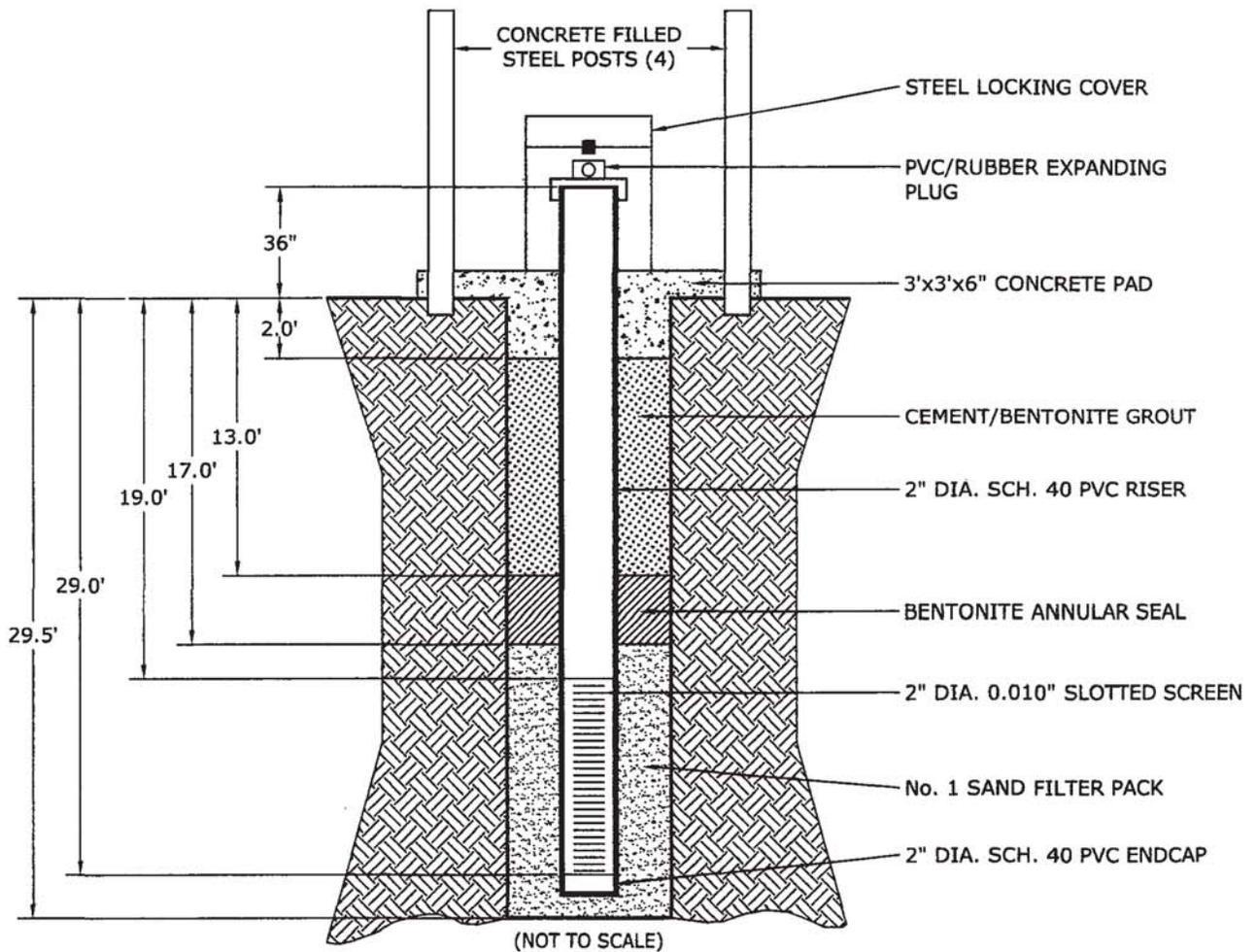
(NOT TO SCALE)





JOB NAME TVA SHAWNEE STEAM PLANT  
 TVA WELL NUMBER D-30A  
 KENTUCKY WELL NUMBER 8004-9954  
 BOREHOLE DIAMETER 7"  
 TOTAL DEPTH 29.5'  
 FIELD REPRESENTATIVE N. SIREK

JOB NUMBER 3043-08-1010-01  
 INSTALLATION DATE 06-10-2008  
 DRILLED BY MILLER DRILLING  
 RISER/SCREEN  
 MATERIAL SCHEDULE 40 PVC  
 DIAMETER 2"  
 SLOT SIZE 0.010"



PREPARED BY: *[Signature]* DATE: 17 Oct 2008 CHECKED BY: *[Signature]* DATE: 17 Oct 2008

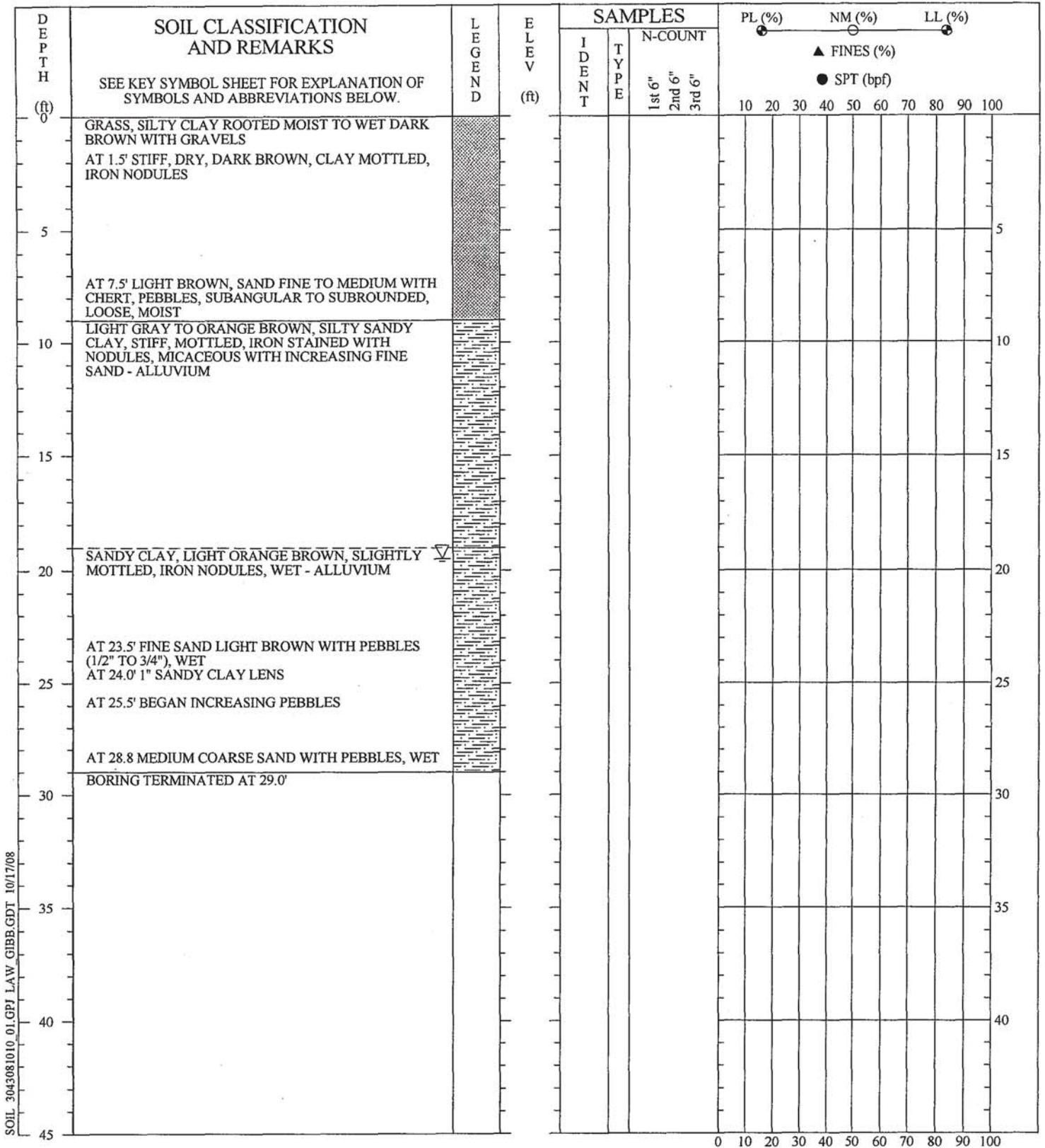
TENNESSEE VALLEY AUTHORITY

**MACTEC**  
 1725 Louisville Drive  
 Knoxville, TN 37921  
 Phone: 865-588-8544 Fax: 865-588-8026

TYPE II MONITORING WELL  
 INSTALLATION RECORD  
 TVA SHAWNEE STEAM PLANT  
 PADUCAH, KENTUCKY

PROJECT NO. 3043-08-1010 FIGURE 4

P:\ZCADD\NEW GEO\2008\3043081010 TVA Shawnee\3043081010\_D-30A\_FIG4.dwg Fri, 17 Oct 2008 - 9:25am reverenc



SOIL 3043081010 01.GPJ LAW GIBB.GDT 10/17/08

REMARKS: 4" Sonic 10' Sampler, 6" Sonic overdrill, Versa-Sonic. Set 2" PVC well screened from 17.0' - 27.0' bgs (0.010 slot)

SOIL TEST BORING RECORD	
<b>PROJECT:</b> TVA - Shawnee Special Waste Landfill	<b>BORING NO.:</b> D-30A
<b>DRILLED:</b> June 10, 2008	<b>PROJ. NO.:</b> 3043-08-1010-01
<b>PAGE 1 OF 1</b>	
	

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

Driller : Rhodes  
 Logged By: Sirek  
 Checked By: K.S.C.

**KENTUCKY MONITORING WELL RECORD**

D-30A

Please read all instructions prior to completing this form. Do not write in shaded area. The original copy of this form must be submitted within 30 days of well completion to the Kentucky Natural Resources and Environmental Protection Cabinet, Division of Water - Groundwater Branch, 14 Reilly Road, Frankfort, KY 40601. Telephone (502) 564-3410.

(1) Attach Monitoring Well Identification Number Label Here (if applicable)

(TYPE OR PRINT CLEARLY)

(2) GENERAL INFORMATION:

Facility Name TVA Shannock Waste <sup>landfill</sup> Facility Address same  
 Mailing Address 700 Metropolitan Blvd City \_\_\_\_\_  
 City West Paducah State \_\_\_\_\_ Zip \_\_\_\_\_  
 State KY Zip 42086 Owner's Phone (270) 488-3133

Date Received:

(3) IDENTIFICATION NUMBER

8 0 0 4 - 9 9 5 4

(4) WELL LOCATION: USGS Quadrangle Name \_\_\_\_\_ County \_\_\_\_\_ Latitude N 37.16001 Longitude W 88.78001

(5) GENERAL WELL CONSTRUCTION:  
 Start Date: 6-10-08  
 Finish Date: 6-10-08  
 Drilling Method:  
 Auger HS  Reverse Rotary  Push/probe  
 Auger SS  Cable Tool  Excavation  
 Air Rotary  Hand Auger  Sonic  
 Mud Rotary  Other: \_\_\_\_\_  
 Work Type:  
 New Well  Nested Well  Rework  Plug  
 Surface Elevation: \_\_\_\_\_ Total Depth: 29  
 Depth to Bedrock: \_\_\_\_\_ Static Water Level: \_\_\_\_\_  
 Wellhead:  
 Flush Mount  Locking Cap  No Cap  
 Stickup; inches above surface: 36

(6) FACILITY TYPE:  
 RCRA  Mining  
 CERCLA  Site Assessment  
 TSCA  Solid Waste Landfill  
 UST  Landfarm  
 Other: \_\_\_\_\_  
 (7) WELL USE: (check all that apply)  
 Water Quality  Dry Hole  
 Ambient Monitoring  Not Used  
 Water Level Monitoring  Abandoned  
 Remediation  Destroyed  
 Other: \_\_\_\_\_

(8) PHYSIOGRAPHIC REGION:  
 Blue Grass  Ohio River Alluvium  
 E. Coal Field  W. Coal Field  
 Miss. Plateau  Jackson Purchase  
 (9) ATTACHMENTS:  
 Required  
 1. Site plan or sketch map   
 2. Well construction diagram   
 3. Well location  
    On topographic map, or   
    Obtained by GPS unit   
 Optional  
 4. Laboratory analysis report   
 5. Other: \_\_\_\_\_

(10) WELL COMPLETION INFORMATION

From	To	Diameter	Diameter	Casing Type
0	19	7	2	PVC
19	29	7	2	PVC SCREEN

Well Screens:  
 I.D. (in.) 2 From 19 To 29 Type PVC Slot Size 10  
 I.D. (in.) \_\_\_\_\_ From \_\_\_\_\_ To \_\_\_\_\_ Type \_\_\_\_\_ Slot Size \_\_\_\_\_  
 I.D. (in.) \_\_\_\_\_ From \_\_\_\_\_ To \_\_\_\_\_ Type \_\_\_\_\_ Slot Size \_\_\_\_\_

Annulus Fill and Seal:

From	To	Material
0	13	Grout Cement/Bentonite
13	17	Bentonite pellets
17	29	Sand

(11) LITHOLOGIC LOG

From	To	Description
0	9	LT. Brown Loose sand
9	19	LT. Grey Silty Fine sand
19	29	Fine sand, med. coarse sand w/ pebbles

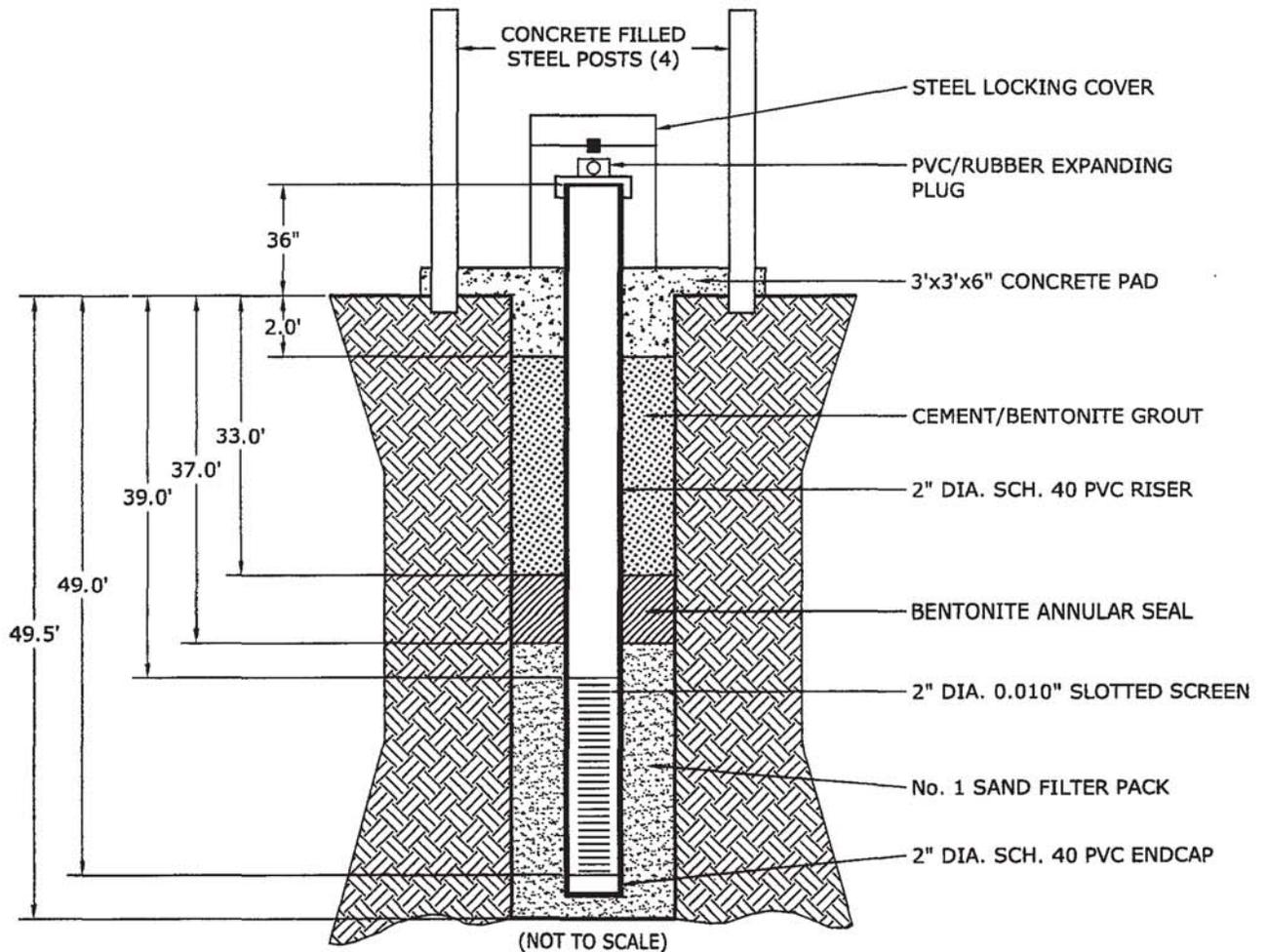
(12) COMMENTS  
7' od, 6" dia drilled 29' set pvc 29', sand to 17', 4' Bentonite, Tremie grout to surface, 3x3 padstick up. D-30A

(13) AFFIRMATION: The work described above was done under my supervision, and this report is true and correct to the best of my knowledge.

Drilling Company MILLER DRILLING CO. State Certification Number or Rig Operator's Number 0109-0318-00 Signature of Responsible Certified Driller Mark Miller  
 Company Mailing Address 107 Helton Dr. City Lawrenceburg State TN Zip Code 38464 Date 6/10/08  
 Number of Attached Sheets 3 White Copy to Division of Water, Yellow Copy to Owner, Pink Copy to Driller's Files  
 DEP-8043  
 Printed with State Funds. Jan. 1, 1991

JOB NAME TVA SHAWNEE STEAM PLANT  
 TVA WELL NUMBER D-30B  
 KENTUCKY WELL NUMBER 8004-9955  
 BOREHOLE DIAMETER 7"  
 TOTAL DEPTH 49.0'  
 FIELD REPRESENTATIVE N. SIREK

JOB NUMBER 3043-08-1010-01  
 INSTALLATION DATE 06-10-2008  
 DRILLED BY MILLER DRILLING  
 RISER/SCREEN  
 MATERIAL SCHEDULE 40 PVC  
 DIAMETER 2"  
 SLOT SIZE 0.010"



P:\CADD\NEW\_GEO\2008\3043081010 TVA Shawnee\3043081010\_D-30B\_FIG5.dwg Fri, 17 Oct 2008 - 9:25am reverenc

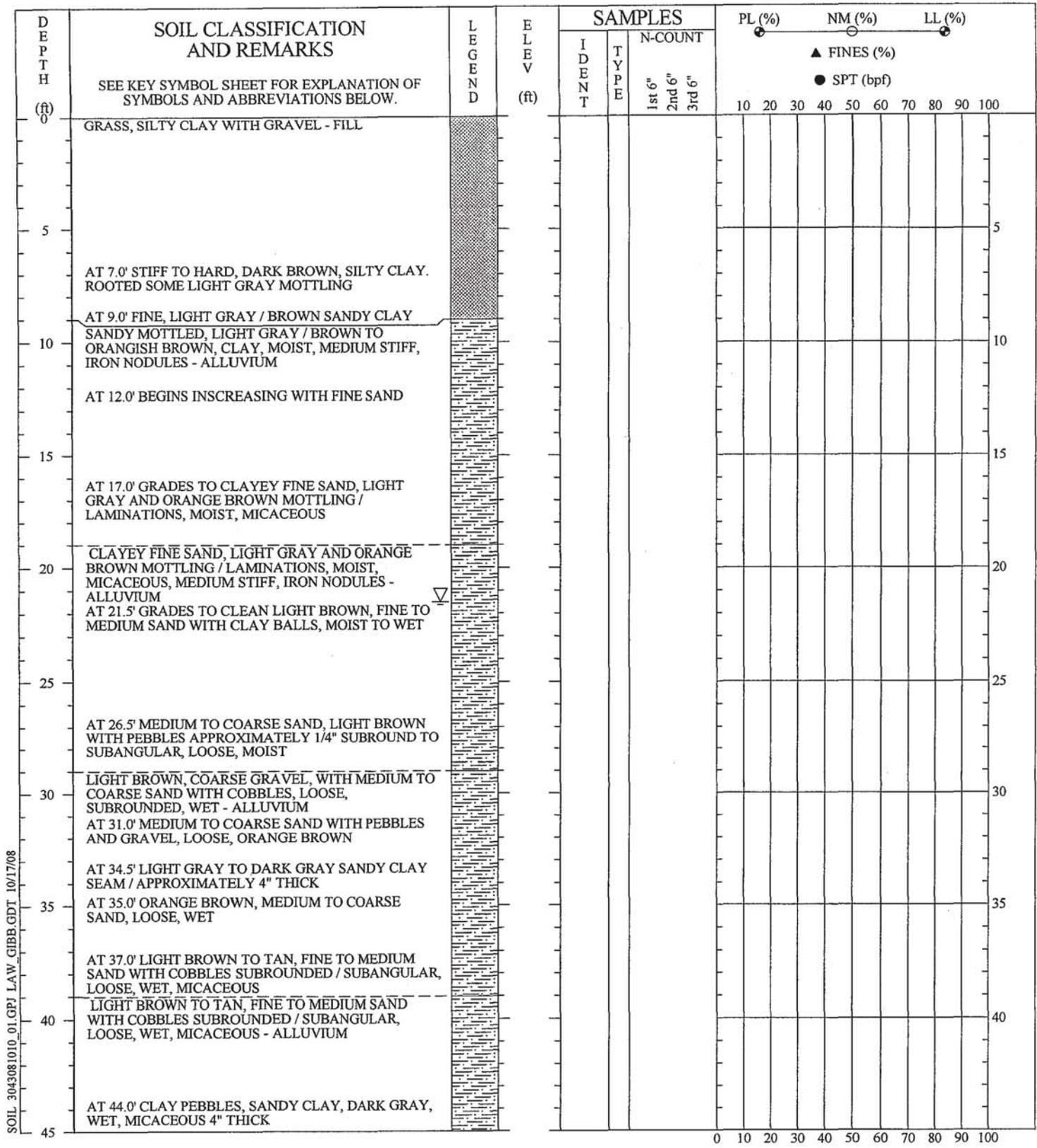
PREPARED BY: *[Signature]* DATE: 17 Oct 2008 CHECKED BY: *[Signature]* DATE: 17 Oct 2008

TENNESSEE VALLEY AUTHORITY

**MACTEC**  
 1725 Louisville Drive  
 Knoxville, TN 37921  
 Phone: 865-588-8544 Fax: 865-588-8026

TYPE II MONITORING WELL  
 INSTALLATION RECORD  
 TVA SHAWNEE STEAM PLANT  
 PADUCAH, KENTUCKY

PROJECT NO. 3043-08-1010 FIGURE 5



SOIL 3043081010\_01.GPJ LAW\_GIBB.GDT 10/17/08

REMARKS: 4" Sonic 10' Sampler, 6" Sonic overdrill, Versa-Sonic. Set 2" PVC well screened from 39.0' - 49.0' bgs (0.010 slot)

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

Driller : Rhodes  
 Logged By: Sirek  
 Checked By: K.S.C.

SOIL TEST BORING RECORD	
<b>PROJECT:</b> TVA - Shawnee Special Waste Landfill	<b>BORING NO.:</b> D-30B
<b>DRILLED:</b> June 10, 2008	<b>PROJ. NO.:</b> 3043-08-1010-01
<b>PAGE 1 OF 2</b>	
	

DEPTH (ft)	SOIL CLASSIFICATION AND REMARKS  SEE KEY SYMBOL SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS BELOW.	LEGEND	ELEV (ft)	SAMPLES			PL (%)	NM (%)	LL (%)
				IDENT	TYPE	N-COUNT 1st 6" 2nd 6" 3rd 6"	● FINES (%)		
							● SPT (bpf)		
45	AT 45.0' COBBLES WITH COARSE TO MEDIUM SAND APPROXIMATELY 6" THICK LIGHT GRAY TO LIGHT BROWN AT 46.0' FINE TO MEDIUM SAND LIGHT BROWN WITH PEBBLES LOOSE, WET								
50	BORING TERMINATED AT 49.0'								
55									
60									
65									
70									
75									
80									
85									
90									

SOIL\_3043081010\_01.GPJ LAW\_GIBB.GDT 10/17/08

REMARKS: 4" Sonic 10' Sampler, 6" Sonic overdrill, Versa-Sonic. Set 2" PVC well screened from 39.0' - 49.0' bgs (0.010 slot)

SOIL TEST BORING RECORD	
<b>PROJECT:</b> TVA - Shawnee Special Waste Landfill	<b>BORING NO.:</b> D-30B
<b>DRILLED:</b> June 10, 2008	
<b>PROJ. NO.:</b> 3043-08-1010-01	<b>PAGE 2 OF 2</b>

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

Driller : Rhodes  
 Logged By: Sirek  
 Checked By: K.S.C.



**KENTUCKY MONITORING WELL RECORD**

D-30B

Please read all instructions prior to completing this form. Do not write in shaded area. The original copy of this form must be submitted within 30 days of well completion to the Kentucky Natural Resources and Environmental Protection Cabinet, Division of Water - Groundwater Branch, 14 Reilly Road, Frankfort, KY 40601. Telephone (502) 564-3410.

**(1) Attach Monitoring Well Identification Number Label Here (if applicable)**

**(TYPE OR PRINT CLEARLY)**

**(2) GENERAL INFORMATION:**

Facility Name <i>TVA Shallow Waste Landfill</i>	Facility Address <i>Same</i>	Date Received:
Mailing Address <i>7900 Metropolis Right Rd</i>	City	<b>(3) IDENTIFICATION NUMBER</b> 8 0 0 4 - 9 9 5 5
City <i>West Paducah</i>	State _____ Zip _____	
State <i>KY</i> Zip <i>42086</i>	Owner's Phone <i>(270) 488-3133</i>	

<b>(4) WELL LOCATION:</b>	USGS Quadrangle Name	County	Latitude N <i>37.16002</i>	Longitude W <i>88.78005</i>
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<b>(5) GENERAL WELL CONSTRUCTION:</b> Start Date: <i>6/10-08</i> Finish Date: <i>6/10-08</i> Drilling Method: <input type="checkbox"/> Auger HS <input type="checkbox"/> Reverse Rotary <input type="checkbox"/> Push/probe <input type="checkbox"/> Auger SS <input type="checkbox"/> Cable Tool <input type="checkbox"/> Excavation <input type="checkbox"/> Air Rotary <input type="checkbox"/> Hand Auger <input checked="" type="checkbox"/> Sonic <input type="checkbox"/> Mud Rotary <input type="checkbox"/> Other: _____	<b>(6) FACILITY TYPE:</b> <input type="checkbox"/> RCRA <input type="checkbox"/> Mining <input type="checkbox"/> CERCLA <input checked="" type="checkbox"/> Site Assessment <input type="checkbox"/> TSCA <input type="checkbox"/> Solid Waste Landfill <input type="checkbox"/> UST <input type="checkbox"/> Landfarm <input type="checkbox"/> Other: _____	<b>(8) PHYSIOGRAPHIC REGION:</b> <input type="checkbox"/> Blue Grass <input checked="" type="checkbox"/> Ohio River Alluvium <input type="checkbox"/> E. Coal Field <input type="checkbox"/> W. Coal Field <input type="checkbox"/> Miss. Plateau <input type="checkbox"/> Jackson Purchase
Work Type: <input checked="" type="checkbox"/> New Well <input type="checkbox"/> Nested Well <input type="checkbox"/> Rework <input type="checkbox"/> Plug Surface Elevation: _____ Total Depth: <i>49</i> Depth to Bedrock: _____ Static Water Level: _____ Wellhead: <input type="checkbox"/> Flush Mount <input checked="" type="checkbox"/> Locking Cap <input type="checkbox"/> No Cap <input checked="" type="checkbox"/> Stickup; inches above surface: <i>36</i>	<b>(7) WELL USE:</b> (check all that apply) <input type="checkbox"/> Water Quality <input type="checkbox"/> Dry Hole <input checked="" type="checkbox"/> Ambient Monitoring <input type="checkbox"/> Not Used <input type="checkbox"/> Water Level Monitoring <input type="checkbox"/> Abandoned <input type="checkbox"/> Remediation <input type="checkbox"/> Destroyed <input type="checkbox"/> Other: _____	<b>(9) ATTACHMENTS:</b> Required 1. Site plan or sketch map <input checked="" type="checkbox"/> 2. Well construction diagram <input type="checkbox"/> 3. Well location On topographic map, or <input type="checkbox"/> Obtained by GPS unit <input type="checkbox"/> Optional 4. Laboratory analysis report <input type="checkbox"/> 5. Other: _____

**(10) WELL COMPLETION INFORMATION**

From	To	Diameter	Diameter	Casing Type
0	39	7	2	PVC
39	49	7	2	PVC SCREEN

**Well Screens:**  
I.D. (in.) *2* From *39* To *49* Type *PVC* Slot Size *10*  
I.D. (in.) \_\_\_\_\_ From \_\_\_\_\_ To \_\_\_\_\_ Type \_\_\_\_\_ Slot Size \_\_\_\_\_  
I.D. (in.) \_\_\_\_\_ From \_\_\_\_\_ To \_\_\_\_\_ Type \_\_\_\_\_ Slot Size \_\_\_\_\_

**Annulus Fill and Seal:**

From	To	Material
0	33	Grout Cement/Bentonite
33	37	Bentonite Pellets
37	49	Sand

**(11) LITHOLOGIC LOG**

From	To	Description
0	9	LT. Brown Loose sand
9	19	LT. Grey Silty Finesand
19	29	Fine sand, med. course sand w/ pebbles
29	39	LT. Brown Sand w/ cobbles
39	49	Clay, pebbles, sandy clay, fine sand

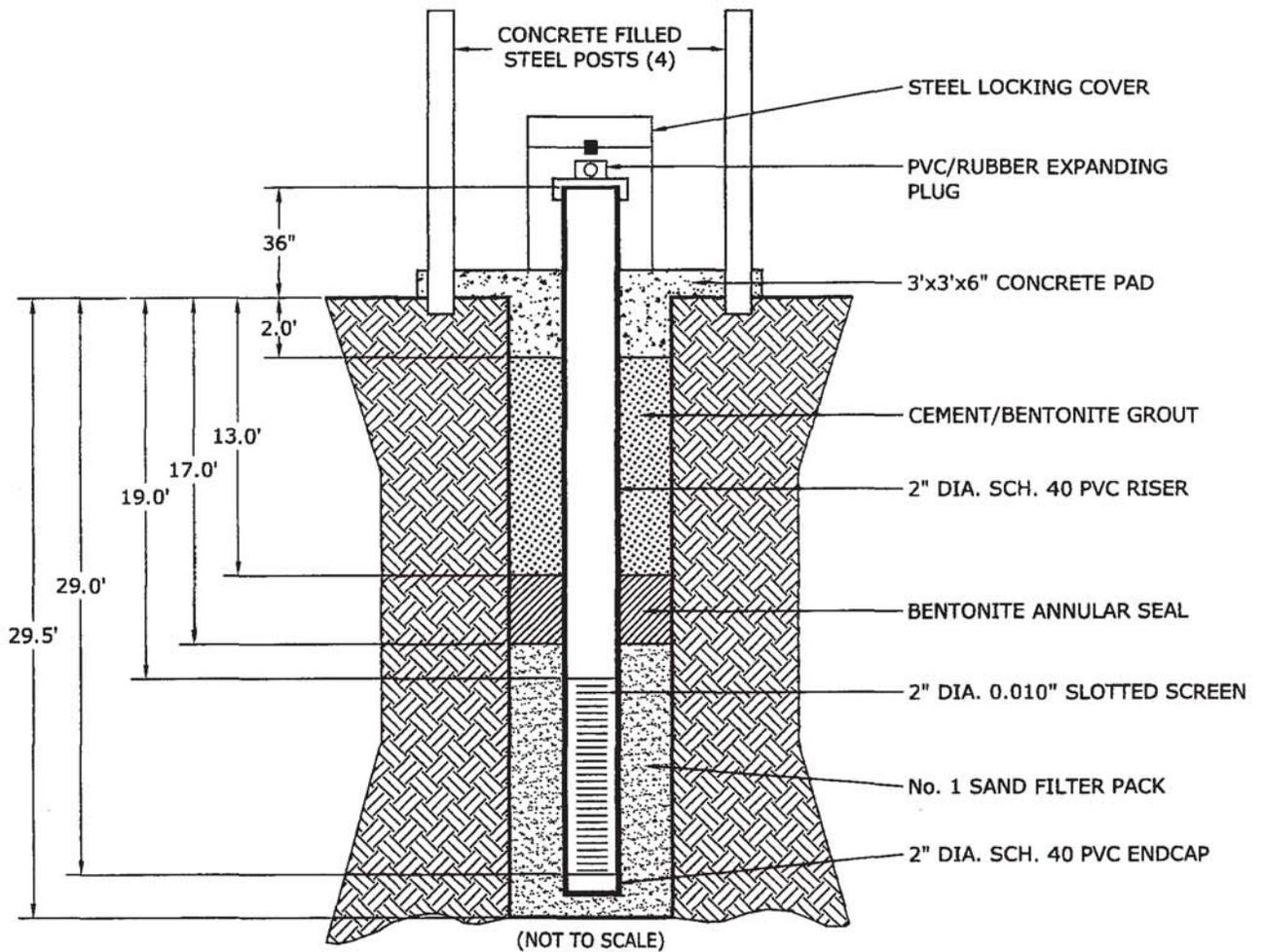
**(12) COMMENTS**  
*7' od., 6" in. Drilled 49', set pvc. 49', sand to 37', 4' Bentonite, Tremie grout to surface, 3x3 pad stick up. D-30B*

**(13) AFFIRMATION:** The work described above was done under my supervision, and this report is true and correct to the best of my knowledge.

Drilling Company <i>MILLER DRILLING CO.</i>	State Certification Number or Rig Operator's Number <i>0109-0318-00</i>	Signature of Responsible Certified Driller <i>Mark McElroy</i>
Company Mailing Address <i>107 Helton Dr.</i>	City <i>Lawrenceburg</i>	State <i>TN.</i>
Number of Attached Sheets <i>3</i>	White Copy to Division of Water, Yellow Copy to Owner, Pink Copy to Driller's Files	Zip Code <i>38464</i>
Date <i>6/10/08</i> Month, Day, Year		DEP-8043 Printed with State Funds, Jan. 1, 1991

JOB NAME TVA SHAWNEE STEAM PLANT  
 TVA WELL NUMBER D-33A  
 KENTUCKY WELL NUMBER 8004-9956  
 BOREHOLE DIAMETER 7"  
 TOTAL DEPTH 29.0'  
 FIELD REPRESENTATIVE N. SIREK

JOB NUMBER 3043-08-1010-01  
 INSTALLATION DATE 06-10-2008  
 DRILLED BY MILLER DRILLING  
 RISER/SCREEN  
 MATERIAL SCHEDULE 40 PVC  
 DIAMETER 2"  
 SLOT SIZE 0.010"



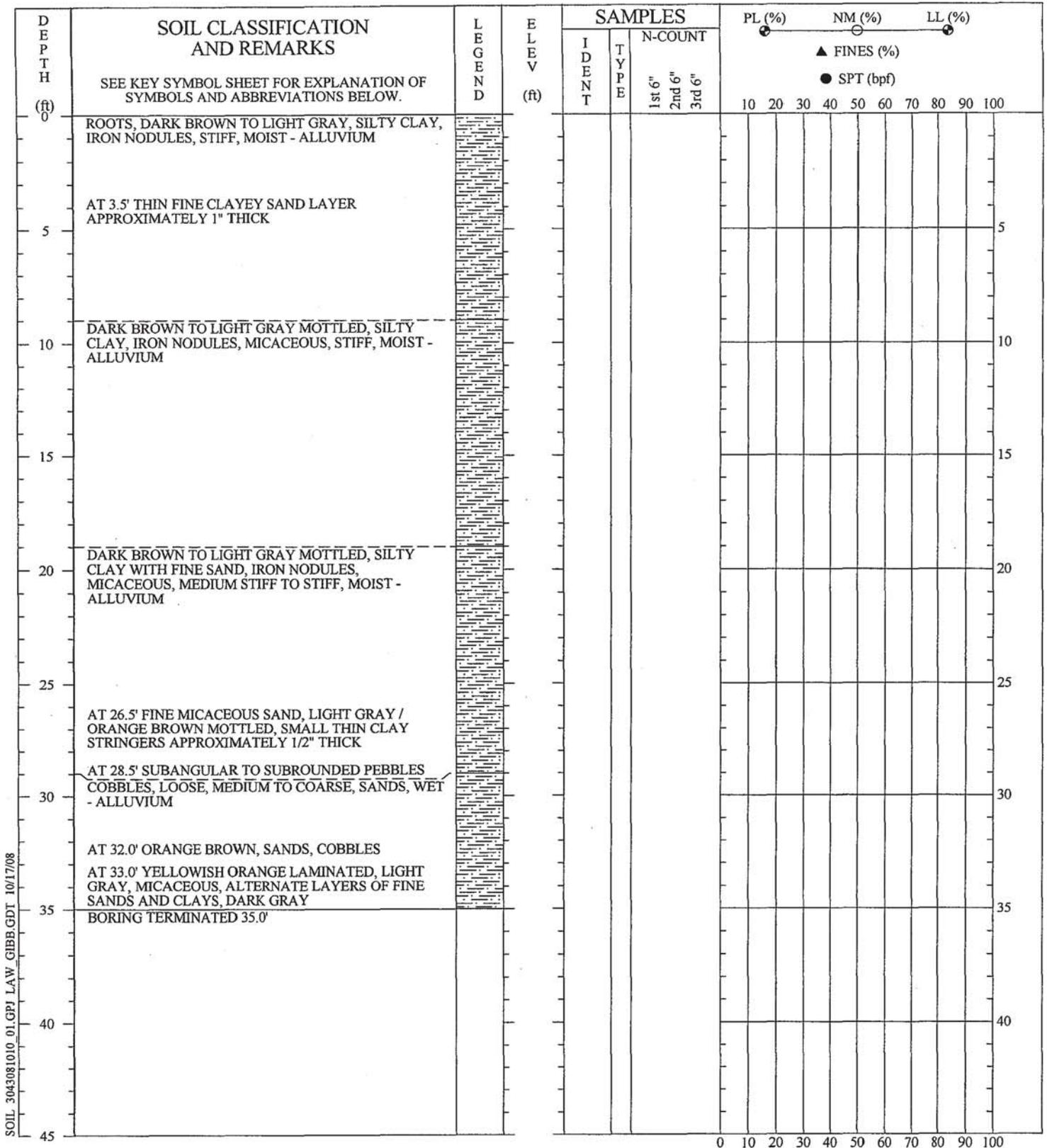
PREPARED BY: *[Signature]* DATE: 17 Oct 2008 CHECKED BY: *[Signature]* DATE: 17 Oct 2008

TENNESSEE VALLEY AUTHORITY

**MACTEC**  
 1725 Louisville Drive  
 Knoxville, TN 37921  
 Phone: 865-588-8544 Fax: 865-588-8026

TYPE II MONITORING WELL  
 INSTALLATION RECORD  
 TVA SHAWNEE STEAM PLANT  
 PADUCAH, KENTUCKY

PROJECT NO. 3043-08-1010 FIGURE 6



SOIL 3043081010 01.GPJ LAW\_GIBB.GDT 10/17/08

REMARKS: 4" Sonic 10' Sampler, 6" Sonic overdrill, Versa-Sonic. Set 2" PVC well screened from 19.0' - 29.0' bgs (0.010 slot)

SOIL TEST BORING RECORD	
PROJECT: TVA - Shawnee Special Waste Landfill	
DRILLED: June 10, 2008	BORING NO.: D-33A
PROJ. NO.: 3043-08-1010-01	PAGE 1 OF 1
	

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

Driller : Rhodes  
 Logged By: Sirek  
 Checked By: K.S.C.

