Well Installation and Sampling Report for Monitoring Wells TCM6 TCM7, and TNX 28D - 40D and GeoSiphon Cell TGSC-2

by

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Revision 0

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Background

The shallow groundwater and sediments beneath the TNX Area are contaminated with both *dissolved* and *residual* chlorinated volatile organic compounds (CVOCs) such as trichloroethylene (TCE), carbon tetrachloride and perchloroethylene (PCE). The Savannah River Technology Center (SRTC) is studying a new technology for remediating CVOCs known as GeoSiphon. The GeoSiphon Cell is a large diameter well that uses granular cast iron for filter pack material and is operated by inducing a siphon to draw contaminated groundwater through the iron filter pack. As groundwater flows through the granular cast iron CVOCs are reduced to ethane, ethene, methane, and chloride ions. Previous laboratory and field studies (ETI, 1996, and Phifer et. al., 1998) conducted by SRTC have shown that granular cast iron is capable of reducing the concentration of CVOC's in the groundwater to below Maximum Contaminant Levels (MCLs) 40CFR, 1989.

This report documents the installation and sampling of ten monitoring wells that were installed to assist in the characterization of the north – south extent of CVOC contamination in the TNX swamp. In addition, three piezometers were installed to monitor groundwater levels around a surface depression north of TNX and two monitoring wells were installed in the vicinity of GeoSiphon Cell TGSC-2.

Monitoring Well and Piezometer Installation

A well driller licensed in the State of South Carolina installed the monitoring wells and piezometers using an auger. Two-inch diameter Schedule 40 PVC casing and slotted well screen were used to construct each well. An artificial filter pack of sand was tremied into the hole around the well screen and then bentonite pellets were used to complete the well to the surface. Table 1 contains the well construction details for each well. After the wells and piezometers were installed they were developed until the water was clear (< 15 NTU) using air pumping and a submersible electric pump. Well construction diagrams for each of the wells are included in Appendix A.

The new monitoring wells, TNX28D – TNX 37D, installed for this study have well screens that are 10 feet long and extend from 5 to 15 feet below the ground surface. This screen length and location is based on the results of previous studies by Phifer et al. (1998) and Nichols et al. (1998) that show that CVOC contamination is in the upper 15 feet of sediments in the TNX floodplain. Monitoring wells were screened only in the contaminated zone where GeoSiphon cells may be constructed to produce samples that best represent groundwater that would be treated by the proposed GeoSiphon cells. Wells TCM6 and TCM7 have screens 15 feet long and were installed to monitor water levels in a test with multiple GeoSiphon cells, TGSC-1 and TGSC-2. Three piezometers, TNX38D – TNX40D, were installed with screens 7.5 feet long to monitor the water levels around the surface depression north of TNX.

Groundwater Sampling

Three rounds of groundwater samples were collected from each of the new monitoring wells and several existing monitoring wells in the vicinity of the proposed line of GeoSiphon cells using low flow rate (micro) purge and sampling techniques. Figure 1 is a map showing the location of monitoring wells used in this study. Each well was purged until field parameters pH and specific conductivity had stabilized. Field parameters were measured using a YSI portable flow through cell equipped with probes for measuring pH, specific conductivity, dissolved oxygen, redox potential, and temperature. After purging was complete, water samples were collected for CVOC analysis in 20mL glass vials and were sealed. The sealed samples were analyzed for cis-1,2-dichloroethylene (cDCE), chloroform (CHCl3), 1,1,1-trochloroethane (TCA), carbon tetrachloride (CCl4), trichloroethylene (TCE), and tetrachloroethylene (PCE), using a gas chromatograph equipped with a flame ionization detector and an electron capture detector using SRTC procedure WSRC-L14.1 2-76 Rev. 1. The SRTC procedure is a modified version of the EPA, 1995 procedure for Headspace Analysis # 5021.

Table 1. Well construction details for new monitoring wells and GeoSiphon cell TGSC-2.

	SRS Coordinants (ft)		Elevation (ft, msl)					
Location	East	North	Surface	T.O.Csg	Top SZ	Bot SZ	Type	Materials
TCM-6	16172.78	71106.77	97.54	100.09	94.37	79.37	monitoring	2" PVC
TCM-7	16183.57	71095.49	97.61	100.04	94.59	79.59	monitoring	2" PVC
TNX-28D	16158.33	71325.76	97.44	99.81	92.614	82.614	monitoring	2" PVC
TNX-29D	16149.5	71264.5	97.67	100.23	93.126	83.126	monitoring	2" PVC
TNX-30D	16167.66	70930.56	100.33	103.05	95.648	85.648	monitoring	2" PVC
TNX-31D	16168.91	70844.73	100.23	102.89	95.493	85.493	monitoring	2" PVC
TNX-32D	16156.38	70735.08	98.54	101.16	94.056	84.056	monitoring	2" PVC
TNX-33D	16162.44	70658.51	98.29	100.86	93.764	83.764	monitoring	2" PVC
TNX-34D	16200.12	70535.81	97.52	100.19	93.291	83.291	monitoring	2" PVC
TNX-35D	16216.22	70464.96	97.39	99.95	92.446	82.446	Monitoring	2" PVC
TNX-36D	16258.79	70341.44	97.35	99.86	92.657	82.657	Monitoring	2" PVC
TNX-37D	16272.72	70270.6	98.24	100.72	93.521	83.521	Monitoring	2" PVC
TNX-38D	16692.09	72082.37	115.58	117.37	114.82	107.32	Piezometer	2" PVC
TNX-39D	16905.55	71956.4	118.86	121.41	116.41	108.91	Piezometer	2" PVC
TNX-40D	16854.17	72274.65	115.21	117.65	111.25	101.25	Piezometer	2" PVC
TGSC-2	16172.48	71096.41	97.56	98.46	92.56	77.56	GeoSiphon Cell	12" Stainless Steel

Results

Monitoring Wells

Field Data

The pH ranged from 4.36 to 6.06 pH units and specific conductivity ranged 0.032 to 0.216 mS/cm which is typical for groundwater in shallow aquifers at SRS. These results suggest that the wells were installed properly, do not have any bentonite contamination in the screen zone, and should provide representative high quality samples of groundwater. All of the field data is included in Appendix B.

Chlorinated Volatile Organic Compounds

Trichloroethylene (TCE) and carbon tetrachloride are the most prevalent CVOCs in the water samples collected in this study. Wells located toward the north and south end of the line wells that were sampled have the lowest concentrations and wells near the center of the line have the highest concentrations. Figure 2 shows the profile of TCE along the line of wells used in the study. Samples collected from wells with screens that terminate above 79 feet above msl generally have higher TCE concentrations than wells that have screens that terminate below 79 feet msl (Figure 2, Table 2). The lower concentrations in wells with longer screens is due to mixing of shallow contaminated water with deeper clean water in the well and is consistent with the findings in Phifer et al. (1998) and Nichols et al. (1998) that show the CVOC concentration is confined to a relatively shallow thin zone beneath the TNX floodplain. Figure 3 shows the location of well screens and average water level elevation for each well used in the study. While the newer wells show a more refined delineation of the extent of groundwater contamination, the original wells (TNX 8D to 12D) provide useful data for evaluating the overall nature of groundwater contamination in the TNX swamp and locating the GeoSiphon cells. The existing GeoSiphon cells are capable of remediating a significant portion of the contaminated groundwater entering the TNX swamp as is illustrated in Figure 2.

Table 2. Average Trichloroethylene (TCE) concentrations in samples collected from December 1998 to March 1999 for this study.

Wells with screens that terminate below 79 ft, msl		Wells with screens that terminate above 79 ft, msl	
Well	Avg TCE (ug/L)	Well	Avg. TCE (ug/L)
TNX-8D	3.4	TNX-37D	<1
TNX-9D	<1	TNX-36D	1.6
TNX-10D	13.3	TNX-26D	<1
TCM-2	84.7	TNX-35D	<1
TNX-11D	3.1	TNX-34D	1.5
TNX-12D	<1	TNX-33D	11.1
		TNX-32D	6.5
		TNX-31D	13.6
		TNX-30D	28.6
		TIR-1U	37.1
		TCM-7	45.6
		TCM-6	55.3
		TCM-8	66.5
		TCM-5	49.9
		TCM-4	26.4
		TNX-29D	33.8
		TNX-28D	3.2

Based on the results from the sampling shown in Figure 2 the extent of groundwater with greater than 5 ug/L TCE along the proposed line of GeoSiphon cells (~SRS East 16170) is 745 feet wide and extends from from SRS North 70580 to SRS North 71325.

TGSC-2

Well TGSC-2 is a GeoSiphon cell that was installed in September 1998 and is a well 20 feet deep and 8 feet in diameter with a granular cast iron filter pack and a 12" diameter stainless steel screen and casing. The cell was constructed by hammering a 102" diameter caisson to 25 feet and removing the soil inside the caisson to a depth of 20 feet. After the soil was removed the borehole was dewatered and a 96" diameter rebar cage with a geonet with geotextile around the outside and a 12" diameter stainless steel screen in the center was lowered into the dry borehole. The rebar cage was then backfilled with 100,000 lbs of granular cast iron capped with a thick sheet of high-density polyethylene. The caisson was removed using a vibratory hammer and groundwater rapidly entered the newly constructed cell. Bentonite and consolidated low strength material (CLSM) were used to backfill the cell to grade. This new method of cell construction allowed placement of the granular iron in a dry borehole prior to caisson removal that minimized the amount of natural fine grained material entering the cell and coating the iron.

Field Data

The results from the analysis of field parameters changed between the initial and final samples from TGSC-2 with the pH, specific conductivity, and redox potential increasing significantly (Table 3). All of the field data is included in Appendix B. The final pH, specific conductivity, and redox potential are typical for wells constructed with a granular iron filter pack.

Table 3. Field data for GeoSiphon Cell TGSC-2.

Sample Date	PH (pH_Units)	Specific Conductivity (mS/cm)	DO (mg/L)	Eh (mV)
12/9/98	6.62	0.256	0	-311
1/19/99	7.31	0.422	0	-48
3/4/99	10.08	0.414	0	3
[1]TGSC-1 (9/97 to 9/98)	8.7 to 9.6	ND	1 to 2	-12 to -140
Groundwater in TNX floodplain	4.5 to 6	0.05 to 0.12	0.6 to 3.2	337 to 577

Note: [1]TGSC-1 is a GeoSiphon cell that was installed in July 1997, Phifer et. al. 1998 and 1999.

Flowrate and water level data collected during well development and initial sampling indicated that the new GeoSiphon cell TGSC-2 has a higher specific capacity than the original GeoSiphon cell TGSC-1, Table 4. The improved specific capacity will produce less drawdown and subsequently higher flowrates during normal operation of the GeoSiphon cell. The estimated flowrates for the current dual cell system based on average water table conditions are included in Table 4 for comparison.

Table 4. Specific capacity of TGSC-1 and TGSC-2.

Well	Flowrate during sampling (gpm)	Drawdown (ft)	Specific Capacity (gpm/ft)	Estimated flowrate for average water table conditions (gpm)
TGSC-1	ND	ND	2.24 [1]	7.2
TGSC-2	8.33	1.27	6.5	16.4

Note: [1]Phifer et. al. (1999).

Chlorinated Volatile Organic Compounds

Samples were collected from GeoSiphon cell TGSC-2 to determine if the cell was degrading all of the CVOCs that entered the granular iron. The influent TCE and carbon tetrachloride concentrations were determined to be 50 ug/L and 2 ug/L respectively based on results from wells TCM6 and TCM7 that are located next to TGSC-2, see Figure 1. The TCE concentration in TGSC-2 decreased from an initial concentration of 22 ug/L in December 1998 to 2.5 ug/L by March 1998. These results suggest that the initial samples were of water that rapidly filled the cell during removal of the cassion in construction and did not represent water that had been treated by the iron. Subsequent sampling events removed more and more of the water left over from construction and as a result the water being sampled was more representative of water that had been treated by the granular iron filter pack.

Piezometers

Water levels were measured in the new piezometers TNX38D, 39, and 40D for three consecutive months, Table 5. The new piezometers are located north of TNX Area around a surface depression that receives excess production water from TNX and occasional discharges from a half-tank used to test pumps for the tank farms at SRS. Water levels in the new piezometers are significantly above the water table levels immediately south in the TNX Area. The high water levels may be due to a perched water table or local recharge of the water table from the surface depression.

Table 5. Water elevation (ft, msl) in new piezometers.

Date	TNX 38D	TNX 39D	TNX 40D
1/13/99	115.26	118.32	114.44
2/10/99	114.65	116.24	107.6
3/16/99	114.49	115.62	107

Conclusions

All of the wells installed as part of this study produced high quality samples and water level information. Results from monitoring wells sampled in the TNX swamp show that groundwater contaminated with TCE above the Primary Drinking Water Standard of 5 ug/L is bounded to the north by SRS North 71325 and to the south by SRS North 70580 on a profile extending along ~SRS East 16170. The existing GeoSiphon cells are located in the center of the plume at the highest concentrations along the profile and are capable of remediating a significant portion of the contaminated groundwater migrating from TNX Area into the swamp. The previously installed wells provided a good indication of the location of the most contaminated groundwater in the swamp and the newer wells delineated the north-south extent of CVOC contamination.

GeoSiphon cell TGSC-2 is capable of treating CVOC contaminated groundwater migrating from the TNX Area to levels acceptable for discharge at the X-019 NPDES outfall. The cell produces treated water of a chemistry similar to the existing GeoSiphon cell TGSC-1. Preliminary data suggest that the new construction methods used to install TGSC-2 produced a well that will operate at higher flowrates than TGSC-1 under normal siphon conditions producing a larger capture zone for the same operating head differential.

