HYDROGEOLOGIC UPDATE FOR THE LINED STORAGE POND AREA

SEQUOYAH FUELS CORPORATION
GORE, OKLAHOMA

Prepared By:

Hydrology Department
Engineering Services Division
Kerr-McGee Corporation

December 15, 1986

LICENSE SUB-1010
DOCKET 40-8027
CONDITION 12 SUPPLEMENT

INTRODUCTION

On January 20, 1986, Sequoyah Fuels Corporation (SFC) submitted to the Nuclear Regulatory Commission (NRC) a report addressing Condition 12 of the facility's license SUB-1010. Condition 12 required SFC to reevaluate the existing groundwater conditions in the area of the treated ammonium nitrate solution storage ponds, describe the conditions and either justify the current monitoring program or propose a new program for groundwater monitoring in the area.

The Condition 12 report concluded the existing monitoring wells in the storage ponds area and the leak detection-collection system were sufficient for monitoring groundwater impacts and detecting any significant leakage from the impoundments. The report recommended, however, installation of six additional monitor wells between the ponds and an annual electromagnetic survey (EM) in the lined pond area. Subsequently, six new wells were installed and an EM survey was conducted.

This report presents the construction details for the new wells, the data obtained from sampling these wells and the previously installed wells and the results of the latest electromagnetic survey.

GROUNDWATER MONITORING PROGRAM

The locations of the groundwater monitor wells in the lined pond area as of December 1985 are shown in Figure 1. At that time, there were eighteen

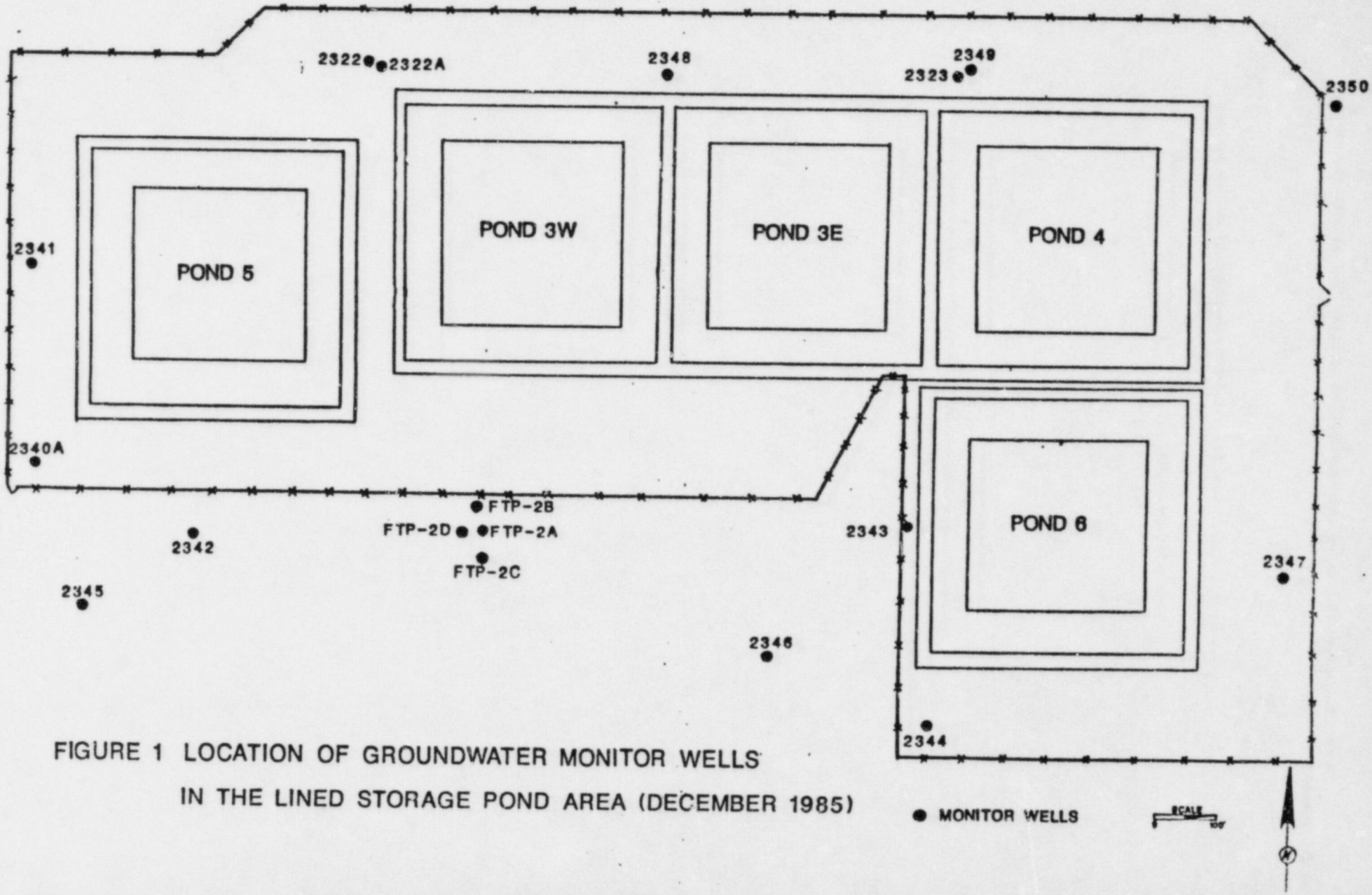


FIGURE 1 LOCATION OF GROUNDWATER MONITOR WELLS
IN THE LINED STORAGE POND AREA (DECEMBER 1985)

wells, fifteen of which were sampled quarterly as part of the lined pond area groundwater monitoring program. (Three wells, FTP-2B, -2C and -2D were installed in November 1985 as part of license Condition 14.)