**UNSATURATED ZONE MONITORING WELL RECORD**

D-33A

Please read all instructions prior to completing this form. Do not write in shaded area. The original copy of this form must be submitted within 30 days of well completion to the Kentucky Natural Resources and Environmental Protection Cabinet, Division of Water - Groundwater Branch, 14 Reilly Road, Frankfort, KY 40601. Telephone (502) 564-3410.

(1) Attach Monitoring Well Identification Number Label Here (if applicable)

(TYPE OR PRINT CLEARLY)

(2) GENERAL INFORMATION:

Facility Name: <u>TVA WASTE LANDFILL</u>	Facility Address: <u>same</u>	Date Received:
Mailing Address: <u>7900 Metropolis Right Pl</u>	City:	(3) IDENTIFICATION NUMBER <b>8 0 0 4 - 9 9 5 6</b>
City: <u>West Paducah</u>	State: _____ Zip: _____	
State: <u>KY</u> Zip: <u>42086</u>	Owner's Phone: <u>(270) 488-3133</u>	

(4) WELL LOCATION:	USGS Quadrangle Name	County	Latitude	Longitude
			N <u>37.1615 Y</u>	W <u>88.78951</u>

(5) GENERAL WELL CONSTRUCTION:	(6) FACILITY TYPE:	(8) PHYSIOGRAPHIC REGION:
Start Date: <u>6-10-08</u>	( ) RCRA ( ) Mining	( ) Blue Grass (X) Ohio River Alluvium
Finish Date: <u>6-10-08</u>	( ) CERCLA (X) Site Assessment	( ) E. Coal Field ( ) W. Coal Field
Drilling Method:	( ) TSCA ( ) Solid Waste Landfill	( ) Miss. Plateau ( ) Jackson Purchase
( ) Auger HS ( ) Reverse Rotary ( ) Push/probe	( ) UST ( ) Landfarm	
( ) Auger SS ( ) Cable Tool ( ) Excavation	( ) Other: _____	(9) ATTACHMENTS:
( ) Air Rotary ( ) Hand Auger (X) Sonic		Required
( ) Mud Rotary ( ) Other: _____		1. Site plan or sketch map ( )
Work Type:	(7) WELL USE: (check all that apply)	2. Well construction diagram ( )
(X) New Well ( ) Nested Well ( ) Rework ( ) Plug	( ) Water Quality ( ) Dry Hole	3. Well location
Surface Elevation: _____ Total Depth: <u>35</u>	(X) Ambient Monitoring ( ) Not Used	On topographic map, or ( )
Depth to Bedrock: _____ Static Water Level: _____	( ) Water Level Monitoring ( ) Abandoned	Obtained by GPS unit ( )
Wellhead:	( ) Remediation ( ) Destroyed	Optional
( ) Flush Mount (X) Locking Cap ( ) No Cap	( ) Other: _____	4. Laboratory analysis report ( )
(X) Stickup; inches above surface: <u>36</u>		5. Other: _____

(10) WELL COMPLETION INFORMATION

Feet Below Surface	Borehole	Casing	Diameter	Casing Type
From 0 To 19	7	2	PVC	
19 To 29	7	2	PVC SCREEN	

Well Screens:

I.D. (in.) 2 From 19 To 29 Type PVC Slot Size 10

I.D. (in.) \_\_\_\_\_ From \_\_\_\_\_ To \_\_\_\_\_ Type \_\_\_\_\_ Slot Size \_\_\_\_\_

I.D. (in.) \_\_\_\_\_ From \_\_\_\_\_ To \_\_\_\_\_ Type \_\_\_\_\_ Slot Size \_\_\_\_\_

Annulus Fill and Seal:

Feet Below Surface	From	To	Material
0 To 13	0	13	Grout Cement/Bentonite
13 To 17	13	17	Bentonite pellets
17 To 29	17	29	Sand

(11) LITHOLOGIC LOG

Feet Below Surface	From	To	Description
0 To 9	0	9	Fine sandy clay
9 To 19	9	19	Same
19 To 29	19	29	Lt. Grey/orange brown clay and sand
29 To 35	29	35	Cobbles loose med. coarse sand

(12) COMMENTS  
 7" o.d., 6" i.w. Drilled 35', Back filled with sand to 29', Set pvc. 29', 4' Bentonite, Tremie grout to surface, Sand to 17', 3X3 pad stick up. D-33A

(13) AFFIRMATION: The work described above was done under my supervision, and this report is true and correct to the best of my knowledge.

Drilling Company <u>NKLER DRILLING CO.</u>	State Certification Number or Rig Operator's Number <u>0109-0318-00</u>	Signature of Responsible Certified Driller <u>Mark McCall</u>
Company Mailing Address <u>107 Helton Drive</u>	City <u>Lawrenceburg</u>	State <u>TN.</u>
Number of Attached Sheets <u>3</u>	White Copy to Division of Water, Yellow Copy to Owner, Pink Copy to Driller's Files	Zip Code <u>38464</u>
		Date <u>6/10/08</u> Month, Day, Year

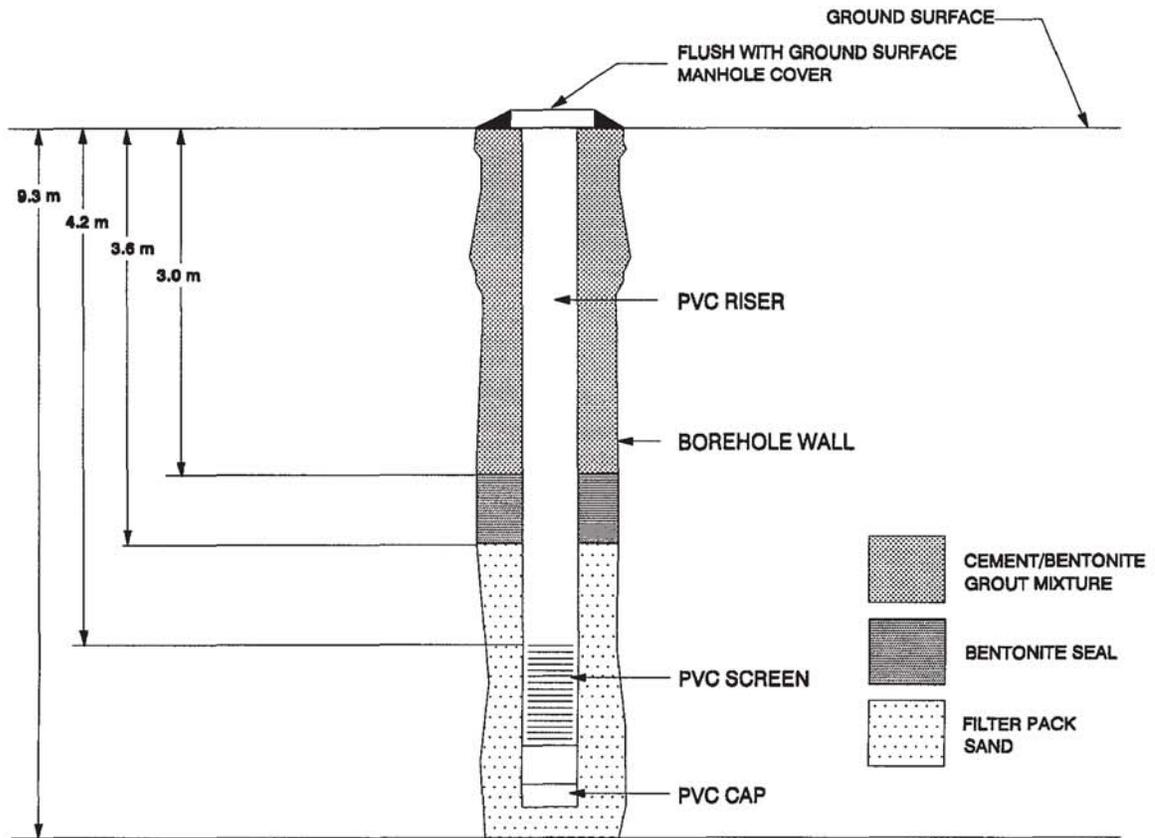
DEP-8043  
Printed with State Funds. Jan. 1, 1991

Abandoned 11-22-99

### MONITORING WELL INSTALLATION RECORD

PROJECT	SHAWNEE		
WELL NUMBER	D-34	INSTALLATION DATE	APRIL 15, 1991
PLANT COORDINATES	EAST 238.7 m msl	NORTH	9.3 m msl
GROUND SURFACE ELEVATION	105.2 m msl	TOP OF INNER CASING	105.1 m msl
GRANULAR BACKFILL MATERIAL		SLOT SIZE	.025 cm
CASING MATERIAL	PVC SCH 40	CASING DIAMETER	6.03 cm O.D.
DRILLING TECHNIQUE	HOLLOW STEM AUGER	DRILLING CONTRACTOR	LAW ENGINEERING
BOREHOLE DIAMETER	21.0 cm	FIELD REPRESENTATIVE	JOHN MASON
LOCKABLE COVER ?	YES -- WATER TIGHT	FILTER CLOTH AROUND SCREEN ?	NO
COMMENTS			

(NOT TO SCALE)



# TYPE II MONITORING WELL INSTALLATION RECORD

JOB NAME TVA SHAWNEE FOSSIL PLANT JOB NUMBER K-89083EL

WELL NUMBER D-34 INSTALLATION DATE 4-15-91

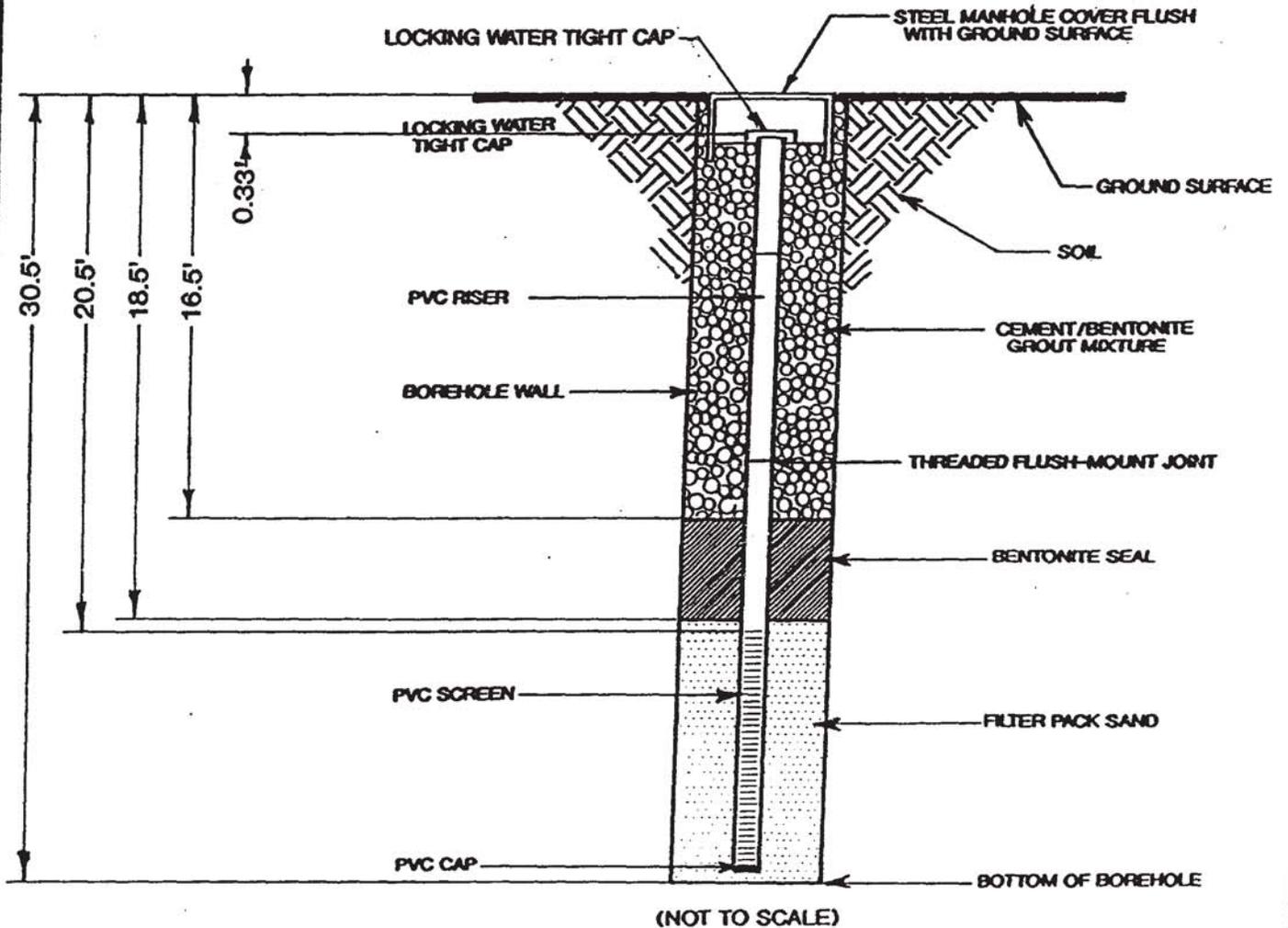
GROUND SURFACE ELEVATION 100.18' REFERENCE POINT ELEVATION 100.0'

BOREHOLE DIAMETER 8.25" SLOT SIZE 0.010"

SCREEN MATERIAL SCHEDULE 40 PVC SCREEN DIAMETER 2.375" O.D.

RISER MATERIAL SCHEDULE 40 PVC RISER DIAMETER 2.375" O.D.

LAW ENGINEERING FIELD REPRESENTATIVE JOHN MASON



**LAW ENGINEERING**  
 GEOTECHNICAL ENVIRONMENTAL  
 & CONSTRUCTION MATERIALS  
 CONSULTANTS  
 1725 LOUISVILLE DRIVE • KNOXVILLE, TENNESSEE 37921 • 615-588-8544

TYPE II MONITORING WELL  
 INSTALLATION RECORD  
 TVA SHAWNEE FOSSIL PLANT

Job Number  
**K-89083EL**

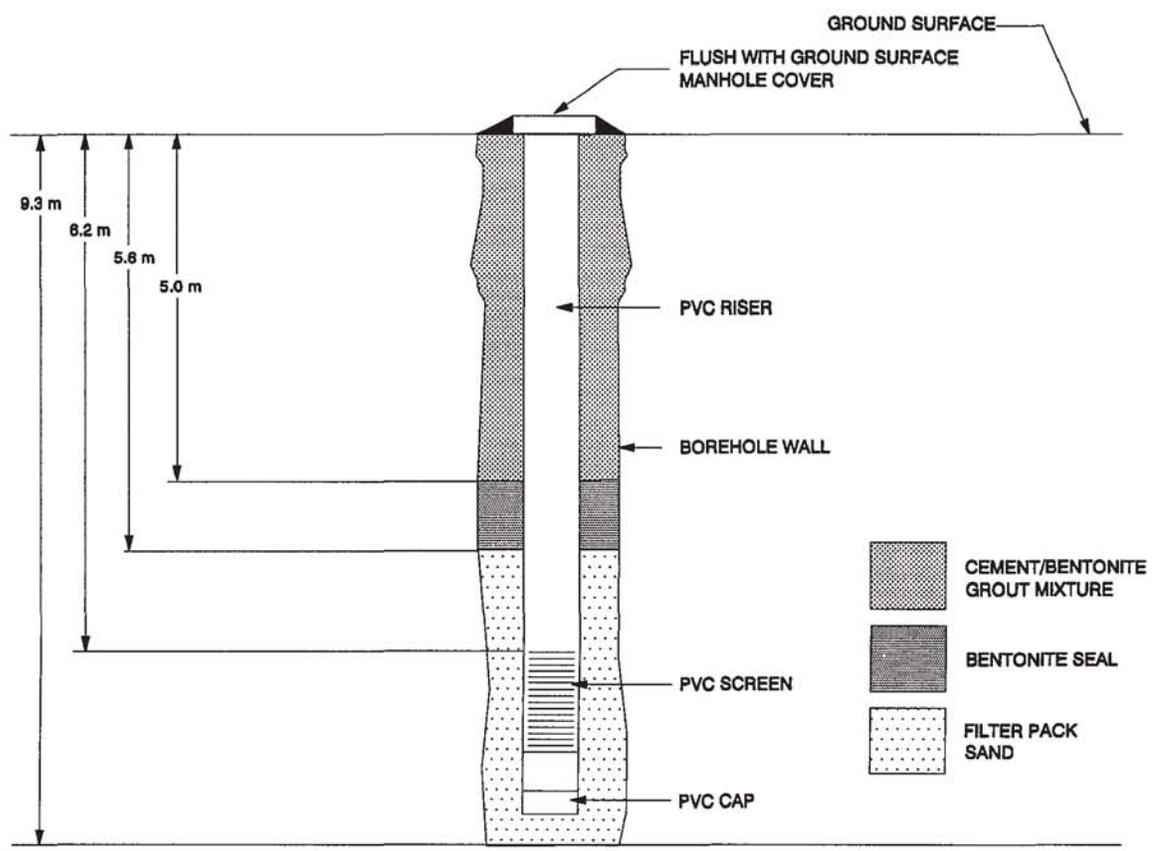
Scale  
**NOT TO SCALE**

Abandoned

### MONITORING WELL INSTALLATION RECORD

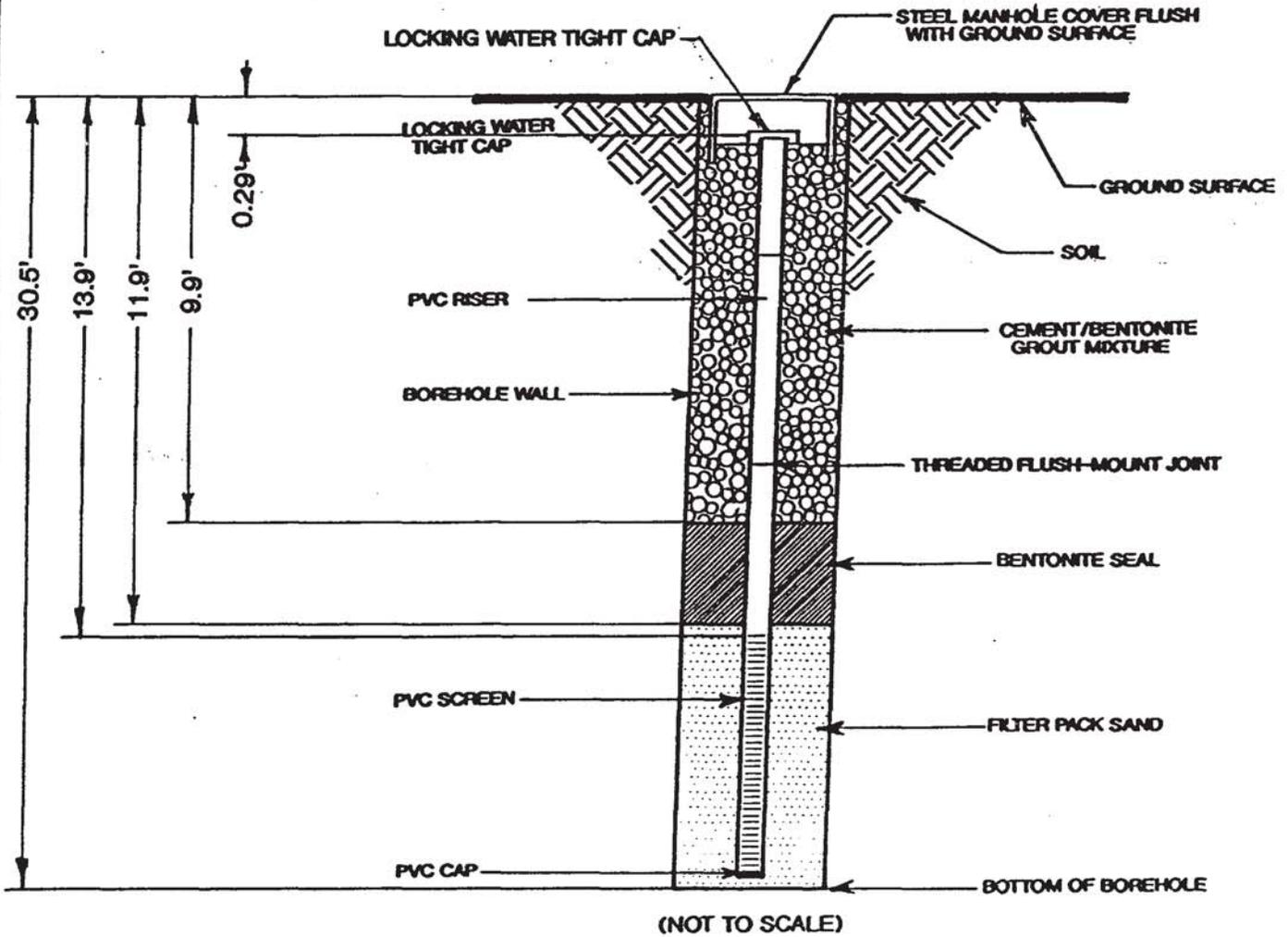
PROJECT	SHAWNEE		
WELL NUMBER	D-35	INSTALLATION DATE	APRIL 15, 1991
PLANT COORDINATES	EAST 260.8 m	NORTH	9.3 m
GROUND SURFACE ELEVATION	105.1 m msl	TOP OF INNER CASING	105.0 m msl
GRANULAR BACKFILL MATERIAL		SLOT SIZE	.025 cm
CASING MATERIAL	PVC SCH 40	CASING DIAMETER	6.03 cm O.D.
DRILLING TECHNIQUE	HOLLOW STEM AUGER	DRILLING CONTRACTOR	LAW ENGINEERING
BOREHOLE DIAMETER	21.0 cm	FIELD REPRESENTATIVE	JOHN MASON
LOCKABLE COVER ?	YES - WATER TIGHT	FILTER CLOTH AROUND SCREEN ?	NO
COMMENTS			

(NOT TO SCALE)



# TYPE II MONITORING WELL INSTALLATION RECORD

**JOB NAME** TVA SHAWNEE FOSSIL PLANT      **JOB NUMBER** K-89083EL  
**WELL NUMBER** D-35      **INSTALLATION DATE** 4-15-91  
**GROUND SURFACE ELEVATION** 100.16'      **REFERENCE POINT ELEVATION** 100.0'  
**BOREHOLE DIAMETER** 8.25"      **SLOT SIZE** 0.010"  
**SCREEN MATERIAL** SCHEDULE 40 PVC      **SCREEN DIAMETER** 2.375" O.D.  
**RISER MATERIAL** SCHEDULE 40 PVC      **RISER DIAMETER** 2.375" O.D.  
**LAW ENGINEERING FIELD REPRESENTATIVE** JOHN MASON



  
**LAW ENGINEERING**  
 GEOTECHNICAL ENVIRONMENTAL  
 & CONSTRUCTION MATERIALS  
 CONSULTANTS  
 1725 LOUISVILLE DRIVE • KNOXVILLE, TENNESSEE 37921 • 615-588-8544

TYPE II MONITORING WELL  
 INSTALLATION RECORD  
 TVA SHAWNEE FOSSIL PLANT

**Job Number**  
 K-89083EL

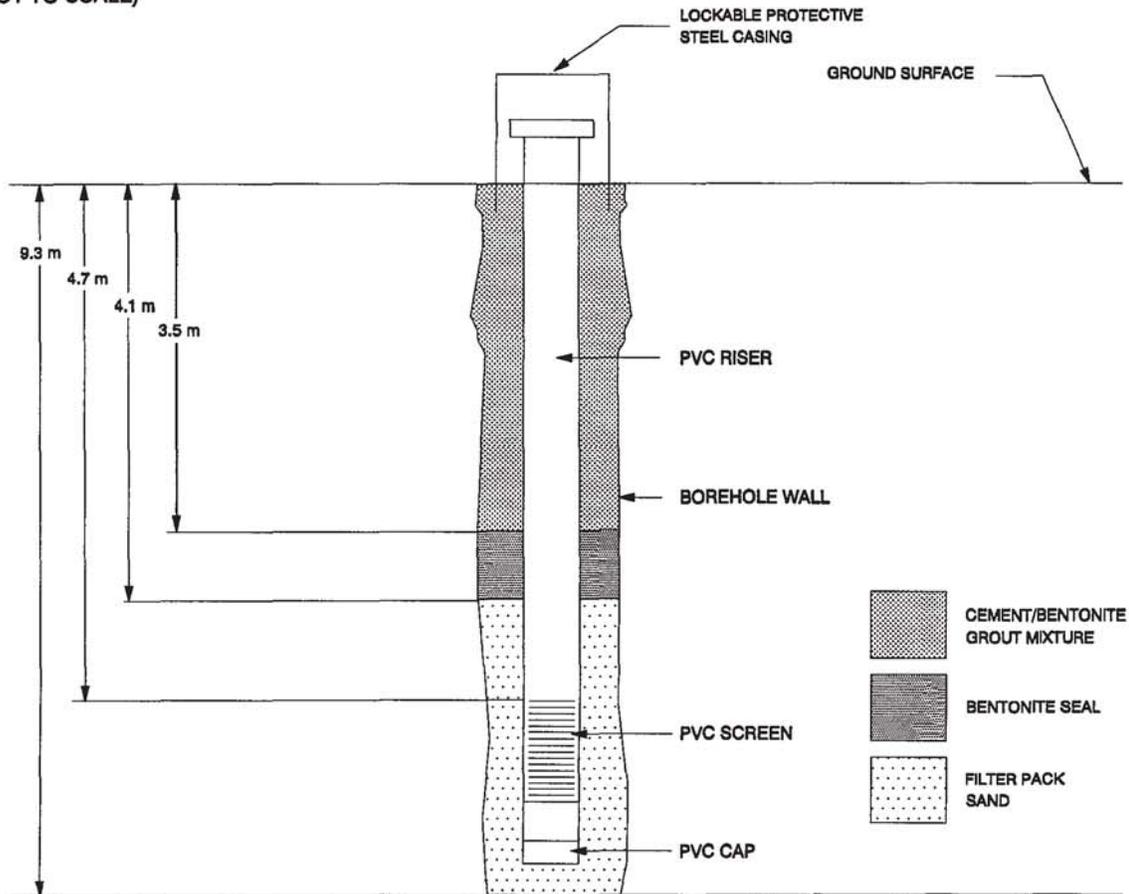
**Scale**  
 NOT TO SCALE

Abandoned

### MONITORING WELL INSTALLATION RECORD

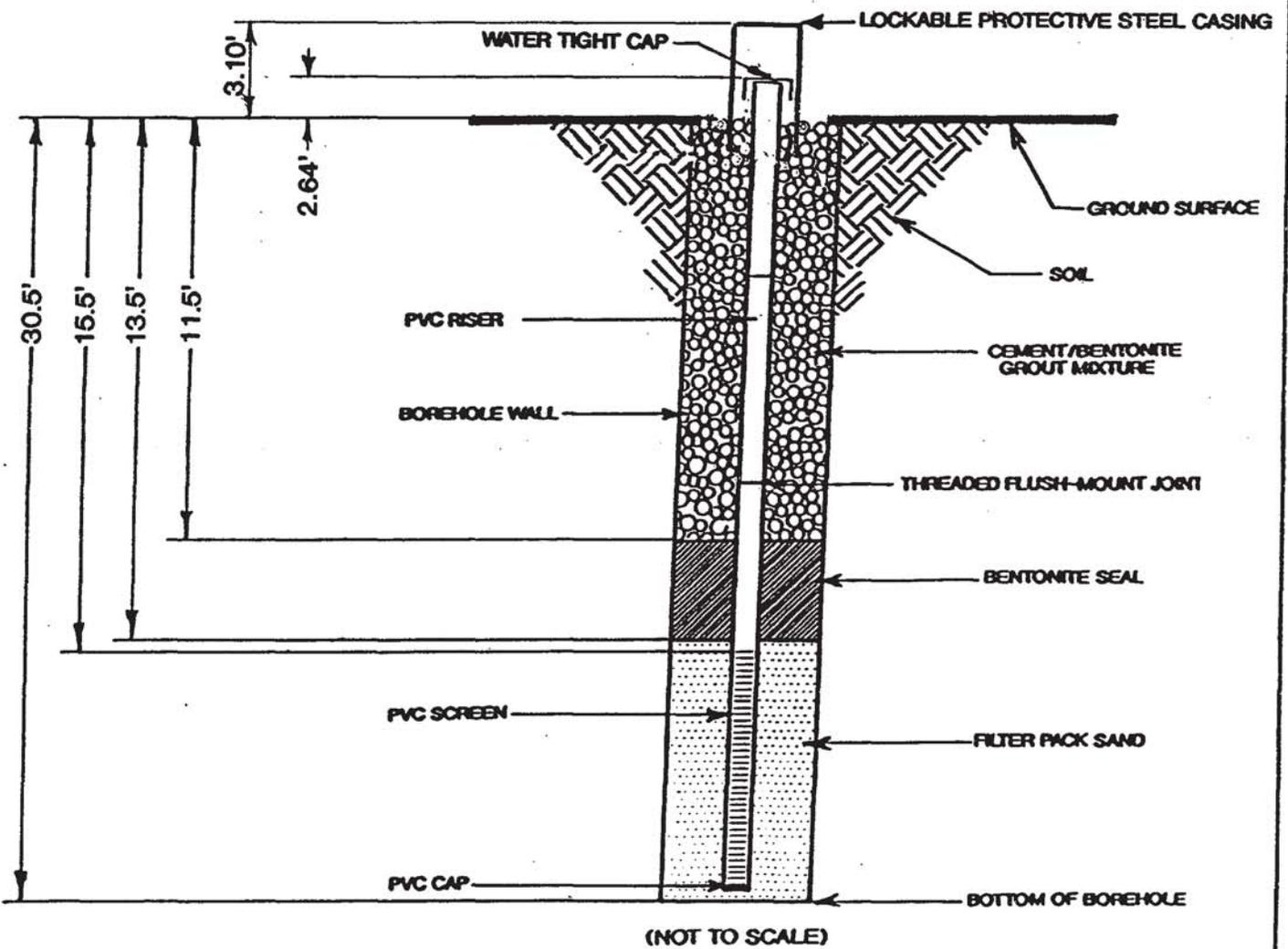
PROJECT	SHAWNEE		
WELL NUMBER	D-36	INSTALLATION DATE	APRIL 16, 1991
PLANT COORDINATES	EAST 251.4 m	NORTH	-32.5 m
GROUND SURFACE ELEVATION	104.8 m msl	TOP OF INNER CASING	105.7 m msl
GRANULAR BACKFILL MATERIAL		SLOT SIZE	.025 cm
CASING MATERIAL	PVC SCH 40	CASING DIAMETER	6.03 cm O.D.
DRILLING TECHNIQUE	HOLLOW STEM AUGER	DRILLING CONTRACTOR	LAW ENGINEERING
BOREHOLE DIAMETER	21.0 cm	FIELD REPRESENTATIVE	JOHN MASON
LOCKABLE COVER ?	YES - WATER TIGHT	FILTER CLOTH AROUND SCREEN ?	NO
COMMENTS			

(NOT TO SCALE)



## TYPE II MONITORING WELL INSTALLATION RECORD

**JOB NAME** TVA SHAWNEE FOSSIL PLANT      **JOB NUMBER** K-89083EL  
**WELL NUMBER** D-36      **INSTALLATION DATE** 4-16-91  
**GROUND SURFACE ELEVATION** 99.82'      **REFERENCE POINT ELEVATION** 100.0'  
**BOREHOLE DIAMETER** 8.25'      **SLOT SIZE** 0.010"  
**SCREEN MATERIAL** SCHEDULE 40 PVC      **SCREEN DIAMETER** 2.375" O.D.  
**RISER MATERIAL** SCHEDULE 40 PVC      **RISER DIAMETER** 2.375" O.D.  
**LAW ENGINEERING FIELD REPRESENTATIVE** JOHN MASON



  
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**TYPE II MONITORING WELL  
 INSTALLATION RECORD  
 TVA SHAWNEE FOSSIL PLANT**

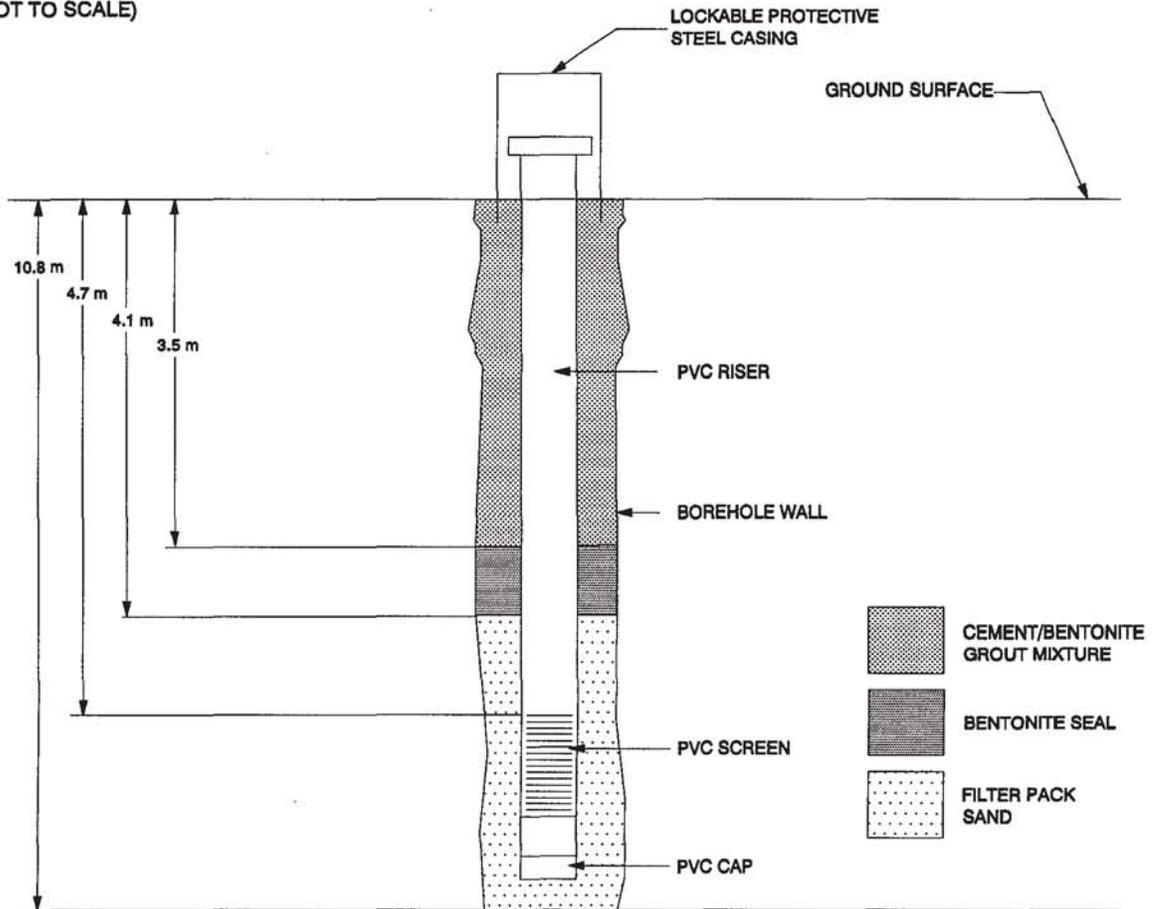
**Job Number**  
**K-89083EL**

**Scale**  
**NOT TO SCALE**

## MONITORING WELL INSTALLATION RECORD

PROJECT	SHAWNEE		
WELL NUMBER	D-37	INSTALLATION DATE	APRIL 16, 1991
PLANT COORDINATES	EAST 268.7 m	NORTH	-24.6 m
GROUND SURFACE ELEVATION	<del>121.0 m msl</del>	TOP OF INNER CASING	105.7 m msl
GRANULAR BACKFILL MATERIAL		SLOT SIZE	.025 cm
CASING MATERIAL	PVC SCH 40	CASING DIAMETER	6.03 cm O.D.
DRILLING TECHNIQUE	HOLLOW STEM AUGER	DRILLING CONTRACTOR	LAW ENGINEERING
BOREHOLE DIAMETER	21.0 cm	FIELD REPRESENTATIVE	JOHN MASON
LOCKABLE COVER ?	YES - WATER TIGHT	FILTER CLOTH AROUND SCREEN ?	NO
COMMENTS			

(NOT TO SCALE)



Abandoned

# TYPE II MONITORING WELL INSTALLATION RECORD

JOB NAME TVA SHAWNEE FOSSIL PLANT JOB NUMBER K-89083EL

WELL NUMBER D-37 INSTALLATION DATE 4-16-91

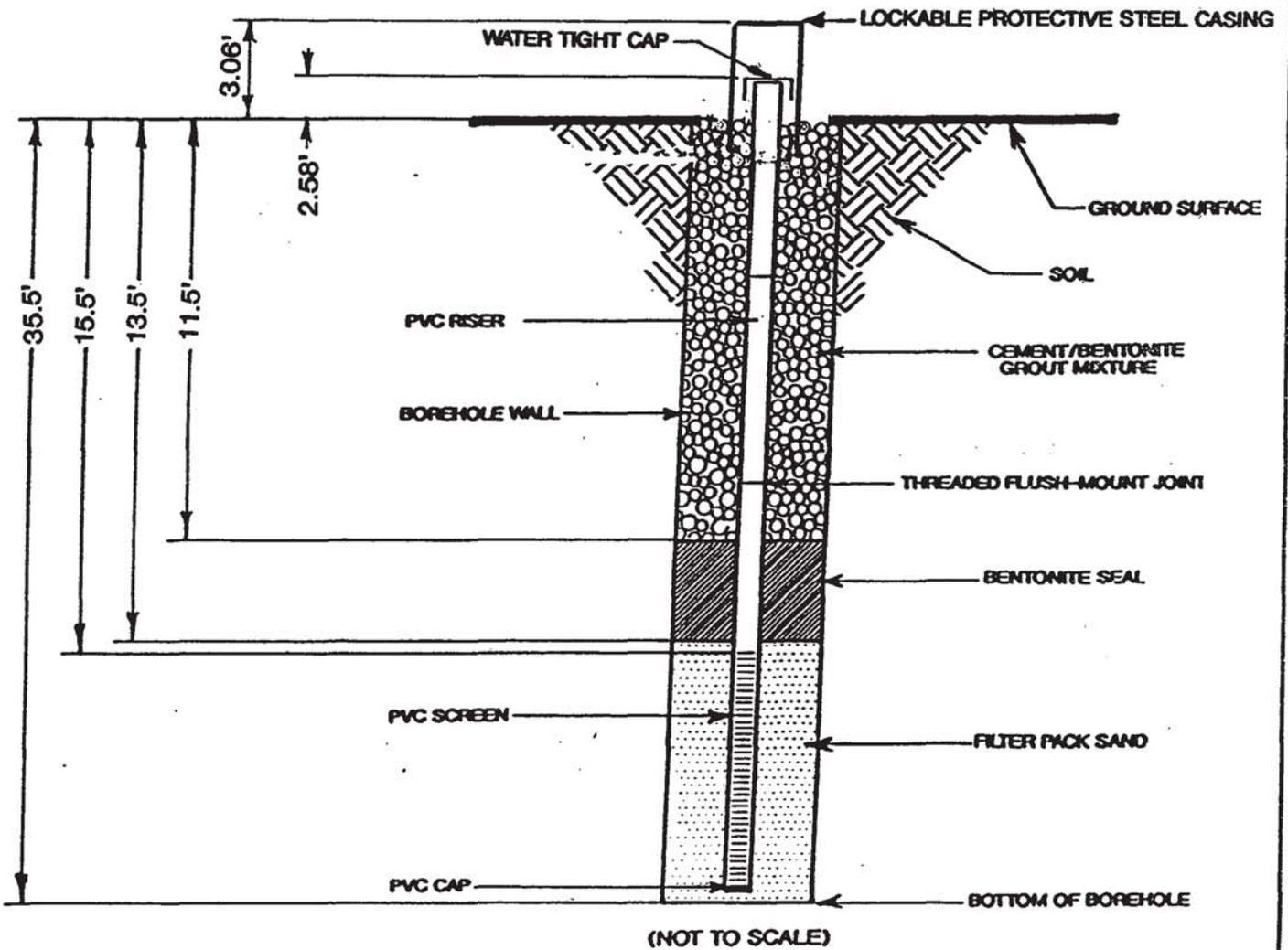
GROUND SURFACE ELEVATION 99.64' REFERENCE POINT ELEVATION 100.0'

BOREHOLE DIAMETER 8.25' SLOT SIZE 0.010"

SCREEN MATERIAL SCHEDULE 40 PVC SCREEN DIAMETER 2.375" O.D.