References

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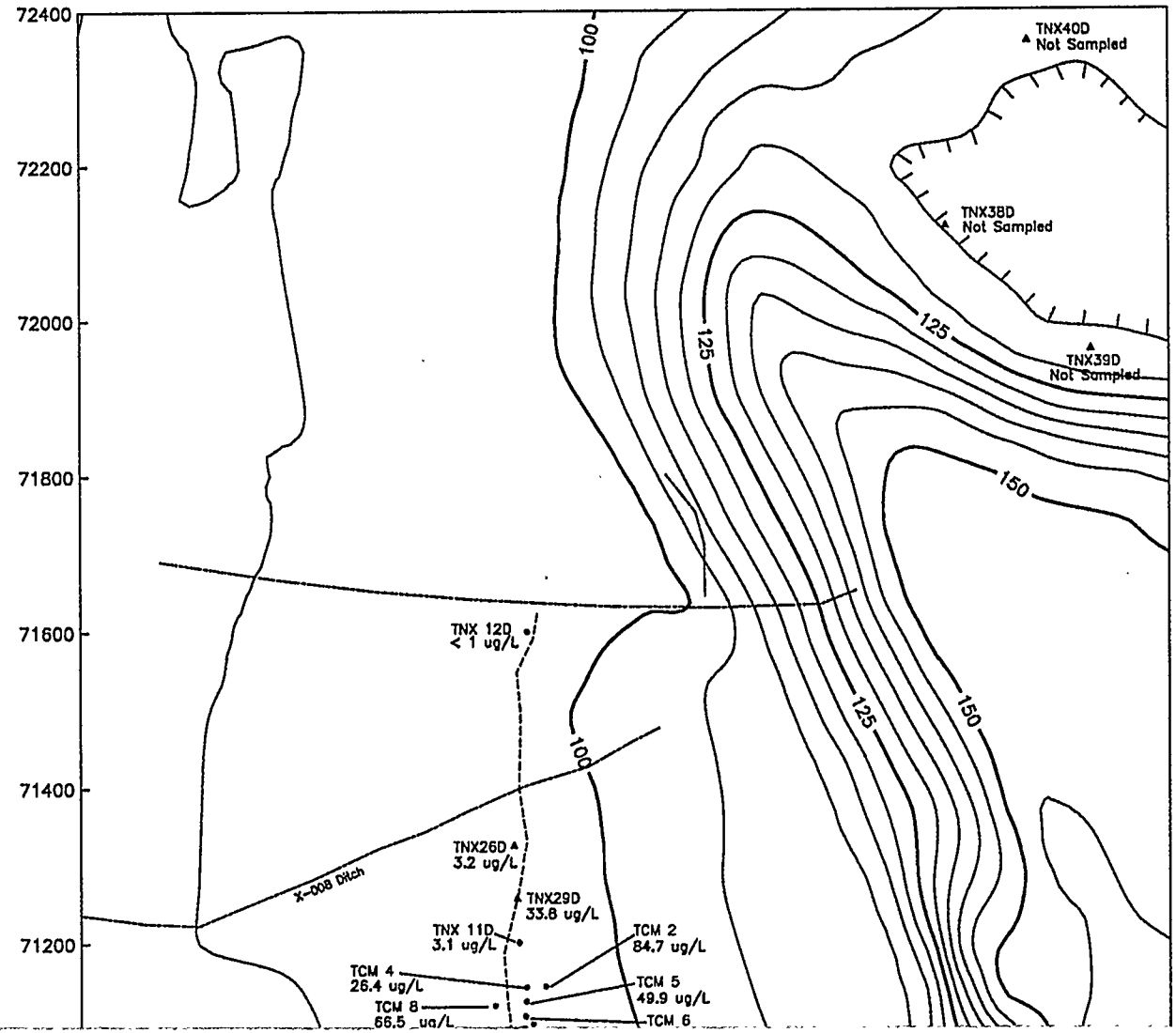

72400
72200
72000
71800
71600
71400
71200
100
125
150
TNX40D
Not Sampled
TNX38D
Not Sampled
TNX39D
Not Sampled
TNX 12D
< 1 ug/L
TNX26D
3.2 ug/L
TNX29D
33.8 ug/L
TNX 11D
3.1 ug/L
TCM 2
84.7 ug/L
TCM 4
26.4 ug/L
TCM 5
49.9 ug/L
TCM 8
66.5 ug/L
TCM 6
X-008 Ditch

RS North

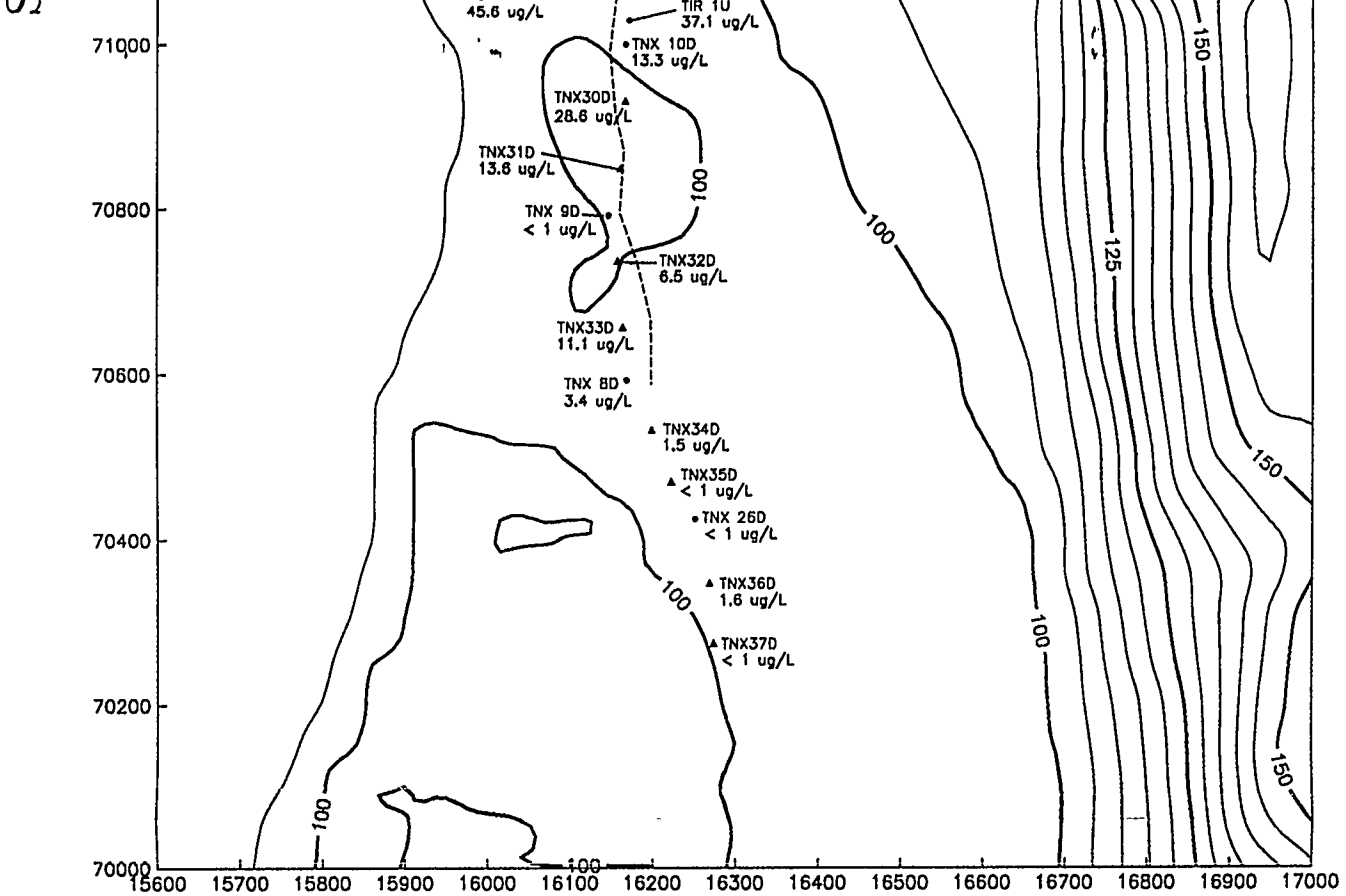


Figure 1. Map of Monitoring Wells and Piezometers Used in This Study

Monitoring Well (Original) ---------- •
Monitoring Well (New) ---------- ▲

Savannah River Technology Center
Environmental Sciences & Technology Department

Prepared By: K. L. Dixon Checked By: R. L. Nichols
Date: 07/08/99

Figure 2. Trichloroethylene profile at TNX Area along SRS East 16170

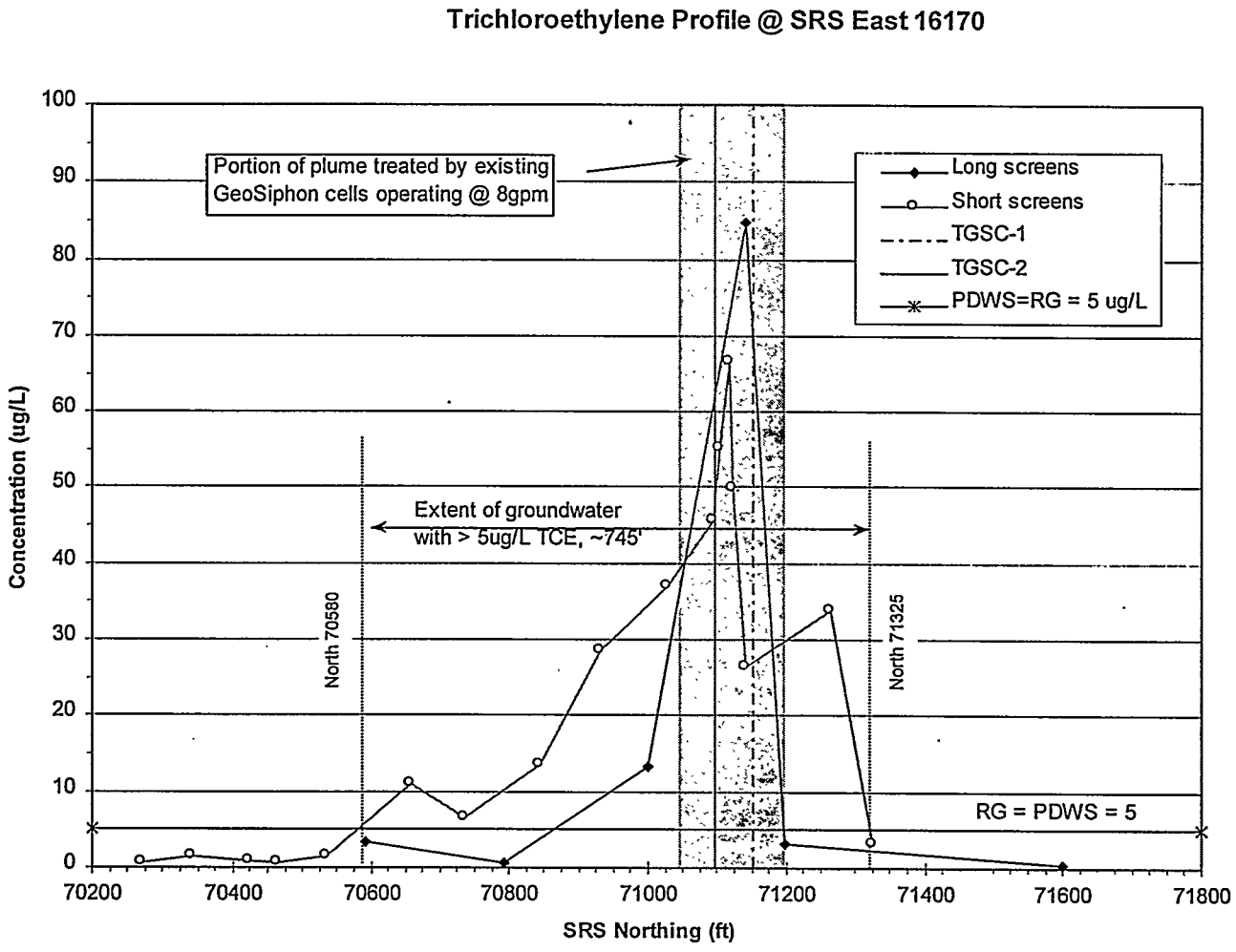
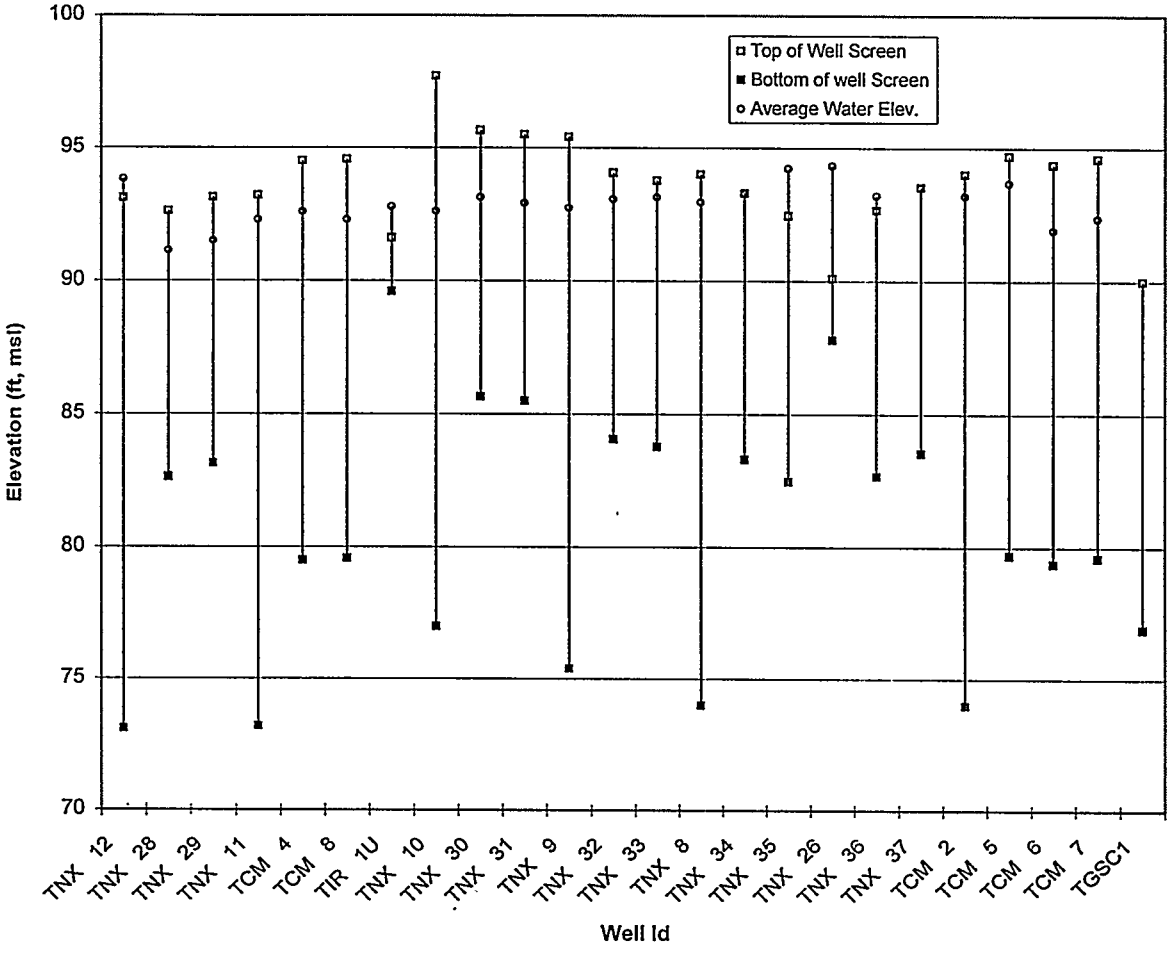


Figure 3. Vertical placement of monitoring well screens in the TNX swamp.