In accordance with the Condition 12 report recommendations, six new wells were installed at locations shown in Figure 2. The locations were chosen to strengthen the overall groundwater monitoring program around the ponds and provide additional data points for constructing a potentiometric surface map.

WELL CONSTRUCTION DETAILS

The six new wells were installed in June 1986. Drilling was accomplished with a Failing Model CF-15 drill rig using a minimum amount of air to allow for the detection of moisture in the cuttings. A 4-3/4 inch pilot hole was drilled first at each location, followed by reaming with a 7-7/8 inch rock bit. Two wells (2353 and 2354) had 10 to 15 gallons of water introduced into them after encountering damp cuttings so that the kelly and drill bit could be removed from the holes. The water was later air-lifted out of the hole.

Each well was drilled to a depth of approximately 50 feet into a readily identifiable black fissile shale to assure the presence of water year-round. Historically, wells completed to a shallower depth in the lined pond area have gone dry during periods of low rainfall. The screened interval in each well was placed in the bottom 10 feet of the well. The sand pack

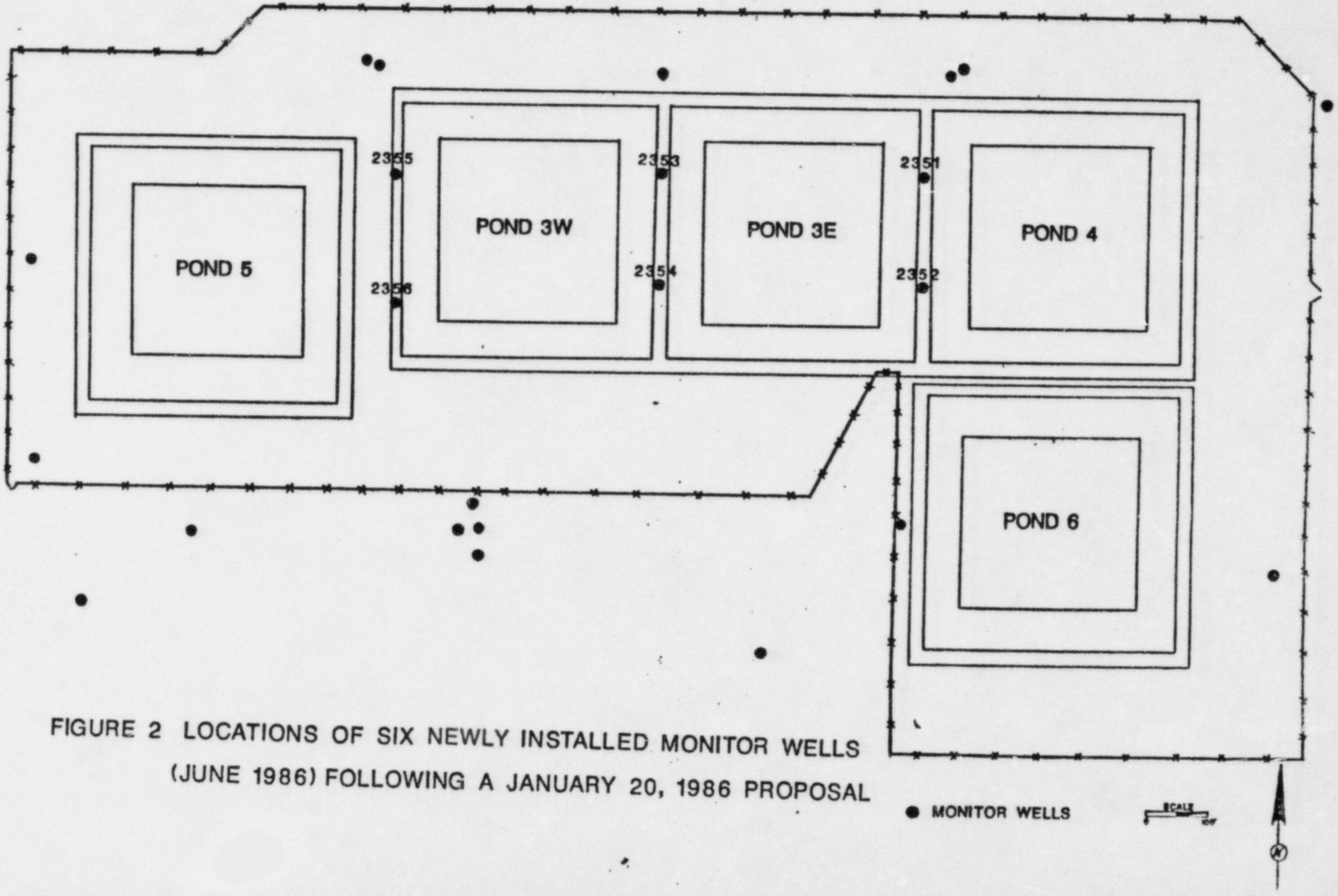


FIGURE 2 LOCATIONS OF SIX NEWLY INSTALLED MONITOR WELLS (JUNE 1986) FOLLOWING A JANUARY 20, 1986 PROPOSAL

was then placed opposite the screen and brought up to an elevation approximately equal to that of the base of the nearby pond. Completion details for each of the six wells are provided in Appendix A.