RISER MATERIAL SCHEDULE 40 PVC RISER DIAMETER 2.375" O.D.

LAW ENGINEERING FIELD REPRESENTATIVE JOHN MASON



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TYPE II MONITORING WELL  
 INSTALLATION RECORD  
 TVA SHAWNEE FOSSIL PLANT

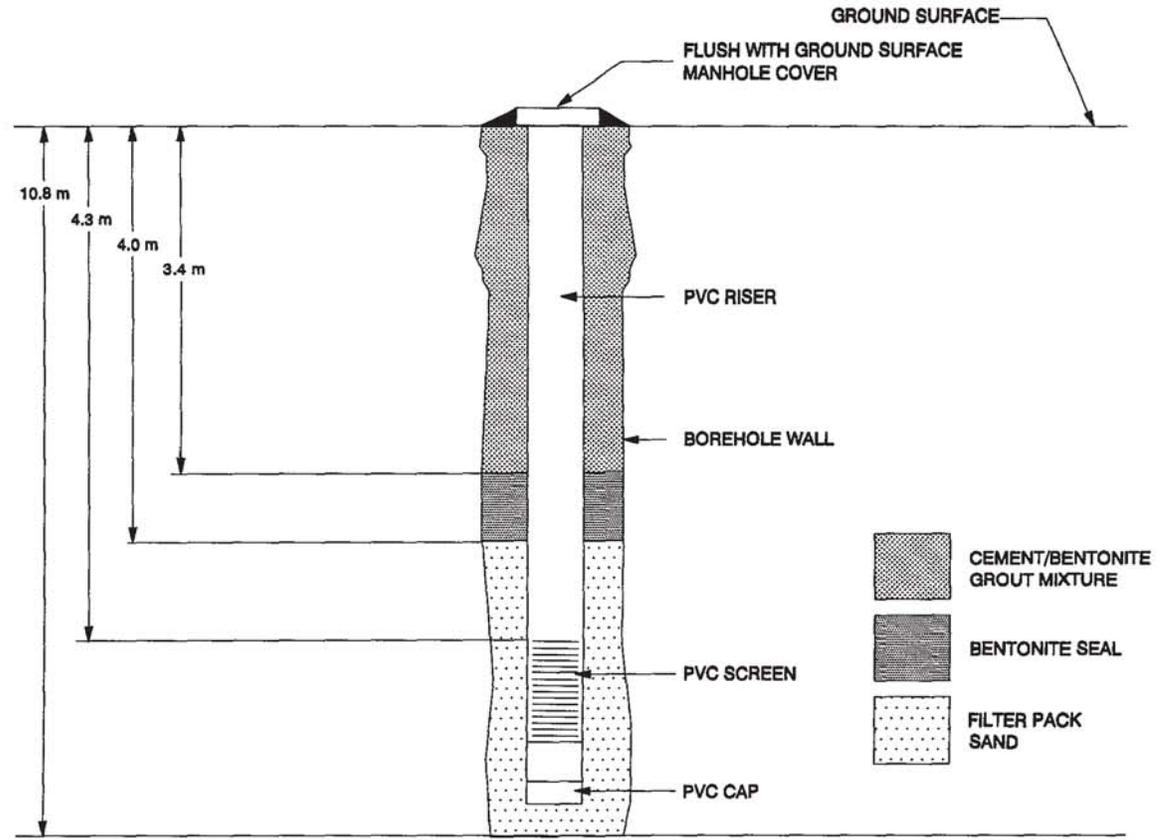
Job Number	Scale
K-89083EL	NOT TO SCALE

Abandoned

### MONITORING WELL INSTALLATION RECORD

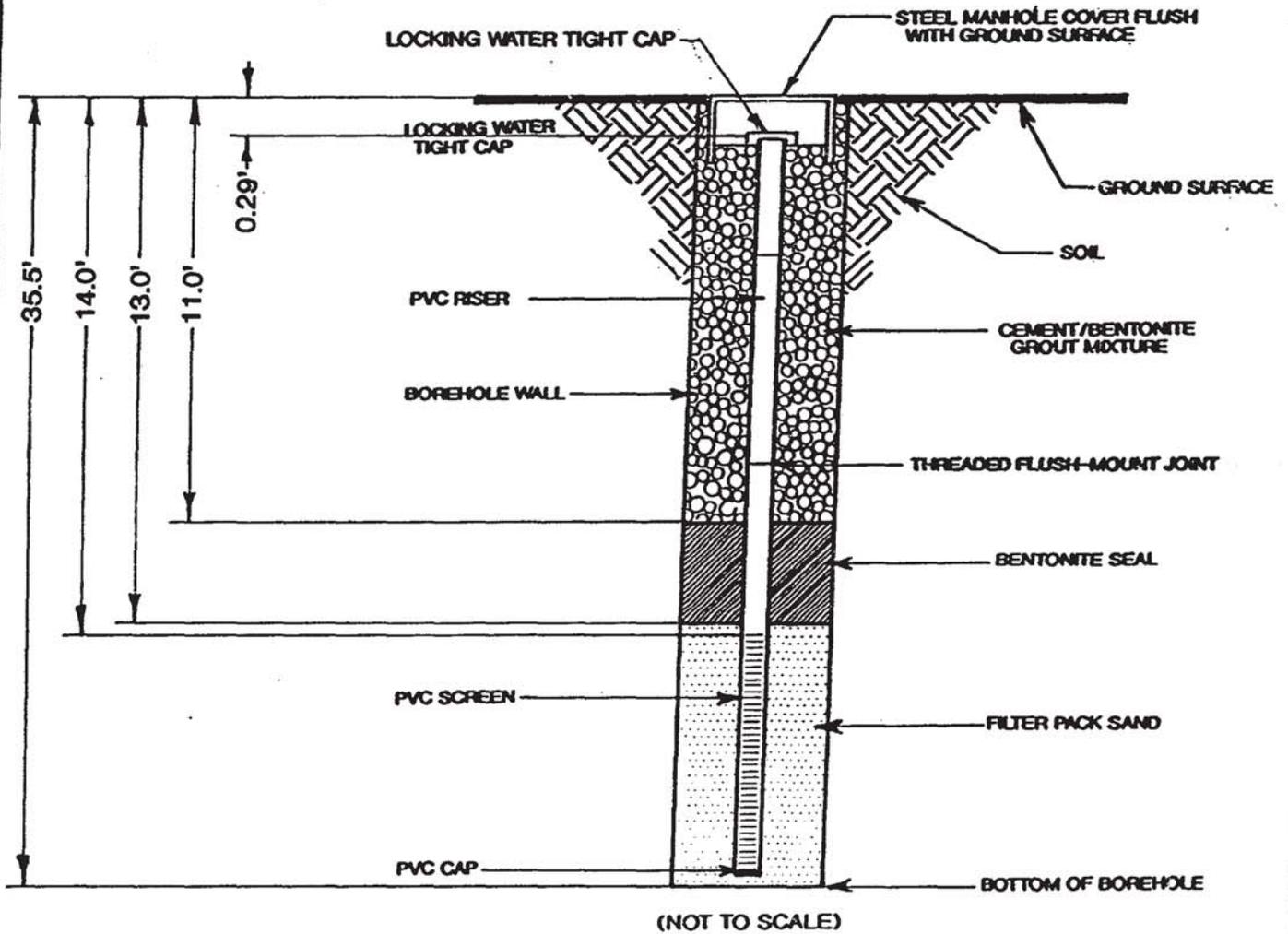
PROJECT	SHAWNEE		
WELL NUMBER	D-38	INSTALLATION DATE	APRIL 16, 1991
PLANT COORDINATES	EAST 274.0 m	NORTH	-12.3 m
GROUND SURFACE ELEVATION	105.2 m msl	TOP OF INNER CASING	105.1 m msl
GRANULAR BACKFILL MATERIAL		SLOT SIZE	.025 cm
CASING MATERIAL	PVC SCH 40	CASING DIAMETER	6.03 cm
DRILLING TECHNIQUE	HOLLOW STEM AUGER	DRILLING CONTRACTOR	LAW ENGINEERING
BOREHOLE DIAMETER	21.0 cm	FIELD REPRESENTATIVE	JOHN MASON
LOCKABLE COVER ?	YES - WATER TIGHT	FILTER CLOTH AROUND SCREEN ?	NO
COMMENTS			

(NOT TO SCALE)



# TYPE II MONITORING WELL INSTALLATION RECORD

**JOB NAME** TVA SHAWNEE FOSSIL PLANT      **JOB NUMBER** K-89083EL  
**WELL NUMBER** D-38      **INSTALLATION DATE** 4-16-91  
**GROUND SURFACE ELEVATION** 100.41'      **REFERENCE POINT ELEVATION** 100.0'  
**BOREHOLE DIAMETER** 8.25"      **SLOT SIZE** 0.010"  
**SCREEN MATERIAL** SCHEDULE 40 PVC      **SCREEN DIAMETER** 2.375" O.D.  
**RISER MATERIAL** SCHEDULE 40 PVC      **RISER DIAMETER** 2.375" O.D.  
**LAW ENGINEERING FIELD REPRESENTATIVE** JOHN MASON



  
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**TYPE II MONITORING WELL  
 INSTALLATION RECORD  
 TVA SHAWNEE FOSSIL PLANT**

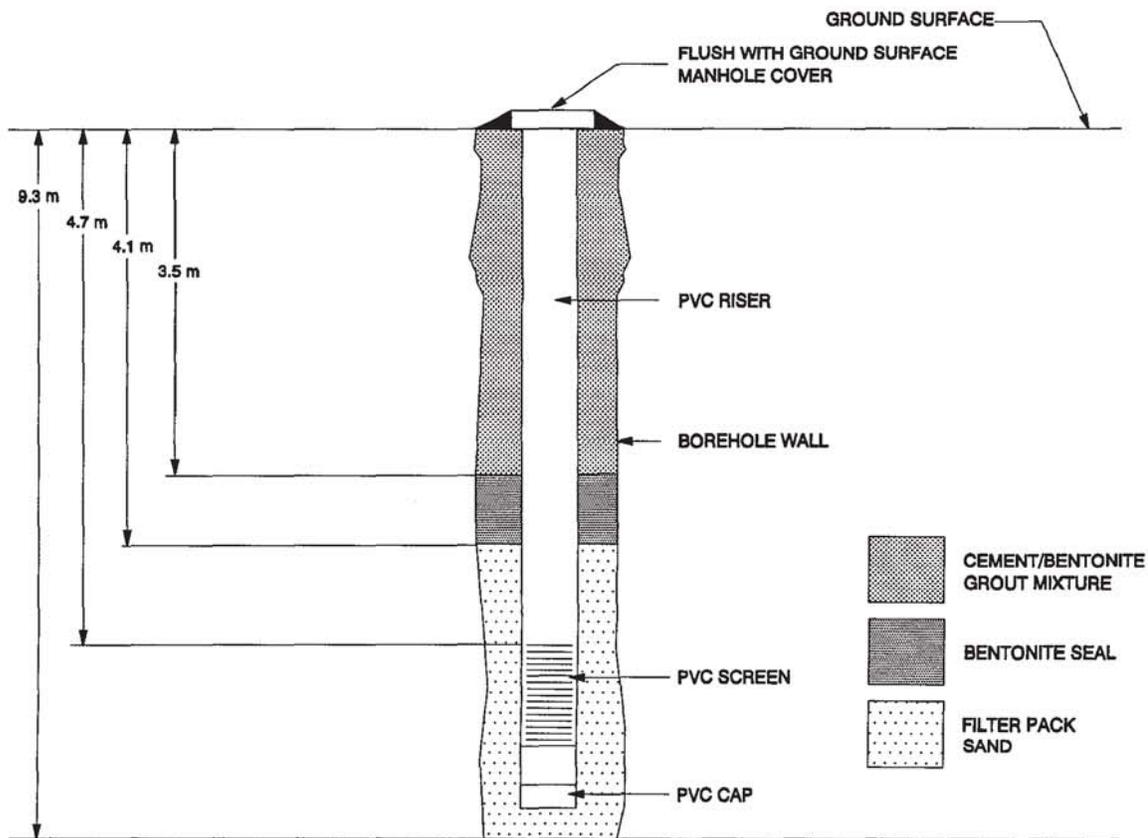
**Job Number**  
K-89083EL

**Scale**  
NOT TO SCALE

## MONITORING WELL INSTALLATION RECORD

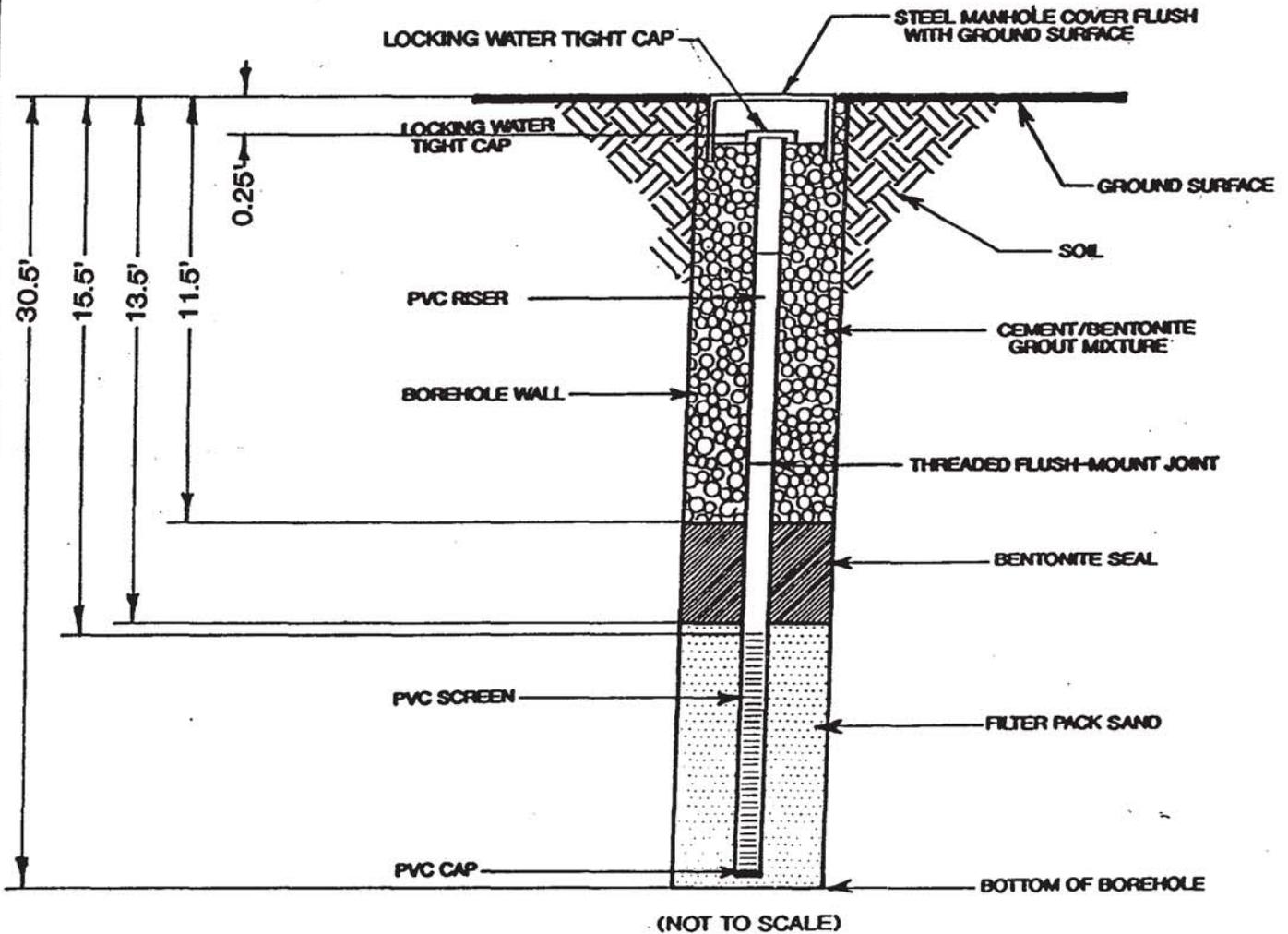
PROJECT	SHAWNEE		
WELL NUMBER	D-39	INSTALLATION DATE	APRIL 16, 1991
PLANT COORDINATES	EAST _____	NORTH	_____
GROUND SURFACE ELEVATION	105.0 m msl	TOP OF INNER CASING	104.9 m msl
GRANULAR BACKFILL MATERIAL	_____	SLOT SIZE	.025 cm
CASING MATERIAL	PVC SCH 40	CASING DIAMETER	6.03 cm O.D.
DRILLING TECHNIQUE	HOLLOW STEM AUGER	DRILLING CONTRACTOR	LAW ENGINEERING
BOREHOLE DIAMETER	21.0 cm	FIELD REPRESENTATIVE	JOHN MASON
LOCKABLE COVER ?	YES -- WATER TIGHT	FILTER CLOTH AROUND SCREEN ?	NO
COMMENTS	_____		

(NOT TO SCALE)



## TYPE II MONITORING WELL INSTALLATION RECORD

JOB NAME TVA SHAWNEE FOSSIL PLANT      JOB NUMBER K-89083EL  
 WELL NUMBER D-39      INSTALLATION DATE 4-16-91  
 GROUND SURFACE ELEVATION 99.72'      REFERENCE POINT ELEVATION 100.0'  
 BOREHOLE DIAMETER 8.25"      SLOT SIZE 0.010"  
 SCREEN MATERIAL SCHEDULE 40 PVC      SCREEN DIAMETER 2.375" O.D.  
 RISER MATERIAL SCHEDULE 40 PVC      RISER DIAMETER 2.375" O.D.  
 LAW ENGINEERING FIELD REPRESENTATIVE JOHN MASON



  
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TYPE II MONITORING WELL  
 INSTALLATION RECORD  
 TVA SHAWNEE FOSSIL PLANT

Job Number  
**K-89083EL**

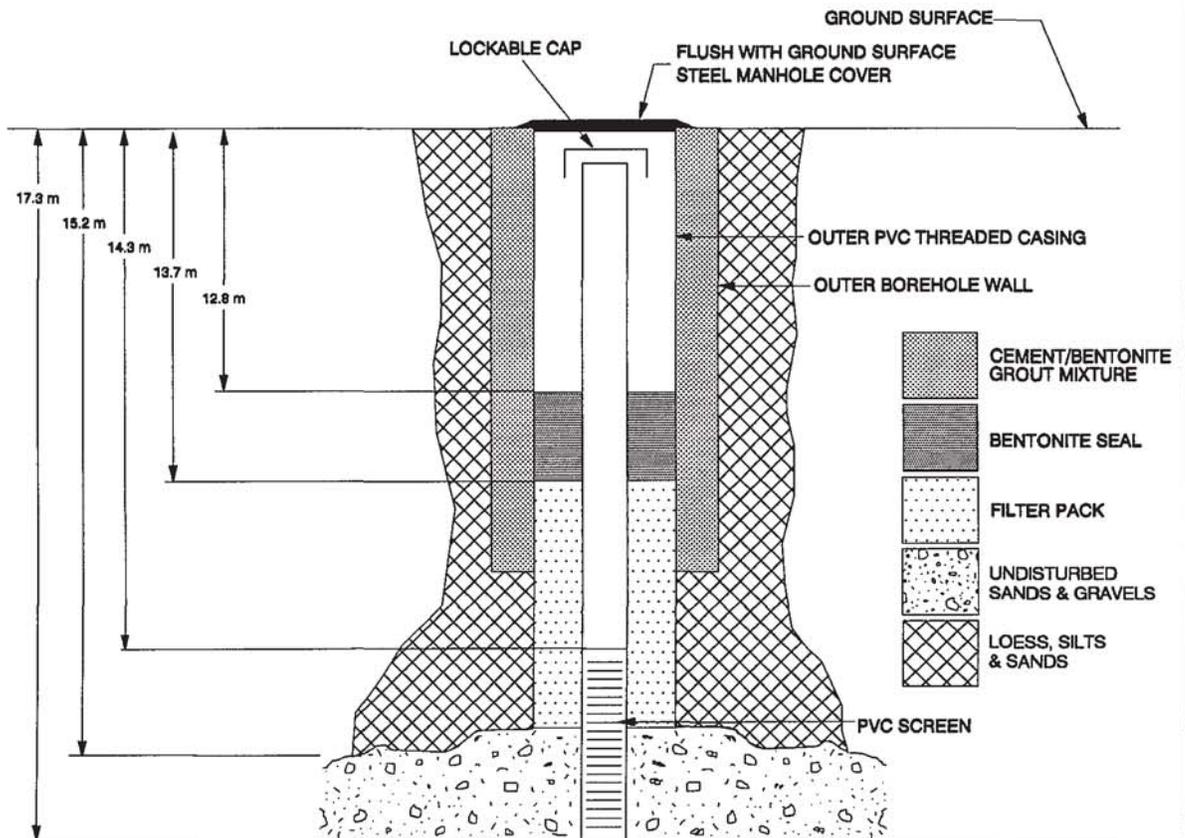
Scale  
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Abandoned

### MONITORING WELL INSTALLATION RECORD

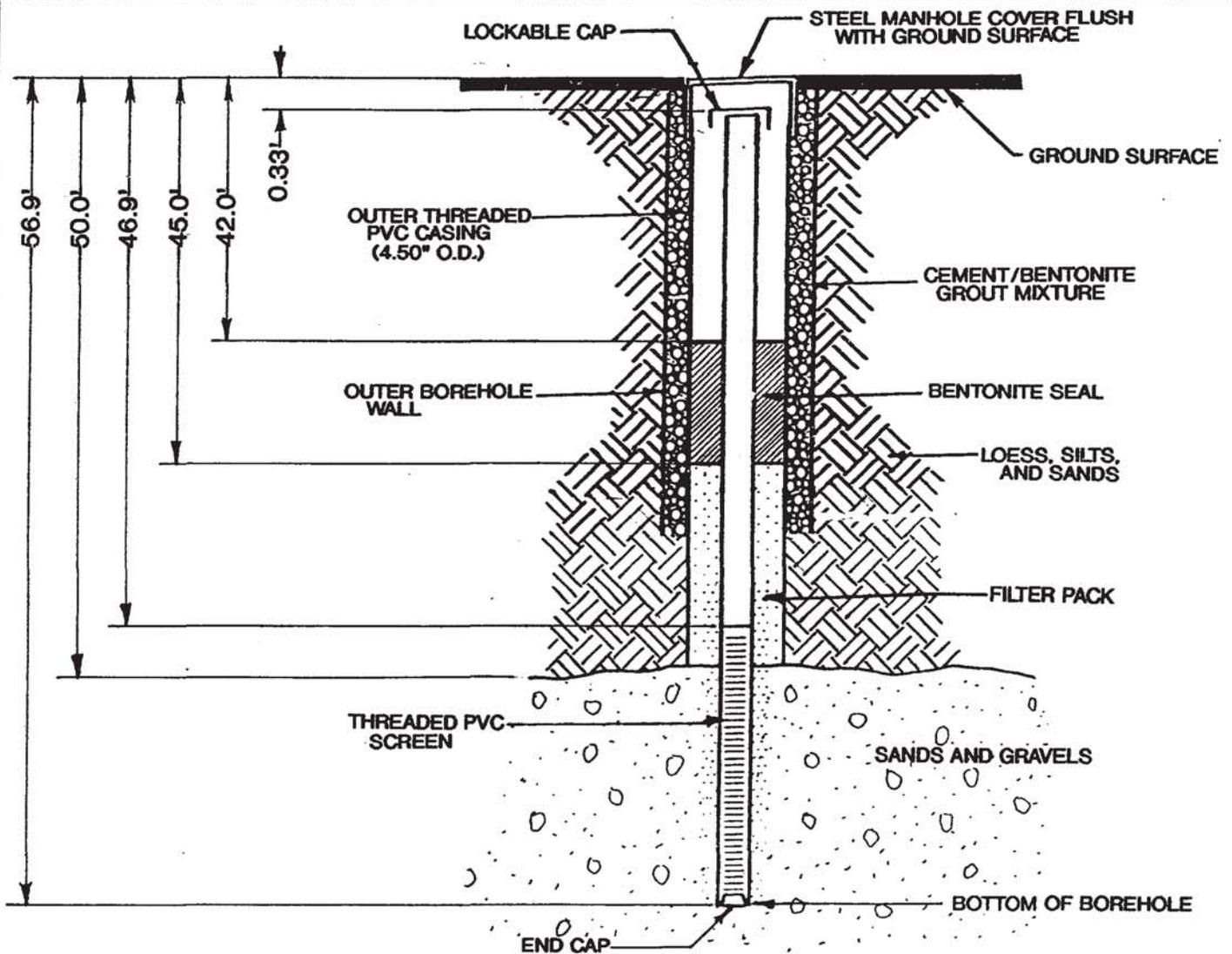
PROJECT	SHAWNEE		
WELL NUMBER	D-40	INSTALLATION DATE	APRIL 15, 1991
PLANT COORDINATES	EAST 262.5 m	NORTH	-6.9 m
GROUND SURFACE ELEVATION	105.2 m msl	TOP OF INNER CASING	105.1 m msl
GRANULAR BACKFILL MATERIAL		SLOT SIZE	.025 cm
CASING MATERIAL	PVC SCH 40	INNER CASING DIAMETER	6.03 cm O.D.
DRILLING TECHNIQUE	HOLLOW STEM AUGER	DRILLING CONTRACTOR	LAW ENGINEERING
BOREHOLE DIAMETER	20.0 cm	FIELD REPRESENTATIVE	K. LATHAM
LOCKABLE COVER ?	YES - WATER TIGHT	FILTER CLOTH AROUND SCREEN ?	NO
COMMENTS		OUTER CASING DIAMETER	11.43 cm O.D.

(NOT TO SCALE)



## TYPE III MONITORING WELL INSTALLATION RECORD

JOB NAME <u>TVA SHAWNEE FOSSIL PLANT</u>	JOB NUMBER <u>K-89083EL</u>
WELL NUMBER <u>D-40</u>	INSTALLATION DATE <u>4-15-91</u>
GROUND SURFACE ELEVATION <u><del>100.84</del></u>	REFERENCE POINT ELEVATION <u><del>100.0'</del></u>
CASING MATERIAL <u>SCHEDULE 40 PVC</u>	SLOT SIZE <u>0.010"</u>
SCREEN MATERIAL <u>SCHEDULE 40 PVC</u>	SCREEN DIAMETER <u>2.375" O.D.</u>
RISER MATERIAL <u>SCHEDULE 40 PVC</u>	RISER DIAMETER <u>2.375" O.D.</u>
BOREHOLE DIAMETER <u>7.87"</u>	LAW ENGINEERING FIELD REPRESENTATIVE <u>K. LATHAM</u>



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**TYPE II MONITORING WELL  
 INSTALLATION RECORD  
 TVA SHAWNEE FOSSIL PLANT**

Job Number <b>K-89083EL</b>	Scale <b>NOT TO SCALE</b>
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# MONITORING WELL INSTALLATION RECORD

PROJECT SHAWNEE FOSSIL PLANT DREDGE CELL

WELL NUMBER D41

INSTALLATION DATE 19 MARCH 1992

PLANT COORDINATES EAST Provided by TVA

NORTH West of Powerhouse, close to Silo's on dredge cell

GROUND SURFACE ELEVATION 2354

TOP OF INNER CASING Provided by TVA

PREPACKED FILTER MATERIAL Yes

SLOT SIZE 0.010 Ten Hundreds Slot

CASING MATERIAL 4" PVC

CASING DIAMETER 4" PVC

DRILLING TECHNIQUE 6 1/4" ID HSA

DRILLING CONTRACTOR Law Engineering Sam Wilkinson

BOREHOLE DIAMETER 10 1/4" OD

FIELD REPRESENTATIVE Mel Wagner

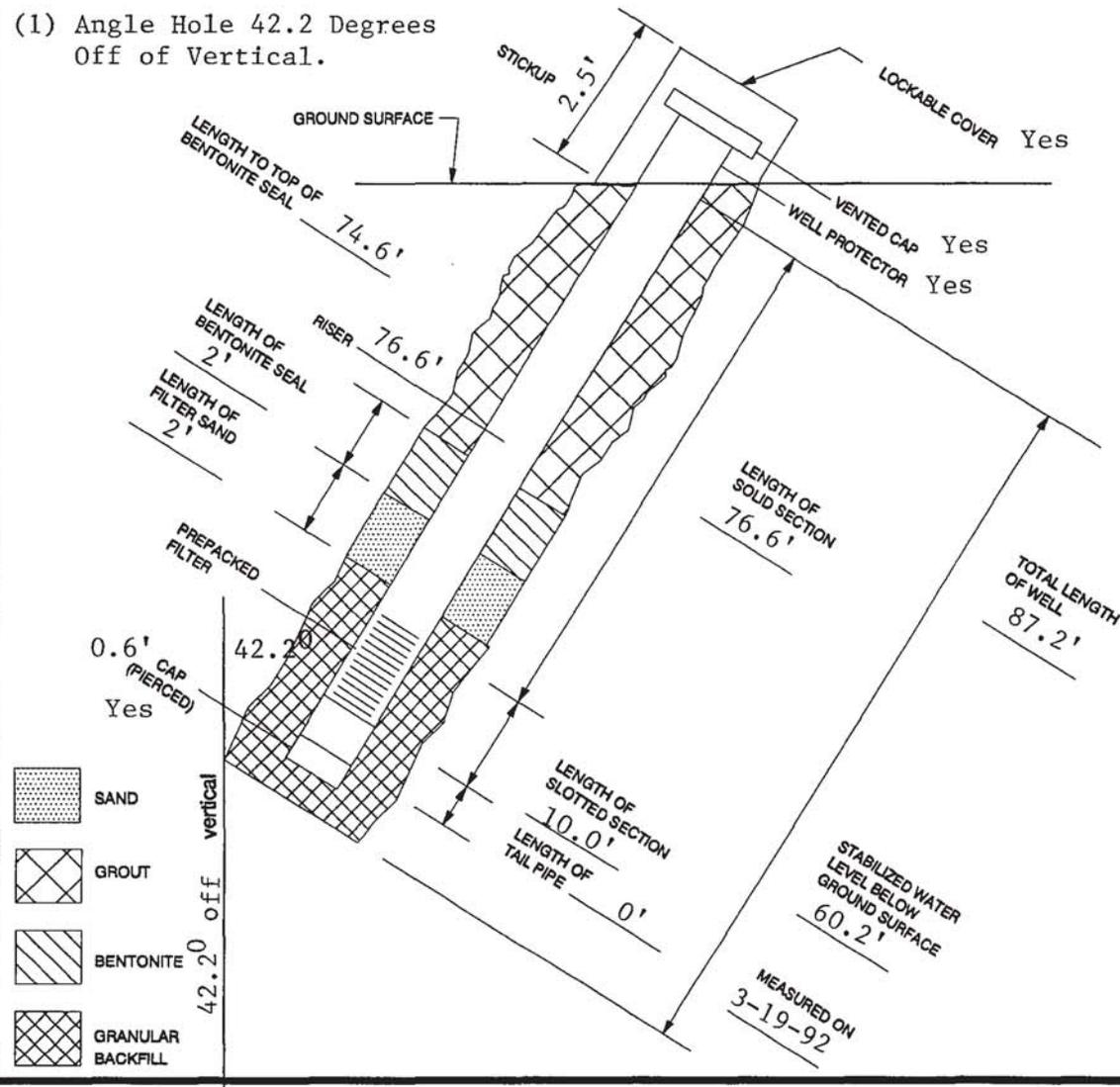
LOCKABLE COVER? Yes

GROUTING TECHNIQUE Tremie Grout

DRILLING FLUID None

COMMENTS Augers refused at 91.2', set well at 87.2' due to Hole Piping Up through augers. Very saturated sands and boulders.

(1) Angle Hole 42.2 Degrees Off of Vertical.