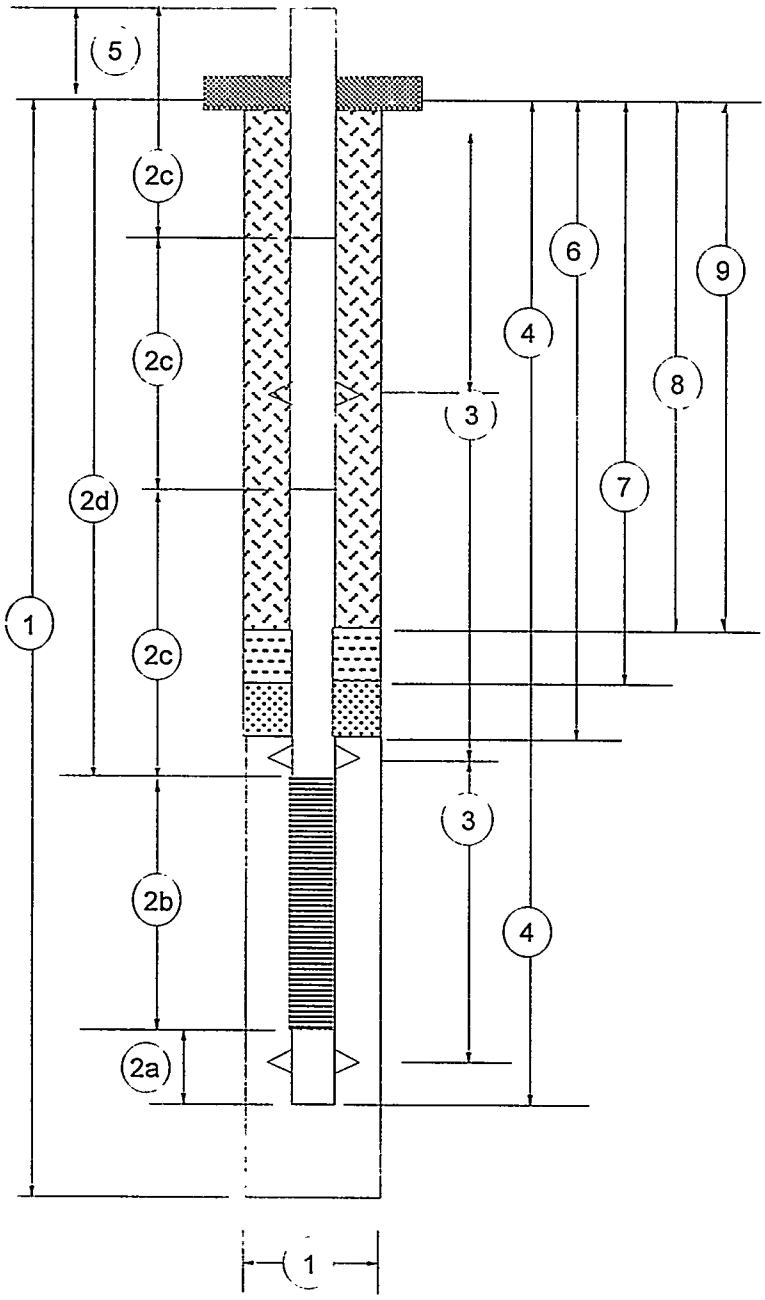
Appendix A

Well Construction Diagrams

OSR 30-5# (Rev 4-7-97)

Monitoring Well Construction Diagram

Drilling Subcontractor		Driller
Graves		John Johns
Date of Well Installation	**Tech O.S./CO. Name**	
9.17.98	Ralph L. Nichols	
Well Number	**SRS Coordinates**	**Sanitary Seal Elevation**
TGSC-2	North 71096.41, East 16172.48	97.56 ft. m.s.l.



Note—All measurements are from ground surface at start of boring (measurements to nearest 0.1 foot).

1. Total Drilled Depth/Hole Diameter 20 feet / 102 inches
2. Casing/Screen Tally (Measured to Nearest 0.01 foot)
   a) Sump and Plug Length 2.75 feet
   b) Screen Length 15 feet
   c) Casing Joint Lengths (Measured in Uphole Sequence from Top of Screen) 5 feet
   d) Depth to Top of Screen 5 feet
3. Depths to Centralizers n.a.
4. Total Depth of Installed Well 20 feet
5. Casing Stick Up (Standard 2.5' A.G.S.) 2.75 feet
6. Depth to Top of Filter Pack 6 feet
7. Depth to Top of Fine Sand Seal n.a.
8. Depth to Top of Bentonite Seal 5 feet
9. Thickness of Grout 5 feet

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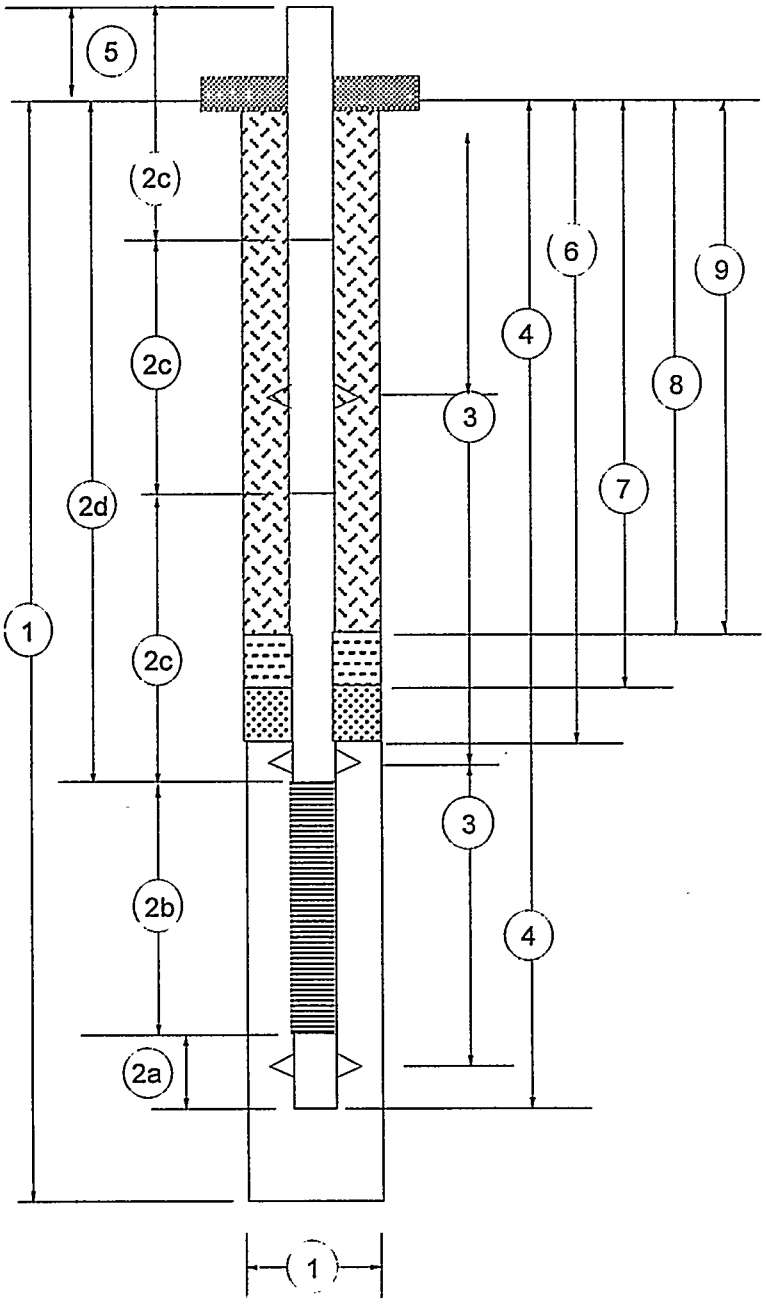
Monitoring Well Construction Diagram

Drilling Subcontractor		Driller
EMTC		Jim Hill Jr.
Date of Well Installation	**Tech O.S./CO. Name**	
10.12.1998	Jay Noonkester	
Well Number	**SRS Coordinates**	**Sanitary Seal Elevation**
TCM6	North 71106.77, East 16172.78	97.54 ft. m.s.l.



Note—All measurements are from ground surface at start of boring (measurements to nearest 0.1 foot).

1. Total Drilled Depth/Hole Diameter 20 feet / 4 1/2 inches
2. Casing/Screen Tally (Measured to Nearest 0.01 foot)
   a) Sump and Plug Length 3.0 feet
   b) Screen Length 15 feet
   c) Casing Joint Lengths (Measured in Uphole Sequence from Top of Screen) 5 feet
   d) Depth to Top of Screen 2.0 feet
3. Depths to Centralizers n.a.
4. Total Depth of Installed Well 20 feet
5. Casing Stick Up (Standard 2.5' A.G.S.) 3.0 feet
6. Depth to Top of Filter Pack 1 foot
7. Depth to Top of Fine Sand Seal n.a.
8. Depth to Top of Bentonite Seal 0 feet
9. Thickness of Grout n.a.

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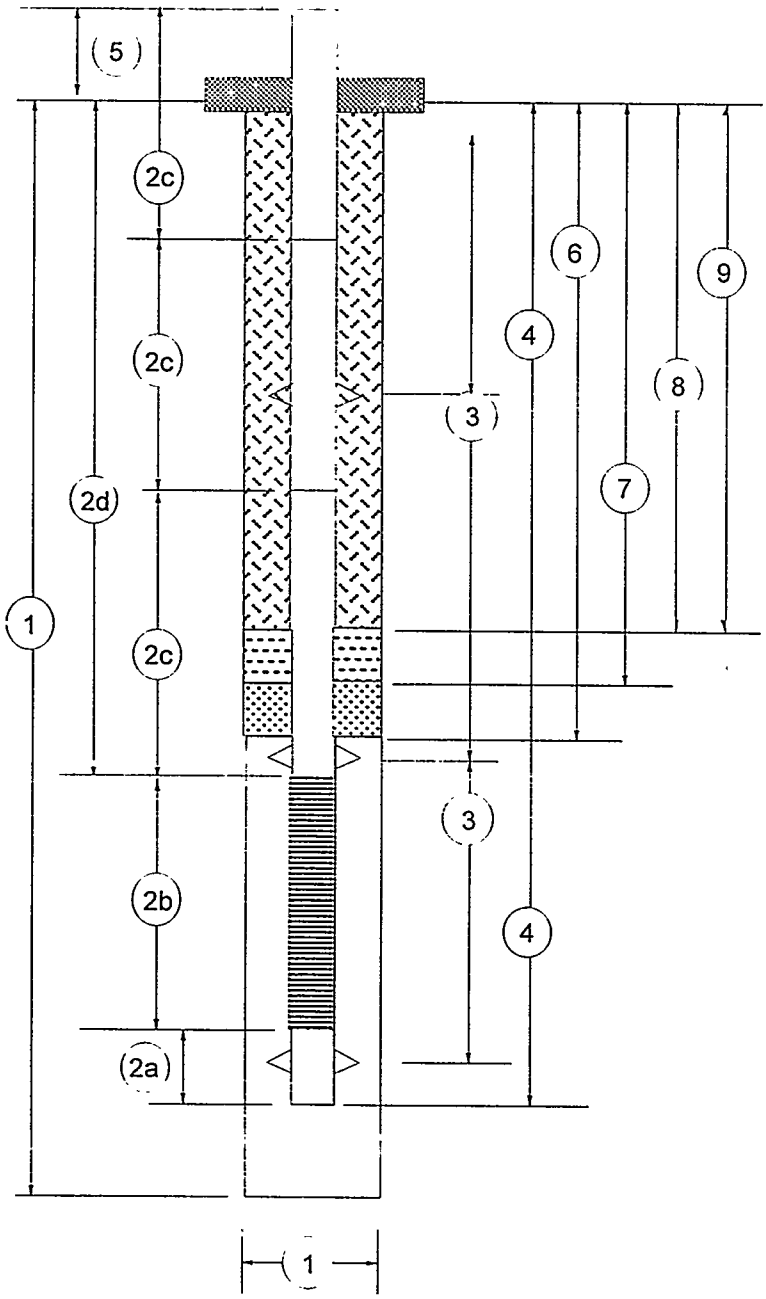
Monitoring Well Construction Diagram

Drilling Subcontractor		Driller
EMTC		Jim Hill Jr.
Date of Well Installation	**Tech O.S./CO. Name**	
10.12.1998	Jay Noonkester	
Well Number	**SRS Coordinates**	**Sanitary Seal Elevation**
TCM7	North 71095.49, East 16183.57	97.61 ft. m.s.l.



Note—All measurements are from ground surface at start of boring (measurements to nearest 0.1 foot).

1. Total Drilled Depth/Hole Diameter 20 feet / 4 1/2 inches
2. Casing/Screen Tally (Measured to Nearest 0.01 foot)
   a) Sump and Plug Length 3.0 feet
   b) Screen Length 15 feet
   c) Casing Joint Lengths (Measured in Uphole Sequence from Top of Screen) 5 feet
   d) Depth to Top of Screen 1.75 feet
3. Depths to Centralizers n.a.
4. Total Depth of Installed Well 20 feet
5. Casing Stick Up (Standard 2.5' A.G.S.) 3.25 feet
6. Depth to Top of Filter Pack 1 foot
7. Depth to Top of Fine Sand Seal n.a.
8. Depth to Top of Bentonite Seal 0 feet
9. Thickness of Grout n.a.