POTENTIOMETRIC SURFACE

Water level measurements in the six new monitor wells provided data for refining the potentiometric surface map across the lined storage pond area. The October 9, 1986 water level data for all wells are shown in Figure 3. These data show the groundwater flow direction is predominately westerly and are consistent with the groundwater flow direction previously determined and reported.

WATER QUALITY DATA

Uranium and nitrate data for samples obtained in 1986 from the six new monitor wells and the fifteen older monitor wells are shown in Table 1. The sampling dates and concentration data for each sampling date are provided in Appendix B.

Eight monitor wells show nitrate values greater than the 10 milligrams per liter (mg/l) action level. The probable cause of the elevated nitrate levels has been investigated and points to past practices in the area as the source rather than to leakage from the ponds. The basis for this conclusion includes:

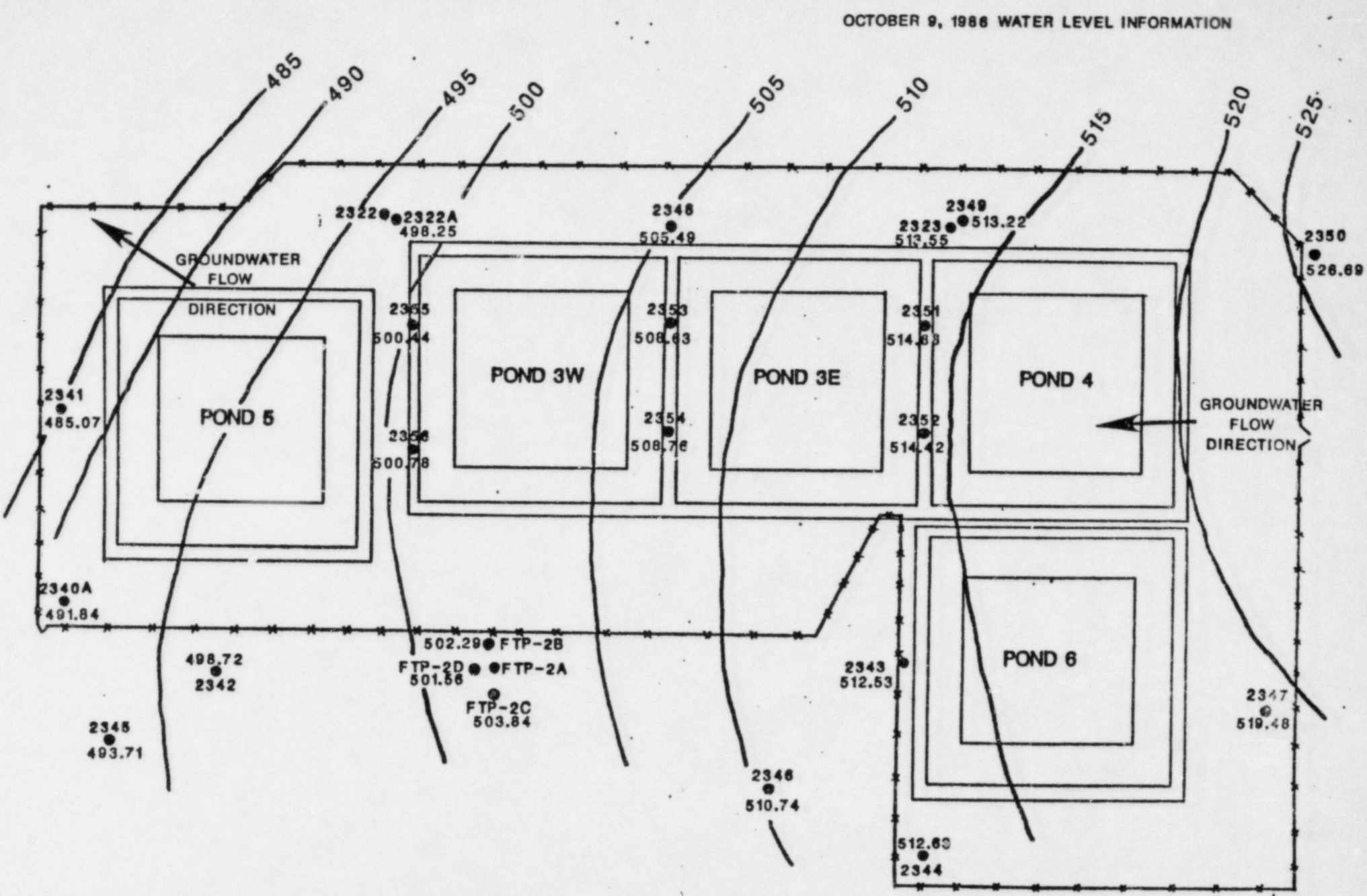

OCTOBER 9, 1986 WATER LEVEL INFORMATION
485
490
495
500
505
510
515
520
525
2322
2322A
498.25
2348
505.49
2349
513.22
2323
513.55
2350
526.69
GROUNDWATER
FLOW
DIRECTION
2355
500.44
2353
508.63
2351
514.88
POND 3W
POND 3E
POND 4
2341
485.07
POND 5
2354
508.76
2352
514.42
GROUNDWATER
FLOW
DIRECTION
2356
500.78
2340A
491.84
502.29
FTP-2B
498.72
2342
FTP-2D
501.56
FTP-2A
FTP-2C
503.84
2343
512.53
POND 6
2347
519.48
2345
493.71
2346
510.74
512.63
2344
FIGURE 3 POTENTIOMETRIC SURFACE MAP FROM OCTOBER 9, 1986
MONITOR WELLS
SCALE

TABLE 1: WATER QUALITY DATA FOR WELLS IN THE TREATED RAFFINATE POND AREA (JAN - SEPT 1986 DATA)