# MONITORING WELL INSTALLATION RECORD

**PROJECT** SHAWNEE FOSSIL FUEL PLANT

**WELL NUMBER** D42

**PLANT COORDINATES** EAST Provided By TVA

**GROUND SURFACE ELEVATION** See Surveyor

**GRANULAR BACKFILL MATERIAL** Sand, Bentonite and Grout

**CASING MATERIAL** 4 inch Sch 40 PVC

**DRILLING TECHNIQUE** 6 1/4" ID HSA

**BOREHOLE DIAMETER** 10. 1/4 OD

**LOCKABLE COVER ?** NO

**DRILLING FLUID** None

**INSTALLATION DATE** 14 June 1992

**NORTH** 180 feet from Berm in dredge cell close to active silos

**TOP OF INNER CASING** See Surveyor

**SLOT SIZE** 0.010 inch

**CASING DIAMETER** 4" Sch 40 PVC

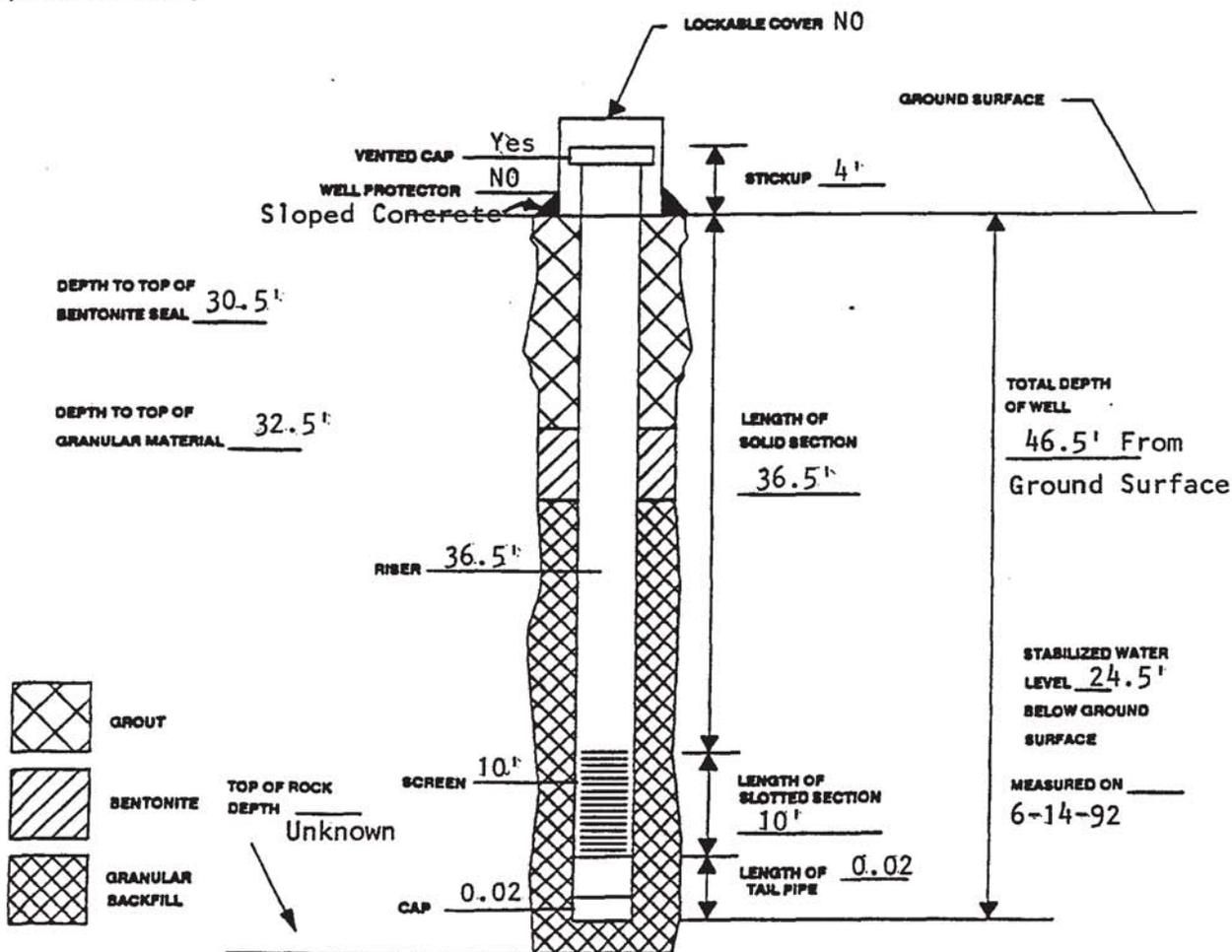
**DRILLING CONTRACTOR** Law Engineering Sam Wilkinson

**FIELD REPRESENTATIVE** Mel Wagner

**FILTER CLOTH AROUND SCREEN ?** NO

**COMMENTS** After an unsuccessful attempt to get the 4" PVC pipe at the proper depth for the angle Well of 52.7 degrees off of vertical due to the fly ash caving in and piping up through the Hollow Stem Augers this Well was installed in the Vertical position out on the fly ash dredge cell.

(NOT TO SCALE)



END LAB 6/92

NOTE: Although the drill logs show that we drilled to 56.5 feet on D42 and the total depth of this well on the diagram shows the total depth of the well at 46.5 feet this is not in error. We could not sand through the hollow stem augers with the PVC pipe inside the augers, therefore we had to pull the augers and then set the PVC pipe and in the process we lost about 10' of depth, the casing probably should have been 2" instead of 4".

NOTE: The reason that there is (2) sets of drill logs is because we went out on the dredge cell and took the samples in the same location as the set wells, then we tried to install the angle wells on the rim or berm of the dredge cell, when that was not successful we went back out in the dredge cell and installed the wells in the vertical position.

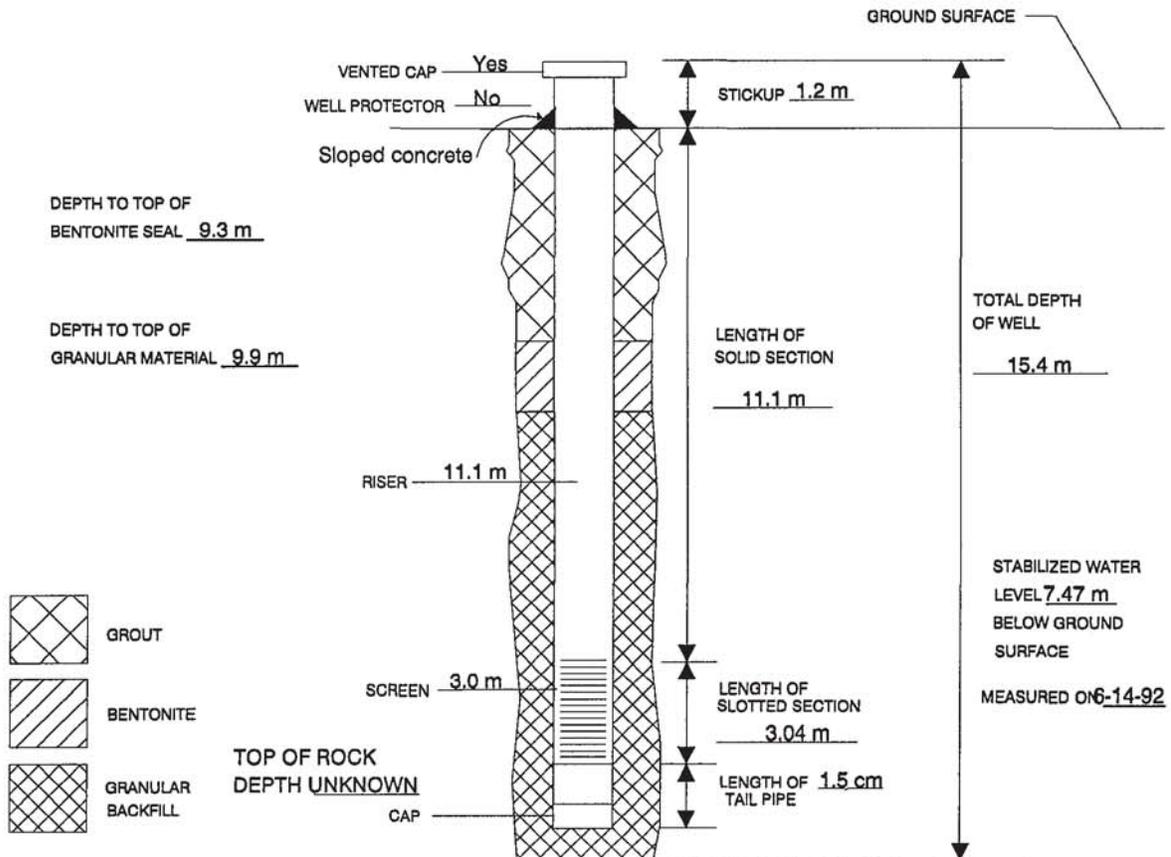
BEFORE OR AT REFUSAL / NOT INTO BEDROCK

## MONITORING WELL INSTALLATION RECORD

PROJECT SHAWNEE FOSSIL FUEL PLANT  
 WELL NUMBER D42 INSTALLATION DATE 6-14-92  
 PLANT COORDINATES EAST Provided By TVA NORTH 55 m. from berm in dredge cell close to active cells  
 GROUND SURFACE ELEVATION See Surveyor TOP OF INNER CASING See Surveyor  
 GRANULAR BACKFILL MATERIAL Sand, Bentonite, and Grout SLOT SIZE 0.025 cm  
 CASING MATERIAL Sch 40 PVC CASING DIAMETER 10 cm  
 DRILLING TECHNIQUE 16 cm ID HSA DRILLING CONTRACTOR Law Engineering - Sam Wilkinson  
 BOREHOLE DIAMETER 26 cm OD FIELD REPRESENTATIVE Mel Wagner  
 LOCKABLE COVER ? NO FILTER CLOTH AROUND SCREEN ? Pre-packed screen  
 DRILLING FLUID None

COMMENTS Although the drill logs show that we drilled to 17.2 m. on D42 and the total depth of this well on the diagram shows the total depth of the at 14.2 m. this is not in error. We could not sand through the hollow stem augers with the PVC pipe inside the augers, therefore we had to pull the augers and them set the PVC pipe and in the process we lost about 3 m of depth.

(NOT TO SCALE)



# DESIGN FOR SHALLOW WELLS

NOTE: The reason that there is (2) sets of drill logs is because we went out on the dredge cell and took the samples in the same location as the set wells, then we tried to install the angle wells on the rim or berm of the dredge cell, when that was not successful we went back out in the dredge cell and installed the wells in the vertical position.

## MONITORING WELL INSTALLATION RECORD

**PROJECT** SHAWNEE FOSSIL FUEL PLANT

**WELL NUMBER** D43

**PLANT COORDINATES** EAST Provided By TVA

**GROUND SURFACE ELEVATION** See Surveyor

**GRANULAR BACKFILL MATERIAL** Sand, Bentonite and Grout

**CASING MATERIAL** 4" Sch 40 PVC

**DRILLING TECHNIQUE** 6 1/4 ID HSA

**BOREHOLE DIAMETER** 10. 1/4 OD

**LOCKABLE COVER ?** NO

**DRILLING FLUID** None

**INSTALLATION DATE** 13 June 1992

**NORTH** 165 feet from Berm in dredge cell close to active silo's

**TOP OF INNER CASING** See Surveyor

**SLOT SIZE** 0.010 inch

**CASING DIAMETER** 4" Sch 40 PVC

**DRILLING CONTRACTOR** Law Engineering Sam Wilkinson

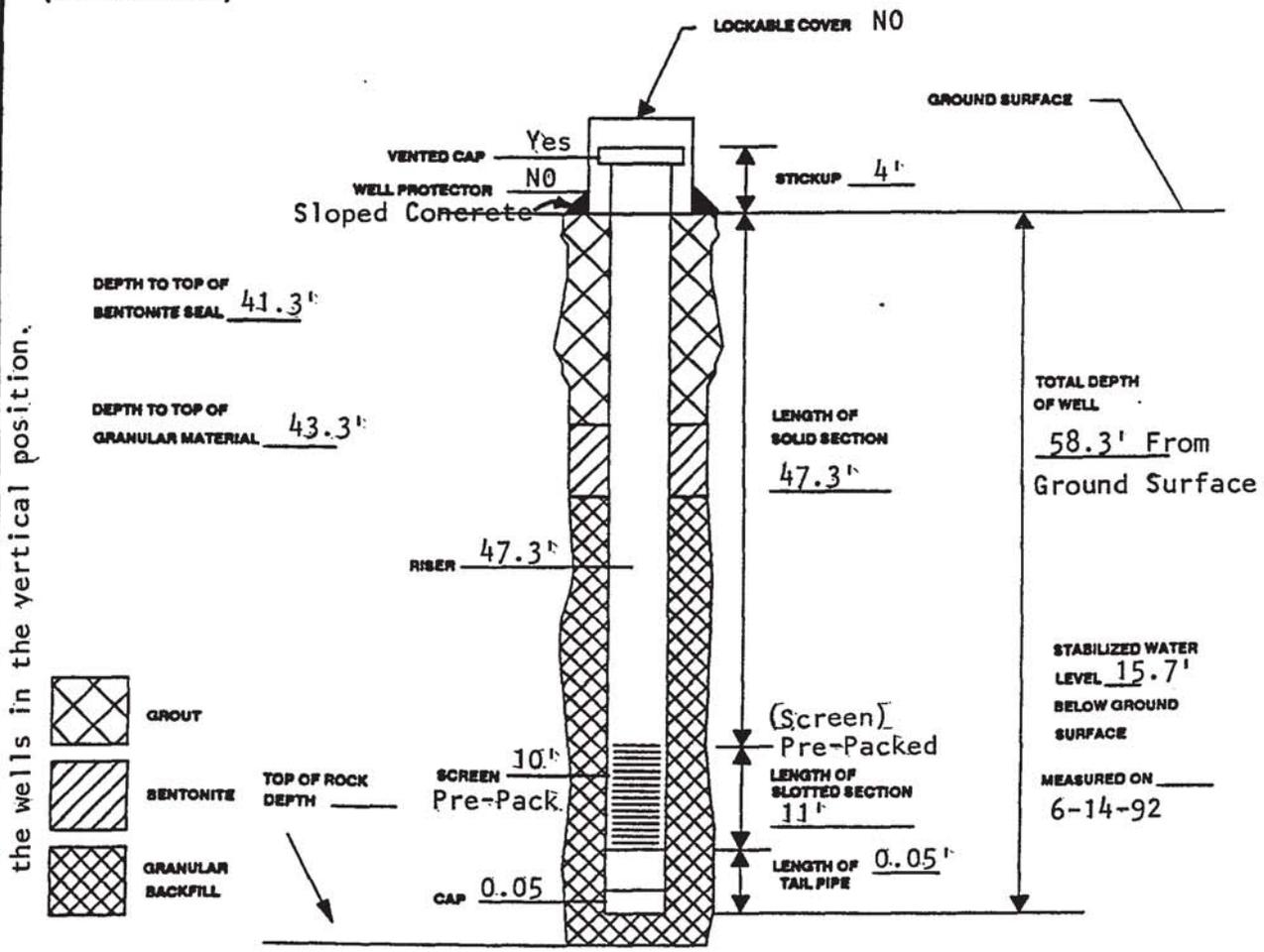
**FIELD REPRESENTATIVE** Mel Wagner

**FILTER CLOTH AROUND SCREEN ?** NO

**COMMENTS** After an unsuccessful attempt to get the 4" PVC pipe at the proper depth for the angle Well of 54.3 degrees off of vertical due to the fly ash caving in and piping up through the Hollow Stem Augers this

Well was installed in the Vertical position out on the fly ash dredge cell.

(NOT TO SCALE)



ENGLAB 84400 Although the drill logs show that we drilled 62' on D43 and the total depth of this well on the diagram shows the total depth of the well at 58.3' this is not in error. We could not sand through the hollow stem augers with the PVC pipe inside the augers, therefore we had to pull the augers and then set the PVC pipe and in the process we lost about 3.7' of depth, the well casing probably should have been 2" PVC instead of 4" PVC.

BEFORE OR AT REFUSAL / NOT INTO BEDROCK

## MONITORING WELL INSTALLATION RECORD

PROJECT SHAWNEE FOSSIL FUEL PLANT

WELL NUMBER D43 INSTALLATION DATE 6-13-92

PLANT COORDINATES EAST Provided by TVA NORTH 50 m from berm in dredge cell close to active silo's

GROUND SURFACE ELEVATION See Surveyor TOP OF INNER CASING See Surveyor

GRANULAR BACKFILL MATERIAL Sand, Bentonite, and Grout SLOT SIZE 0.025 cm

CASING MATERIAL Sch 40 PVC CASING DIAMETER 10 cm

DRILLING TECHNIQUE 16 cm ID HSA DRILLING CONTRACTOR Law Engineering-Sam Wilkinson

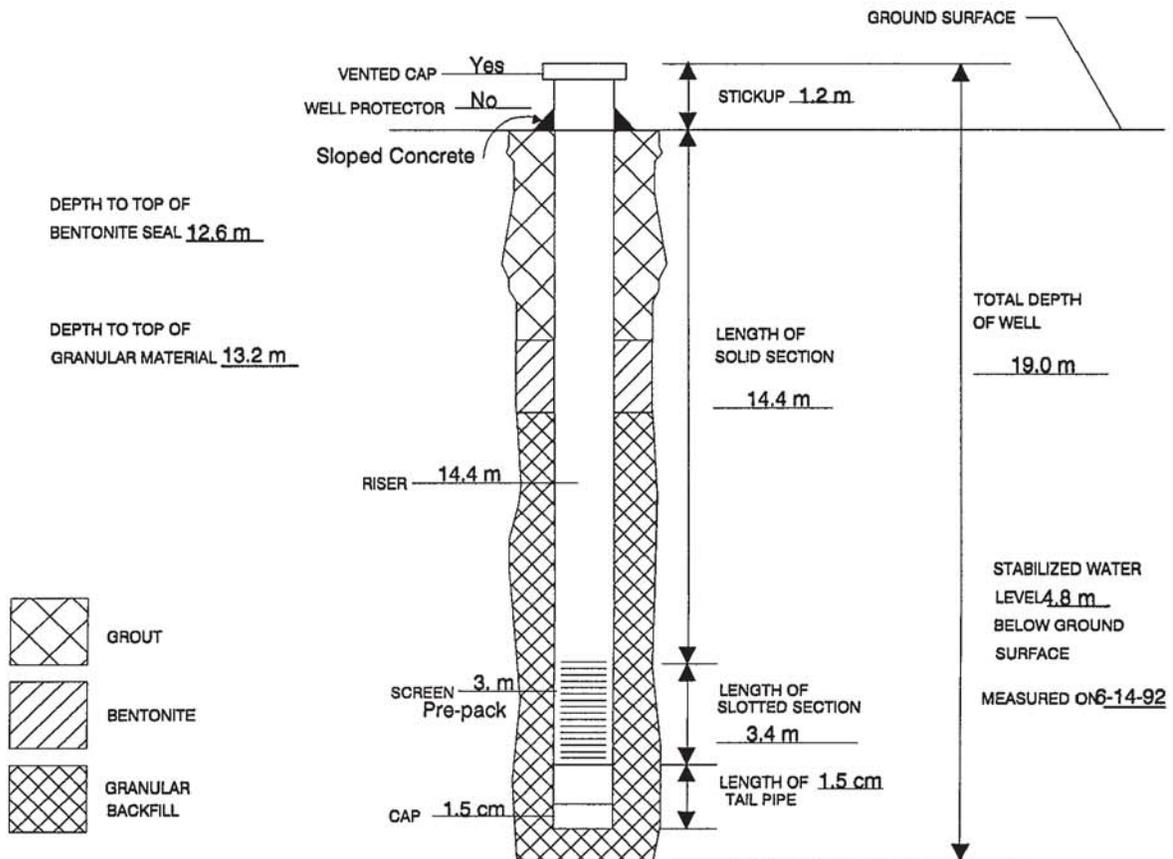
BOREHOLE DIAMETER 26 cm OD FIELD REPRESENTATIVE Mel Wagner

LOCKABLE COVER ? No FILTER CLOTH AROUND SCREEN ? Pre-packed screen

DRILLING FLUID None

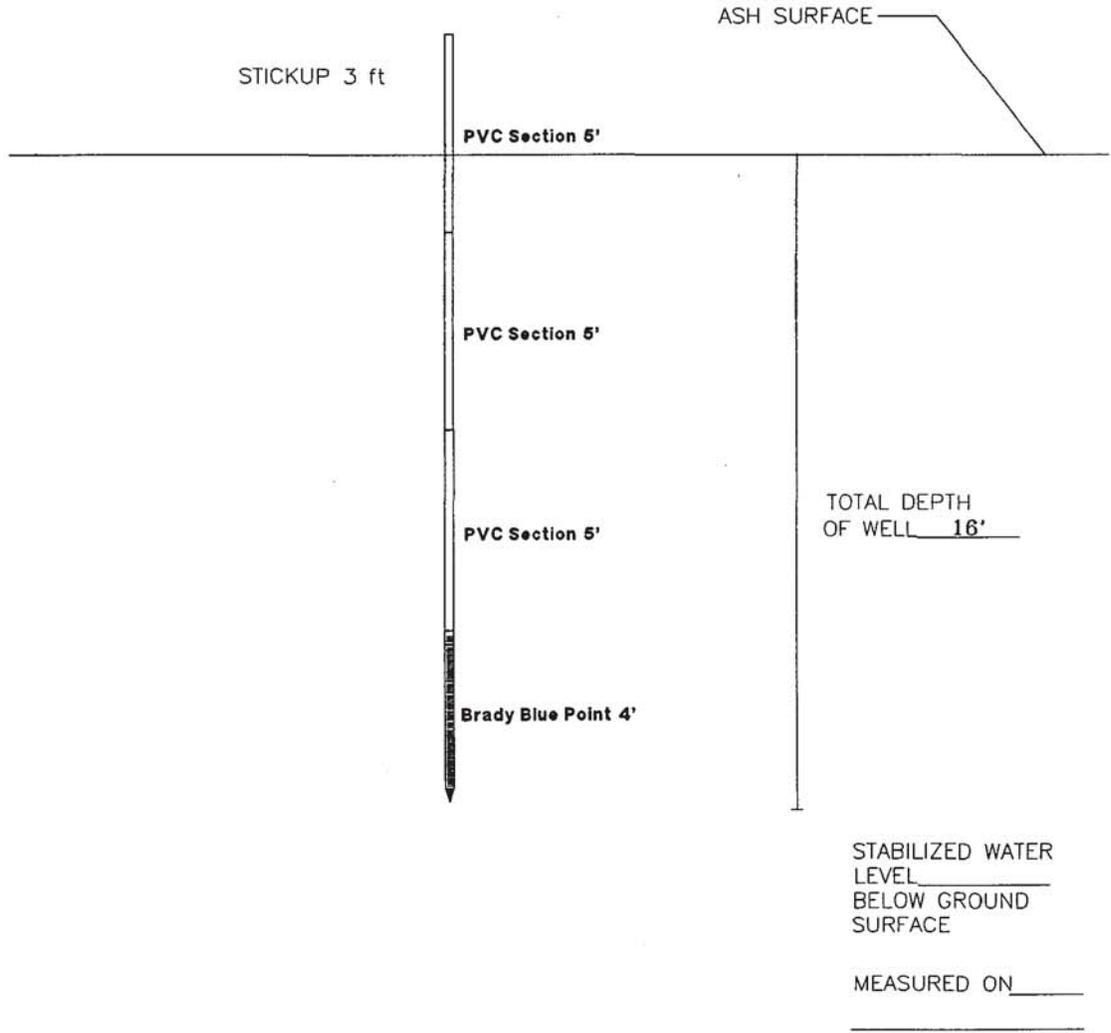
COMMENTS Although the drill logs show that we drilled 18.9 m on D43 and the total depth of this well on the diagram shows the total depth of the well at 17.8 m this is not in error. We could not sand through the hollow stem augers with the PVC pipe inside the augers, therefore we had to pull the augers and then set the PVC pipe and in the proces we lost about 1.1 m of depth.

(NOT TO SCALE)



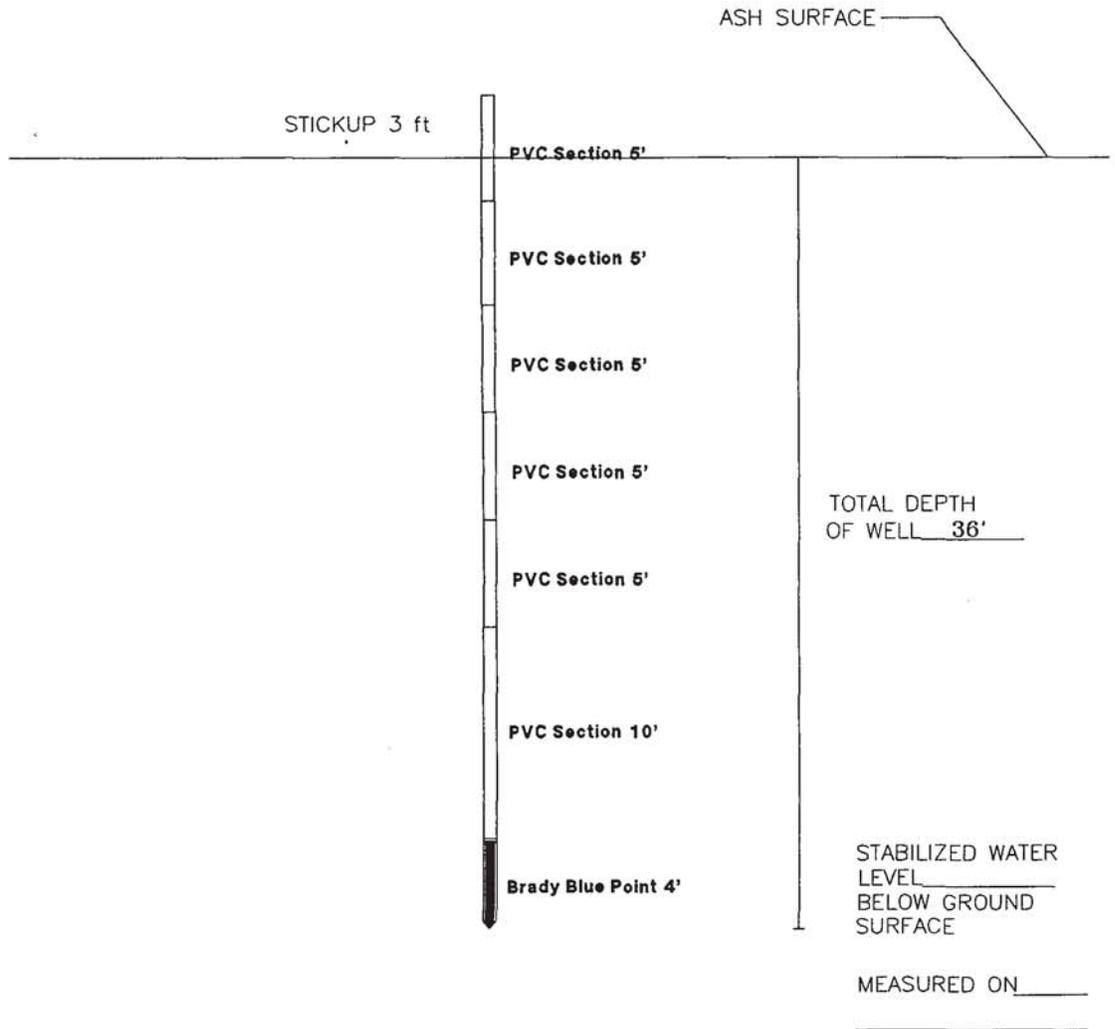
# MONITORING WELL INSTALLATION RECORD

JOB NAME SHAWNEE DREDGE CELL STUDY  
 WELL NUMBER D-44 INSTALLATION DATE 5-8-92  
 LOCATION SHAWNEE FOSSIL PLANT  
 GROUND SURFACE ELEVATION \_\_\_\_\_ REFERENCE POINT ELEVATION \_\_\_\_\_  
 GRANULAR BACKFILL MATERIAL NOT APPLICABLE SLOT SIZE .08"  
 SCREEN MATERIAL BRADY BLUE POINT SCREEN SCREEN DIAMETER 2"  
 RISER MATERIAL SCHDL 80 PVC RISER DIAMETER 2"  
 DRILLING TECHNIQUE WELL DRIVEN INTO PLACE DRILLING CONTRACTOR FIELD ENGINEERING  
 BOREHOLE DIAMETER 2"  
 LOCK BRAND NOT LOCKED SIZE/MODEL N/A  
 KEY CODE/COMBINATION N/A  
 REMARKS LITTLE BEAVER MECHANICAL AUGER (2" diameter) USED TO DRILL BOREHOLE. WELL THEN DRIVEN INTO PLACE.



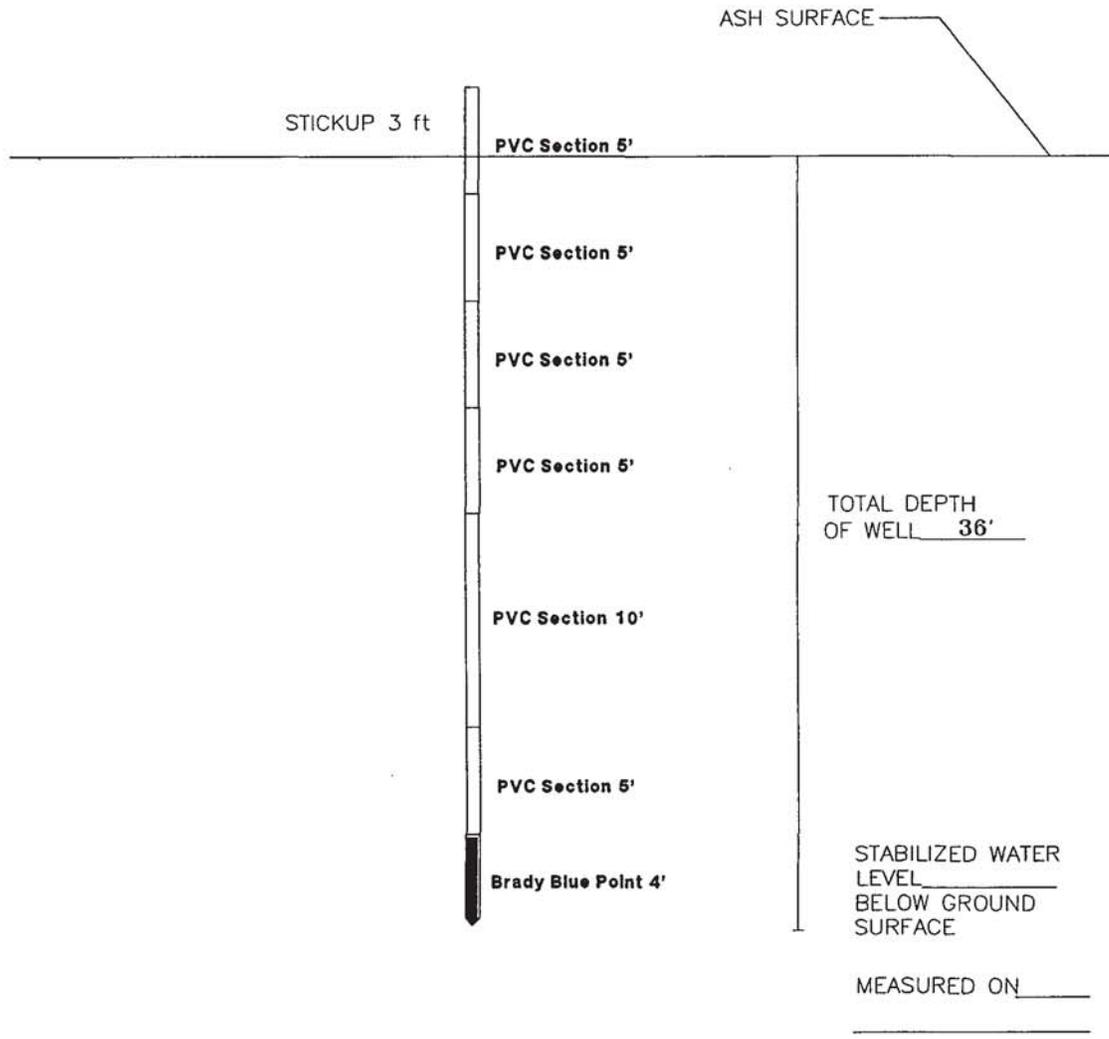
# MONITORING WELL INSTALLATION RECORD

JOB NAME SHAWNEE DREDGE CELL STUDY  
WELL NUMBER D-45 INSTALLATION DATE 5-8-92  
LOCATION SHAWNEE FOSSIL PLANT  
GROUND SURFACE ELEVATION \_\_\_\_\_ REFERENCE POINT ELEVATION \_\_\_\_\_  
GRANULAR BACKFILL MATERIAL NOT APPLICABLE SLOT SIZE .08"  
SCREEN MATERIAL BRADY BLUE POINT SCREEN SCREEN DIAMETER 2"  
RISER MATERIAL SCHDL 80 PVC RISER DIAMETER 2"  
DRILLING TECHNIQUE WELL DRIVEN INTO PLACE DRILLING CONTRACTOR FIELD ENGINEERING  
BOREHOLE DIAMETER 2"  
LOCK BRAND NOT LOCKED SIZE/MODEL N/A  
KEY CODE/COMBINATION N/A  
REMARKS LITTLE BEAVER MECHANICAL AUGER (2" diameter) USED TO DRILL BOREHOLE. WELL THEN DRIVEN INTO PLACE.



# MONITORING WELL INSTALLATION RECORD

JOB NAME SHAWNEE DREDGE CELL STUDY  
 WELL NUMBER D-46 INSTALLATION DATE 5-7-92  
 LOCATION SHAWNEE FOSSIL PLANT  
 GROUND SURFACE ELEVATION \_\_\_\_\_ REFERENCE POINT ELEVATION \_\_\_\_\_  
 GRANULAR BACKFILL MATERIAL NOT APPLICABLE SLOT SIZE .08"  
 SCREEN MATERIAL BRADY BLUE POINT SCREEN SCREEN DIAMETER 2"  
 RISER MATERIAL SCHDL 80 PVC RISER DIAMETER 2"  
 DRILLING TECHNIQUE WELL DRIVEN INTO PLACE DRILLING CONTRACTOR FIELD ENGINEERING  
 BOREHOLE DIAMETER 2"  
 LOCK BRAND NOT LOCKED SIZE/MODEL N/A  
 KEY CODE/COMBINATION N/A  
 REMARKS LITTLE BEAVER MECHANICAL AUGER (2" diameter) USED TO DRILL BOREHOLE. WELL THEN DRIVEN INTO PLACE.