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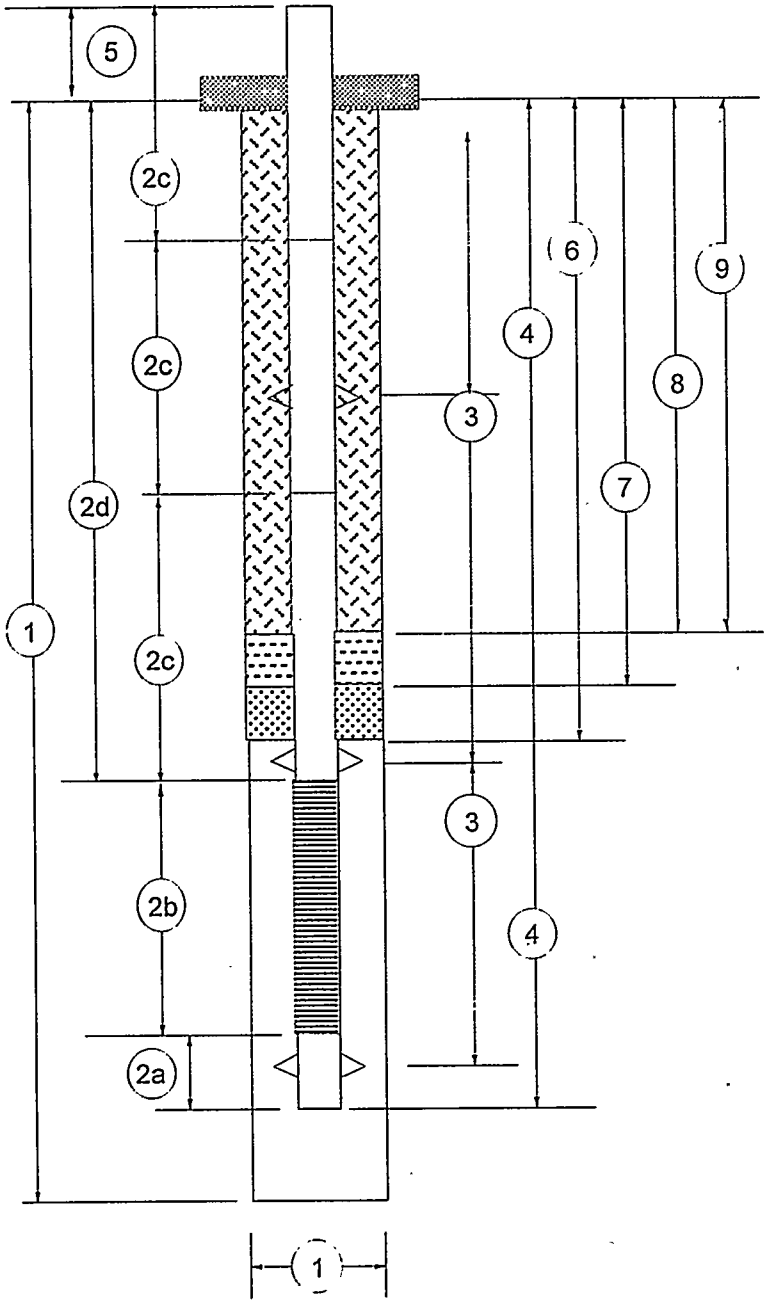
Monitoring Well Construction Diagram

Drilling Subcontractor		Driller
AEI		Clarence Coleman
Date of Well Installation	**Tech O.S./CO. Name**	
11.19.1998	Jay Noonkester	
Well Number	**SRS Coordinates**	**Sanitary Seal Elevation**
TNX28D	North 71324.9, East 16159.3	97.44

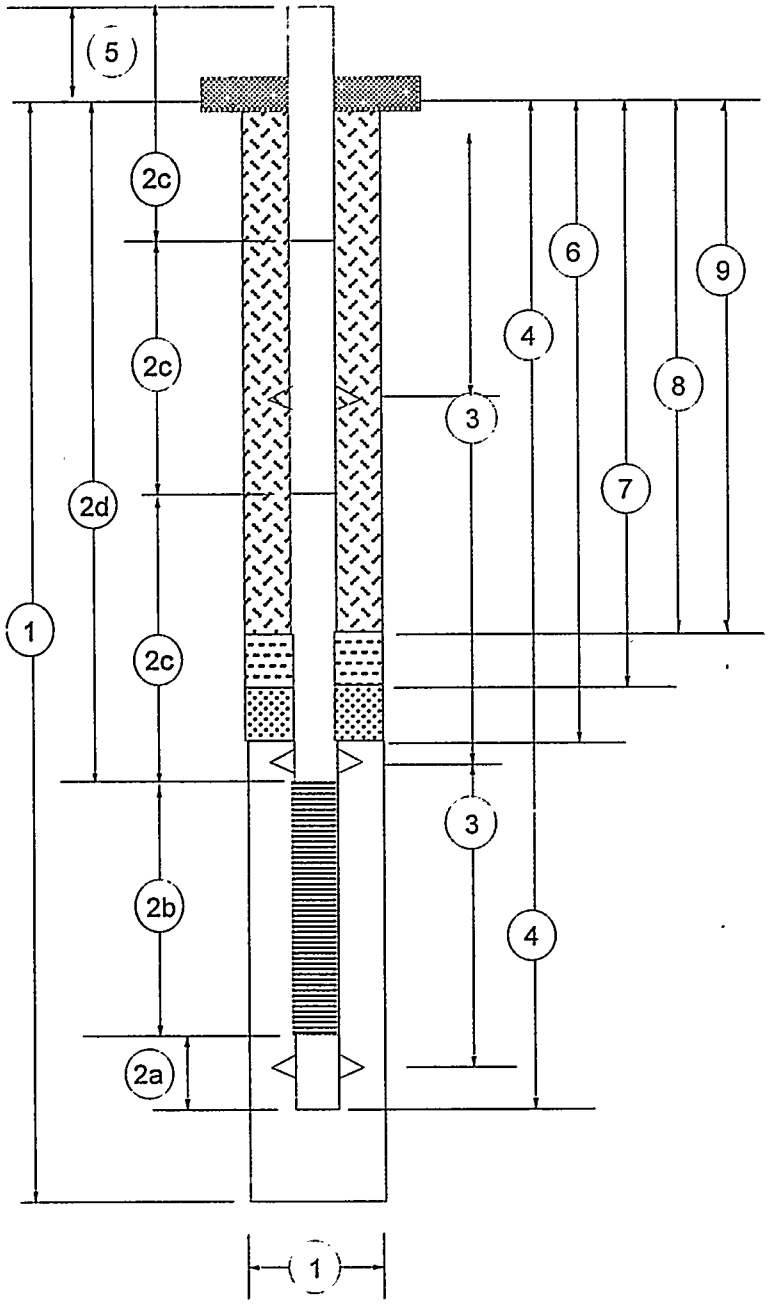


Note—All measurements are from ground surface at start of boring (measurements to nearest 0.1 foot).

1. Total Drilled Depth/Hole Diameter 15 feet / 8 3/8 inches
2. Casing/Screen Tally (Measured to Nearest 0.01 foot)
   a) Sump and Plug Length 0.3 feet
   b) Screen Length 10 feet
   c) Casing Joint Lengths (Measured in Uphole Sequence from Top of Screen) one 5.0 ft. - 2" PVC feet
      one 2.2 ft - 2" PVC
   d) Depth to Top of Screen 4.8 feet
3. Depths to Centralizers n.a.
4. Total Depth of Installed Well 15.1
5. Casing Stick Up (Standard 2.5' A.G.S.) 2.4 feet
6. Depth to Top of Filter Pack 3.0 foot
7. Depth to Top of Fine Sand Seal n.a.
8. Depth to Top of Bentonite Seal 0 feet
9. Thickness of Grout n.a.

Monitoring Well Construction Diagram

Drilling Subcontractor		Driller
AEI		Clarence Coleman
Date of Well Installation	**Tech O.S./CO. Name**	
11.19.1998	Jay Noonkester	
Well Number	**SRS Coordinates**	**Sanitary Seal Elevation**
TNX29D	North 71264.5.9, East 16149.5	97.67



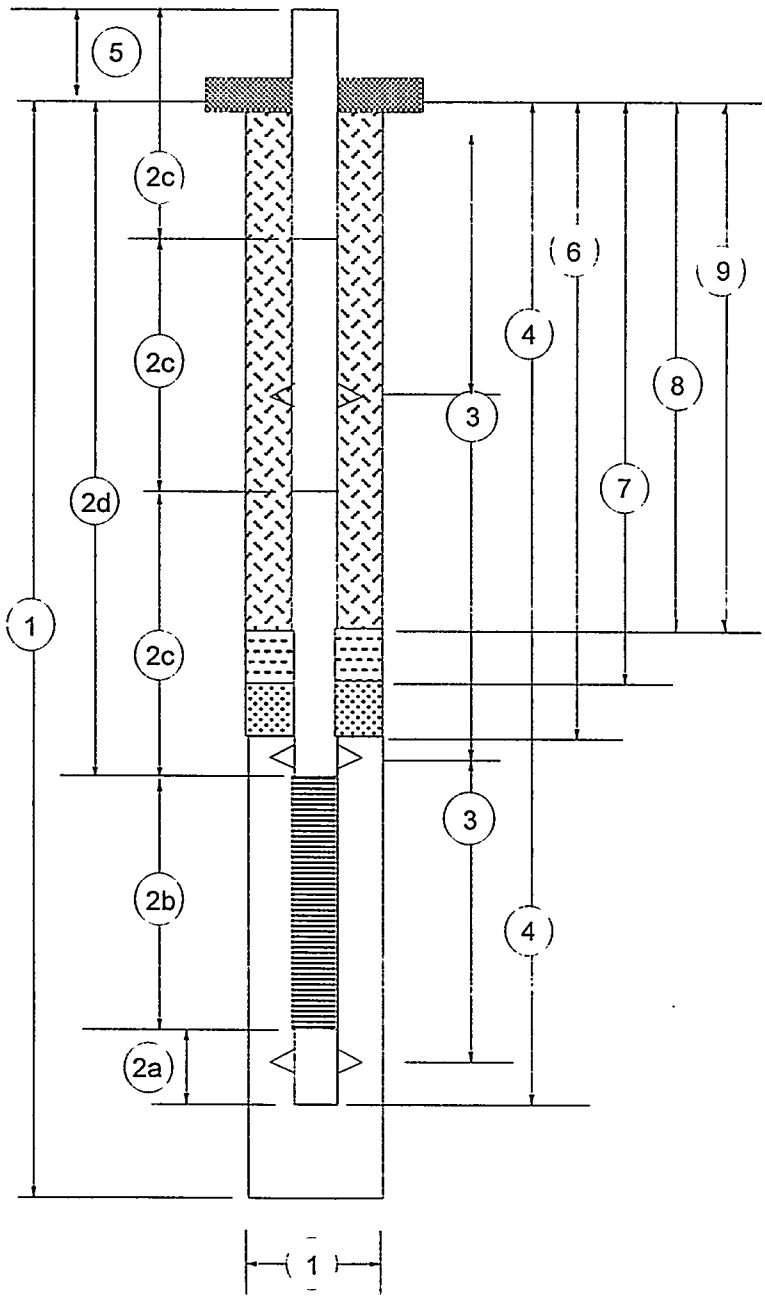
Note—All measurements are from ground surface at start of boring (measurements to nearest 0.1 foot).

1. Total Drilled Depth/Hole Diameter 14.9 feet / 8 3/8"
2. Casing/Screen Tally (Measured to Nearest 0.01 foot)
   a) Sump and Plug Length 0.3 feet
   b) Screen Length 10 feet
   c) Casing Joint Lengths (Measured in Uphole Sequence from Top of Screen) one 5.0 ft. - 2" PVC feet
   one 2.1 ft - 2" PVC
   d) Depth to Top of Screen 4.6 feet
3. Depths to Centralizers n.a.
4. Total Depth of Installed Well 14.9
5. Casing Stick Up (Standard 2.5' A.G.S.) 2.5 feet
6. Depth to Top of Filter Pack 3.0 foot
7. Depth to Top of Fine Sand Seal n.a.
8. Depth to Top of Bentonite Seal 0.0 feet
9. Thickness of Grout n.a.

OSR 30-5# (Rev 4-7-97)

Monitoring Well Construction Diagram

Drilling Subcontractor		Driller
AEI		Clarence Coleman
Date of Well Installation	**Tech O.S./CO. Name**	
11.18.1998	Jay Noonkester	
Well Number	**SRS Coordinates**	**Sanitary Seal Elevation**
TNX30D	North 70930.6, East 16167.7	100.33



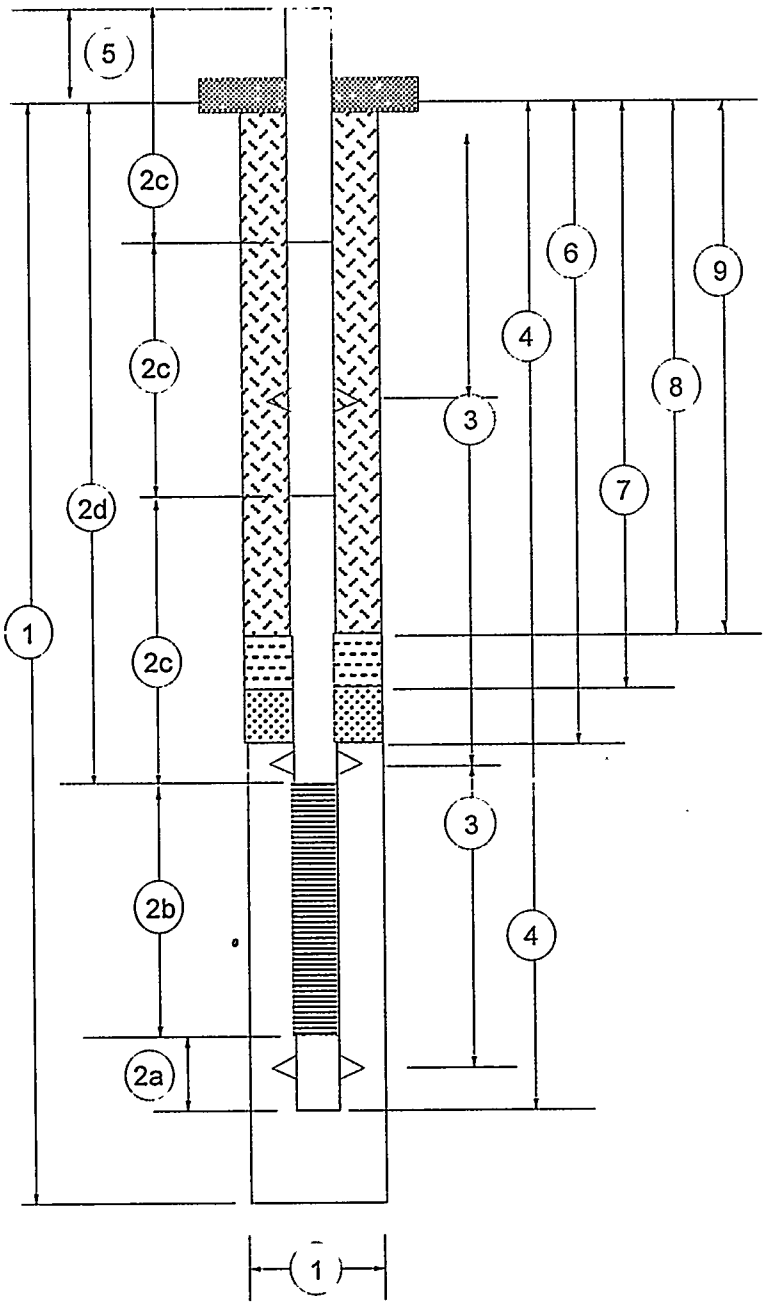
Note—All measurements are from ground surface at start of boring (measurements to nearest 0.1 foot).