Monitor Well	Sampling Frequency (License Sub-1010)	Uranium Range (µg/l)	Uranium Number of Samples	Nitrate - Nitrogen Range (mg/l)	Nitrate - Nitrogen Number of Samples
2322	- (usually dry)				
2322A	quarterly	5 - 15	3	0.1 - 0.2	3
2323	quarterly (usually dry)				
2340A	monthly	20 - 112	5	4.5 - 8.0	5
2341	quarterly	14 - 31	3	0.2 - 0.8	3
2342	quarterly	6 - 15	3	<0.1 - 0.1	3
2343	quarterly	25 - 51	3	21.5 - 56.0	5
2344	quarterly	7 - 13	3	12.0 - 14.0	3
2345	(1)	7 - 49	3	0.1 - 0.4	3
2346	(1)	13 - 88	3	11.5 - 16.5	3
2347	(1)	14 - 63	3	3.0 - 22.5	6
2348	(1)	5 - 13	3	25.5 - 116.0	6
2349	(1)	12 - 13	3	0.7 - 24.5	3
2350	(1)	8 - 10	3	1.0 - 1.5	3
FTP-2A	(2)	-	0	<0.1 - 25.0	6
New wells, installed 6/86					
2351	(1)	<5 - 34	5	146.0 - 276.0	8
2352	(1)	<5 - 22	3	0.3 - 1.8	5
2353	(1)	11 - 24	5	9.0 - 40.5	8
2354	(1)	17 - 23	3	0.4 - 1.0	4
2355	(1)	20 - 95	3	0.9 - 2.0	4
2356	(1)	23 - 120	3	1.2 - 1.6	3
Action Levels		225		10	

Notes:

(1) proposed quarterly sampling
(2) sampled every other month during growing (fertilizer application) season

Above data summarized from Appendix B.

1. The nitrate values in five wells (2343, 2344, 2346, 2347 and 2348) have shown relatively constant or decreasing concentrations since well installation in 1985. These trends do not indicate that a high concentration source, such as pond leakage, is responsible for the elevated values in these wells. Moreover, well 2347 is hydrologically upgradient of the storage ponds. In the late 1970 time period, the area of the storage ponds received nitrate fertilizer test applications of up to 1000 pounds per acre. Therefore, the pattern of elevated nitrates in these four downgradient wells and the upgradient well appears to be related to past test applications of fertilizer rather than present day pond leakage.

2. The elevated nitrate values found in well FTP-2A were investigated previously and explained in a report concerning License Condition 14 that was submitted to NRC on March 20, 1985. That investigation led to the conclusion that elevated concentrations in this well were related to past test applications of fertilizer.

3. Two new wells (2351 and 2353) exhibited elevated nitrate values. Values exceeding 200 mg/l were found in well 2351 which is upgradient from pond 3E that earlier had a leak through the synthetic liner, but which has been repaired. No definitive trend in concentration has been noted for either of these wells after intensive sampling, again indicating an areal groundwater condition most likely related to past fertilizer test applications rather than pond leakage.

ELECTROMAGNETIC SURVEY

The annual electromagnetic (EM) survey in the pond area, as recommended in the January 26, 1986 Condition 12 report, was conducted in September 1986. The same grid pattern was used for this survey as for the original survey in October 1985. Conductivity values were obtained at the pre-determined spacing intervals, plotted on the grid and then contoured. The contouring enables delineation of anomalous features associated with or indicative of conditions such as buried metallic objects, bedrock "highs" and "lows", buried stream channels, or groundwater plumes.

The September 1986 electromagnetic survey was conducted with the same Geonics Model EM-31 ground conductivity meter that was used for the October 1985 survey. Profile lines spaced approximately 50 feet apart were traversed and ground conductivity values recorded every 10 feet. In total, 13,300 linear feet of profiles were made, and approximately 1,460 data points were obtained in this latest survey, compared with 11,380 linear feet of profiles and 1,240 data points collected in October 1985.

The contoured electromagnetic data from both the October 1985 and September 1986 surveys are shown in Figures 4 and 5. The similarities between the surveys are remarkable. The minor differences in detail are not judged to be significant. The September 1986 survey revealed that a feature north of pond 5 was not previously observed. The area was "swampy" at the time of this latter survey, which is the reason for the distinct pattern. Soil samples taken from this area are at background nitrate levels. The