# TYPE II MONITORING WELL INSTALLATION RECORD

JOB NAME TVA SHAWNEE FOSSIL PLANT

WELL NUMBER D-47

BOREHOLE DIAMETER N/A

TOTAL DEPTH 20.0'

LAW ENGINEERING  
FIELD REPRESENTATIVE BRAD SALSBURY

JOB NUMBER 50385-5-0400/09/01

INSTALLATION DATE 2/20/96

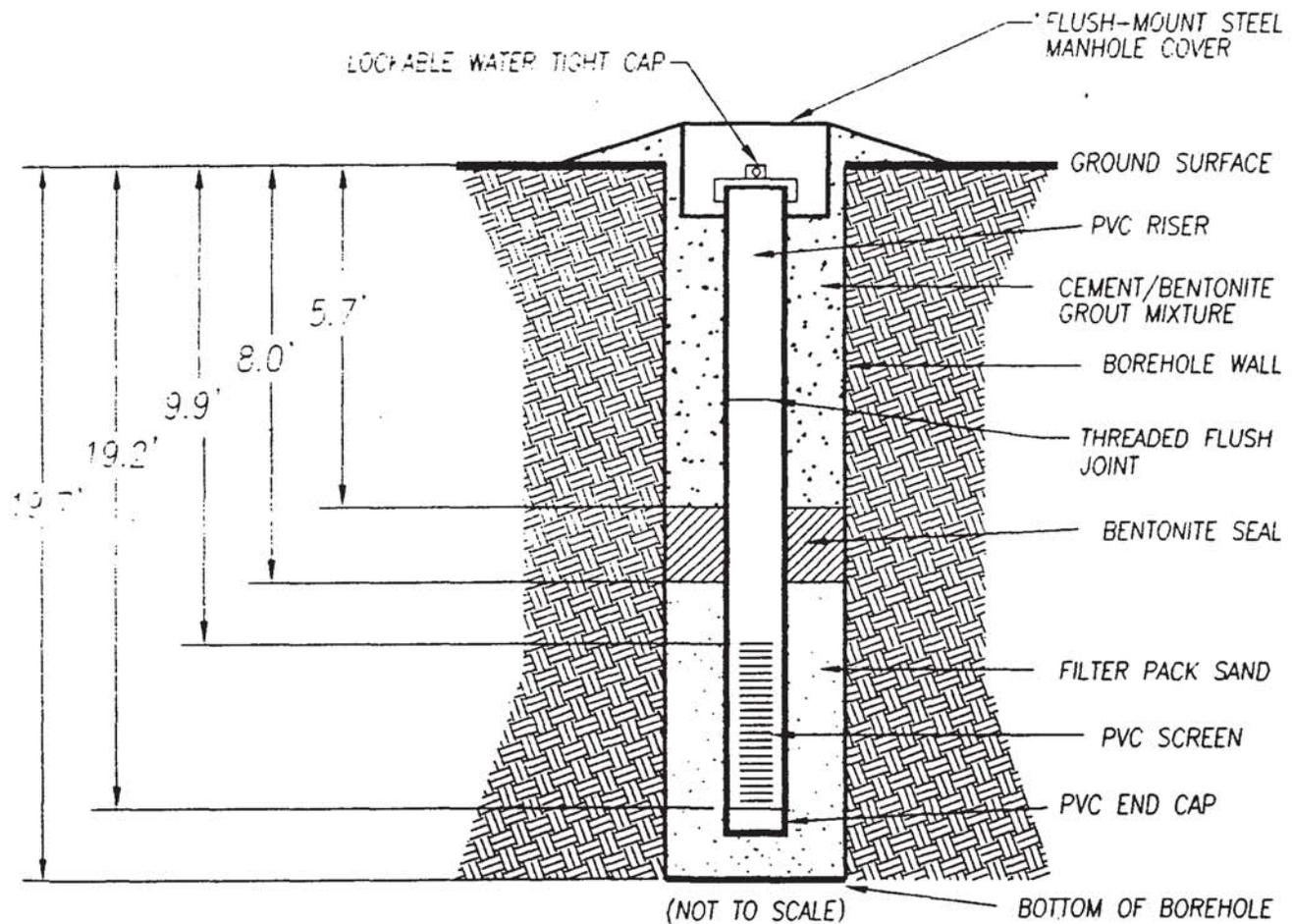
RISER/SCREEN:

MATERIAL: SCHEDULE 40 PVC

DIAMETER: 2"

SLOT SIZE: 0.010"

SCREEN LENGTH: 10.0'



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**TVA SHAWNEE FOSSIL PLANT**

JOB NUMBER: 50385-5-0400/03/01	DATE: DECEMBER 14, 1995	SCALE: NOT TO SCALE
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DEPTH (FT.)	DESCRIPTION	ELEVATION (FT.)	● PENETRATION - BLOWS/FOOT															
			0	10	20	30	40	60	80	100								
0.0																		
0.5	MEDIUM GRAY TO BLACK GRAVEL																	
	DARK YELLOWISH ORANGE TO MODERATE YELLOWISH BROWN SLIGHTLY SILTY CLAY, DRY, NO ODOR - FILL																	
5.0																		
	MODERATE YELLOWISH BROWN TO DARK YELLOWISH BROWN SAND, SLIGHTLY SILTY, DRY, NO ODOR - FILL																	
9.0																		
	SLIGHTLY SILTY CLAY GRADING DOWNWARD TO SLIGHTLY CLAYEY SANDY SILT, COLOR GRADES FROM DARK YELLOWISH ORANGE TO GRAYISH, SLIGHTLY MOIST TO MOIST, NO ODOR - FILL																	
7.0																		
	PALE YELLOWISH BROWN SILTY SAND, WET, NO ODOR - POSSIBLE FILL																	
20.0																		
	BORING TERMINATED																	

REMARKS:

**TEST BORING RECORD**

BORING NUMBER D-47  
DATE DRILLED February 20, 1996  
PROJECT NUMBER 50385-5-0400/09/01  
PROJECT TVA SHAWNEE  
PAGE 1 OF 1

SEE KEY SHEET FOR EXPLANATION OF  
SYMBOLS AND ABBREVIATIONS USED ABOVE

**▲ LAW ENGINEERING**

# TYPE II MONITORING WELL INSTALLATION RECORD

JOB NAME TVA SHAWNEE FOSSIL PLANT

WELL NUMBER E-48

BOREHOLE DIAMETER N/A

TOTAL DEPTH 20.6'

LAW ENGINEERING FIELD REPRESENTATIVE BRAD SALSURY

JOB NUMBER 50385-5-0400/09 01

INSTALLATION DATE 2/22/96

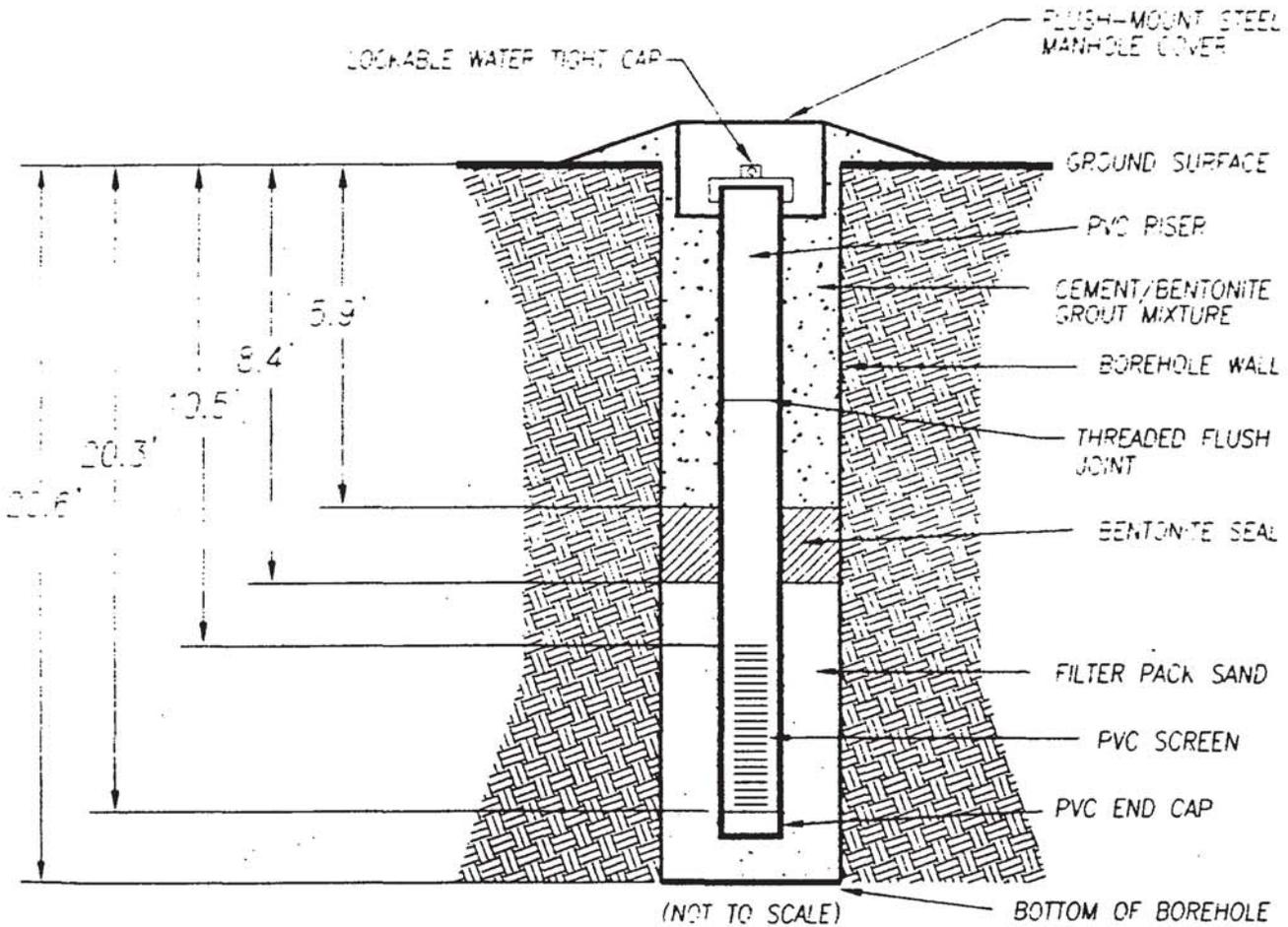
RISER/SCREEN:

MATERIAL: SCHEDULE 40 PVC

DIAMETER: 2"

SLOT SIZE: 0.010"

SCREEN LENGTH: 10.0'



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TVA SHAWNEE FOSSIL PLANT

JOB NUMBER: 50385-5-0400/03/01	DATE: DECEMBER 14, 1995	SCALE: NOT TO SCALE
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DEPTH (FT.)	DESCRIPTION	ELEVATION (FT.)	● PENETRATION - BLOWS/FOOT															
			0	10	20	30	40	60	80	100								
0.0	CRUSHER AND RUN GRAVEL																	
1.0	BROWN SILTY CLAY, SLIGHTLY MOIST, MEDIUM PLASTICITY, NO ODOR - FILL																	
6.0	DARK-GRAY-BLACK SILTY CLAY, STRONG PETROLEUM ODOR, MEDIUM PLASTICITY, SLIGHTLY MOIST, NO ODOR - FILL																	
14.0	OLIVE-BROWN SILTY CLAY WITH SOME SAND, SLIGHTLY MOIST, SOME ODOR PRESENT, MEDIUM PLASTICITY - FILL																	
19.0	DARK GRAY SILTY CLAY, MOIST, SOME ODOR, MEDIUM-LOW PLASTICITY, NO ODOR - FILL																	
19.5	OLIVE-GRAY SILTY CLAY, MOIST TO DAMP, SOME ODOR PRESENT, MEDIUM-LOW PLASTICITY - FILL																	
20.0	BORING TERMINATED																	

REMARKS:

TEST BORING RECORD	
BORING NUMBER	D-48
DATE DRILLED	February 22, 1996
PROJECT NUMBER	50385-5-0400/09/01
PROJECT	TVA SHAWNEE
PAGE 1 OF 1	
 <b>LAW ENGINEERING</b>	

SEE KEY SHEET FOR EXPLANATION OF  
SYMBOLS AND ABBREVIATIONS USED ABOVE

# TYPE II MONITORING WELL INSTALLATION RECORD

JOB NAME TVA SHAWNEE FOSSIL PLANT

WELL NUMBER D-49

BOREHOLE DIAMETER N/A

TOTAL DEPTH 20.8'

LAW ENGINEERING FIELD REPRESENTATIVE BRAD SALSURY

JOB NUMBER 50385-5-0400/09/01

INSTALLATION DATE 2/21/96

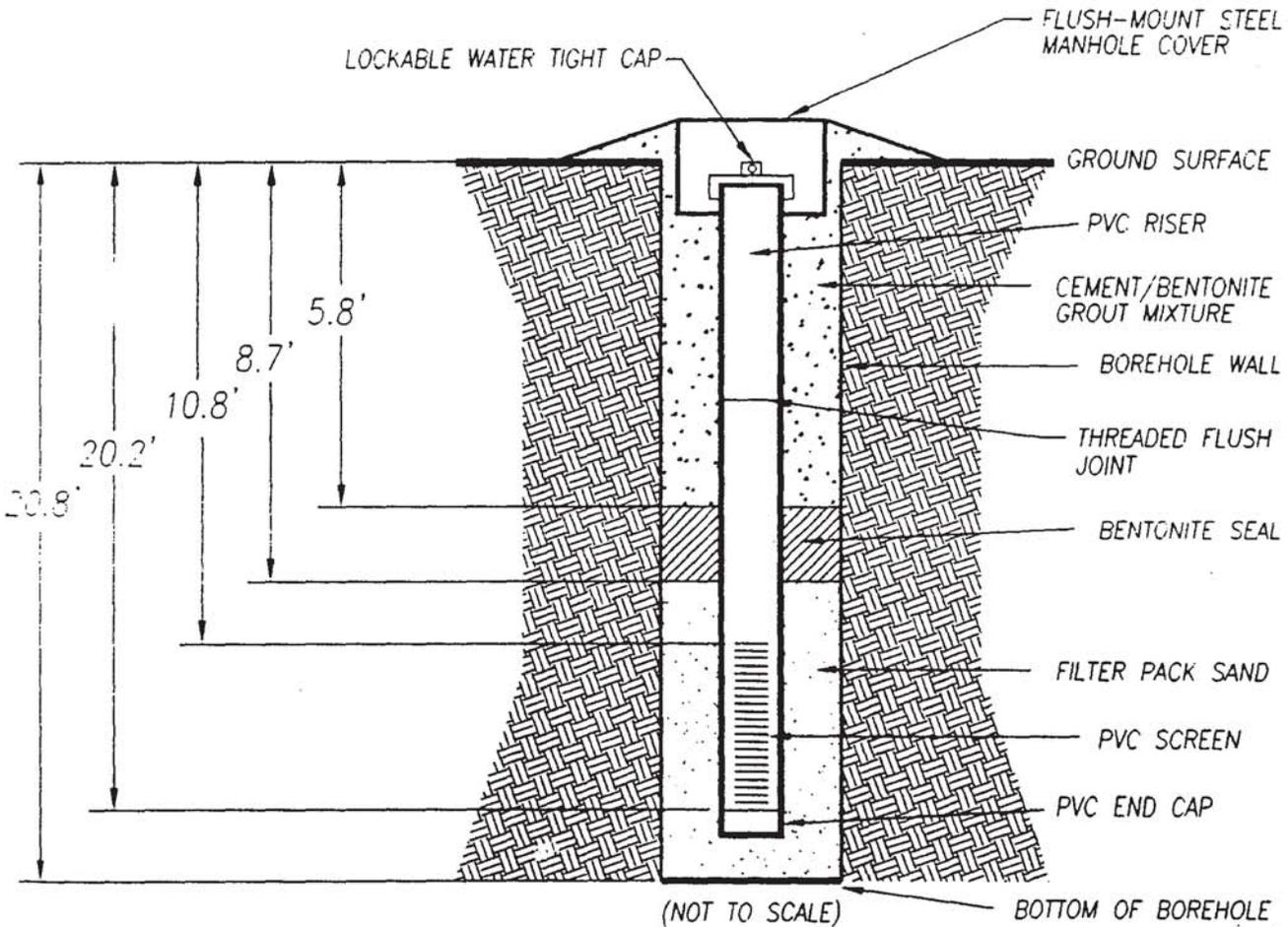
RISER/SCREEN:

MATERIAL: SCHEDULE 40 PVC

DIAMETER: 2"

SLOT SIZE: 0.010"

SCREEN LENGTH: 10.0'



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## TVA SHAWNEE FOSSIL PLANT

JOB NUMBER: 50385-5-0400/03/01	DATE: DECEMBER 14, 1995	SCALE: NOT TO SCALE
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DEPTH (FT.)	DESCRIPTION	ELEVATION (FT.)	● PENETRATION - BLOWS/FOOT																
			0	10	20	30	40	60	80	100									
0.0																			
0.4	LIMESTONE GRAVEL, FLY ASH DARK YELLOWISH ORANGE CLAY, SLIGHTLY MOIST TO MOIST, NO ODOR - FILL																		
8.0	GRAYISH ORANGE TO MODERATE YELLOWISH BROWN SILTY CLAY, SLIGHTLY MOIST, NO ODOR - FILL																		
12.0	YELLOWISH GRAY CLAYEY SILT, SLIGHTLY MOIST, NO ODOR - FILL																		
16.0	YELLOWISH GRAY CLAYEY SILT, VERY MOIST TO WET, NO ODOR - FILL																		
20.0	BORING TERMINATED																		

REMARKS:

**TEST BORING RECORD**

**BORING NUMBER** D-49  
**DATE DRILLED** February 21, 1996  
**PROJECT NUMBER** 50385-5-0400/09/01  
**PROJECT** TVA SHAWNEE  
**PAGE 1 OF 1**

SEE KEY SHEET FOR EXPLANATION OF  
SYMBOLS AND ABBREVIATIONS USED ABOVE

**▲ LAW ENGINEERING**

# TYPE II MONITORING WELL INSTALLATION RECORD

JOB NAME TVA SHAWNEE FOSSIL PLANT

WELL NUMBER D-50

BOREHOLE DIAMETER N/A

TOTAL DEPTH 24.7'

LAW ENGINEERING FIELD REPRESENTATIVE BRAD SALSBUURY

JOB NUMBER 50385-5-0400/09/01

INSTALLATION DATE 2/21/96

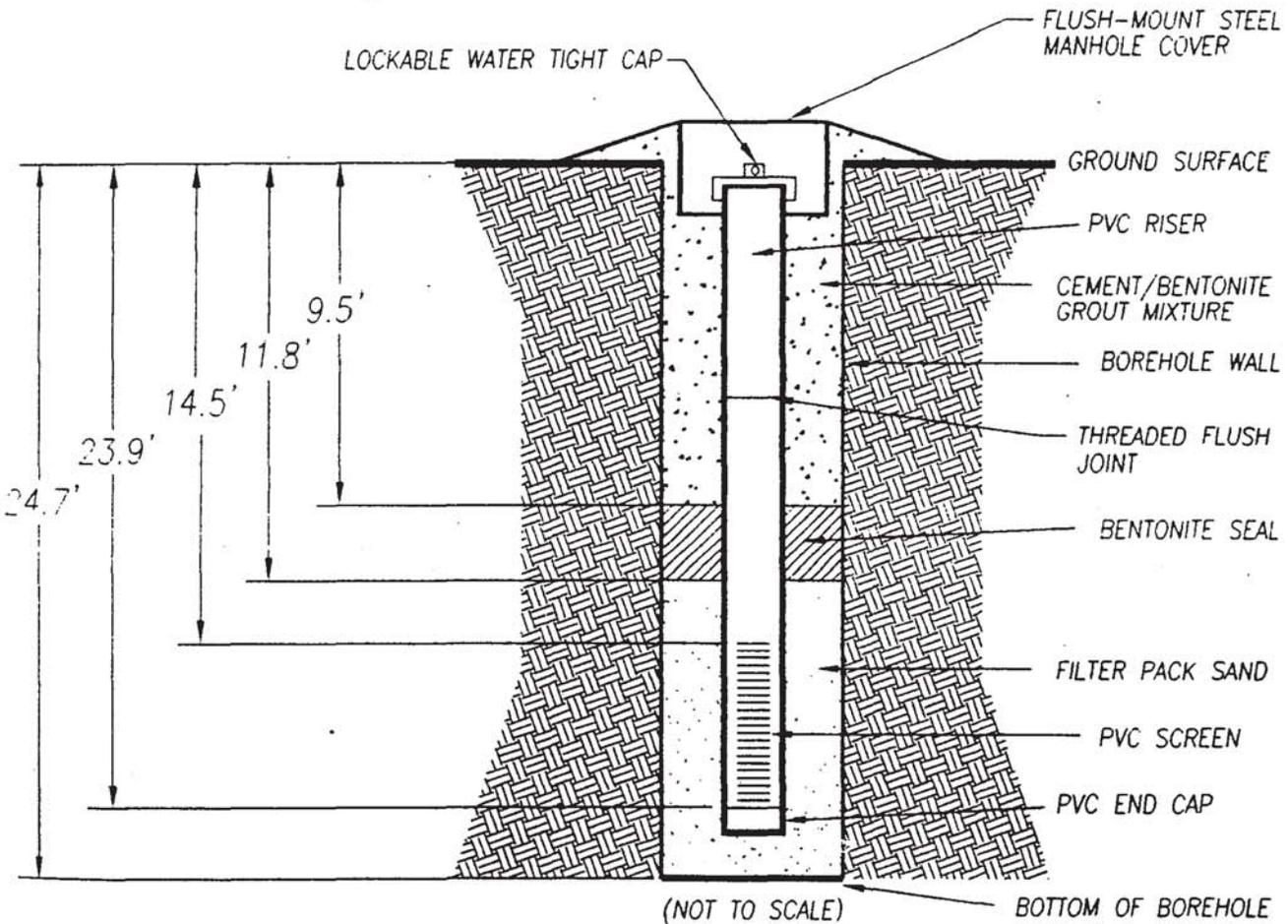
RISER/SCREEN:

MATERIAL: SCHEDULE 40 PVC

DIAMETER: 2"

SLOT SIZE: 0.010"

SCREEN LENGTH: 10.0'



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**TVA SHAWNEE FOSSIL PLANT**

JOB NUMBER:	DATE:	SCALE:
50385-5-0400/03/01	DECEMBER 14, 1995	NOT TO SCALE

DEPTH (FT.)	DESCRIPTION	ELEVATION (FT.)	● PENETRATION - BLOWS/FOOT																	
			0	10	20	30	40	60	80	100										
0.0	LIMESTONE GRAVEL, DRY, NO ODOR - FILL																			
0.3	LIGHT BROWN CLAYEY GRAVEL, DRY - FILL																			
1.0	DUSKY YELLOWISH BROWN SILTY GRAVEL, DRY, NO ODOR - FILL																			
2.5	GRAYISH ORANGE TO MODERATE YELLOWISH BROWN SILTY CLAY, SLIGHTLY MOIST, NO ODOR - FILL																			
12.5	GRAYISH ORANGE TO PALE YELLOWISH BROWN VERY SILTY CLAY, SLIGHTLY MOIST, NO ODOR - FILL																			
14.5	VERY PALE ORANGE TO PALE YELLOWISH BROWN CLAYEY SILT, SLIGHTLY MOIST, NO ODOR - FILL																			
22.0	LIGHT OLIVE GRAY TO MEDIUM GRAY CLAYEY SILT, WET, PETROLEUM ODOR - FILL																			
25.0	BORING TERMINATED																			

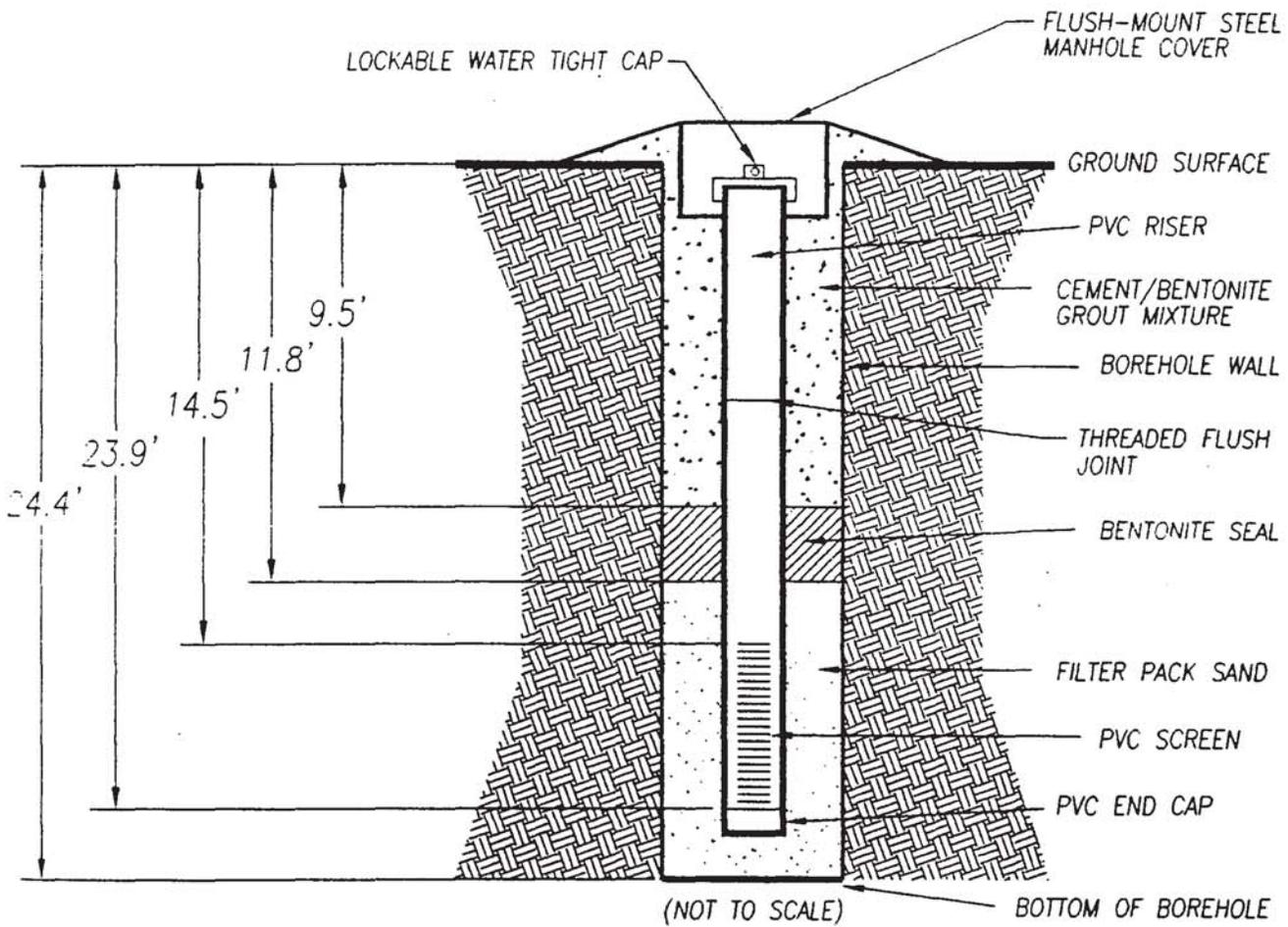
REMARKS:

TEST BORING RECORD	
BORING NUMBER	D-50
DATE DRILLED	February 21, 1996
PROJECT NUMBER	50385-5-0400/09/01
PROJECT	TVA SHAWNEE
PAGE 1 OF 1	
 <b>LAW ENGINEERING</b>	

SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED ABOVE

# TYPE II MONITORING WELL INSTALLATION RECORD

<p><b>JOB NAME</b> <u>TVA SHAWNEE FOSSIL PLANT</u></p> <p><b>WELL NUMBER</b> <u>D-51</u></p> <p><b>BOREHOLE DIAMETER</b> <u>N/A</u></p> <p><b>TOTAL DEPTH</b> <u>24.4'</u></p> <p><b>LAW ENGINEERING FIELD REPRESENTATIVE</b> <u>JOHN MASON</u></p>	<p><b>JOB NUMBER</b> <u>50385-5-0400/09/01</u></p> <p><b>INSTALLATION DATE</b> <u>2/21/96</u></p> <p><b>RISER/SCREEN:</b></p> <p><b>MATERIAL:</b> <u>SCHEDULE 40 PVC</u></p> <p><b>DIAMETER:</b> <u>2"</u></p> <p><b>SLOT SIZE:</b> <u>0.010"</u></p> <p><b>SCREEN LENGTH:</b> <u>10.0'</u></p>
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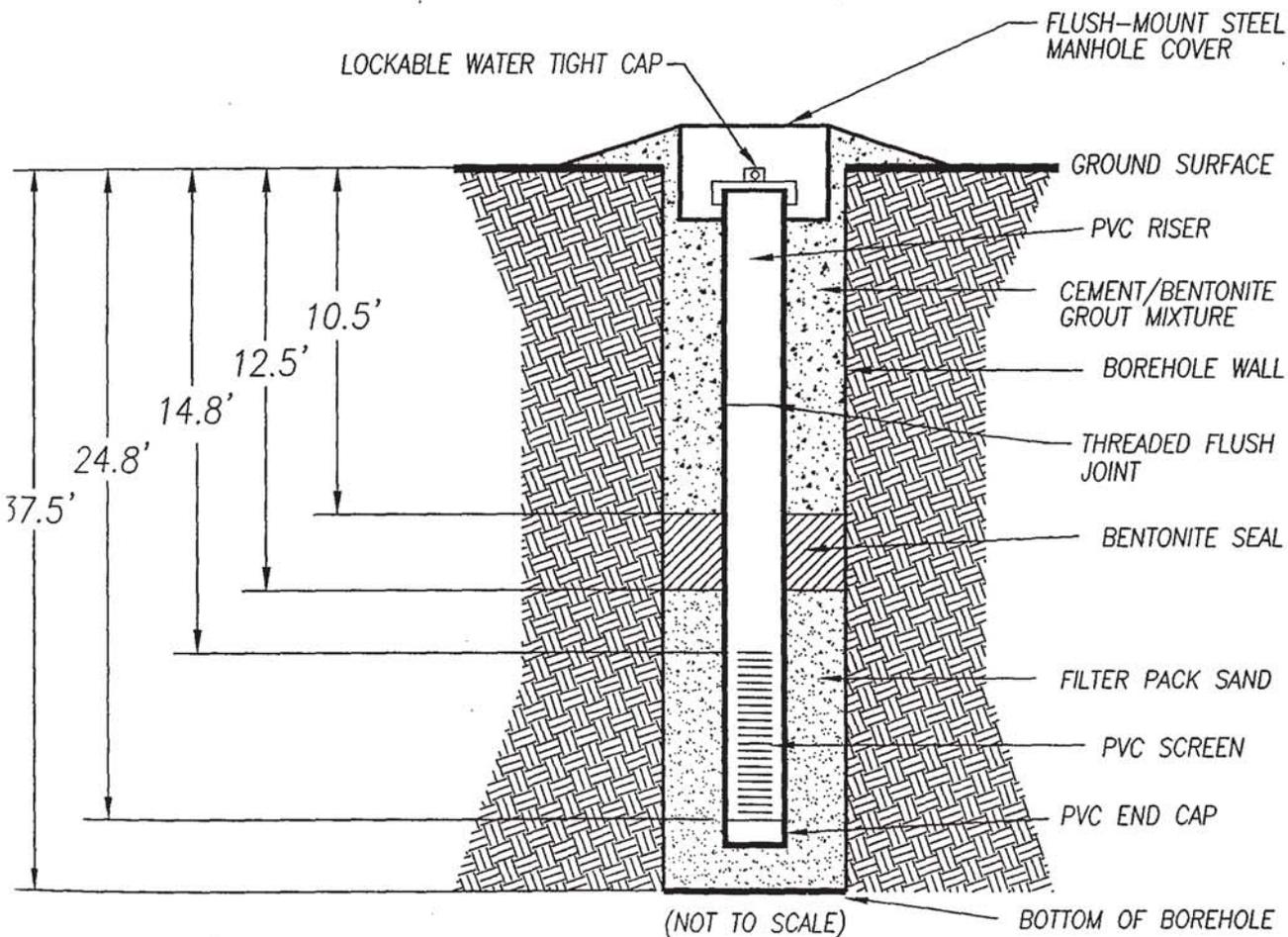
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**TVA SHAWNEE FOSSIL PLANT**

<b>JOB NUMBER:</b> 50385-5-0400/03/01	<b>DATE:</b> DECEMBER 14, 1995	<b>SCALE:</b> NOT TO SCALE
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# TYPE II MONITORING WELL INSTALLATION RECORD

<b>JOB NAME</b> <u>TVA SHAWNEE FOSSIL PLANT</u>	<b>JOB NUMBER</b> <u>50385-5-0400/09/01</u>
<b>WELL NUMBER</b> <u>D-52 (8002-6688)</u>	<b>INSTALLATION DATE</b> <u>2/24/96</u>
<b>BOREHOLE DIAMETER</b> <u>8.25"</u>	<b>RISER/SCREEN:</b>
<b>TOTAL DEPTH</b> <u>40'</u>	<b>MATERIAL:</b> <u>SCHEDULE 40 PVC</u>
<b>LAW ENGINEERING FIELD REPRESENTATIVE</b> <u>BRAD SALSURY</u>	<b>DIAMETER:</b> <u>2"</u>
	<b>SLOT SIZE:</b> <u>0.010"</u>
	<b>SCREEN LENGTH:</b> <u>10.0'</u>



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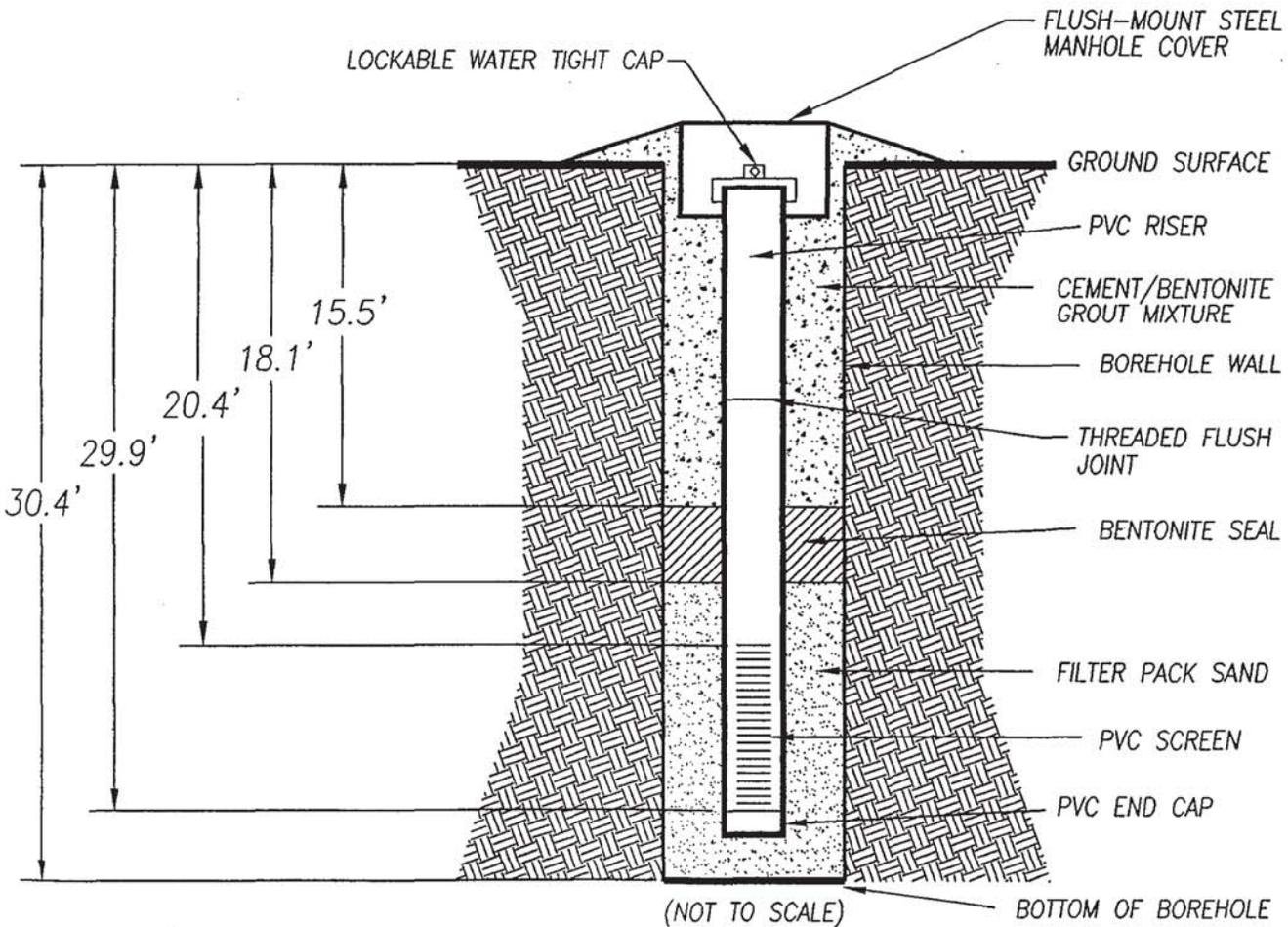
**TVA SHAWNEE FOSSIL PLANT**

<b>JOB NUMBER:</b> 50385-5-0400/03/01	<b>DATE:</b> APRIL 15, 1996	<b>SCALE:</b> NOT TO SCALE
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# TYPE II MONITORING WELL INSTALLATION RECORD

JOB NAME TVA SHAWNEE FOSSIL PLANT  
 WELL NUMBER D-53 (8002-6689)  
 BOREHOLE DIAMETER 8.25"  
 TOTAL DEPTH 30.4'  
 LAW ENGINEERING FIELD REPRESENTATIVE BRAD SALSURY

JOB NUMBER 50385-5-0400/09/01  
 INSTALLATION DATE 2/22/96  
 RISER/SCREEN:  
 MATERIAL: SCHEDULE 40 PVC  
 DIAMETER: 2"  
 SLOT SIZE: 0.010"  
 SCREEN LENGTH: 10.0'



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**TVA SHAWNEE FOSSIL PLANT**

JOB NUMBER: 50385-5-0400/03/01	DATE: APRIL 15, 1996	SCALE: NOT TO SCALE
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# TYPE II MONITORING WELL INSTALLATION RECORD

JOB NAME TVA SHAWNEE FOSSIL PLANT

WELL NUMBER D-54 (8002-6690)

BOREHOLE DIAMETER 8.25"

TOTAL DEPTH 35.0'

LAW ENGINEERING  
FIELD REPRESENTATIVE BRAD SALSURY

JOB NUMBER 50385-5-0400/09/01

INSTALLATION DATE 2/22/96

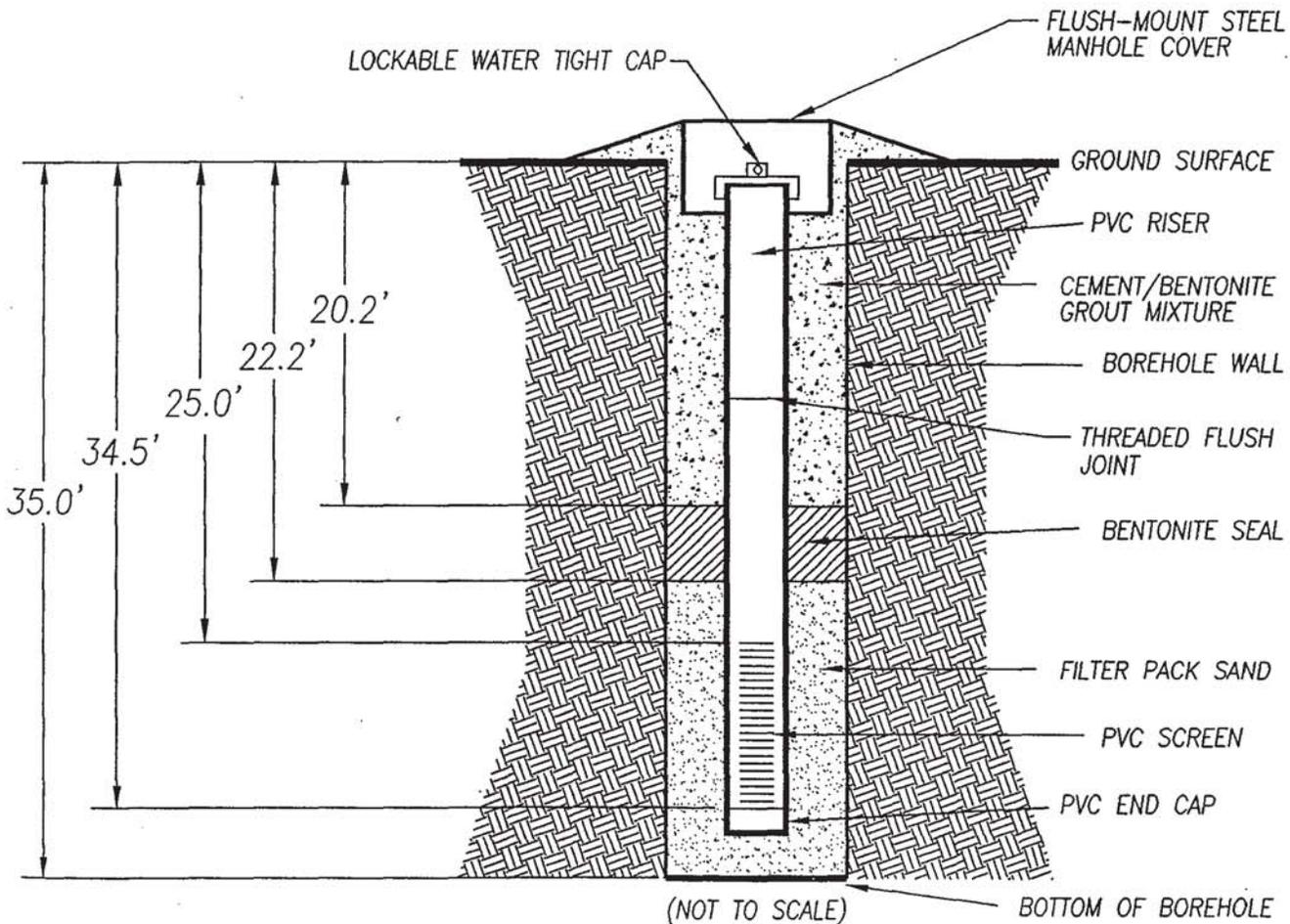
RISER/SCREEN:

MATERIAL: SCHEDULE 40 PVC

DIAMETER: 2"

SLOT SIZE: 0.010"

SCREEN LENGTH: 10.0'



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**TVA SHAWNEE FOSSIL PLANT**

JOB NUMBER:

50385-5-0400/03/01

DATE:

APRIL 15, 1996

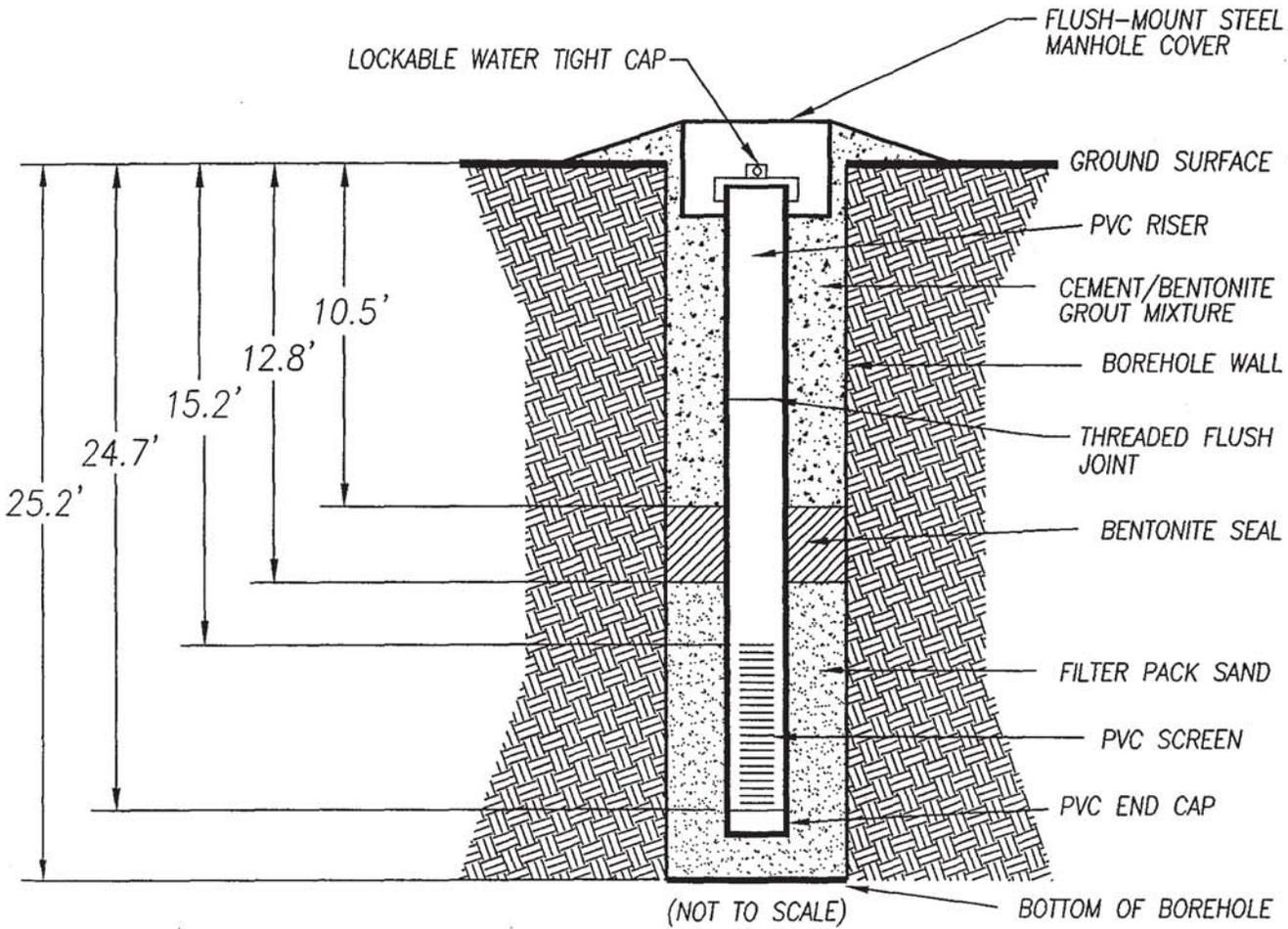
SCALE:

NOT TO SCALE

# TYPE II MONITORING WELL INSTALLATION RECORD

JOB NAME TVA SHAWNEE FOSSIL PLANT  
 WELL NUMBER D-55 (8002-6761)  
 BOREHOLE DIAMETER 8.25"  
 TOTAL DEPTH 25.2'  
 LAW ENGINEERING FIELD REPRESENTATIVE BRAD SALSURY

JOB NUMBER 50385-5-0400/09/01  
 INSTALLATION DATE 2/23/96  
 RISER/SCREEN:  
 MATERIAL: SCHEDULE 40 PVC  
 DIAMETER: 2"  
 SLOT SIZE: 0.010"  
 SCREEN LENGTH: 10.0'



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TVA SHAWNEE FOSSIL PLANT

JOB NUMBER: 50385-5-0400/03/01	DATE: APRIL 15, 1996	SCALE: NOT TO SCALE
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# TYPE II MONITORING WELL INSTALLATION RECORD

JOB NAME TVA SHAWNEE FOSSIL PLANT

WELL NUMBER D-56 (8002-6762)

BOREHOLE DIAMETER 8.25"

TOTAL DEPTH 30.8'

LAW ENGINEERING  
FIELD REPRESENTATIVE BRAD SALSBURY

JOB NUMBER 50385-5-0400/09/01

INSTALLATION DATE 2/23/96

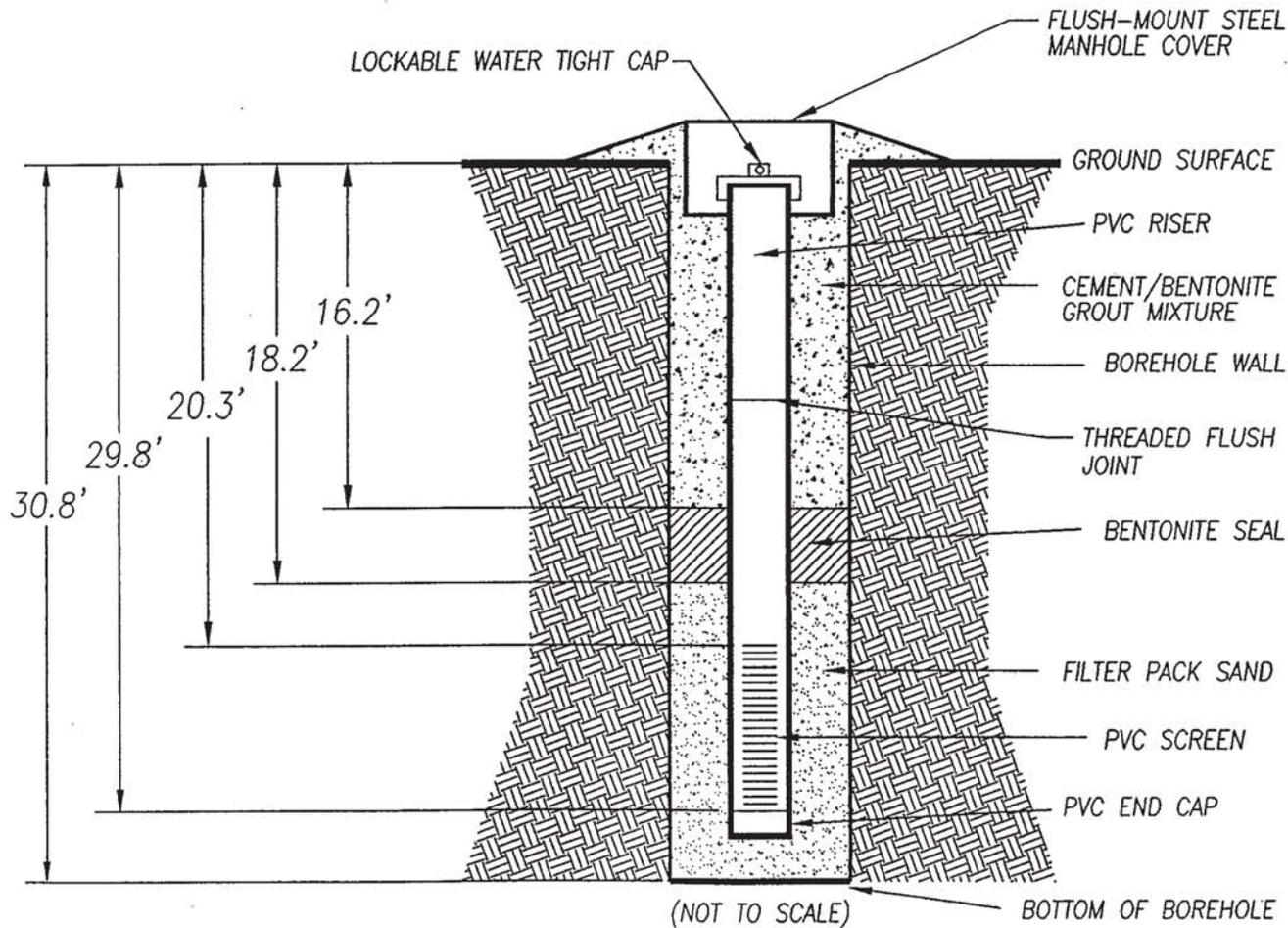
RISER/SCREEN:

MATERIAL: SCHEDULE 40 PVC

DIAMETER: 2"

SLOT SIZE: 0.010"

SCREEN LENGTH: 10.0'



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TVA SHAWNEE FOSSIL PLANT

JOB NUMBER:  
50385-5-0400/03/01

DATE:  
APRIL 15, 1996

SCALE:  
NOT TO SCALE

# TYPE II MONITORING WELL INSTALLATION RECORD

JOB NAME TVA SHAWNEE FOSSIL PLANT

WELL NUMBER D-57 (8002-6763)

BOREHOLE DIAMETER 8.25"

TOTAL DEPTH 25.6'

LAW ENGINEERING FIELD REPRESENTATIVE BRAD SALSURY

JOB NUMBER 50385-5-0400/09/01

INSTALLATION DATE 2/23/96

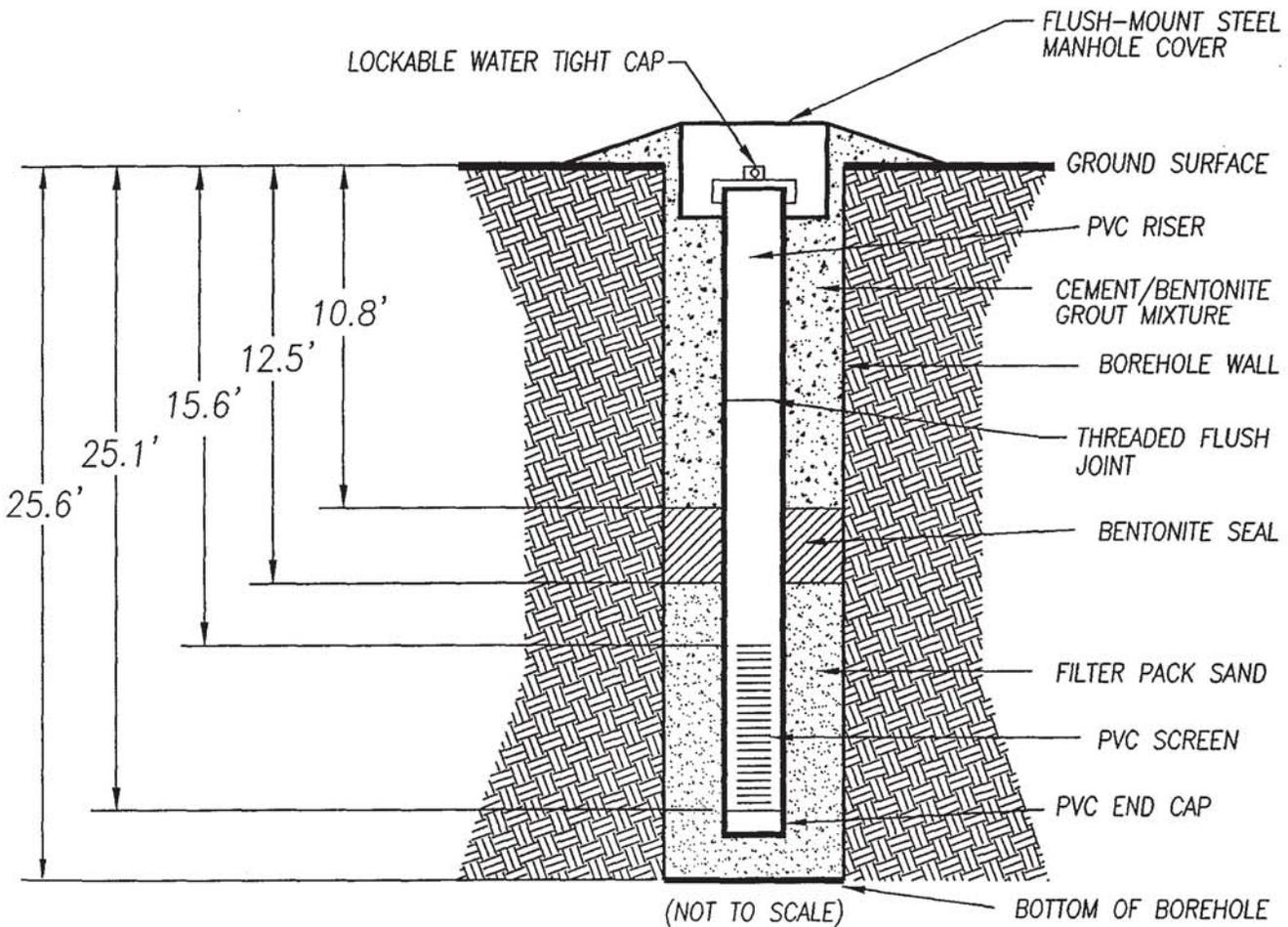
RISER/SCREEN:

MATERIAL: SCHEDULE 40 PVC

DIAMETER: 2"

SLOT SIZE: 0.010"

SCREEN LENGTH: 10.0'



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MATERIAL CONSULTANTS

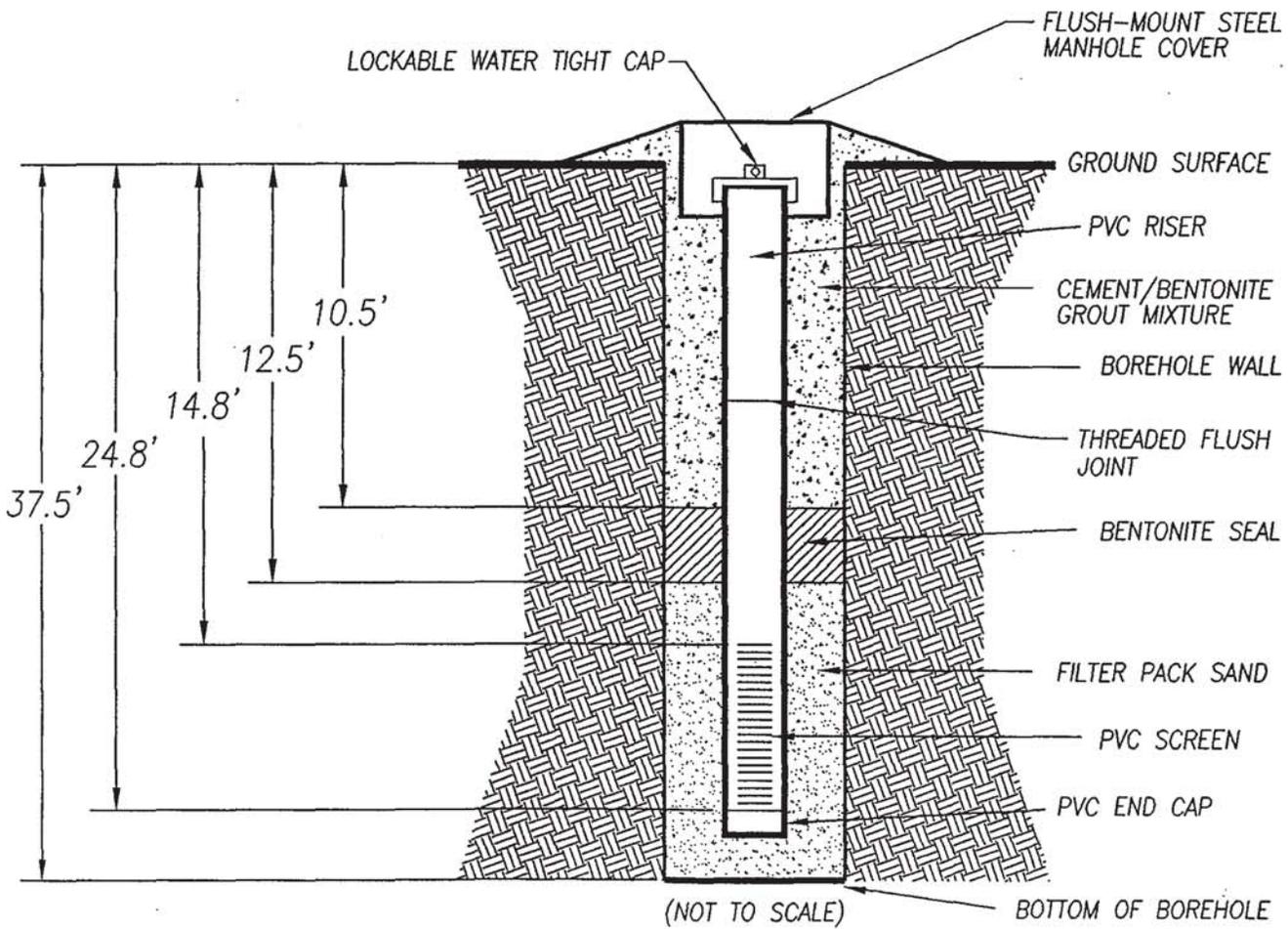
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**TVA SHAWNEE FOSSIL PLANT**

JOB NUMBER:	DATE:	SCALE:
50385-5-0400/03/01	APRIL 15, 1996	NOT TO SCALE

# TYPE II MONITORING WELL INSTALLATION RECORD

<p><b>JOB NAME</b> <u>TVA SHAWNEE FOSSIL PLANT</u></p> <p><b>WELL NUMBER</b> <u>D-58 (8002-6764)</u></p> <p><b>BOREHOLE DIAMETER</b> <u>8.25"</u></p> <p><b>TOTAL DEPTH</b> <u>37.5'</u></p> <p><b>LAW ENGINEERING FIELD REPRESENTATIVE</b> <u>BRAD SALSBUARY</u></p>	<p><b>JOB NUMBER</b> <u>50385-5-0400/09/01</u></p> <p><b>INSTALLATION DATE</b> <u>2/24/96</u></p> <p><b>RISER/SCREEN:</b></p> <p><b>MATERIAL:</b> <u>SCHEDULE 40 PVC</u></p> <p><b>DIAMETER:</b> <u>2"</u></p> <p><b>SLOT SIZE:</b> <u>0.010"</u></p> <p><b>SCREEN LENGTH:</b> <u>10.0'</u></p>
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## TVA SHAWNEE FOSSIL PLANT

<b>JOB NUMBER:</b> 50385-5-0400/03/01	<b>DATE:</b> APRIL 15, 1996	<b>SCALE:</b> NOT TO SCALE
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DEPTH (FT.)	DESCRIPTION	ELEVATION (FT.)		● PENETRATION - BLOWS/FOOT									
		0		10	20	30	40	60	80	100			
0.0	RED-BROWN SILTY CLAY, DRY, NO ODOR - FILL												
3.5	OLIVE-GRAY SANDY CLAYEY SILT, SLIGHTLY MOIST TO MOIST, NO ODOR - FILL												
6.0	RED-BROWN SILTY CLAY, MOIST, NO ODOR - FILL												
8.0	LIGHT OLIVE-GRAY SANDY CLAYEY SILT, DRY, NO ODOR - FILL (GRADES TO A SILTY CLAY AT 13.0', MOIST)												
15.0	OLIVE GRAY SILTY CLAY, MOIST TO VERY MOIST, NO ODOR - POSSIBLE FILL												
19.0	TAN-OLIVE SLIGHTLY SANDY CLAY, MOIST, NO ODOR - POSSIBLE FILL												
24.0	LIGHT OLIVE-GRAY SANDY CLAY WITH SILT, MOIST, NO ODOR - FILL (GRADES TO A CLAYEY SAND AND BACK TO A SANDY CLAY, MOIST TO VERY MOIST/DAMP AT 30.0')												

REMARKS:

TEST BORING RECORD	
BORING NUMBER	D-58
DATE DRILLED	February 24, 1996
PROJECT NUMBER	50385-5-0400/09/01
PROJECT	TVA SHAWNEE
PAGE 1 OF 2	
 <b>LAW ENGINEERING</b>	

SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED ABOVE



# TYPE II MONITORING WELL INSTALLATION RECORD

JOB NAME TVA SHAWNEE FOSSIL PLANT

WELL NUMBER D-59

BOREHOLE DIAMETER N/A

TOTAL DEPTH 29.7'

LAW ENGINEERING FIELD REPRESENTATIVE BRAD SALSBUURY

JOB NUMBER 50385-5-0400/09/01

INSTALLATION DATE 3/19/96

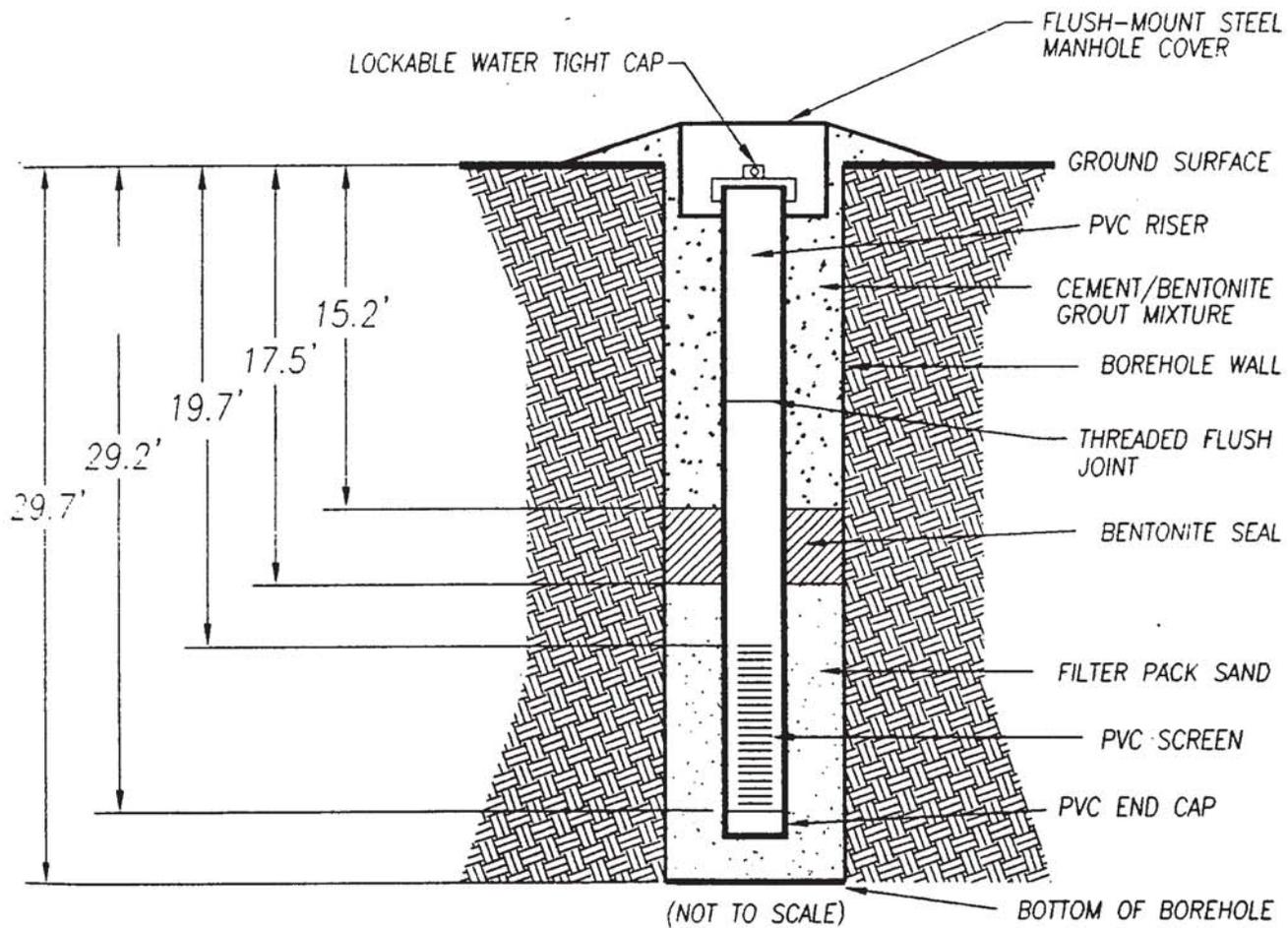
RISER/SCREEN:

MATERIAL: SCHEDULE 40 PVC

DIAMETER: 2"

SLOT SIZE: 0.010"

SCREEN LENGTH: 10.0'



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**TVA SHAWNEE FOSSIL PLANT**

JOB NUMBER:	DATE:	SCALE:
50385-5-0400/03/01	DECEMBER 14, 1995	NOT TO SCALE

DEPTH (FT.)	DESCRIPTION	ELEVATION (FT.)	● PENETRATION - BLOWS/FOOT									
			0	10	20	30	40	60	80	100		
0.0												
0.4	MEDIUM GRAY TO BLACK GRAVEL											
	YELLOWISH GRAY TO LIGHT OLIVE GRAY SILTY CLAY, SLIGHTLY MOIST, NO ODOR - FILL											
4.0												
	DARK YELLOWISH ORANGE TO MODERATE YELLOWISH BROWN, SLIGHTLY MOIST, NO ODOR - FILL											
8.0												
	GRAYISH ORANGE TO PALE YELLOWISH BROWN VERY SILTY (40%) CLAY, SLIGHTLY MOIST, NO ODOR - FILL											
17.0												
	GRAYISH ORANGE TO PALE YELLOWISH BROWN VERY SILTY (40%) CLAY, VERY MOIST TO WET, PETROLEUM ODOR - FILL											
20.0												
	LIGHT GRAY-TAN CLAYEY SILT, DRY, PETROLEUM ODOR - FILL											
23.0												
	BLACK SILTY SAND/SANDY SILT, MOIST TO VERY MOIST, STRONG PETROLEUM ODOR - FILL											
26.0												
	MEDIUM GRAY SILTY CLAYEY SILT, MOIST TO VERY MOIST, STRONG PETROLEUM ODOR - FILL											
29.0												
	GRAY-TAN SILTY SAND, MOIST, PETROLEUM ODOR - FILL											
30.0												

REMARKS:

**TEST BORING RECORD**

**BORING NUMBER** D-59  
**DATE DRILLED** March 19, 1996  
**PROJECT NUMBER** 50385-5-0400/09/01  
**PROJECT** TVA SHAWNEE  
**PAGE 1 OF 2**

SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED ABOVE

**LAW ENGINEERING**

DEPTH  
(FT.)

DESCRIPTION

ELEVATION  
(FT.)

● PENETRATION - BLOWS/FOOT

0 10 20 30 40 60 80 100

BORING TERMINATED

REMARKS:

**TEST BORING RECORD**

BORING NUMBER D-59  
DATE DRILLED March 19, 1996  
PROJECT NUMBER 50385-5-0400/09/01  
PROJECT TVA SHAWNEE  
PAGE 2 OF 2

SEE KEY SHEET FOR EXPLANATION OF  
SYMBOLS AND ABBREVIATIONS USED ABOVE

 **LAW ENGINEERING**

# TYPE II MONITORING WELL INSTALLATION RECORD

JOB NAME TVA SHAWNEE FOSSIL PLANT

WELL NUMBER D-60 (8002-6765)

BOREHOLE DIAMETER 8.25"

TOTAL DEPTH 55.0'

LAW ENGINEERING  
FIELD REPRESENTATIVE BRAD SALSURY

JOB NUMBER 50385-5-0400/09/01

INSTALLATION DATE 3/10/96

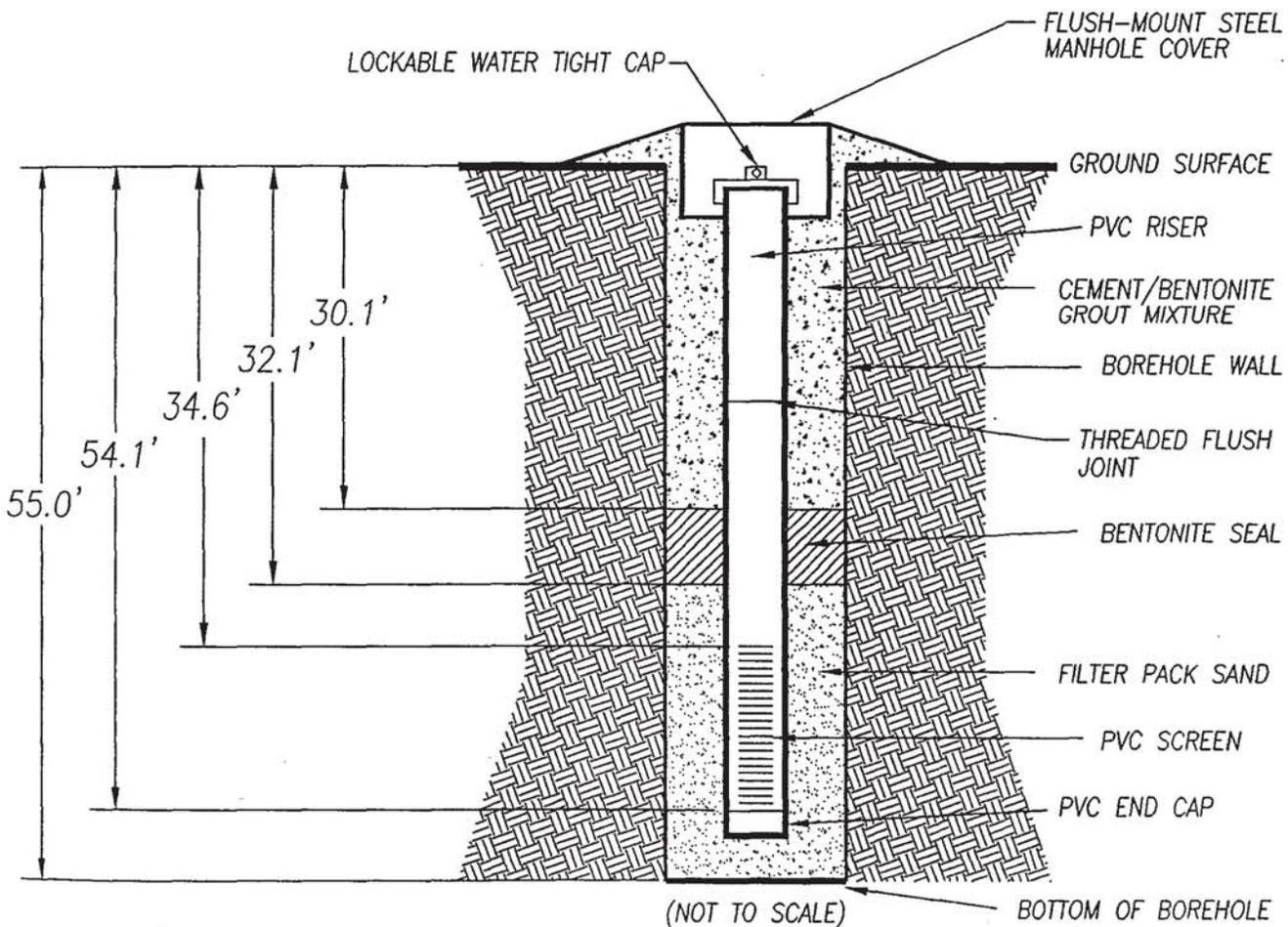
RISER/SCREEN:

MATERIAL: SCHEDULE 40 PVC

DIAMETER: 2"

SLOT SIZE: 0.010"

SCREEN LENGTH: 20.0'



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**TVA SHAWNEE FOSSIL PLANT**

JOB NUMBER:	DATE:	SCALE:
50385-5-0400/03/01	APRIL 15, 1996	NOT TO SCALE

DEPTH (FT.)	DESCRIPTION	ELEVATION (FT.)	● PENETRATION - BLOWS/FOOT																
			0	10	20	30	40	60	80	100									
0.0	RED-BROWN SILTY CLAY, SLIGHTLY MOIST, NO ODOR - FILL																		
3.0	< 1.5" GRAVELS, DRY, NO ODOR - FILL																		
4.0	> 1.5" GRAVELS AND COBBLES WITH RED-BROWN SILTY CLAY, DRY, SLIGHT PETROLEUM ODOR - FILL																		
10.0	MEDIUM GRAY SANDY CLAY, WET, STRONG PETROLEUM ODOR - FILL																		
16.0	OLIVE-GRAY SANDY SILTY CLAY, MOIST, STRONG ODOR - FILL																		
17.4	OLIVE-TAN SILTY CLAY WITH SAND, MOIST THROUGHOUT, SLIGHT ODOR - FILL (GRADED TO SILTY CLAY AND BACK TO A SANDY SILTY CLAY)																		
26.0	SOFT OLIVE-GRAY, SILTY-CLAY, VERY MOIST TO DAMP, NO ODOR - FILL (GRADES TO A SANDY CLAY AT 33.0')																		

**REMARKS:**

GROUND WATER MEASURED AT 39.6'  
ABOUT 1.5 HOURS AFTER WELL  
COMPLETED.

SEE KEY SHEET FOR EXPLANATION OF  
SYMBOLS AND ABBREVIATIONS USED ABOVE

TEST BORING RECORD	
BORING NUMBER	D-60
DATE DRILLED	February 23, 1996
PROJECT NUMBER	50385-5-0400/09/01
PROJECT	TVA SHAWNEE
PAGE 1 OF 2	
 <b>LAW ENGINEERING</b>	

DEPTH (FT.)	DESCRIPTION	ELEVATION (FT.)	● PENETRATION - BLOWS/FOOT																	
			0	10	20	30	40	60	80	100										
36.0	TAN-GRAY SANDY CLAY, WET, NO ODOR - FILL																			
40.0	GRAY-OLIVE SANDY CLAY, MOIST, NO ODOR - FILL																			
46.0	LIGHT OLIVE-GRAY CLAYEY SAND, MOIST, NO ODOR - FILL																			
52.0	DARK YELLOWISH ORANGE CLAYEY SAND, MOIST TO VERY MOIST, NO ODOR - FILL																			
55.0	BORING TERMINATED																			

REMARKS:  
GROUND WATER MEASURED AT 39.6'  
ABOUT 1.5 HOURS AFTER WELL  
COMPLETED.