1. Total Drilled Depth/Hole Diameter 15.0 feet / 8 3/8"
2. Casing/Screen Tally (Measured to Nearest 0.01 foot)
   a) Sump and Plug Length 0.3 feet
   b) Screen Length 10 feet
   c) Casing Joint Lengths (Measured in Uphole Sequence from Top of Screen) one 5.0 ft. - 2" PVC feet
   one 2.4 ft - 2" PVC
   d) Depth to Top of Screen 4.7 feet
3. Depths to Centralizers n.a.
4. Total Depth of Installed Well 14.9
5. Casing Stick Up (Standard 2.5' A.G.S.) 2.7 feet
6. Depth to Top of Filter Pack 3.0 foot
7. Depth to Top of Fine Sand Seal n.a.
8. Depth to Top of Bentonite Seal 0.0 feet
9. Thickness of Grout n.a.

QSR 30-5#(Rev 4-7-97)

Monitoring Well Construction Diagram

Drilling Subcontractor		Driller
AEI		Clarence Coleman
Date of Well Installation	**Tech O.S./CO. Name**	
11.18.1998	Jay Noonkester	
Well Number	**SRS Coordinates**	**Sanitary Seal Elevation**
TNX31D	North 70844.7, East 16168.9	100.23



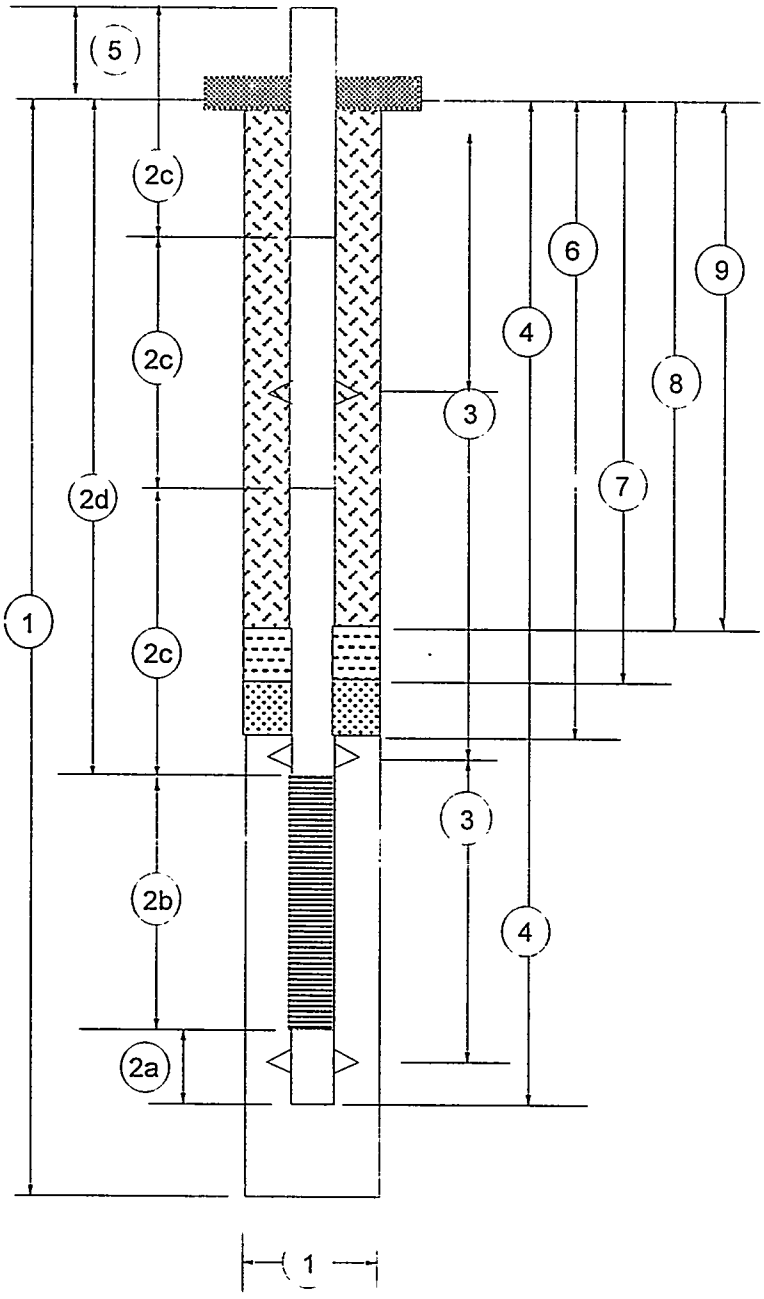
Note—All measurements are from ground surface at start of boring (measurements to nearest 0.1 foot).

1. Total Drilled Depth/Hole Diameter 15.1 feet / 8 3/8"
2. Casing/Screen Tally (Measured to Nearest 0.01 foot)
   a) Sump and Plug Length 0.3 feet
   b) Screen Length 10 feet
   c) Casing Joint Lengths (Measured in Uphole Sequence from Top of Screen) one 5.0 ft. - 2" PVC feet
   one 2.4 ft - 2" PVC
   d) Depth to Top of Screen 4.8 feet
3. Depths to Centralizers n.a.
4. Total Depth of Installed Well 15.1
5. Casing Stick Up (Standard 2.5' A.G.S.) 2.6 feet
6. Depth to Top of Filter Pack 3.0 foot
7. Depth to Top of Fine Sand Seal n.a.
8. Depth to Top of Bentonite Seal 0.0 feet
9. Thickness of Grout n.a.

OSR 30-5# (Rev 4-7-97)

Monitoring Well Construction Diagram

Drilling Subcontractor		Driller
AEI		Clarence Coleman
Date of Well Installation	Tech O.S./CO. Name	
11.18.1998	Jay Noonkester	
Well Number	SRS Coordinates	Sanitary Seal Elevation
TNX32D	North 70735.1, East 16156.4	98.54

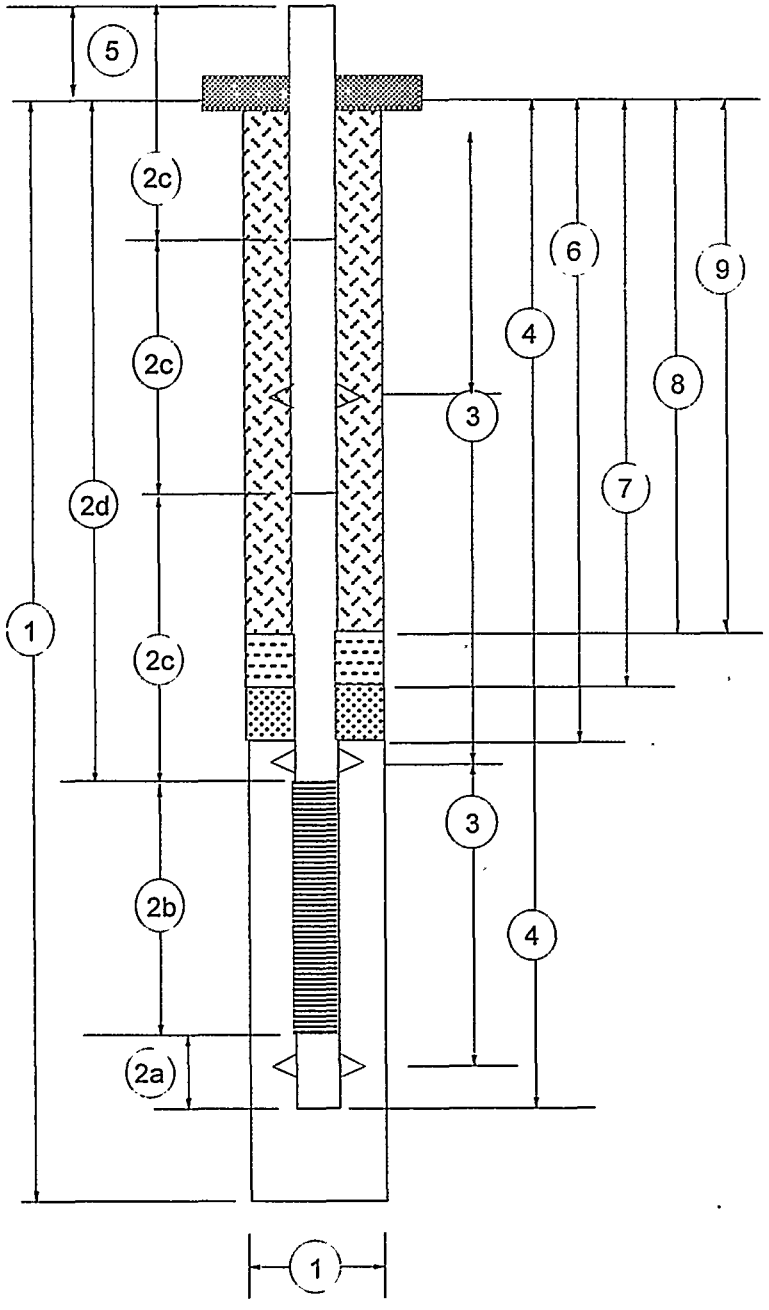


Note—All measurements are from ground surface at start of boring (measurements to nearest 0.1 foot).

1. Total Drilled Depth/Hole Diameter 14.9 feet / 8 3/8"
2. Casing/Screen Tally (Measured to Nearest 0.01 foot)
   a) Sump and Plug Length 0.3 feet
   b) Screen Length 10 feet
   c) Casing Joint Lengths (Measured in Uphole Sequence from Top of Screen) one 5.0 ft. - 2" PVC feet
   one 2.1 ft - 2" PVC
   d) Depth to Top of Screen 4.6 feet
3. Depths to Centralizers n.a.
4. Total Depth of Installed Well 14.9
5. Casing Stick Up (Standard 2.5' A.G.S.) 2.5 feet
6. Depth to Top of Filter Pack 3.0 foot
7. Depth to Top of Fine Sand Seal n.a.
8. Depth to Top of Bentonite Seal 0.0 feet
9. Thickness of Grout n.a.

Monitoring Well Construction Diagram

Drilling Subcontractor		Driller
AEI		Clarence Coleman
Date of Well Installation	**Tech O.S./CO. Name**	
11.18.1998	Jay Noonkester	
Well Number	**SRS Coordinates**	**Sanitary Seal Elevation**
TNX33D	North 70658.5, East 16162.4	98.29



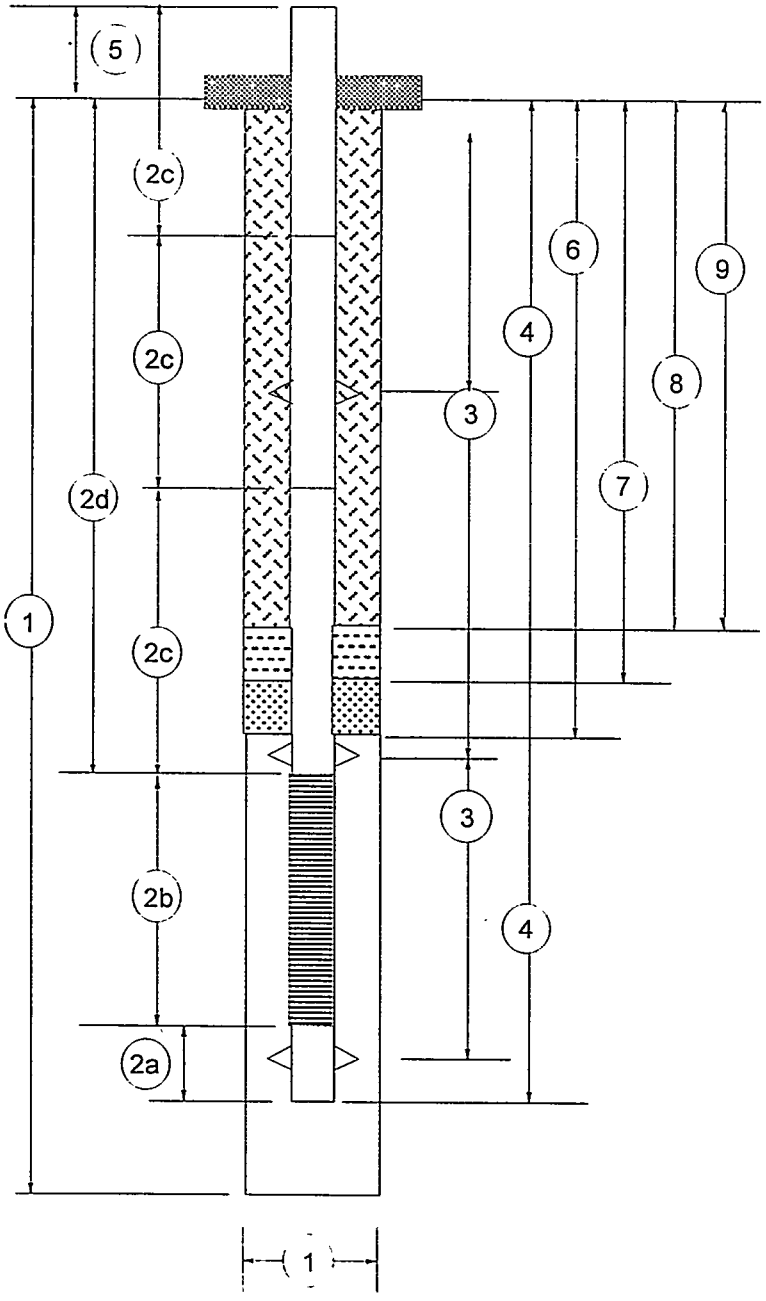
Note—All measurements are from ground surface at start of boring (measurements to nearest 0.1 foot).

1. Total Drilled Depth/Hole Diameter 14.9 feet / 8 3/8"
2. Casing/Screen Tally (Measured to Nearest 0.01 foot)
   a) Sump and Plug Length 0.3 feet
   b) Screen Length 10 feet
   c) Casing Joint Lengths (Measured in Uphole Sequence from Top of Screen) one 5.0 ft. - 2" PVC feet
      one 2.1 ft - 2" PVC
   d) Depth to Top of Screen 4.6 feet
3. Depths to Centralizers n.a.
4. Total Depth of Installed Well 14.9
5. Casing Stick Up (Standard 2.5' A.G.S.) 2.5 feet
6. Depth to Top of Filter Pack 2.0 foot
7. Depth to Top of Fine Sand Seal n.a.
8. Depth to Top of Bentonite Seal 0.0 feet
9. Thickness of Grout n.a.