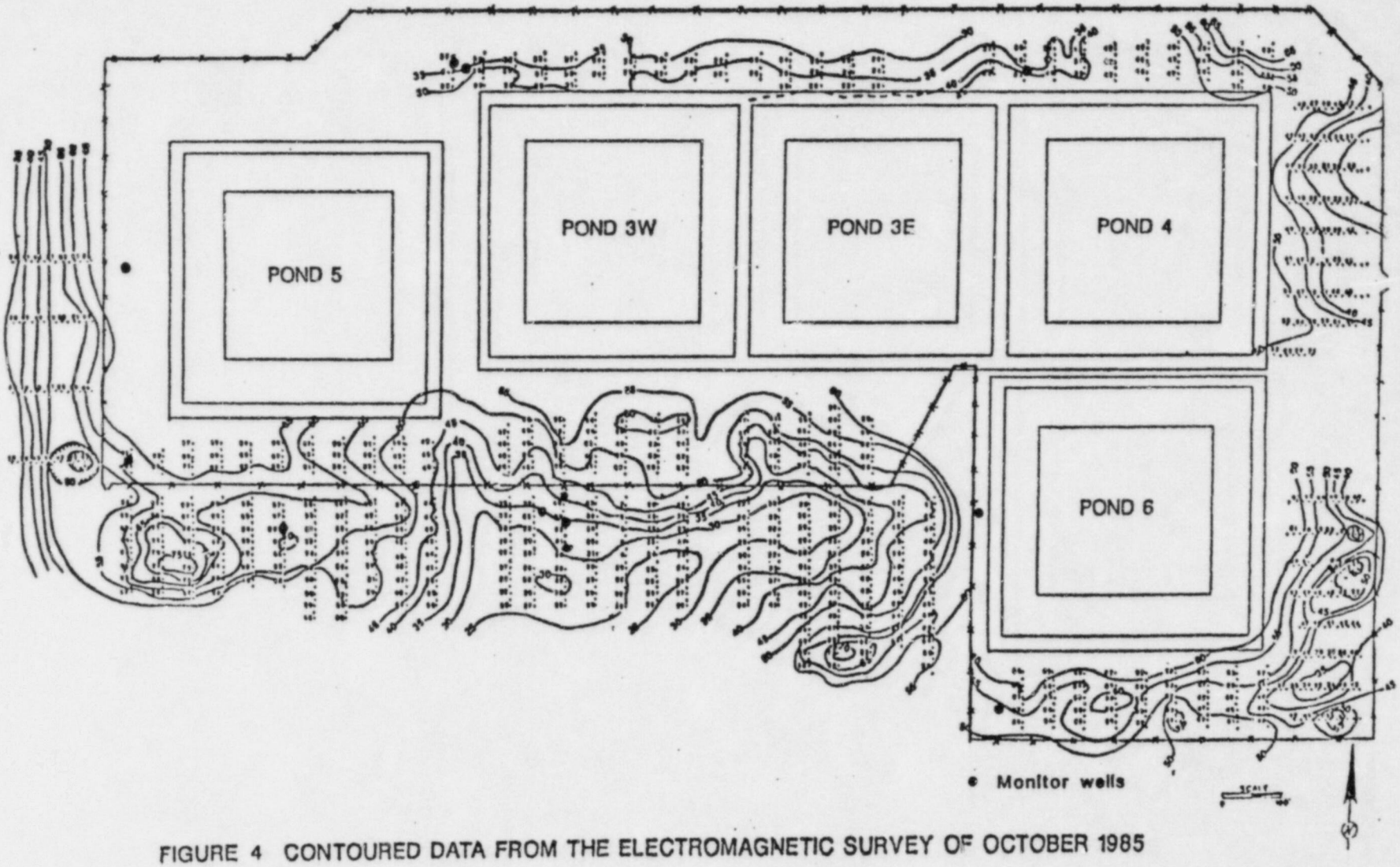


FIGURE 4 CONTOURED DATA FROM THE ELECTROMAGNETIC SURVEY OF OCTOBER 1985

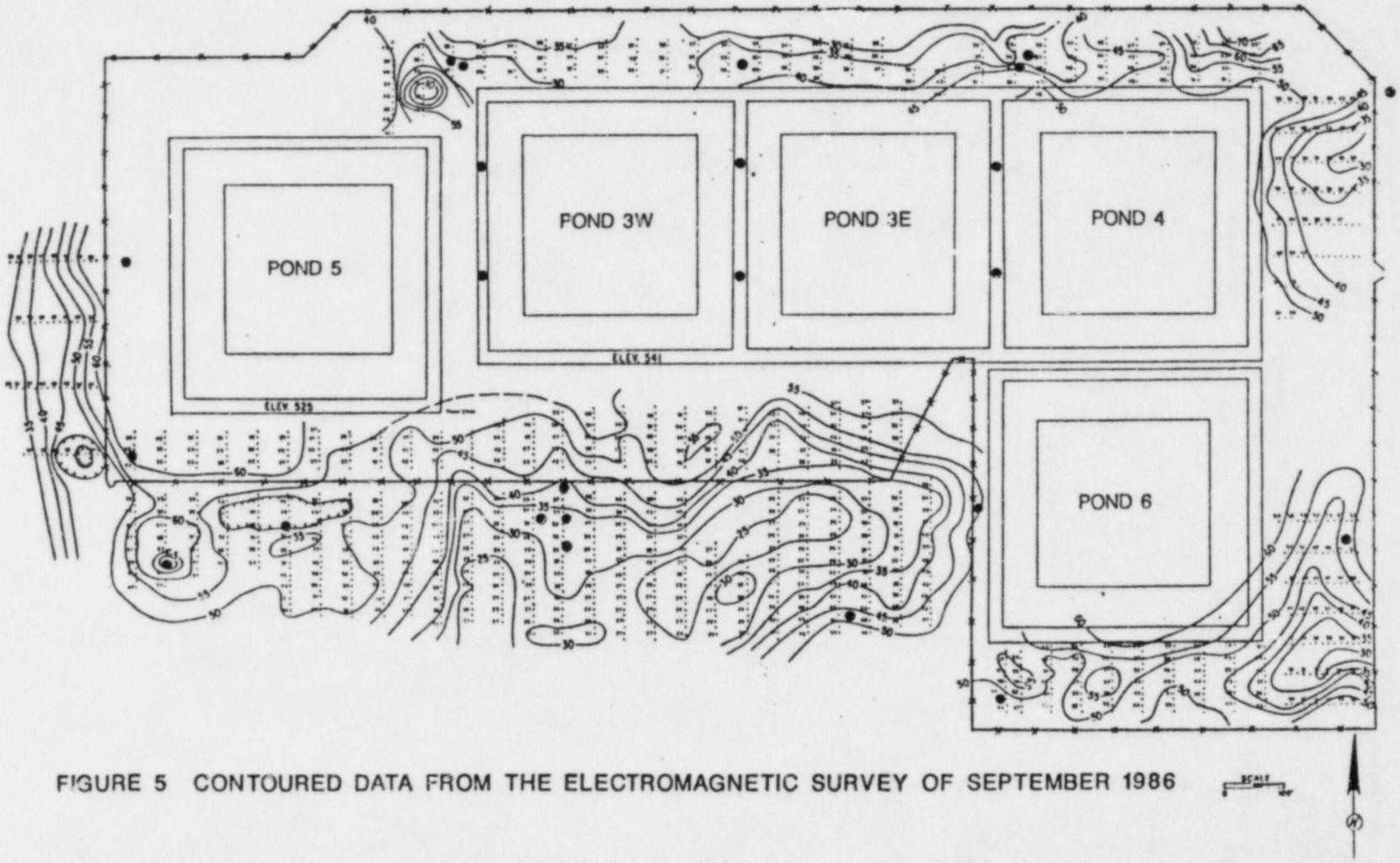


FIGURE 5 CONTOURED DATA FROM THE ELECTROMAGNETIC SURVEY OF SEPTEMBER 1986

EM survey data continue to show there is no plume of high nitrate-solution concentration from the pond area.

SUMMARY AND CONCLUSIONS

The groundwater monitoring program in the vicinity of the lined storage ponds consists of three distinct components which together provide an acceptable approach and mechanism for early detection of potential effects from the operation of the storage ponds.