TEST BORING RECORD	
BORING NUMBER	D-60
DATE DRILLED	February 23, 1996
PROJECT NUMBER	50385-5-0400/09/01
PROJECT	TVA SHAWNEE
PAGE 2 OF 2	
 <b>LAW ENGINEERING</b>	

SEE KEY SHEET FOR EXPLANATION OF  
SYMBOLS AND ABBREVIATIONS USED ABOVE

# TYPE II MONITORING WELL INSTALLATION RECORD

JOB NAME TVA SHAWNEE FOSSIL PLANT

WELL NUMBER D-61 (8002-6766)

BOREHOLE DIAMETER 8.25"

TOTAL DEPTH 53.0'

LAW ENGINEERING FIELD REPRESENTATIVE BRAD SALSURY

JOB NUMBER 50385-5-0400/09/01

INSTALLATION DATE 3/9/96

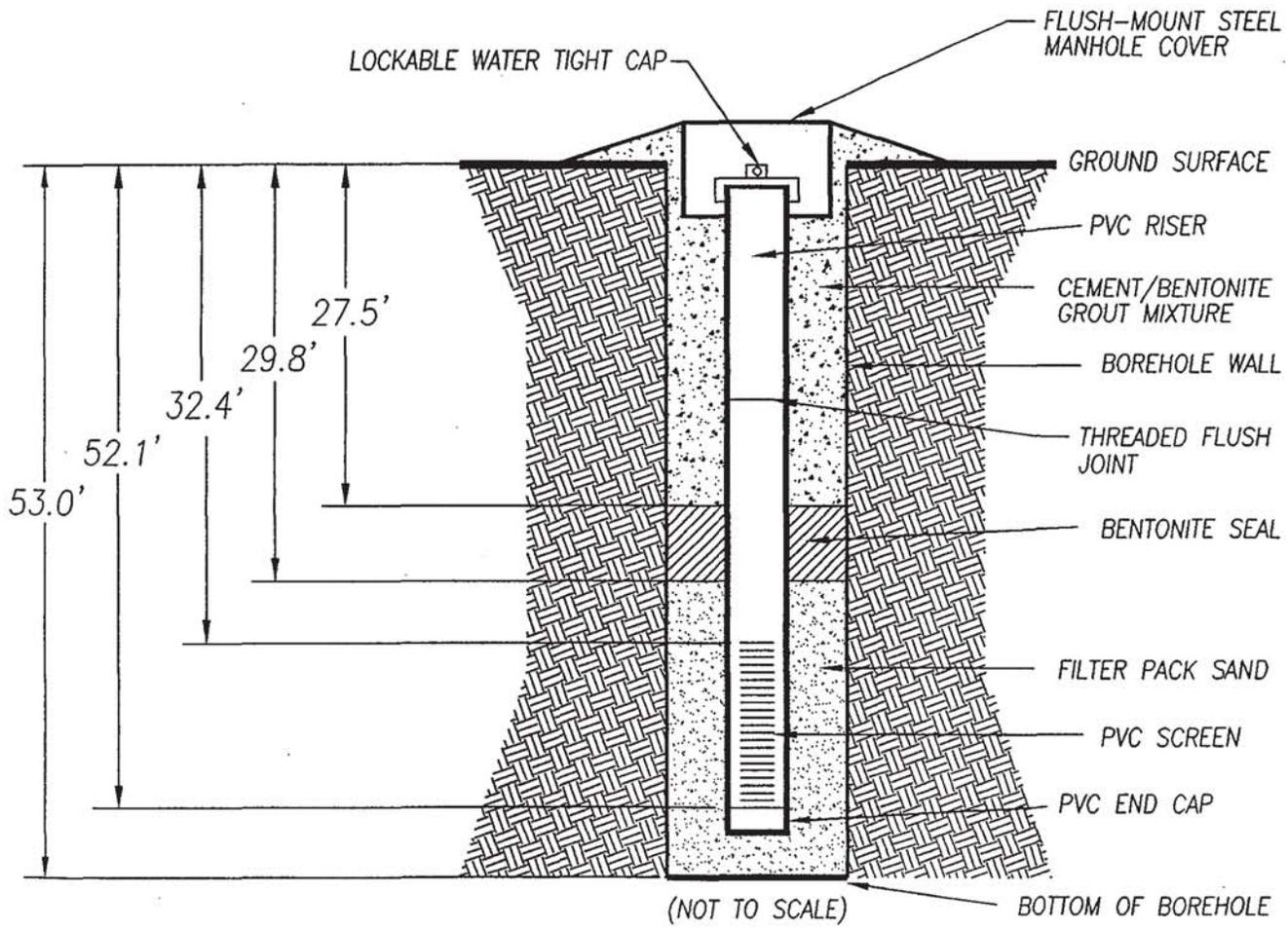
RISER/SCREEN:

MATERIAL: SCHEDULE 40 PVC

DIAMETER: 2"

SLOT SIZE: 0.010"

SCREEN LENGTH: 20.0'



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TVA SHAWNEE FOSSIL PLANT

JOB NUMBER: 50385-5-0400/03/01	DATE: APRIL 15, 1996	SCALE: NOT TO SCALE
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DEPTH (FT.)	DESCRIPTION	ELEVATION (FT.)	● PENETRATION - BLOWS/FOOT																	
			0	10	20	30	40	60	80	100										
0.0	BLACK-GRAY SANDY SILTY GRAVELS, NO ODOR - FILL																			
1.5	OLIVE-GRAY SILTY CLAY, SLIGHTLY MOIST, STRONG ODOR - FILL																			
4.0	LIGHT YELLOWISH BROWN CLAYEY SILT WITH SOME SAND AND GRAVEL, DRY (MOIST AT 7.5'), PETROLEUM ODOR - FILL																			
8.0	OLIVE-GRAY SILTY CLAY, MOIST, ODOR PRESENT - FILL																			
9.5	OLIVE-GRAY CLAYEY SILT, SLIGHTLY MOIST, SLIGHT ODOR - FILL																			
11.0	YELLOWISH BROWN CLAYEY SILT, DRY, SLIGHT ODOR - FILL																			
13.5	ORANGISH BROWN GRAY SILTY CLAY, MOIST, NO ODOR - FILL (GRADES TO A SILTY CLAY SOME BLACK STAINING, SLIGHT ODOR AT 22.0', MOIST)																			
26.0	OLIVE SILTY CLAY, NO ODOR - POSSIBLE FILL																			
28.0	GRAY SILTY CLAY, VERY DAMP, NO ODOR - FILL																			

**REMARKS:**

GROUND WATER MEASURED AT 36.4' AFTER WELL COMPLETED.

SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED ABOVE

TEST BORING RECORD	
BORING NUMBER	D-61
DATE DRILLED	February 22, 1996
PROJECT NUMBER	50385-5-0400/09/01
PROJECT	TVA SHAWNEE
PAGE 1 OF 2	
 <b>LAW ENGINEERING</b>	

DEPTH (FT.)	DESCRIPTION	ELEVATION (FT.)	● PENETRATION - BLOWS/FOOT										
			0	10	20	30	40	60	80	100			
30.5	LIGHT GRAY-OLIVE SILTY CLAY, MOIST, NO ODOR - PROBABLE FILL												
35.0	LIGHT GRAY-OLIVE TO LIGHT GRAY SILTY CLAY TO CLAYEY SILT, MOIST, NO ODOR - FILL												
40.0	LIGHT GRAY SILTY CLAY, MOIST, NO ODOR - FILL												
42.0	LIGHT YELLOWISH BROWN SILTY CLAY WITH TRACE SAND, MOIST TO VERY MOIST, NO ODOR - FILL (NO RETURN BETWEEN 48.0' AND 50.0')												
50.0	LIGHT YELLOWISH BROWN SILTY CLAY WITH TRACE SAND, MOIST TO VERY MOIST, LOW RETURN, NO ODOR - FILL												
52.0	BORING TERMINATED												

**REMARKS:**

GROUND WATER MEASURED AT 36.4'  
AFTER WELL COMPLETED.

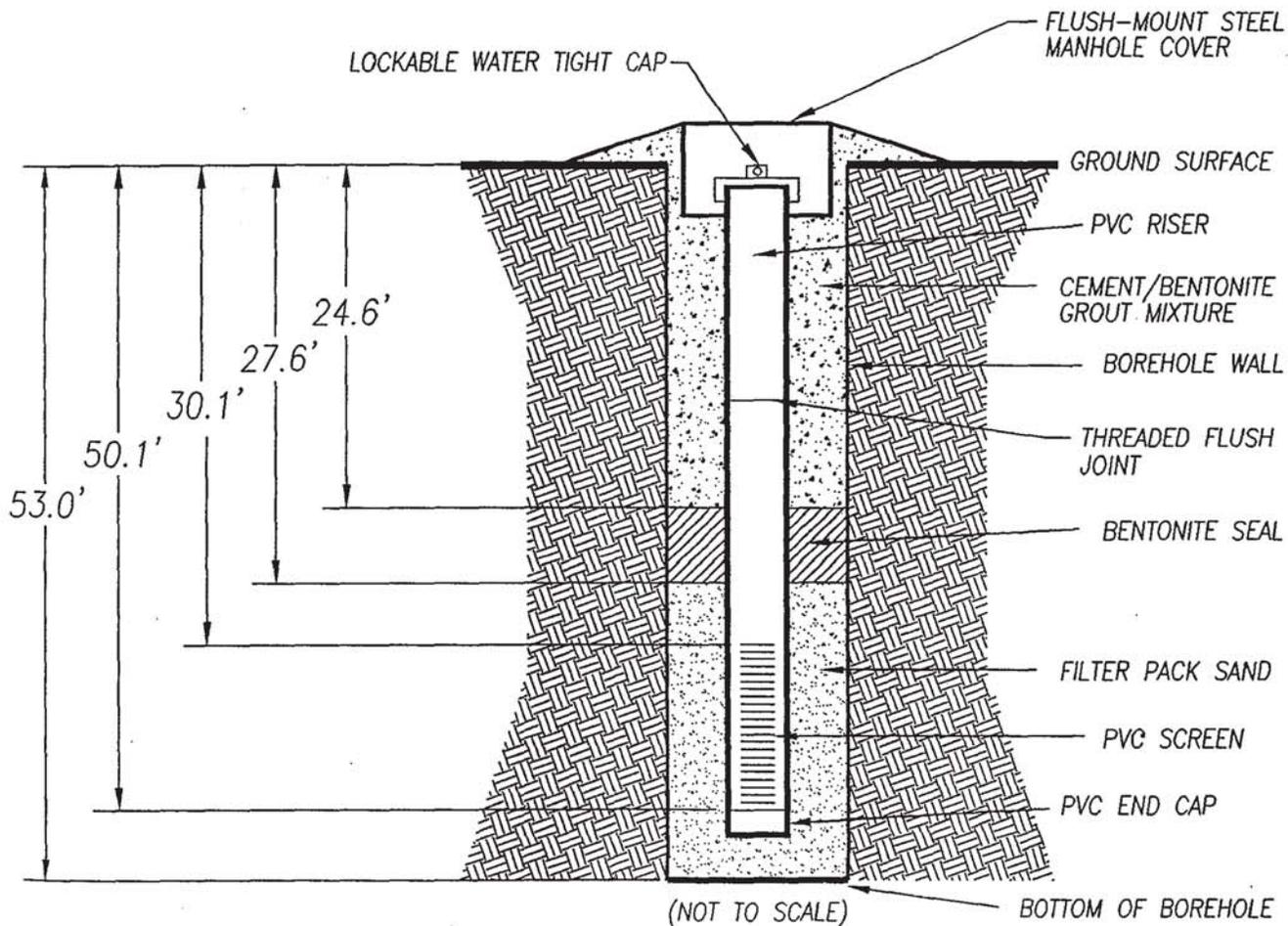
SEE KEY SHEET FOR EXPLANATION OF  
SYMBOLS AND ABBREVIATIONS USED ABOVE

TEST BORING RECORD	
BORING NUMBER	D-61
DATE DRILLED	February 22, 1996
PROJECT NUMBER	50385-5-0400/09/01
PROJECT	TVA SHAWNEE
PAGE 2 OF 2	
 <b>LAW ENGINEERING</b>	

# TYPE II MONITORING WELL INSTALLATION RECORD

JOB NAME TVA SHAWNEE FOSSIL PLANT  
 WELL NUMBER D-62 (8002-6767)  
 BOREHOLE DIAMETER 8.25"  
 TOTAL DEPTH 53.0'  
 LAW ENGINEERING FIELD REPRESENTATIVE BRAD SALSBUURY

JOB NUMBER 50385-5-0400/09/01  
 INSTALLATION DATE 3/8/96  
 RISER/SCREEN:  
 MATERIAL: SCHEDULE 40 PVC  
 DIAMETER: 2"  
 SLOT SIZE: 0.010"  
 SCREEN LENGTH: 20.0'



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TVA SHAWNEE FOSSIL PLANT

JOB NUMBER:	DATE:	SCALE:
50385-5-0400/03/01	APRIL 15, 1996	NOT TO SCALE

DEPTH (FT.)	DESCRIPTION	ELEVATION (FT.)	● PENETRATION - BLOWS/FOOT															
			0	10	20	30	40	60	80	100								
0.0	SILTY SANDY GRAVEL																	
2.0	YELLOW-BROWN CLAYEY SILT, DRY, NO ODOR - FILL (GRADES TO A SILTY CLAY AT 5.0')																	
8.0	SOFT TAN-GRAY SANDY CLAY, MOIST, NO ODOR - FILL																	
10.0	FIRM RED-BROWN SANDY SILTY CLAY, MOIST, NO ODOR - FILL (GRADING TO A CLAYEY SANDY SILT - FILL																	
15.0	FIRM OLIVE-TAN SILTY CLAY, MOIST, NO ODOR - FILL																	
20.0	FIRM OLIVE-GRAY SILTY CLAY, MOIST, NO ODOR - FILL																	
22.0	OLIVE-TAN SILTY CLAY GRADING TO A SLIGHTLY SANDY CLAY AT 26.0', SOME PEA GRAVEL PRESENT AT 29.0', MOIST, NO ODOR - FILL																	
29.0	GRAY SILTY SANDY CLAY, WET, STICKY SOME PEA GRAVEL PRESENT, NO ODOR -																	

**REMARKS:**

GROUND WATER MEASURED AT 36.8' AFTER WELL COMPLETED.

SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED ABOVE

TEST BORING RECORD	
BORING NUMBER	D-62
DATE DRILLED	February 22, 1996
PROJECT NUMBER	50385-5-0400/09/01
PROJECT	TVA SHAWNEE
PAGE 1 OF 2	
 <b>LAW ENGINEERING</b>	

DEPTH (FT.)      DESCRIPTION      ELEVATION (FT.)      ● PENETRATION - BLOWS/FOOT

DEPTH (FT.)	DESCRIPTION	ELEVATION (FT.)	0	10	20	30	40	60	80	100
	POSSIBLE FILL									
34.0	OLIVE-GRAY SANDY CLAY WITH SOME PEA GRAVEL, WET, NO ODOR - FILL									
45.0	LIGHT OLIVE-GRAY TO LIGHT GRAY CLAYEY SAND, WET, NO ODOR - FILL									
50.0	LIGHT ORANGE-GRAY CLAYEY SAND, WET, NO ODOR - FILL									
53.0	BORING TERMINATED									

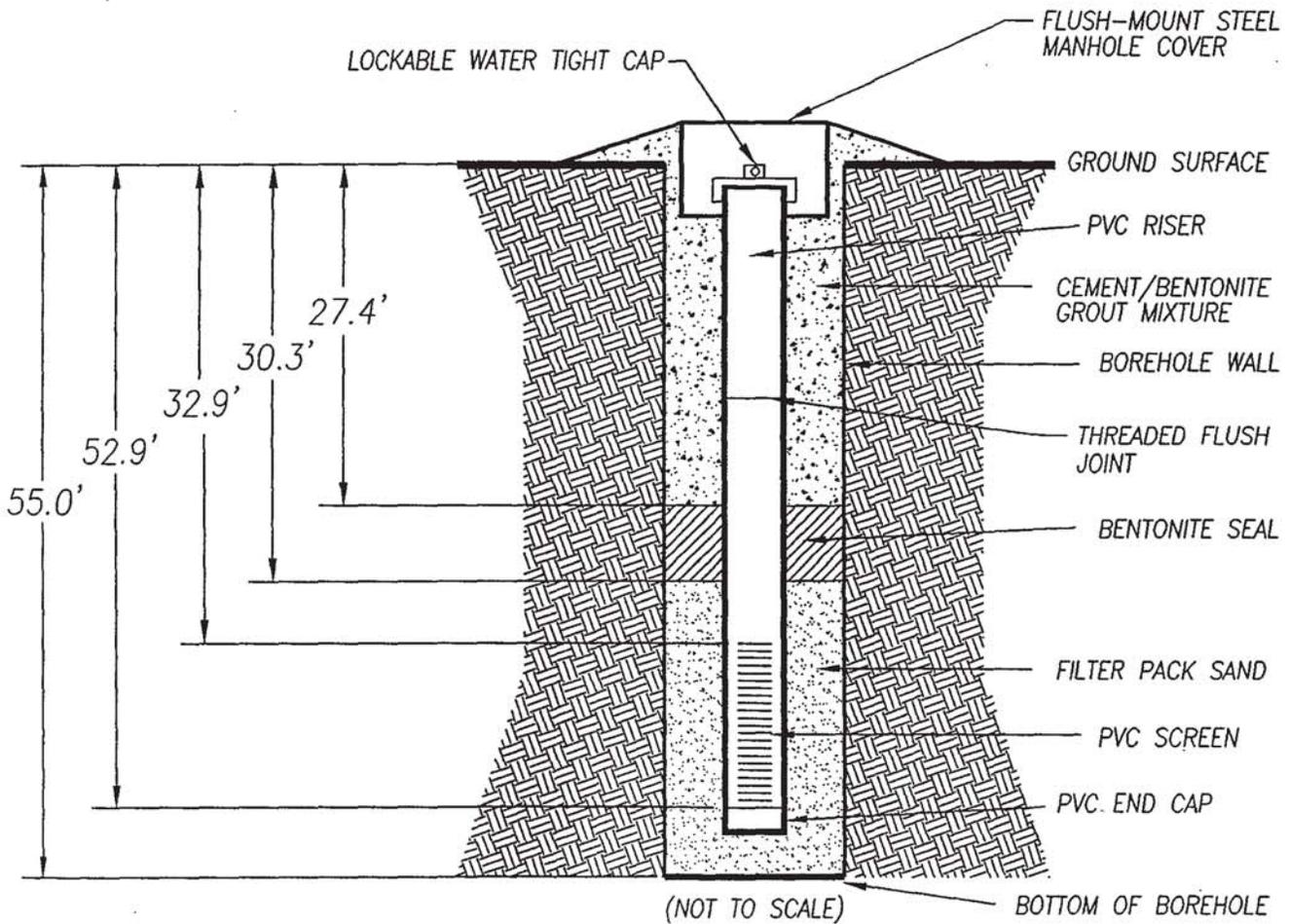
REMARKS:  
GROUND WATER MEASURED AT 36.8' AFTER WELL COMPLETED.

TEST BORING RECORD	
BORING NUMBER	D-62
DATE DRILLED	February 22, 1996
PROJECT NUMBER	50385-5-0400/09/01
PROJECT	TVA SHAWNEE
PAGE 2 OF 2	
 <b>LAW ENGINEERING</b>	

SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED ABOVE

# TYPE II MONITORING WELL INSTALLATION RECORD

JOB NAME <u>TVA SHAWNEE FOSSIL PLANT</u> WELL NUMBER <u>D-63 (8002-6768)</u> BOREHOLE DIAMETER <u>8.25"</u> TOTAL DEPTH <u>55.0'</u> LAW ENGINEERING FIELD REPRESENTATIVE <u>BRAD SALSBUARY</u>	JOB NUMBER <u>50385-5-0400/09/01</u> INSTALLATION DATE <u>3/9/96</u> RISER/SCREEN: MATERIAL: <u>SCHEDULE 40 PVC</u> DIAMETER: <u>2"</u> SLOT SIZE: <u>0.010"</u> SCREEN LENGTH: <u>20.0'</u>
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**TVA SHAWNEE FOSSIL PLANT**

JOB NUMBER: 50385-5-0400/03/01	DATE: APRIL 15, 1996	SCALE: NOT TO SCALE
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DEPTH (FT.)	DESCRIPTION	ELEVATION (FT.)		● PENETRATION - BLOWS/FOOT										
		0		10	20	30	40	60	80	100				
0.0	BLACK ASPHALT, GRAVEL AND SAND													
2.0	YELLOW BROWN SILTY CLAY, DRY, NO ODOR - FILL													
5.0	OLIVE GRAY SILTY CLAY, SOME SAND, MOIST, NO ODOR - FILL													
8.0	OLIVE-BROWN SANDY CLAY, MOIST, NO ODOR - FILL													
9.0	TAN SANDY CLAY, MOIST, NO ODOR - FILL													
11.5	TAN LIGHT GRAY, CLAYEY SAND, VERY MOIST TO DAMP, NO ODOR - FILL													
12.5	OLIVE-GRAY SLIGHTLY SANDY CLAY, SLIGHTLY MOIST, NO ODOR - FILL													
13.5	FIRM BROWN SILTY CLAY, SLIGHTLY MOIST, NO ODOR - FILL													
15.0	OLIVE-GRAY SILTY CLAY GRADING TO A SLIGHTLY SANDY CLAY AND BACK TO A SILTY CLAY, MOIST TO DAMP TO WET, NO ODOR - FILL													
25.0	OLIVE SILTY CLAY, MOIST, NO ODOR - FILL													
27.0	OLIVE-GRAY SILTY CLAY, MOIST TO VERY MOIST, NO ODOR - POSSIBLE FILL													

REMARKS:

TEST BORING RECORD	
BORING NUMBER	D-63
DATE DRILLED	February 23, 1996
PROJECT NUMBER	50385-5-0400/09/01
PROJECT	TVA SHAWNEE
PAGE 1 OF 2	
 <b>LAW ENGINEERING</b>	

SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED ABOVE

DEPTH (FT.)	DESCRIPTION	ELEVATION (FT.)	● PENETRATION - BLOWS/FOOT											
			0	10	20	30	40	60	80	100				
34.0	LIGHT YELLOW-GRAY SILTY CLAY, VERY MOIST, NO ODOR - FILL													
37.0	LIGHT YELLOWISH-BROWN SILTY CLAY WITH TRACE SAND, VERY MOIST, NO ODOR - FILL (GRADES TO A SANDY CLAY/CLAYEY SAND)													
50.0	LIGHT BROWN ORANGE CLAYEY SAND, VERY MOIST, NO ODOR - FILL													
55.0	BORING TERMINATED													

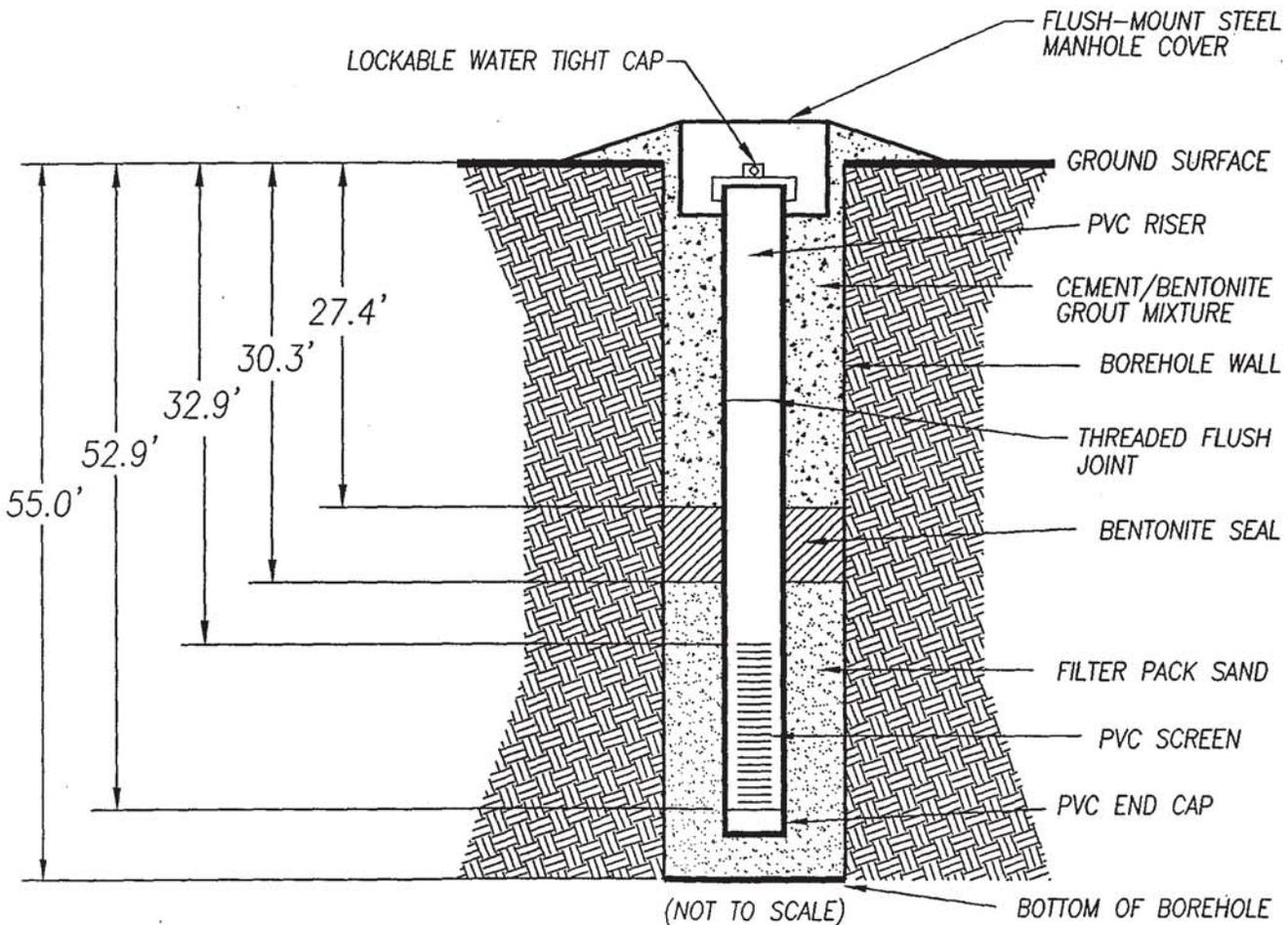
REMARKS:

TEST BORING RECORD	
BORING NUMBER	D-63
DATE DRILLED	February 23, 1996
PROJECT NUMBER	50385-5-0400/09/01
PROJECT	TVA SHAWNEE
PAGE 2 OF 2	
▲ LAW ENGINEERING	

SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED ABOVE

# TYPE II MONITORING WELL INSTALLATION RECORD

JOB NAME <u>TVA SHAWNEE FOSSIL PLANT</u> WELL NUMBER <u>D-64 (8002-6769)</u> BOREHOLE DIAMETER <u>8.25"</u> TOTAL DEPTH <u>N/A</u> LAW ENGINEERING FIELD REPRESENTATIVE <u>BRAD SALSURY</u>	JOB NUMBER <u>50385-5-0400/09/01</u> INSTALLATION DATE <u>3/9/96</u> RISER/SCREEN MATERIAL: <u>SCHEDULE 40 PVC</u> DIAMETER: <u>2"</u> SLOT SIZE: <u>0.010"</u> SCREEN LENGTH: <u>20.0'</u>
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**TVA SHAWNEE FOSSIL PLANT**

JOB NUMBER:	DATE:	SCALE:
50385-5-0400/03/01	APRIL 15, 1996	NOT TO SCALE

DEPTH (FT.)	DESCRIPTION	ELEVATION (FT.)	● PENETRATION - BLOWS/FOOT										
			0	10	20	30	40	60	80	100			
0.0	FIRM BROWN SILTY CLAY, MOIST, NO ODOR - FILL												
2.0	FIRM YELLOW-BROWN SILTY CLAY, SOME MOIST SAND, DRY TO SLIGHTLY MOIST, NO ODOR - FILL												
5.0	FIRM BROWN CLAY, MOIST, NO ODOR - FILL												
12.0	FIRM YELLOW-BROWN SANDY CLAY, VERY MOIST, NO ODOR - FILL												
15.0	SOFT TAN-BROWN SANDY CLAY, VERY MOIST, NO ODOR - FILL												
18.0	SOFT BROWN-GRAY SANDY CLAY, VERY MOIST TO WET SANDY CLAY, NO ODOR - FILL												
25.0	SOFT BROWN-GRAY SILTY CLAY, MOIST, NO ODOR - FILL												

REMARKS:

TEST BORING RECORD	
BORING NUMBER	D-64
DATE DRILLED	March 4, 1996
PROJECT NUMBER	50385-5-0400/09/01
PROJECT	TVA SHAWNEE
PAGE 1 OF 2	
▲ LAW ENGINEERING	

SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED ABOVE

DEPTH (FT.)	DESCRIPTION	ELEVATION (FT.)	● PENETRATION - BLOWS/FOOT																	
			0	10	20	30	40	60	80	100										
35.0	SOFT LIGHT BROWN-GRAY SILTY SANDY CLAY, VERY MOIST, NO ODOR - FILL																			
42.0	SOFT ORANGE-BROWN SANDY SILT, VERY MOIST, NO ODOR - FILL																			
48.0	SOFT ORANGE-BROWN SANDY SILT WITH SMALL QUARTZ GRAVELS, VERY MOIST, NO ODOR - ALLUVIUM																			
52.0	SOFT LIGHT ORANGE-BROWN SILT AND FINE SAND, ROUNDED QUARTZ GRAVELS, WET - ALLUVIUM																			
60.0	BORING TERMINATED																			

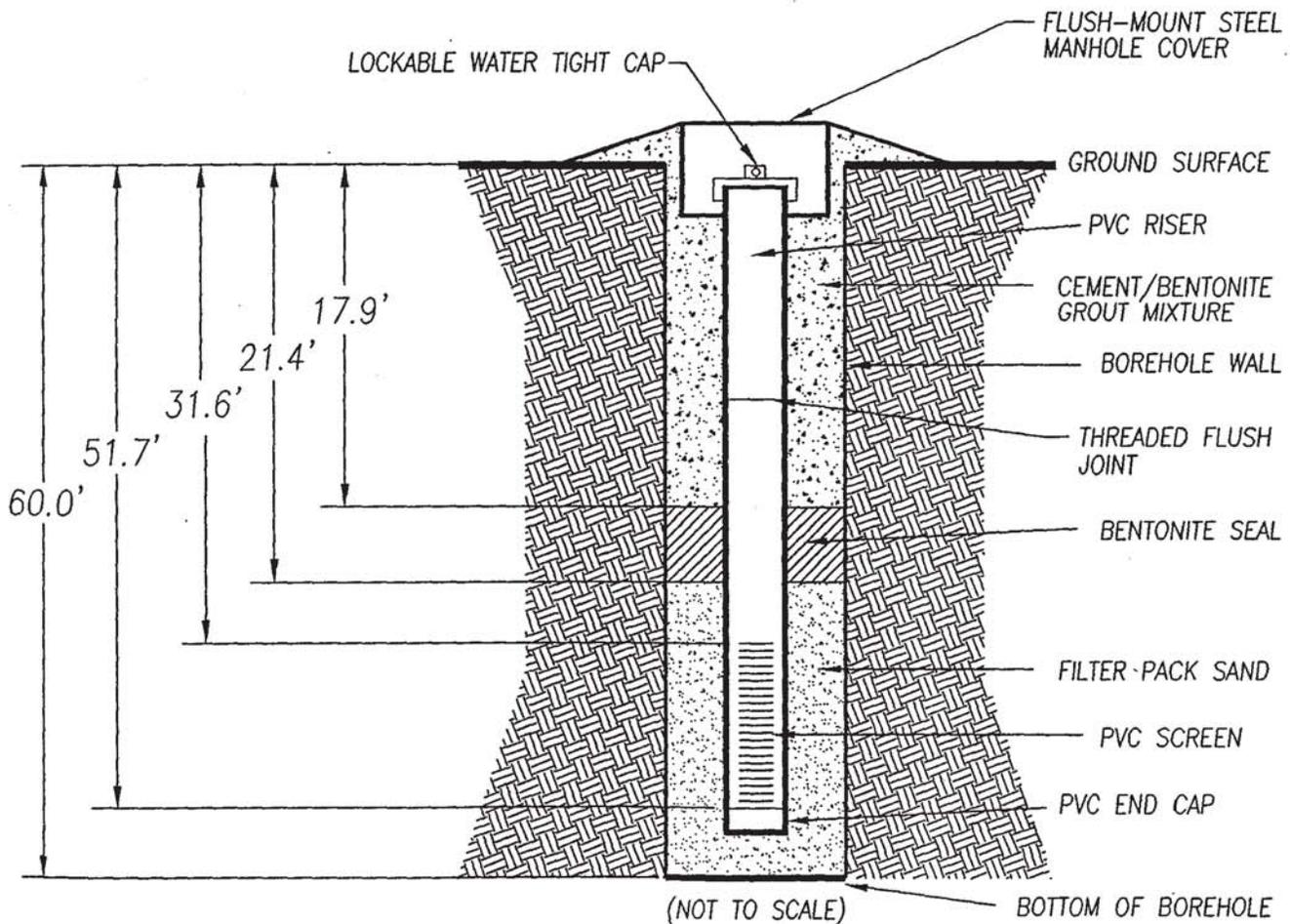
REMARKS:

TEST BORING RECORD	
BORING NUMBER	D-64
DATE DRILLED	March 4, 1996
PROJECT NUMBER	50385-5-0400/09/01
PROJECT	TVA SHAWNEE
PAGE 2 OF 2	
 <b>LAW ENGINEERING</b>	

SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED ABOVE

# TYPE II MONITORING WELL INSTALLATION RECORD

JOB NAME <u>TVA SHAWNEE FOSSIL PLANT</u> WELL NUMBER <u>D-65 (8002-6770)</u> BOREHOLE DIAMETER <u>8.25"</u> TOTAL DEPTH <u>60.0'</u> LAW ENGINEERING FIELD REPRESENTATIVE <u>BRAD SALSBURY</u>	JOB NUMBER <u>50385-5-0400/09/01</u> INSTALLATION DATE <u>3/5/96</u> RISER/SCREEN: MATERIAL: <u>SCHEDULE 40 PVC</u> DIAMETER: <u>2"</u> SLOT SIZE: <u>0.010"</u> SCREEN LENGTH: <u>20.0'</u>
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**TVA SHAWNEE FOSSIL PLANT**

JOB NUMBER: 50385-5-0400/03/01	DATE: APRIL 15, 1996	SCALE: NOT TO SCALE
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DEPTH (FT.)	DESCRIPTION	ELEVATION (FT.)	● PENETRATION - BLOWS/FOOT											
			0	10	20	30	40	60	80	100				
0.0	SAND, GRAVEL, COBBLES													
2.0	BLACK SANDY CLAYEY SAND, MOIST, NO ODOR - FILL													
4.0	OLIVE SILTY CLAY, SLIGHTLY MOIST TO MOIST, NO ODOR - FILL (GRADES TO A GRAY-OLIVE CLAY WITH BLACK MOTTLING OR STAINING AT 9.0')													
12.5	OLIVE SILTY CLAY WITH BROWN MOTTLING, SLIGHTLY MOIST, NO ODOR - FILL													
14.0	RED-YELLOWISH BROWN SANDY CLAY WITH SILT, MOIST, NO ODOR - FILL (COLOR GRADES TO A OLIVE-BROWN)													
17.0	OLIVE-BROWN, CLAYEY FINE SAND/SANDY CLAY, MOIST, NO ODOR - FILL													
23.0	RED-BROWN CLAYEY SAND, MOIST, NO ODOR - POSSIBLE FILL													
24.0	OLIVE-GRAY CLAYEY SILT WITH TRACES OF SAND, WET NO ODOR - POSSIBLE FILL													
25.0	GRAY-OLIVE SILTY CLAY TO CLAYEY SAND, MOIST TO VERY MOIST, NO ODOR - FILL													

**REMARKS:**

GROUND WATER MEASURED AT 35.5' ABOUT 45 MINUTES AFTER WELL COMPLETED.

SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED ABOVE

TEST BORING RECORD	
BORING NUMBER	D-65
DATE DRILLED	February 23, 1996
PROJECT NUMBER	50385-5-0400/09/01
PROJECT	TVA SHAWNEE
PAGE 1 OF 2	
 <b>LAW ENGINEERING</b>	

DEPTH (FT.)	DESCRIPTION	ELEVATION (FT.)		● PENETRATION - BLOWS/FOOT										
		0		10	20	30	40	60	80	100				
34.0	LIGHT YELLOWISH-ORANGE CLAYEY SAND, MOIST TO VERY MOIST, NO ODOR - FILL													
46.0	REDDISH ORANGE SANDY SILTY CLAY, MOIST TO VERY MOIST, NO ODOR - FILL (VERY LITTLE RETURN UP AUGERS, SOUPY AT 60.0')													
60.0	BORING TERMINATED													

**REMARKS:**

GROUND WATER MEASURED AT 35.5'  
ABOUT 45 MINUTES AFTER WELL  
COMPLETED.