OSR 30-5# (Rev 4-7-97)

Monitoring Well Construction Diagram

Drilling Subcontractor		Driller
AEI		Clarence Coleman
Date of Well Installation	**Tech O.S./CO. Name**	
11.17.1998	Jay Noonkester	
Well Number	**SRS Coordinates**	**Sanitary Seal Elevation**
TNX34D	North 70535.8, East 16200.1	97.52



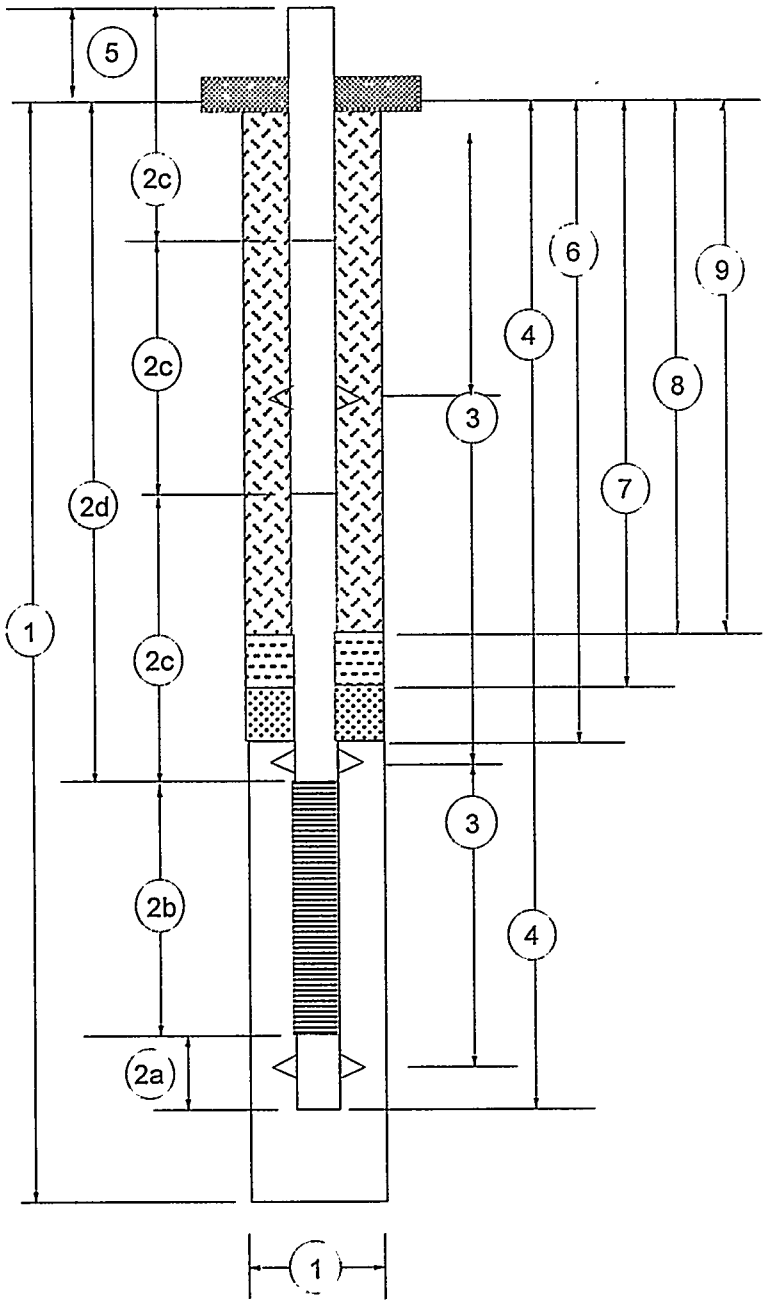
Note—All measurements are from ground surface at start of boring (measurements to nearest 0.1 foot).

1. Total Drilled Depth/Hole Diameter 14.6 feet / 8 3/8"
2. Casing/Screen Tally (Measured to Nearest 0.01 foot)
   a) Sump and Plug Length 0.3 feet
   b) Screen Length 10 feet
   c) Casing Joint Lengths (Measured in Uphole Sequence from Top of Screen) one 5.0 ft. - 2" PVC feet
   one 1.9 ft - 2" PVC
   d) Depth to Top of Screen 4.3 feet
3. Depths to Centralizers n.a.
4. Total Depth of Installed Well 14.6
5. Casing Stick Up (Standard 2.5' A.G.S.) 2.6 feet
6. Depth to Top of Filter Pack 3.0 foot
7. Depth to Top of Fine Sand Seal n.a.
8. Depth to Top of Bentonite Seal 0.0 feet
9. Thickness of Grout n.a.

OSR 30-5# (Rev 4-7-97)

Monitoring Well Construction Diagram

Drilling Subcontractor		Driller
AEI		Clarence Coleman
Date of Well Installation	**Tech O.S./CO. Name**	
11.17.1998	Jay Noonkester	
Well Number	**SRS Coordinates**	**Sanitary Seal Elevation**
TNX35D	North 70464.9, East 16216.2	97.39



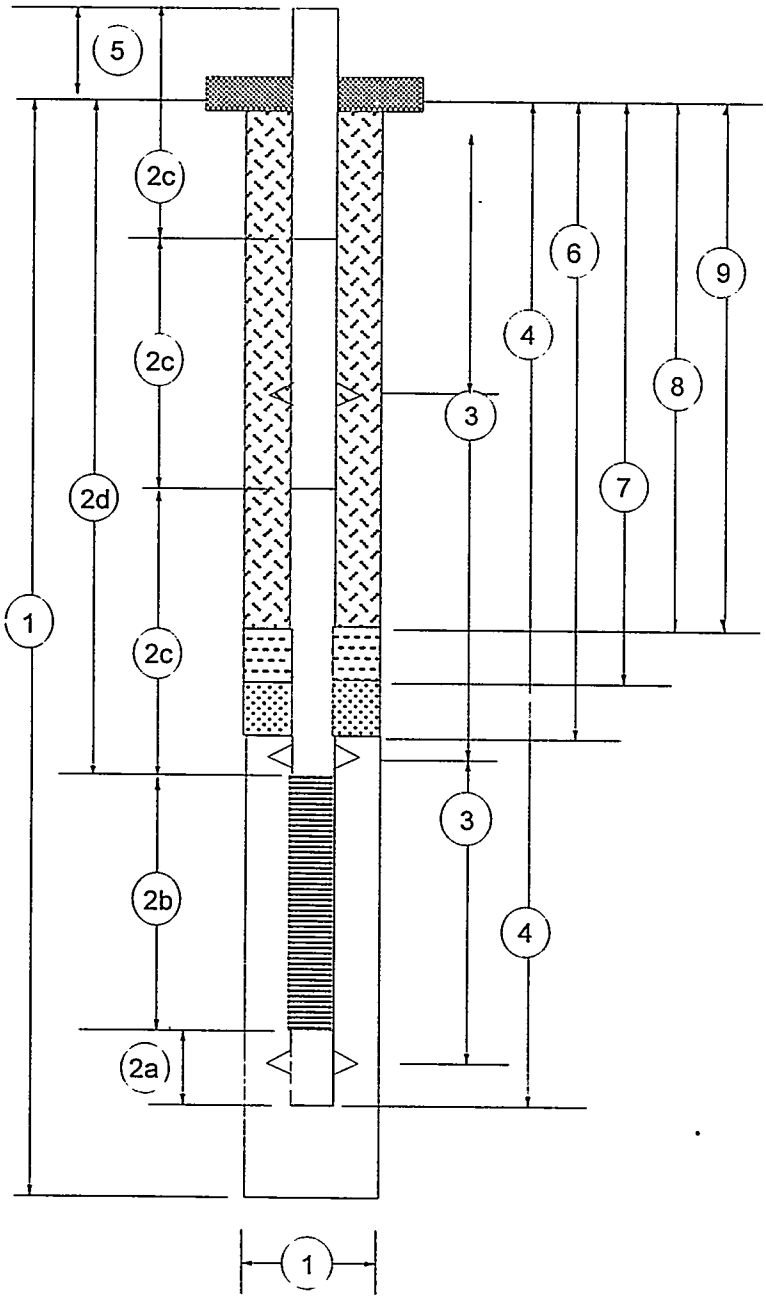
Note—All measurements are from ground surface at start of boring (measurements to nearest 0.1 foot).

1. Total Drilled Depth/Hole Diameter 15.2 feet / 8 3/8"
2. Casing/Screen Tally (Measured to Nearest 0.01 foot)
   a) Sump and Plug Length 0.3 feet
   b) Screen Length 10 feet
   c) Casing Joint Lengths (Measured in Uphole Sequence from Top of Screen) one 5.0 ft. - 2" PVC feet
      one 2.5 ft - 2" PVC
   d) Depth to Top of Screen 4.9 feet
3. Depths to Centralizers n.a.
4. Total Depth of Installed Well 15.2
5. Casing Stick Up (Standard 2.5' A.G.S.) 2.6 feet
6. Depth to Top of Filter Pack 3.0 foot
7. Depth to Top of Fine Sand Seal n.a.
8. Depth to Top of Bentonite Seal 0.0 feet
9. Thickness of Grout n.a.

OSR 30-5# (Rev 4-7-97)

Monitoring Well Construction Diagram

Drilling Subcontractor		Driller
AEI		Clarence Coleman
Date of Well Installation	Tech O.S./CO. Name	
11.20.1998	Jay Noonkester	
Well Number	SRS Coordinates	Sanitary Seal Elevation
TNX36D	North 70341.4, East 16258.8	97.35



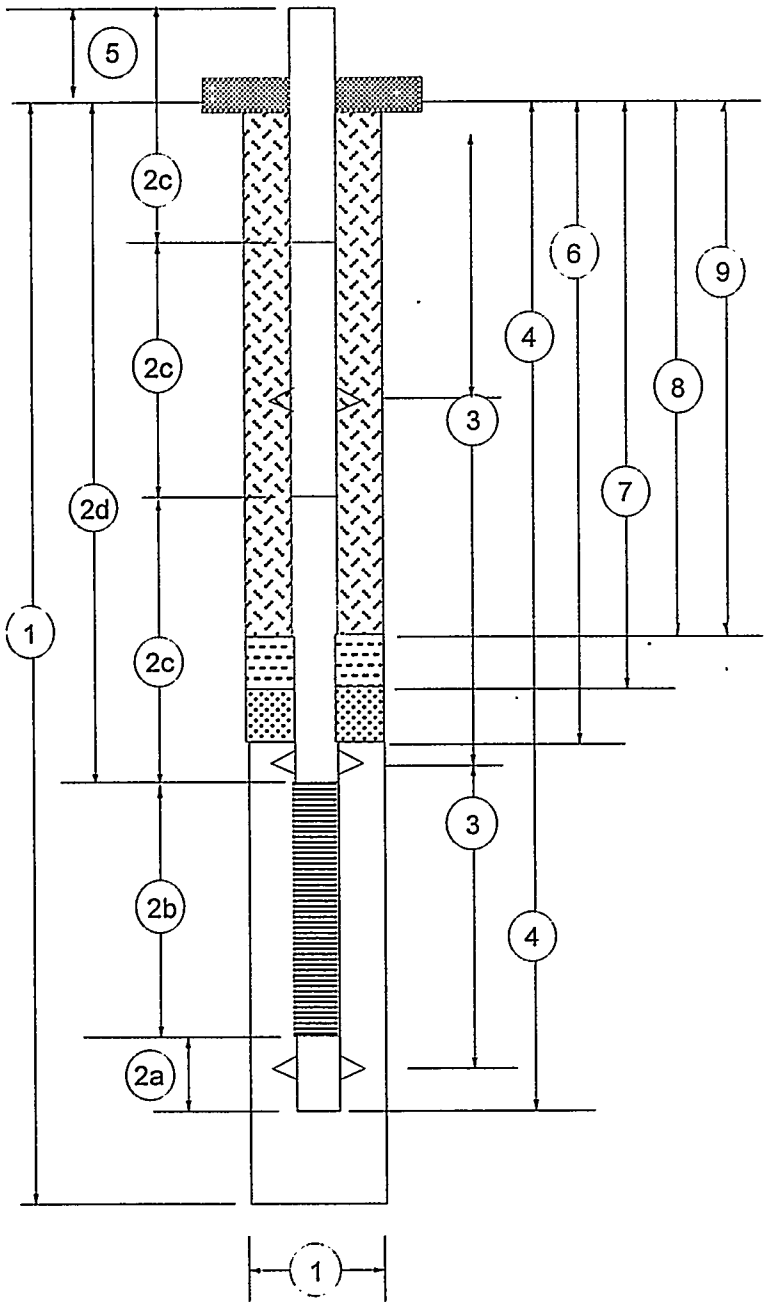
Note—All measurements are from ground surface at start of boring (measurements to nearest 0.1 foot).

1. Total Drilled Depth/Hole Diameter 15.0 feet / 8 3/8"
2. Casing/Screen Tally (Measured to Nearest 0.01 foot)
   a) Sump and Plug Length 0.3 feet
   b) Screen Length 10 feet
   c) Casing Joint Lengths (Measured in Uphole Sequence from Top of Screen) one 5.0 ft. - 2" PVC feet
   one 2.2 ft - 2" PVC
   d) Depth to Top of Screen 4.7 feet
3. Depths to Centralizers n.a.
4. Total Depth of Installed Well 15.0
5. Casing Stick Up (Standard 2.5' A.G.S.) 2.5 feet
6. Depth to Top of Filter Pack 3.0 foot
7. Depth to Top of Fine Sand Seal n.a.
8. Depth to Top of Bentonite Seal 0.0 feet
9. Thickness of Grout n.a.