The array of groundwater monitor wells are strategically placed immediately adjacent to the ponds. Routine quarterly sampling provides for the earliest detection of groundwater impact should pond leakage occur.

Monthly sampling of the pond leak detection system provides for immediate detection of any significant breach in the synthetic liners of the ponds.

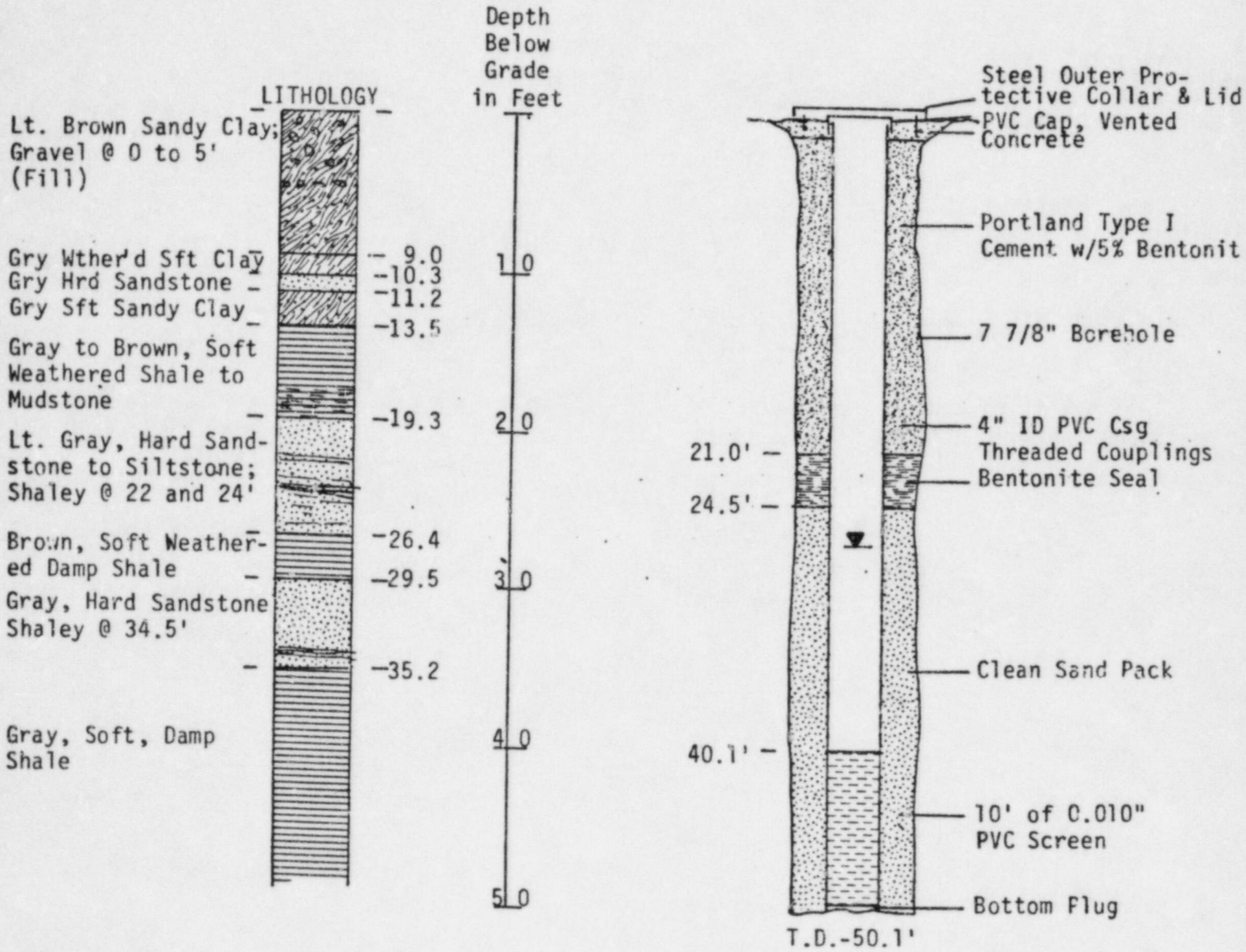
An annual electromagnetic survey of the pond area provides for delineation of any plume that would be associated with pond leakage.