SEE KEY SHEET FOR EXPLANATION OF  
SYMBOLS AND ABBREVIATIONS USED ABOVE

TEST BORING RECORD	
BORING NUMBER	D-65
DATE DRILLED	February 23, 1996
PROJECT NUMBER	50385-5-0400/09/01
PROJECT	TVA SHAWNEE
PAGE 2 OF 2	
▲ LAW ENGINEERING	

# TYPE II MONITORING WELL INSTALLATION RECORD

JOB NAME TVA SHAWNEE FOSSIL PLANT

WELL NUMBER D-66

BOREHOLE DIAMETER 8.25"

TOTAL DEPTH 53.1'

LAW ENGINEERING FIELD REPRESENTATIVE BRAD SALSURY

JOB NUMBER 50385-5-0400/09/01

INSTALLATION DATE 3/6/96

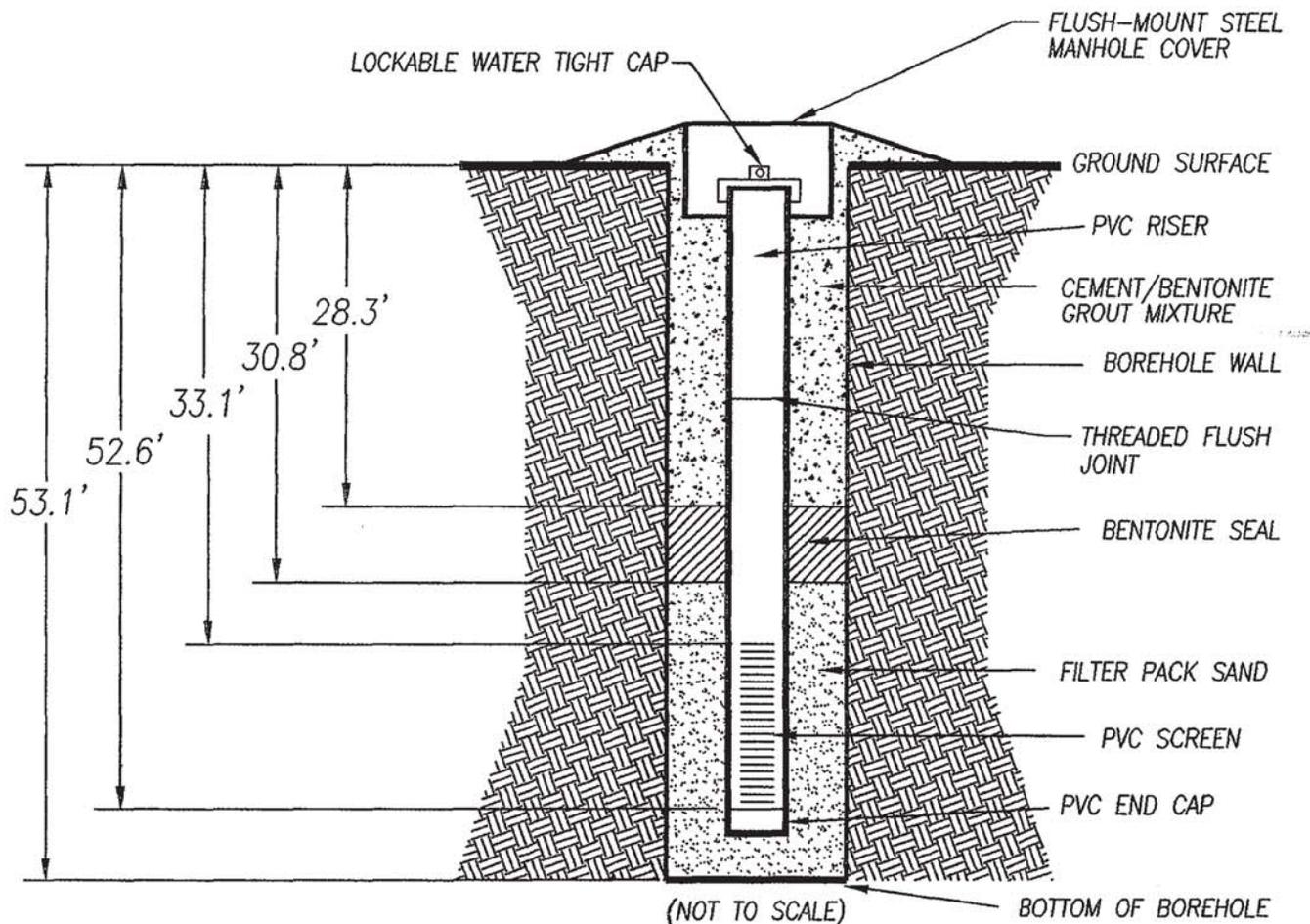
RISER/SCREEN:

MATERIAL: SCHEDULE 40 PVC

DIAMETER: 2"

SLOT SIZE: 0.010"

SCREEN LENGTH: 20.0'



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**TVA SHAWNEE FOSSIL PLANT**

JOB NUMBER:	DATE:	SCALE:
50385-5-0400/09/01	JUNE 27, 1996	NOT TO SCALE

# TYPE II MONITORING WELL INSTALLATION RECORD

**JOB NAME** TVA SHAWNEE FOSSIL PLANT

**WELL NUMBER** D-67

**BOREHOLE DIAMETER** 8.25"

**TOTAL DEPTH** 63.9'

**LAW ENGINEERING  
FIELD REPRESENTATIVE** BRAD SALSBUARY

**JOB NUMBER** 50385-5-0400/09/01

**INSTALLATION DATE** 3/22/96

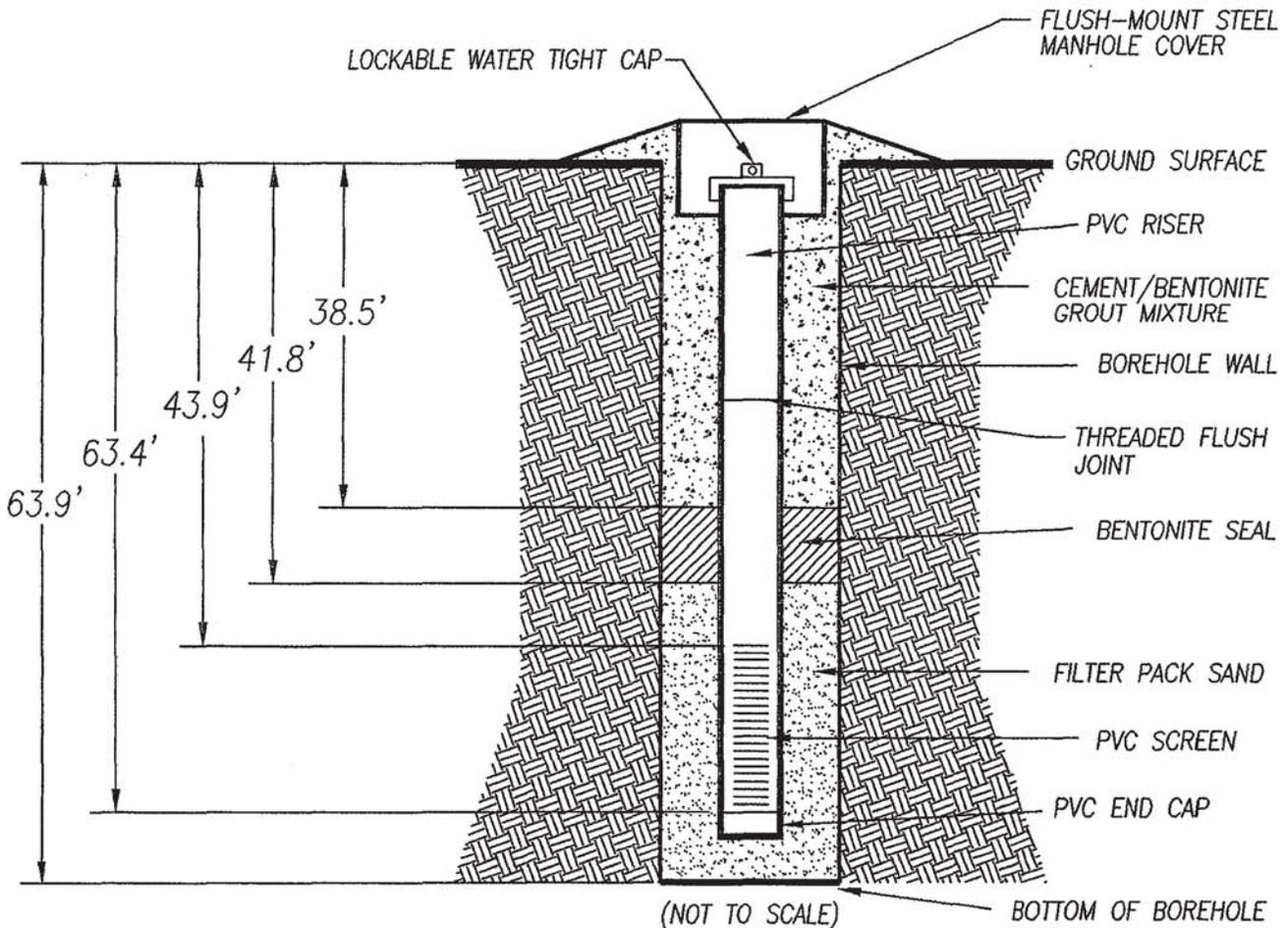
**RISER/SCREEN:**

**MATERIAL:** SCHEDULE 40 PVC

**DIAMETER:** 2"

**SLOT SIZE:** 0.010"

**SCREEN LENGTH:** 20.0'



**LAW ENGINEERING AND ENVIRONMENTAL SERVICES, INC.**

GEOTECHNICAL, ENVIRONMENTAL & CONSTRUCTION  
MATERIAL CONSULTANTS

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**TVA SHAWNEE FOSSIL PLANT**

**JOB NUMBER:**  
50385-5-0400/09/01

**DATE:**  
JUNE 27, 1996

**SCALE:**  
NOT TO SCALE

# TYPE II MONITORING WELL INSTALLATION RECORD

**JOB NAME** TVA SHAWNEE FOSSIL PLANT

**WELL NUMBER** D-68

**BOREHOLE DIAMETER** 8.25"

**TOTAL DEPTH** 61.8'

**LAW ENGINEERING  
FIELD REPRESENTATIVE** BRAD SALSURY

**JOB NUMBER** 50385-5-0400/09/01

**INSTALLATION DATE** 3/23/96

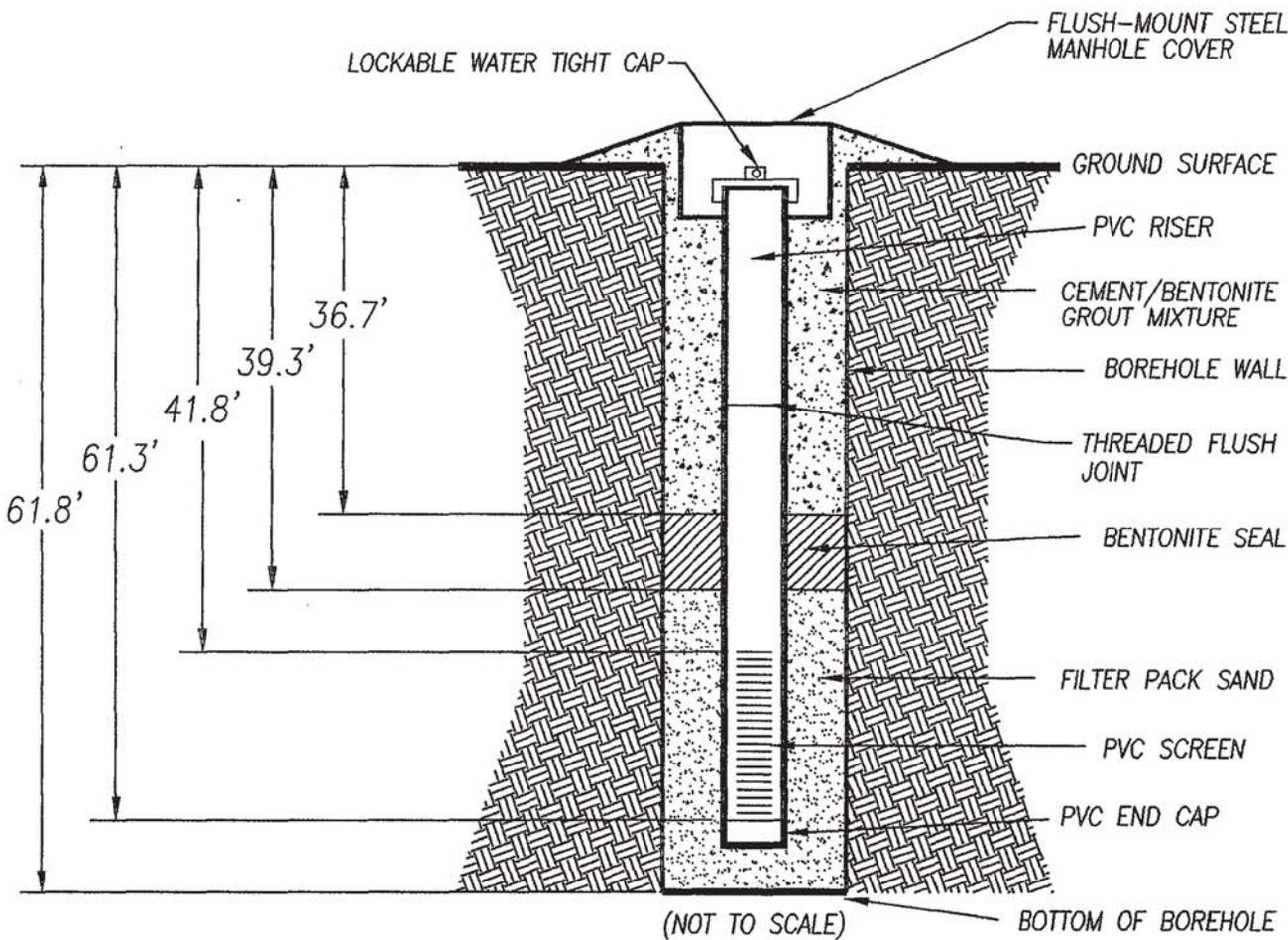
**RISER/SCREEN:**

**MATERIAL:** SCHEDULE 40 PVC

**DIAMETER:** 2"

**SLOT SIZE:** 0.010"

**SCREEN LENGTH:** 20.0'



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**TVA SHAWNEE FOSSIL PLANT**

<b>JOB NUMBER:</b> 50385-5-0400/09/01	<b>DATE:</b> JUNE 27, 1996	<b>SCALE:</b> NOT TO SCALE
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# TYPE II MONITORING WELL INSTALLATION RECORD

**JOB NAME** TVA SHAWNEE FOSSIL PLANT

**WELL NUMBER** D-69

**BOREHOLE DIAMETER** 8.25"

**TOTAL DEPTH** 52.6'

**LAW ENGINEERING  
FIELD REPRESENTATIVE** BRAD SALSBURY

**JOB NUMBER** 50385-5-0400/09/01

**INSTALLATION DATE** 3/12/96

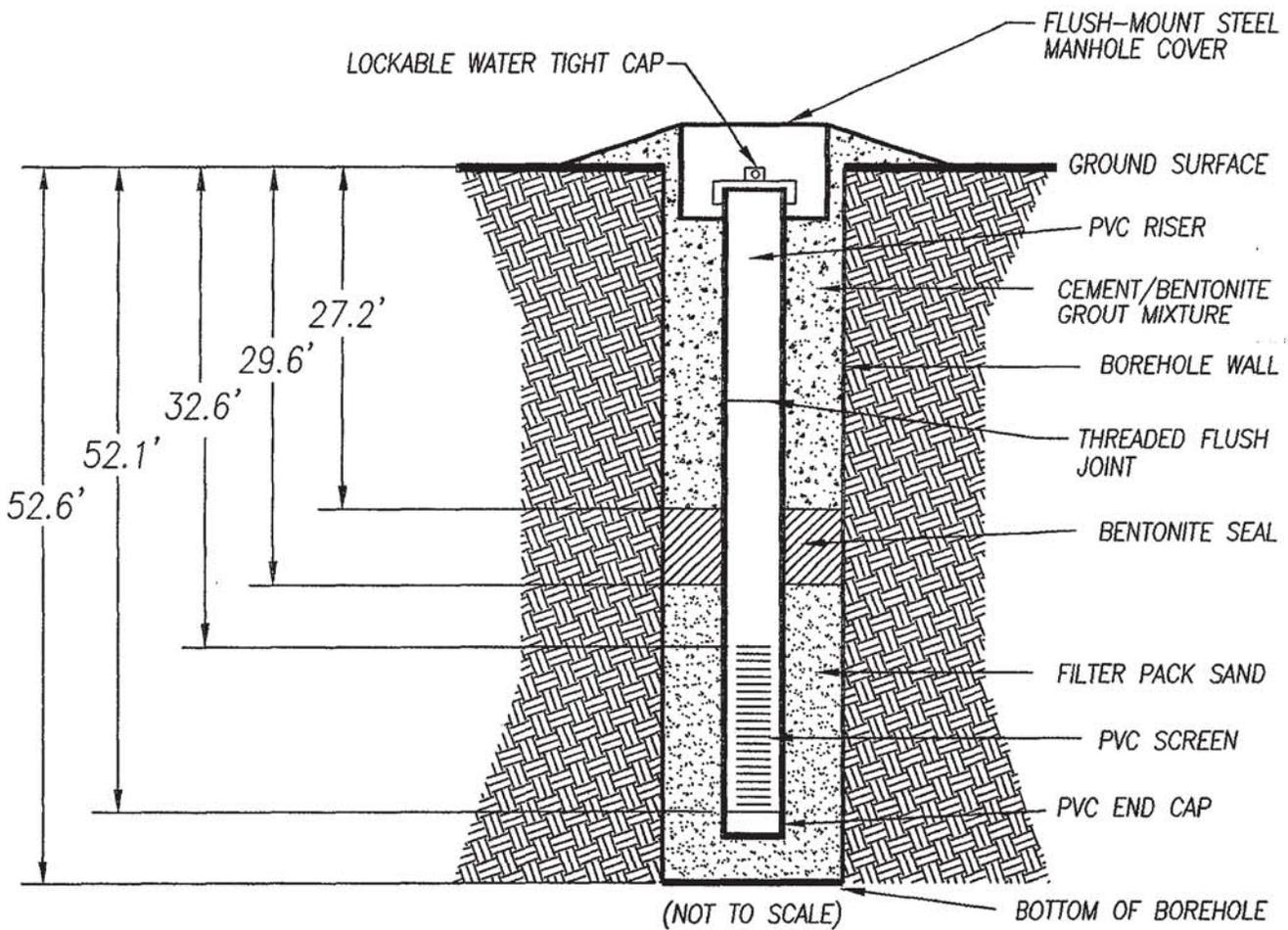
**RISER/SCREEN:**

**MATERIAL:** SCHEDULE 40 PVC

**DIAMETER:** 2"

**SLOT SIZE:** 0.010"

**SCREEN LENGTH:** 20.0'



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**TVA SHAWNEE FOSSIL PLANT**

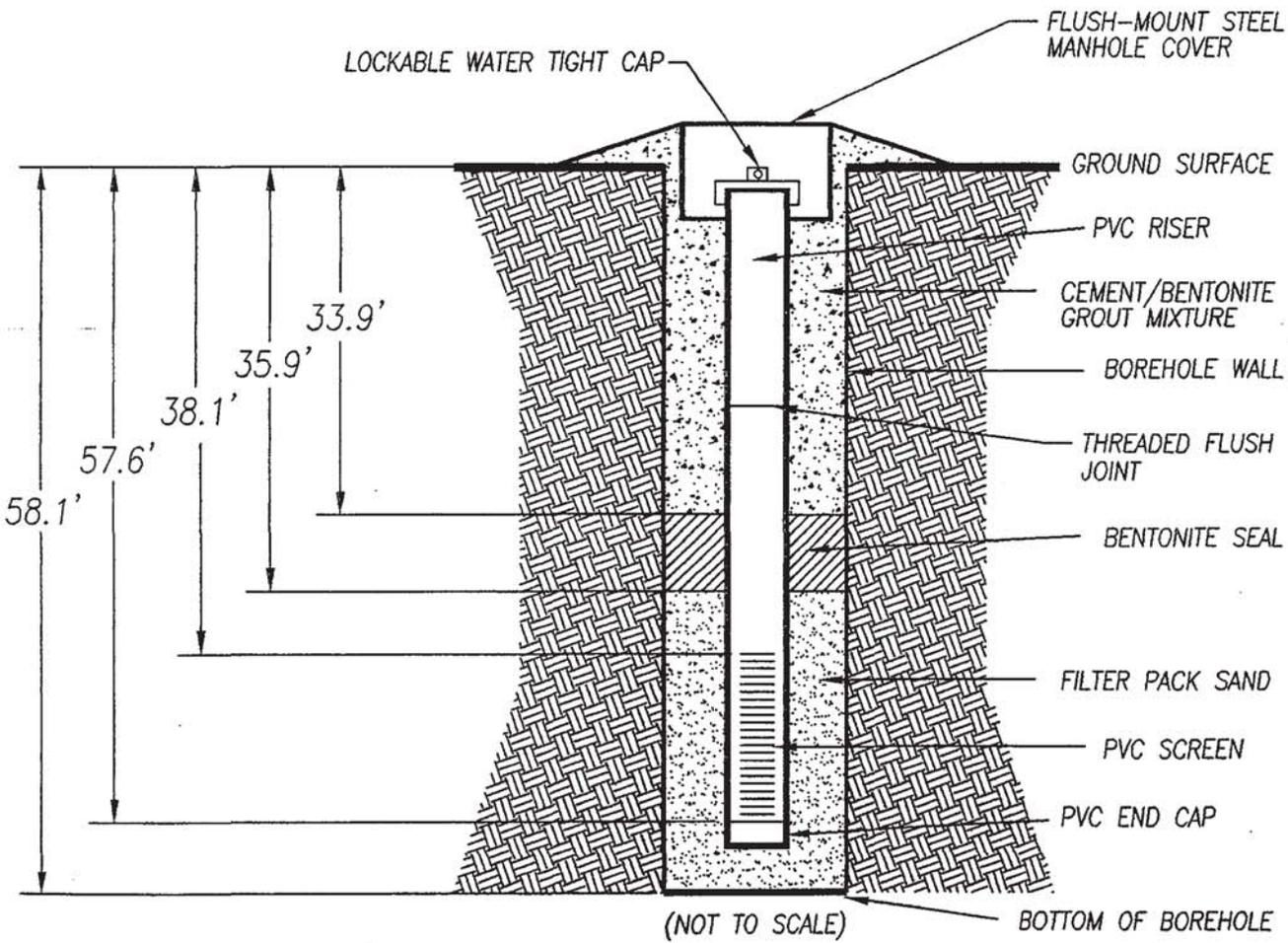
**JOB NUMBER:**  
50385-5-0400/09/01

**DATE:**  
JUNE 27, 1996

**SCALE:**  
NOT TO SCALE

# TYPE II MONITORING WELL INSTALLATION RECORD

<p><b>JOB NAME</b> <u>TVA SHAWNEE FOSSIL PLANT</u></p> <p><b>WELL NUMBER</b> <u>D-70</u></p> <p><b>BOREHOLE DIAMETER</b> <u>8.25"</u></p> <p><b>TOTAL DEPTH</b> <u>58.1'</u></p> <p><b>LAW ENGINEERING FIELD REPRESENTATIVE</b> <u>BRAD SALSURY</u></p>	<p><b>JOB NUMBER</b> <u>50385-5-0400/09/01</u></p> <p><b>INSTALLATION DATE</b> <u>3/21/96</u></p> <p><b>RISER/SCREEN:</b></p> <p><b>MATERIAL:</b> <u>SCHEDULE 40 PVC</u></p> <p><b>DIAMETER:</b> <u>2"</u></p> <p><b>SLOT SIZE:</b> <u>0.010"</u></p> <p><b>SCREEN LENGTH:</b> <u>20.0'</u></p>
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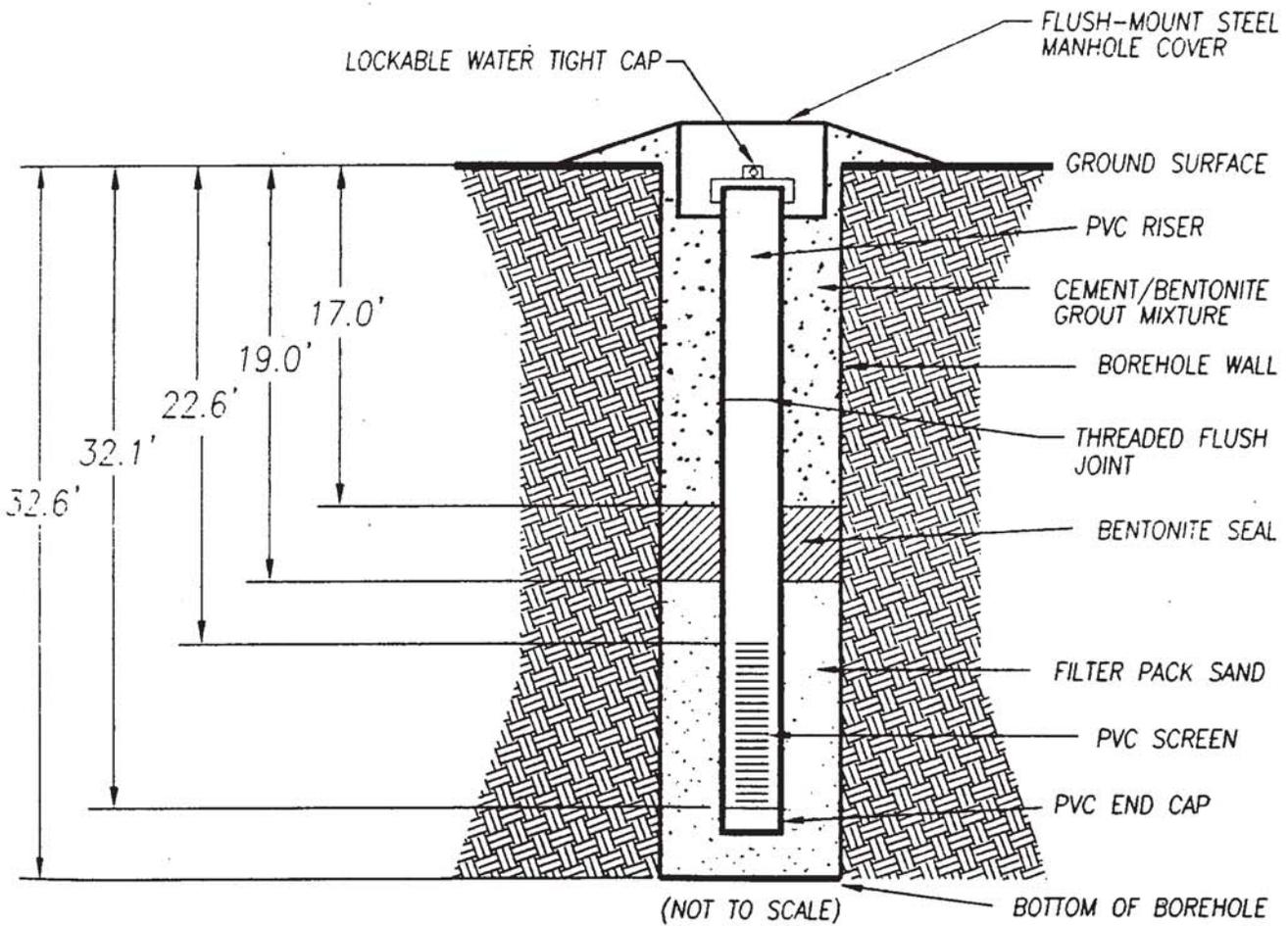
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## TVA SHAWNEE FOSSIL PLANT

<b>JOB NUMBER:</b> 50385-5-0400/09/01	<b>DATE:</b> JUNE 27, 1996	<b>SCALE:</b> NOT TO SCALE
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# TYPE II MONITORING WELL INSTALLATION RECORD

JOB NAME <u>TVA SHAWNEE FOSSIL PLANT</u> WELL NUMBER <u>D-71</u> BOREHOLE DIAMETER <u>N/A</u> TOTAL DEPTH <u>32.6'</u> LAW ENGINEERING FIELD REPRESENTATIVE <u>BRAD SALSURY</u>	JOB NUMBER <u>50385-5-0400/09/01</u> INSTALLATION DATE <u>4/9/96</u> RISER/SCREEN: MATERIAL: <u>SCHEDULE 40 PVC</u> DIAMETER: <u>2"</u> SLOT SIZE: <u>0.010"</u> SCREEN LENGTH: <u>10.0'</u>
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## TVA SHAWNEE FOSSIL PLANT

JOB NUMBER: 50385-5-0400/03/01	DATE: DECEMBER 14, 1995	SCALE: NOT TO SCALE
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DEPTH (FT.)	DESCRIPTION	ELEVATION (FT.)	● PENETRATION - BLOWS/FOOT																	
			0	10	20	30	40	60	80	100										
0.0	GRAVELS																			
3.0	YELLOWISH BROWN SANDY CLAY WITH GRAY MOTTLING, SLIGHTLY MOIST, NO ODOR - FILL																			
5.0	YELLOWISH BROWN SILTY CLAY, SLIGHTLY MOIST TO DRY, NO ODOR - FILL																			
20.0	YELLOWISH BROWN CLAYEY SILT WITH PEA GRAVELS, DRY, NO ODOR - FILL																			
23.0	GRAVELS, 0.25" TO 1.0" IN DIAMETER, OLIVE-GRAY WITH SILT, ROUNDED TO SUBROUNDED, DRY, NO ODOR - FILL																			
25.0	OLIVE-GRAY CLAYEY SILT WITH SAND AND GRAVELS, DRY, NO ODOR - FILL																			
28.0	OLIVE-GRAY SILTY SAND WITH GRAVELS, FINE TO MEDIUM SAND, SUBANGULAR TO SUBROUNDED, VERY MOIST TO WET, NO ODOR - FILL																			

REMARKS:

TEST BORING RECORD	
BORING NUMBER	D-71
DATE DRILLED	April 9, 1996
PROJECT NUMBER	50385-5-0400/09/01
PROJECT	TVA SHAWNEE
PAGE 1 OF 2	
 <b>LAW ENGINEERING</b>	

SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED ABOVE

DEPTH (FT.)      DESCRIPTION      ELEVATION (FT.)      ● PENETRATION - BLOWS/FOOT

DEPTH (FT.)	DESCRIPTION	ELEVATION (FT.)	● PENETRATION - BLOWS/FOOT															
			0	10	20	30	40	60	80	100								
35.0	BORING TERMINATED																	

REMARKS:

<b>TEST BORING RECORD</b>	
<b>BORING NUMBER</b>	D-71
<b>DATE DRILLED</b>	April 9, 1996
<b>PROJECT NUMBER</b>	50385-5-0400/09/01
<b>PROJECT</b>	TVA SHAWNEE
<b>PAGE 2 OF 2</b>	
<b>▲ LAW ENGINEERING</b>	

SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED ABOVE

# TYPE II MONITORING WELL INSTALLATION RECORD

JOB NAME TVA SHAWNEE FOSSIL PLANT

WELL NUMBER D-72

BOREHOLE DIAMETER N/A

TOTAL DEPTH 30.5'

LAW ENGINEERING FIELD REPRESENTATIVE BRAD SALSBUURY

JOB NUMBER 50385-5-0400/09/01

INSTALLATION DATE 4/11/96

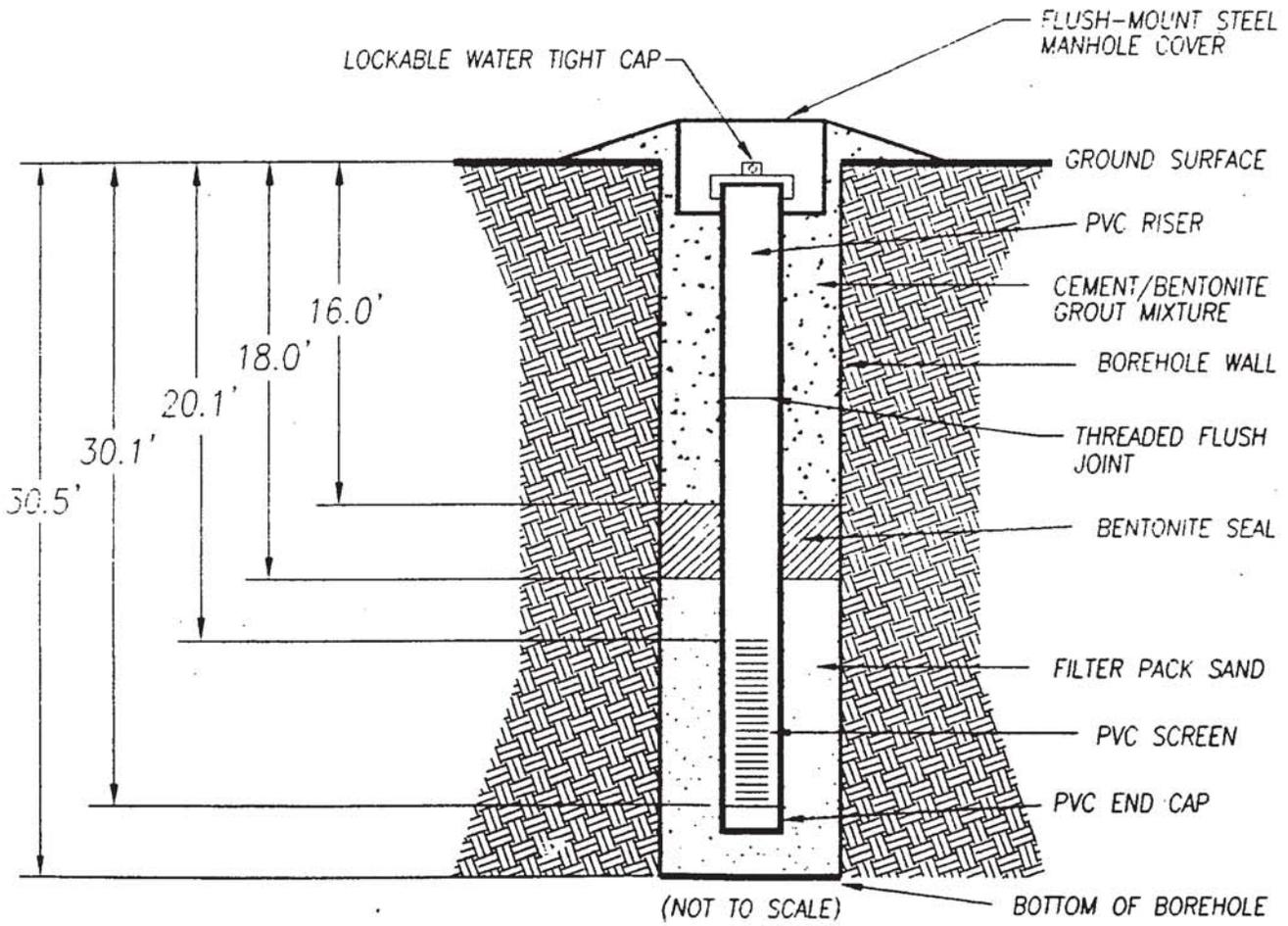
RISER/SCREEN:

MATERIAL: SCHEDULE 40 PVC

DIAMETER: 2"

SLOT SIZE: 0.010"

SCREEN LENGTH: 10.0'



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## TVA SHAWNEE FOSSIL PLANT

JOB NUMBER: 50385-5-0400/03/01	DATE: DECEMBER 14, 1995	SCALE: NOT TO SCALE
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DEPTH (FT.)      DESCRIPTION      ELEVATION (FT.)      ● PENETRATION - BLOWS/FOOT

31.0

TAN FINE TO MEDIUM QUARTZ SAND WITH  
PEA GRAVEL AND CLAY, SUBROUND TO  
SUBANGULAR, WET, NO ODOR - FILL

38.0

BORING TERMINATED

0      10      20      30      40      60      80      100

REMARKS:

**TEST BORING RECORD**

**BORING NUMBER**      D-72  
**DATE DRILLED**      April 10, 1996  
**PROJECT NUMBER**      50385-5-0400/09/01  
**PROJECT**      TVA SHAWNEE  
**PAGE 2 OF 2**

SEE KEY SHEET FOR EXPLANATION OF  
SYMBOLS AND ABBREVIATIONS USED ABOVE

 **LAW ENGINEERING**

# TYPE II MONITORING WELL INSTALLATION RECORD

JOB NAME TVA SHAWNEE FOSSIL PLANT

WELL NUMBER D-73

BOREHOLE DIAMETER N/A

TOTAL DEPTH 30.0'

LAW ENGINEERING FIELD REPRESENTATIVE JOHN MASON

JOB NUMBER 50385-5-0400/09/01

INSTALLATION DATE 7/30/96

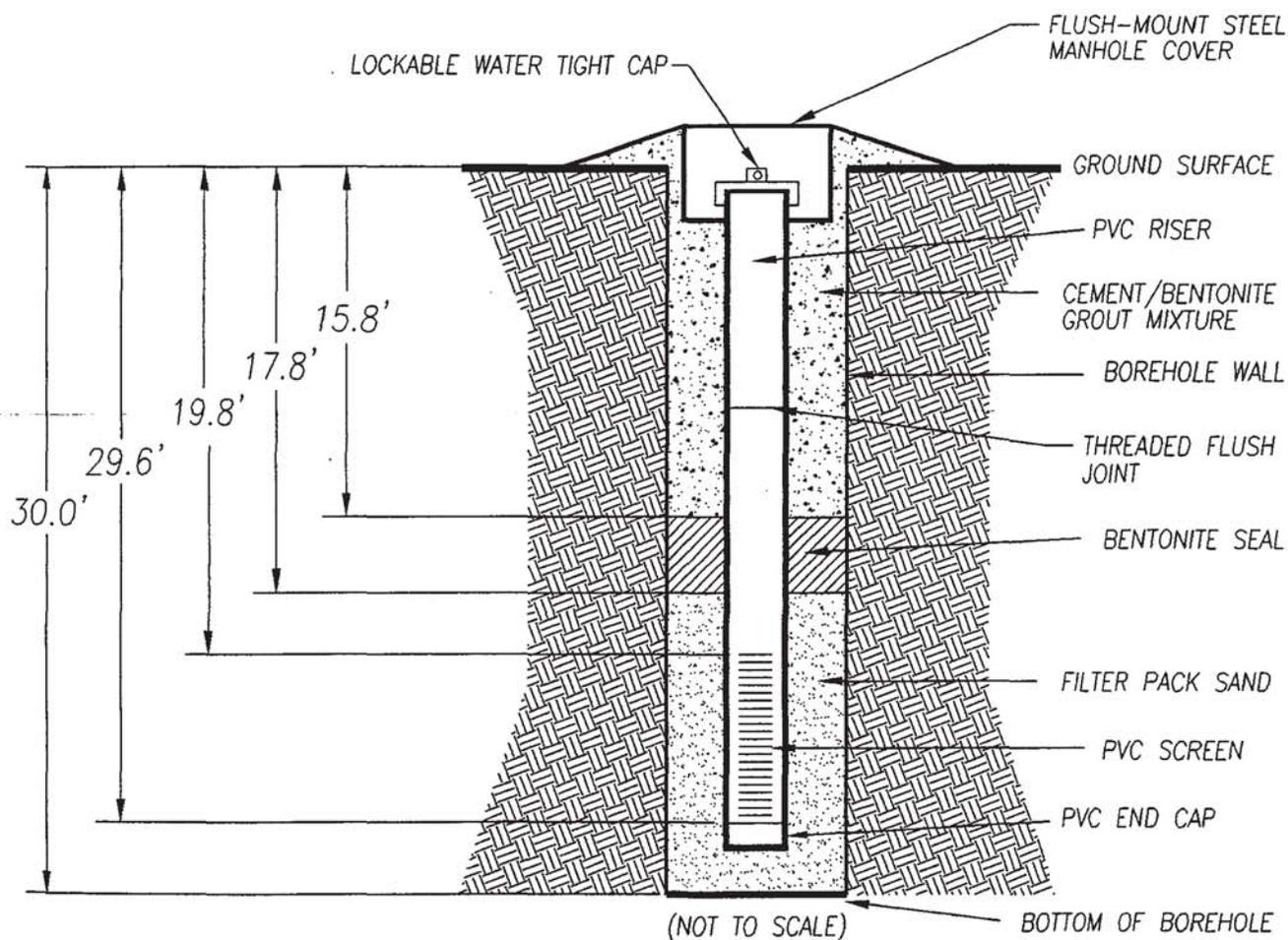
RISER/SCREEN:

MATERIAL: SCHEDULE 40 PVC

DIAMETER: 2"

SLOT SIZE: 0.010"

SCREEN LENGTH: 10.0'



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**TVA SHAWNEE FOSSIL PLANT**

JOB NUMBER:	DATE:	SCALE:
50385-5-0400/03/01	AUGUST 7, 1996	NOT TO SCALE