GSR 30-5ff (Rev 4-7-97)

Monitoring Well Construction Diagram

Drilling Subcontractor		Driller
AEI		Clarence Coleman
Date of Well Installation	**Tech O.S./CO. Name**	
11.20.1998	Jay Noonkester	
Well Number	**SRS Coordinates**	**Sanitary Seal Elevation**
TNX37D	North 70270.6, East 16272.7	98.24



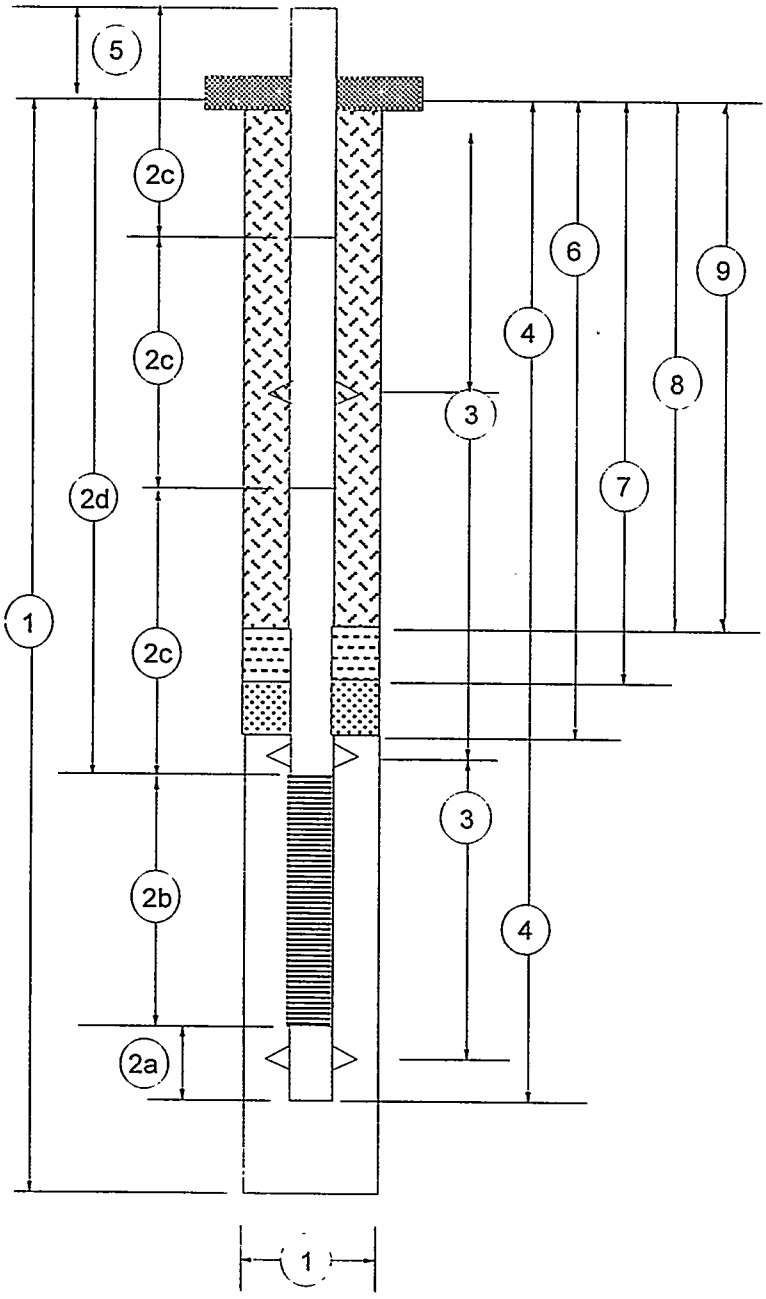
Note—All measurements are from ground surface at start of boring (measurements to nearest 0.1 foot).

1. Total Drilled Depth/Hole Diameter 15.0 feet / 8 3/8"
2. Casing/Screen Tally (Measured to Nearest 0.01 foot)
   a) Sump and Plug Length 0.3 feet
   b) Screen Length 10 feet
   c) Casing Joint Lengths (Measured in Uphole Sequence from Top of Screen) one 5.0 ft. - 2" PVC feet
   one 2.2 ft - 2" PVC
   d) Depth to Top of Screen 4.7 feet
3. Depths to Centralizers n.a.
4. Total Depth of Installed Well 15.0
5. Casing Stick Up (Standard 2.5' A.G.S.) 2.5 feet
6. Depth to Top of Filter Pack 3.0 foot
7. Depth to Top of Fine Sand Seal n.a.
8. Depth to Top of Bentonite Seal 0.0 feet
9. Thickness of Grout n.a.

OSR 30-5# (Rev 4-7-97)

Monitoring Well Construction Diagram

Drilling Subcontractor		Driller
AEI		Bryan Giesecke
Date of Well Installation	Tech O.S./CO. Name	
11.24.1998	Jay Noonkester	
Well Number	SRS Coordinates	Sanitary Seal Elevation
TNX38D	North 72082.4, East 16692.1	115.58

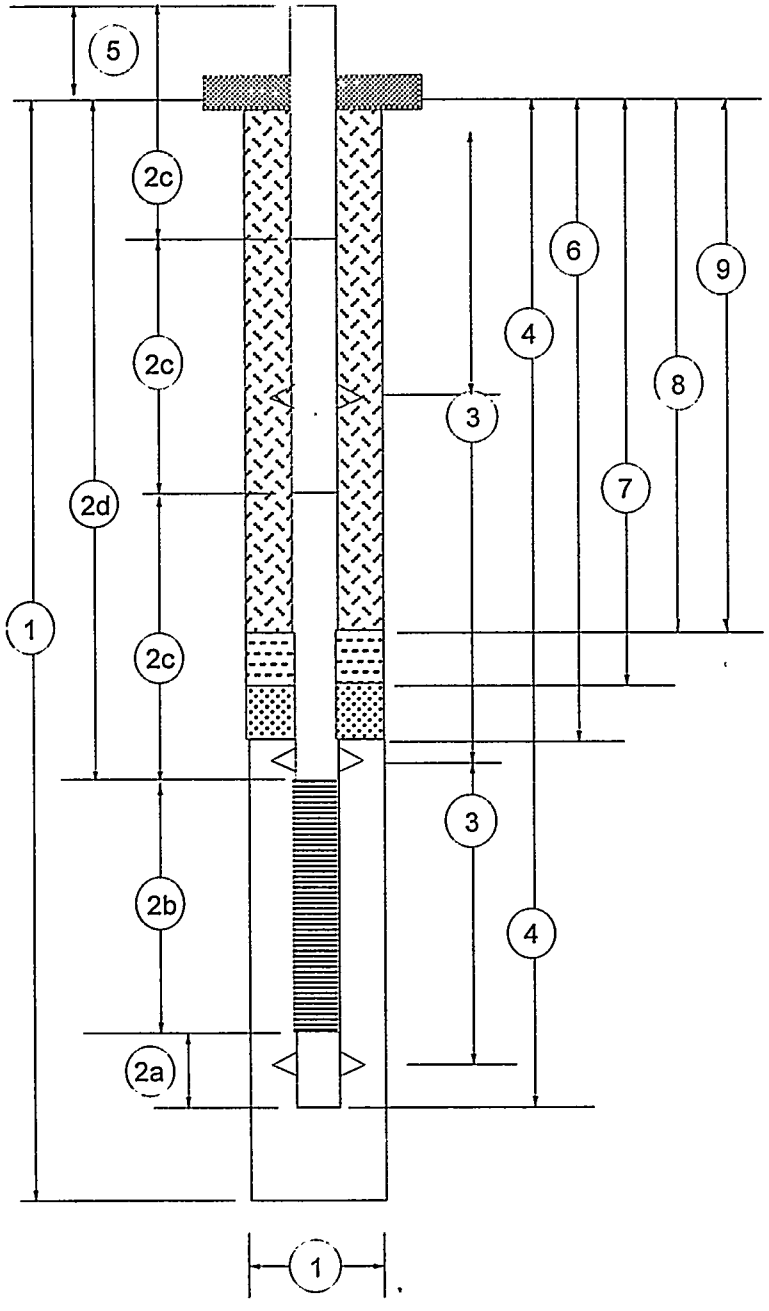


Note—All measurements are from ground surface at start of boring (measurements to nearest 0.1 foot).

1. Total Drilled Depth/Hole Diameter 8.5 feet / 4 7/8"
2. Casing/Screen Tally (Measured to Nearest 0.01 foot)
   a) Sump and Plug Length 0.3 feet
   b) Screen Length 7.5 feet
   c) Casing Joint Lengths (Measured in Uphole Sequence from Top of Screen) one 2.5 ft. - 2" PVC feet
   d) Depth to Top of Screen 0.75 feet
3. Depths to Centralizers n.a.
4. Total Depth of Installed Well 8.5
5. Casing Stick Up (Standard 2.5' A.G.S.) 1.8 feet
6. Depth to Top of Filter Pack 0.5 foot
7. Depth to Top of Fine Sand Seal n.a.
8. Depth to Top of Bentonite Seal 0.0 feet
9. Thickness of Grout n.a.

Monitoring Well Construction Diagram

Drilling Subcontractor		Driller
AEI		Bryan Giesecke
Date of Well Installation	**Tech O.S./CO. Name**	
11.23.1998	Jay Noonkester	
Well Number	**SRS Coordinates**	**Sanitary Seal Elevation**
TNX39D	North 71956.4, East 16905.6	118.86



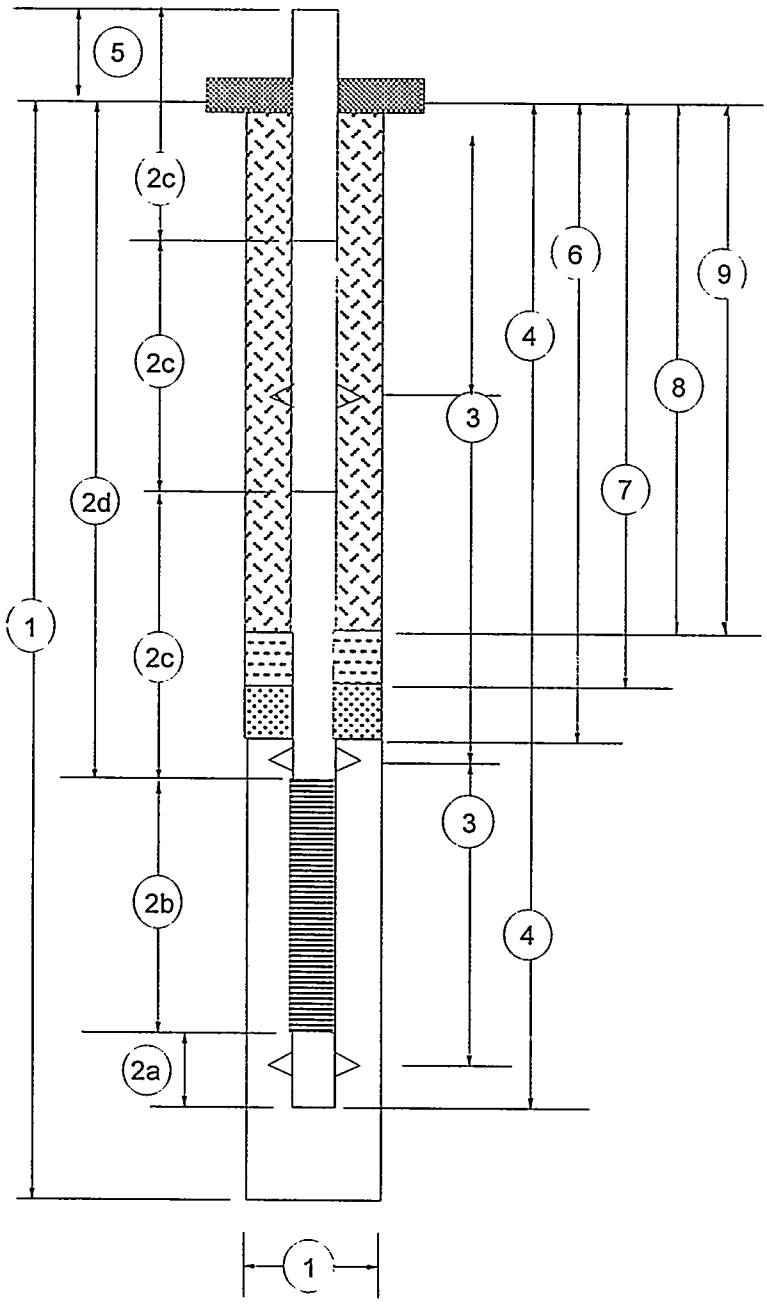
Note—All measurements are from ground surface at start of boring (measurements to nearest 0.1 foot).

1. Total Drilled Depth/Hole Diameter 10.4 feet / 4 7/8"
2. Casing/Screen Tally (Measured to Nearest 0.01 foot)
   a) Sump and Plug Length 0.3 feet
   b) Screen Length 7.5 feet
   c) Casing Joint Lengths (Measured in Uphole Sequence from Top of Screen) one 5.0 ft. - 2" PVC feet
   d) Depth to Top of Screen 2.6 feet
3. Depths to Centralizers n.a.
4. Total Depth of Installed Well 10.6
5. Casing Stick Up (Standard 2.5' A.G.S.) 2.4 feet
6. Depth to Top of Filter Pack 1.5 foot
7. Depth to Top of Fine Sand Seal n.a.
8. Depth to Top of Bentonite Seal 0.0 feet
9. Thickness of Grout n.a.

OSR 30-5# (Rev 4-7-97)

Monitoring Well Construction Diagram

Drilling Subcontractor		Driller
AEI		Bryan Giesecke
Date of Well Installation	**Tech O.S./CO. Name**	
11.24.1998	Jay Noonkester	
Well Number	**SRS Coordinates**	**Sanitary Seal Elevation**
TNX40D	North 72274.7, East 16854.2	115.21



Note—All measurements are from ground surface at start of boring (measurements to nearest 0.1 foot).

1. Total Drilled Depth/Hole Diameter 14.3 feet / 4 7/8"
2. Casing/Screen Tally (Measured to Nearest 0.01 foot)
   a) Sump and Plug Length 0.3 feet
   b) Screen Length 10.0 feet
   c) Casing Joint Lengths (Measured in Uphole Sequence from Top of Screen) one 5.0 ft. - 2" PVC feet
   one 1.4 ft. - 2" PVC
   d) Depth to Top of Screen 4.0 feet
3. Depths to Centralizers n.a.
4. Total Depth of Installed Well 14.3
5. Casing Stick Up (Standard 2.5' A.G.S.) 2.4 feet
6. Depth to Top of Filter Pack 2.0 foot
7. Depth to Top of Fine Sand Seal n.a.
8. Depth to Top of Bentonite Seal 0.0 feet
9. Thickness of Grout n.a.