The most recent data obtained through these three monitoring components indicate there have been no excursions of fluid from the ponds that affect groundwater and that the few nitrate concentrations exceeding the 10 mg/l action level are probably associated with the past nitrate fertilizer application rate testing program.

APPENDIX A

COMPLETION DETAILS ON SIX NEWLY INSTALLED MONITOR WELLS NEAR THE LINED STORAGE PONDS

MONITOR WELL 2351
BETWEEN PONDS 3E AND 4
SEQUOYAH FUELS CORPORATION
GORE, OK

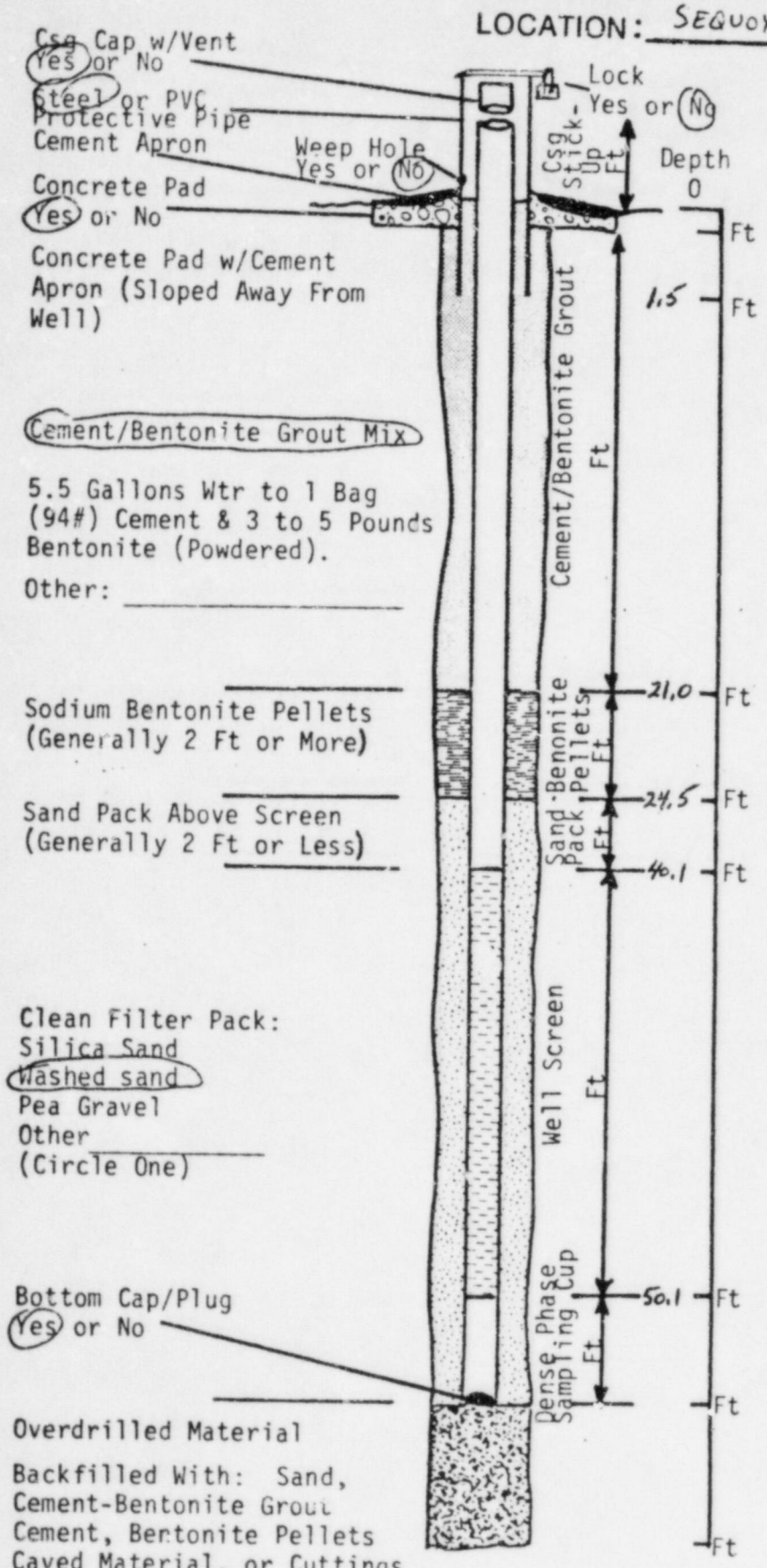


Well Installed: June 17, 1986 by Jim Winnek, Inc.
Water Level on June 23, 1986 - 27.04' Below Top of PVC Casing
Logged by: R. K. Widmann

KERR-McGEE CORPORATION
HYDROLOGY DEPARTMENT
OBSERVATION WELL INSTALLATION DIAGRAM

T-2511

LOCATION: SEQUOYAH FACILITY - BETWEEN PONDS 3E AND 4



1) Type of Casing? (PVC), Galvanized, Teflon, Stainless, Other _____

2) Type of Casing Joints? (Screw-Couple), Glued Coupling, Other _____

3) Type of Well Screen? (PVC), Galvanized Stainless, Teflon, Other _____

4) Diameter of Casing & Well Screen? Casing 4 in., Screen 4 in.

5) Slot Size of Screen 10

6) Type of Screen Perforation? (Factory Slotted), Hacksaw, Drilled, Other _____

7) Installed Protector Pipe w/Lock. Yes or (No).