Appendix B

Field Data

Dec-98			TNX PLUME WELLS				
WELL NUMBER	DATE	WATER LEVEL	PH	TEMP (C)	COND (mS/cm)	DO (mg/L)	Eh (mv)
TGSC 2	12/9/98	6.09	6.62	18.3	0.256	0.0	-311
TCM 1	na	na	na	na	na	na	na
TCM 2	12/10/98	6.32	4.99	19.2	0.154	1.4	509
TCM 3	na	na	na	na	na	na	na
TCM 4	12/11/98	7.26	5.26	19.3	0.08	0.5	484
TCM 5	12/11/98	4.40	5.4	19.2	0.136	1.4	352
TCM 6	12/11/98	7.83	4.57	18.9	0.112	1.3	581
TCM 7	12/11/98	7.63	4.97	19.1	0.121	1.3	517
TCM 8	12/11/98	7.59	5.08	18.4	0.156	0.1	390
TIR 1U	12/10/98	9.18	4.36	19.1	0.134	3.6	566
TNX 8	12/10/98	7.81	5.29	18.4	0.128	3.2	475
TNX 9	12/10/98	9.41	4.91	18.8	0.144	0.6	432
TNX 10	12/10/98	10.05	5.06	18.6	0.096	3.4	400
TNX 11	12/10/98	7.86	4.84	19.91	0.037	1.3	339.6
TNX 12	12/10/98	5.75	5.97	19.74	0.048	5.2	336
TNX 26	na	na	na	na	na	na	na
TNX 28	12/9/98	8.86	5.12	20.22	0.032	0.9	375.4
TNX 29	12/9/98	8.92	4.95	20.17	0.044	2.0	390.9
TNX 30	12/9/98	10.32	4.54	19.6	0.11	1.8	323
TNX 31	12/9/98	10.22	4.84	19.4	0.094	1.8	328
TNX 32	12/9/98	8.44	5.05	19.3	0.113	2.3	328
TNX 33	12/9/98	8.15	5.08	19.4	0.116	2.7	403
TNX 34	12/9/98	7.40	5.05	19.5	0.077	1.9	388
TNX 35	12/9/98	4.20	4.98	19.3	0.061	2.0	447
TNX 36	12/14/98	7.09	5.31	18.5	0.072	0.1	473
TNX 37	12/14/98	7.76	5.2	18.4	0.054	0.2	466
P 26	na	na	na	na	na	na	na

Jan-99			TNX PLUME WELLS				
WELL NUMBER	DATE	WATER LEVEL	PH	TEMP (C)	COND (mS/cm)	DO (mg/L)	Eh (mV)
TGSC 2	1/19/99	5.59	7.31	16.4	0.422	0.0	-48
TCM 1	na	na	na	na	na	na	na
TCM 2	1/19/99	5.65	5.11	16.7	0.158	0.8	513
TCM 3	na	na	na	na	na	na	na
TCM 4	1/19/99	6.78	5.3	17.5	0.09	0.5	465
TCM 5	1/19/99	6.88	5.65	16.4	0.172	0.8	425
TCM 6	1/19/99	7.34	4.86	16.5	0.136	0.8	517
TCM 7	1/19/99	7.12	5.08	16.7	0.216	1.1	457
TCM 8	1/19/99	7.17	5.11	15.4	0.158	0.2	500
TIR 1U	1/19/99	8.68	4.49	17.3	0.13	2.9	598
TNX 8	1/19/99	7.32	5.32	16.3	0.116	2.5	465
TNX 9	1/19/99	8.88	4.94	17.7	0.146	0.7	462
TNX 10	1/19/99	9.65	5.03	18.5	0.098	2.5	477
TNX 11	1/19/99	7.33	5.12	19.2	0.046	0.8	457
TNX 12	1/19/99	5.17	6.06	17.8	0.062	0.6	391
TNX 26	na	na	na	na	na	na	na
TNX 28	1/18/99	8.59	5.37	16.8	0.044	0.8	475
TNX 29	1/18/99	8.69	5.15	16.6	0.06	1.7	504
TNX 30	1/18/99	9.82	4.66	18.3	0.134	1.0	562
TNX 31	1/18/99	10.20	5.01	17.3	0.116	2.4	502
TNX 32	1/18/99	8.08	5.17	17.5	0.142	3.0	499
TNX 33	1/18/99	7.67	5.32	17.3	0.14	1.8	474
TNX 34	1/18/99	6.82	5.29	17.4	0.098	1.5	479
TNX 35	1/18/99	6.65	5.44	17.3	0.078	2.1	463
TNX 36	1/18/99	6.66	5.3	17	0.74	0.2	446
TNX 37	1/18/99	7.18	5.19	17.3	0.052	0.2	442
P 26	1/19/99	36.52	5.59	18.8	0.034	5.3	537

Mar-99			TNX PLUME WELLS				
WELL NUMBER	DATE	WATER LEVEL	PH	TEMP (C)	COND (mS/cm)	DO (mg/L)	Redox (mV)
TGSC 2	3/4/99	5.51	10.08	16.9	0.414	0.0	3
TCM 1	3/5/99	6.22	5.07	18.9	0.064	0.1	415
TCM 2	3/5/99	5.53	5.22	16.2	0.158	0.7	496
TCM 3	3/5/99	5.91	5.59	16.6	0.2	0.2	499
TCM 4	3/4/99	6.69	5.17	17.8	0.072	0.9	481
TCM 5	3/4/99	6.75	5.62	16.5	0.154	1.0	440
TCM 6	3/4/99	7.21	4.63	16.9	0.118	1.2	548
TCM 7	3/4/99	6.94	5.64	16.6	0.142	1.0	456
TCM 8	3/4/99	7.04	5.12	15.7	0.186	0.1	492
TIR 1U	3/4/99	8.68	4.47	16.7	0.13	3.1	622
TNX 8	3/4/99	6.91	5.39	15.5	0.108	2.8	466
TNX 9	3/4/99	8.64	5.1	16.8	0.15	0.9	440
TNX 10	3/4/99	9.41	5.09	17.6	0.09	3.1	531
TNX 11	3/1/99	7.35	5.11	18.9	0.044	0.9	442
TNX 12	3/1/99	5.25	6.05	17.1	0.06	0.7	382
TNX 26	3/2/99	6.48	5.92	18.5	0.092	0.2	328
TNX 28	3/1/99	8.59	5.42	16.6	0.044	1.4	483
TNX 29	3/1/99	8.58	5.19	16.2	0.088	1.6	520
TNX 30	3/2/99	9.61	4.77	17.7	0.122	1.7	570
TNX 31	3/2/99	9.52	5.15	16.7	0.12	2.8	533
TNX 32	3/2/99	7.77	5.39	16.6	0.128	3.5	500
TNX 33	3/2/99	7.35	5.47	16.3	0.134	1.6	491
TNX 34	3/2/99	6.54	5.38	16.4	0.092	2.2	481
TNX 35	3/2/99	6.32	5.58	16.6	0.078	2.8	473
TNX 36	3/2/99	6.22	5.38	16.4	0.074	0.3	480
TNX 37	3/2/99	6.75	5.28	16.3	0.054	0.3	484
P 26	na	na	na	na	na	na	na

Date	Depth to Water (feet)		
	TNX 38D	TNX 39D	TNX 40D
1/13/99	2.11	3.09	3.21
2/10/99	2.72	5.17	10.05
3/16/99	2.88	5.79	10.65
4/27/99	4.74	6.42	16.36
5/18/99	5.05	6.76	16.35

Appendix C

Results from Analysis of Chlorinated Volatile Organic Compounds

Well ID	Sample Date	CVOCs (ug/L)						Sample Mod.
		cDCE	CHCl3	TCA	CCl4	TCE	PCE	
P26D	1/19/99	nd	nd	nd	nd	nd	nd	
TCM1	3/5/99	nd	nd	nd	nd	6.1	nd	
TCM1	3/5/99	nd	nd	nd	nd	6.2	nd	d
TCM2	12/10/98	nd	1.5	nd	4.1	64.8	0.4	
TCM2	1/19/99	nd	2.7	nd	5.3	96.3	0.6	
TCM2	3/5/99	nd	2	nd	2.4	85.4	0.1	
TCM2	3/5/99	nd	2.3	nd	2.8	92.4	0.6	d
TCM3	3/5/99	nd	1.6	nd	0.7	64	0.4	
TCM3	3/5/99	nd	1.4	nd	0.6	59.9	0.4	d
TCM4	12/11/98	nd	0.5	nd	1.3	23.6	0.2	
TCM4	1/19/99	nd	0.8	nd	1.1	25.8	0.2	
TCM4	3/4/99	nd	0.5	nd	1.1	26.8	0.2	
TCM4	3/4/99	nd	0.7	nd	1.2	29.5	0.2	d
TCM5	12/10/98	nd	0.8	nd	4.7	41.7	0.4	
TCM5	1/19/99	nd	0.9	nd	2.2	45.9	0.3	
TCM5	3/4/99	nd	0.9	nd	2.2	57.5	0.4	
TCM5	3/4/99	nd	1	nd	1.9	54.5	0.4	d
TCM6	12/11/98	nd	0.9	nd	4.4	48.9	0.3	
TCM6	1/19/99	nd	1.5	nd	3.2	54.8	0.4	
TCM6	3/4/99	nd	1.4	nd	2.3	58.8	0.4	
TCM6	3/4/99	nd	1.3	nd	2.2	58.5	0.4	d
TCM7	12/11/98	nd	0.8	nd	4.2	41.1	0.3	
TCM7	1/19/99	nd	0.9	nd	0.2	40.8	0.3	
TCM7	3/4/99	nd	1.1	nd	1	47.9	0.3	
TCM7	3/4/99	nd	1.3	nd	1.1	52.5	0.3	d
TCM8	12/11/98	nd	1.5	nd	3	57.7	0.4	
TCM8	1/19/99	nd	1.9	nd	2.7	62.7	0.5	
TCM8	3/4/99	nd	2	nd	1.3	69.9	0.5	
TCM8	3/4/99	nd	2.2	nd	1.6	75.7	0.6	d
TGSC1	12/21/98	nd	nd	nd	nd	0.3	nd	
TGSC2	12/9/98	nd	0.5	nd	0.1	22.5	0.2	
TGSC2	12/9/98	nd	0.5	nd	0.1	21	0.2	d
TGSC2	12/21/98	nd	0.5	nd	nd	18.3	0.1	1
TGSC2	12/21/98	nd	nd	nd	nd	17.9	0.3	2
TGSC2	12/21/98	nd	nd	nd	0.1	19.6	0.2	3
TGSC2	12/21/98	nd	nd	nd	0.1	18.9	0.2	4
TGSC2	12/21/98	nd	nd	nd	0.1	15.6	0.1	5
TGSC2	12/21/98	nd	nd	nd	0.1	15.8	0.1	6
TGSC2	12/21/98	nd	nd	nd	0.1	14.7	0.1	7
TGSC2	1/19/99	nd	nd	nd	nd	7.6	0.1	
TGSC2	3/4/99	nd	nd	nd	nd	2.4	0.1	
TGSC2	3/4/99	nd	nd	nd	nd	2.4	nd	d
TIR1U	12/10/98	nd	0.6	nd	4.7	33.9	0.2	
TIR1U	1/19/99	nd	0.8	nd	1.6	31.2	0.2	
TIR1U	3/4/99	nd	1	nd	1.2	41.8	0.2	

Well ID	Sample Date	CVOCs (ug/L)						Sample Mod.
		cDCE	CHCl3	TCA	CCl4	TCE	PCE	
TIR1U	3/4/99	nd	1	nd	1.2	41.5	0.2	d
TNX10D	12/10/98	nd	0.4	nd	0.2	9.1	0.1	
TNX10D	1/19/99	nd	0.5	nd	0.1	9.2	nd	
TNX10D	3/4/99	nd	0.9	nd	0.1	17.8	nd	
TNX10D	3/4/99	nd	0.8	nd	0.13	17.1	nd	d
TNX11D	12/10/98	nd	nd	nd	nd	2.4	0.2	
TNX11D	1/19/99	nd	nd	nd	nd	2.4	nd	
TNX11D	3/1/99	nd	nd	nd	nd	3.6	nd	
TNX11D	3/1/99	nd	nd	nd	nd	3.9	nd	d
TNX12D	12/10/98	nd	nd	nd	nd	nd	0.3	
TNX12D	1/19/99	nd	nd	nd	nd	0.4	nd	
TNX12D	3/1/99	nd	nd	nd	nd	0.3	nd	
TNX12D	3/1/99	nd	nd	nd	nd	0.3	nd	d
TNX26	3/1/99	nd	nd	nd	nd	0.9	nd	
TNX26	3/1/99	nd	nd	nd	nd	1	nd	d
TNX28	12/9/98	nd	nd	nd	0.1	2.8	0.2	
TNX28	1/18/99	nd	nd	nd	nd	3.7	nd	
TNX28	3/1/99	nd	nd	nd	0.1	3.6	nd	
TNX28	3/1/99	nd	nd	nd	0.1	3.9	nd	d
TNX29	12/9/98	nd	nd	nd	3.4	21.2	0.4	
TNX29	1/18/99	nd	nd	nd	1.5	24.5	0.2	
TNX29	3/1/99	nd	0.9	nd	2.2	43.3	0.4	
TNX29	3/1/99	nd	0.9	nd	2.4	46.3	0.5	d
TNX30	12/9/98	nd	0.6	nd	0.5	23.1	0.4	
TNX30	1/18/99	nd	1.1	nd	0.5	28.9	0.1	
TNX30	3/2/99	nd	1.1	nd	0.4	29.6	0.1	
TNX30	3/2/99	nd	1.3	nd	0.4	32.8	0.1	d
TNX31	12/9/98	nd	0.7	nd	0.1	12.2	0.3	
TNX31	1/18/99	nd	1	nd	0.1	9.4	nd	
TNX31	3/2/99	nd	1.7	nd	0.1	15.7	nd	
TNX31	3/2/99	nd	1.7	nd	0.1	17.2	nd	d
TNX32	12/9/98	nd	0.9	nd	nd	11.7	0.2	
TNX32	1/18/99	nd	1.2	nd	nd	8.2	nd	
TNX32	3/2/99	nd	1.4	nd	nd	3.1	nd	
TNX32	3/2/99	nd	1.4	nd	nd	2.9	nd	d
TNX33	12/9/98	nd	0.8	nd	nd	2.8	0.1	
TNX33	1/18/99	nd	0.9	nd	nd	8.1	nd	
TNX33	3/2/99	nd	0.9	nd	nd	17.3	nd	
TNX33	3/2/99	nd	0.8	nd	nd	16.1	nd	d
TNX34	12/9/98	nd	nd	nd	nd	0.5	0.1	
TNX34	1/18/99	nd	0.5	nd	nd	0.6	nd	
TNX34	3/2/99	nd	0.5	nd	nd	2.4	nd	
TNX34	3/2/99	nd	0.7	nd	nd	2.4	nd	d
TNX35	12/9/98	nd	nd	nd	nd	0.5	0.1	
TNX35	1/18/99	nd	nd	nd	nd	0.4	nd	

Well ID	Sample Date	CVOCs (ug/L)						Sample Mod.
		cDCE	CHCl3	TCA	CCl4	TCE	PCE	
TNX35	3/2/99	nd	nd	nd	nd	0.8	nd	
TNX35	3/2/99	nd	nd	nd	nd	0.7	nd	d
TNX36	12/14/98	nd	nd	nd	nd	1.3	nd	
TNX36	1/18/99	nd	nd	nd	nd	1.7	nd	
TNX36	3/2/99	nd	nd	nd	nd	1.7	nd	
TNX36	3/2/99	nd	nd	nd	nd	1.5	nd	d
TNX37	12/14/98	nd	nd	nd	nd	0.6	nd	
TNX37	1/18/99	nd	nd	nd	nd	0.6	nd	
TNX37	3/2/99	nd	nd	nd	nd	0.6	nd	d
TNX8D	12/10/98	nd	0.5	nd	nd	2.1	nd	
TNX8D	1/19/99	nd	0.7	nd	nd	3.4	nd	
TNX8D	3/4/99	nd	0.8	nd	nd	4	nd	
TNX8D	3/4/99	nd	0.8	nd	nd	4	nd	d
TNX9D	12/10/98	nd	nd	nd	nd	0.3	nd	
TNX9D	1/19/99	nd	nd	nd	nd	0.5	nd	
TNX9D	3/4/99	nd	0.9	nd	nd	0.9	nd	
TNX9D	3/4/99	nd	0.8	nd	nd	0.9	nd	d