8) Borehole Diameter 7 7/8 in.

9) Were Drilling Additives Used? Yes or (No). Revert, Bentonite, Wtr, Solid Auger, Hollow Stem Auger

10) Was Sump or Dense Phase Sampling Cup Installed? Yes or (No).

11) Was Outer Steel Casing Used? (Yes) or No. Depth 0 to 1.5 Ft.

12) How Was Well Developed? (Bailing), Air Surging (Air or Nitrogen), Pumping, Other _____

13) Time Spent on Well Development? 15 (Minutes)/Hours

14) Approximate Water Volume Removed? 10 Gallons

15) Water Clarity Before Development? Clear, (Turbid), Opaque

16) Water Clarity After Development? Clear, (Turbid), Opaque

17) Did the Water Have Odor? Yes or (No) If Yes, Describe _____

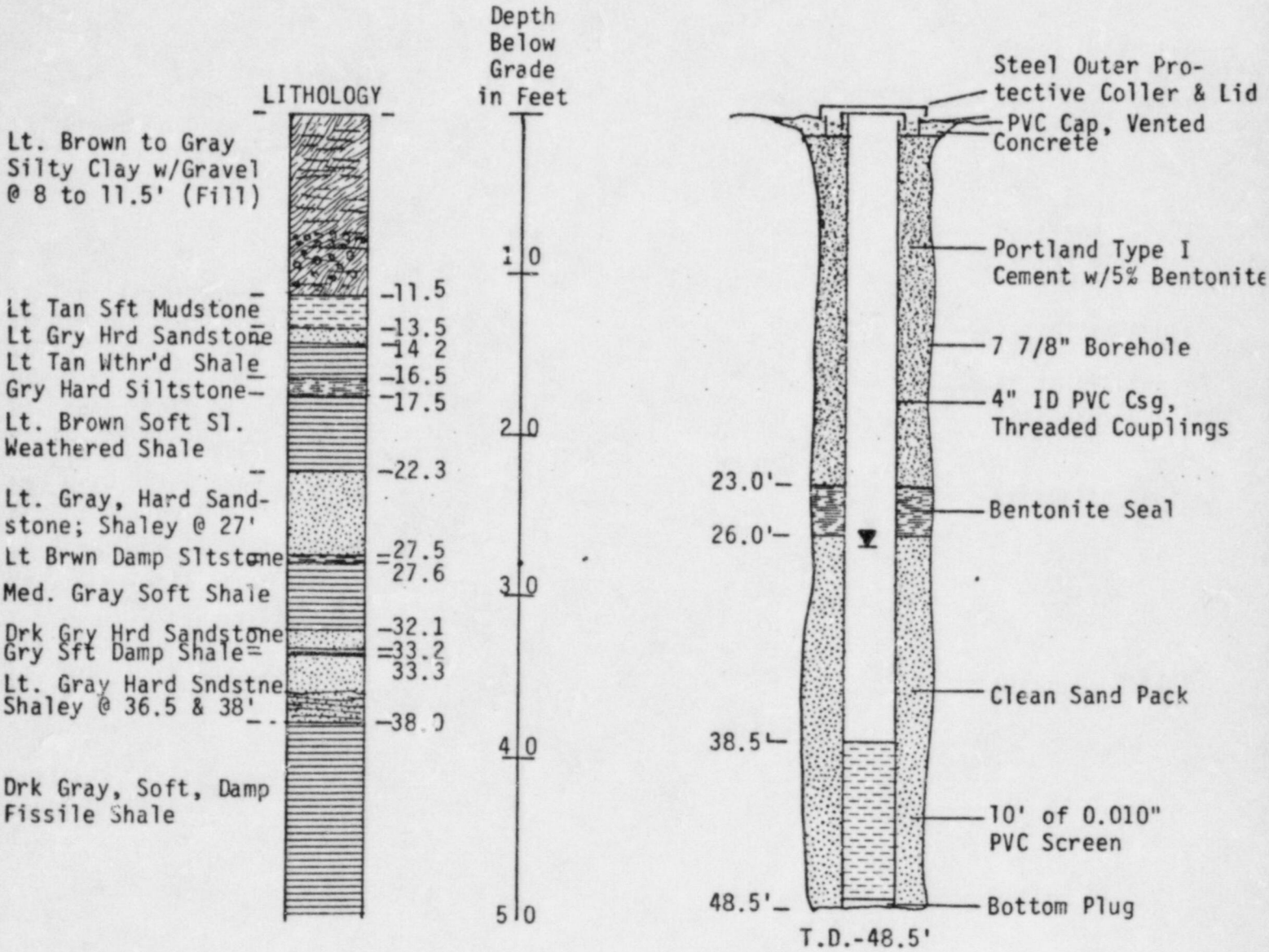
18) Did Water Have Any Color? Yes or (No) If Yes, Describe _____

19) Water Level Summary (Frm Top of Csg)
Before Develop. _____ Ft. Date _____
After Develop. _____ Ft. Date _____
Water Level 27.04 Ft. Date 6-23-86
_____ Ft. Date _____

WELL NO.: 2351 DATE INSTALLED: 6-17-86 DRILL RIG TYPE: FAILING CF-15

DRILLER/FIRM: JIM WINNEK DRILL CREW: HENRY PRICE, RICK REED KERR-McGEE HYDROLOGIST: R. WIDMANN

MONITOR WELL 2352
BETWEEN PONDS 3E and 4
SEQUOYAH FUELS CORPORATION
GORE, OK

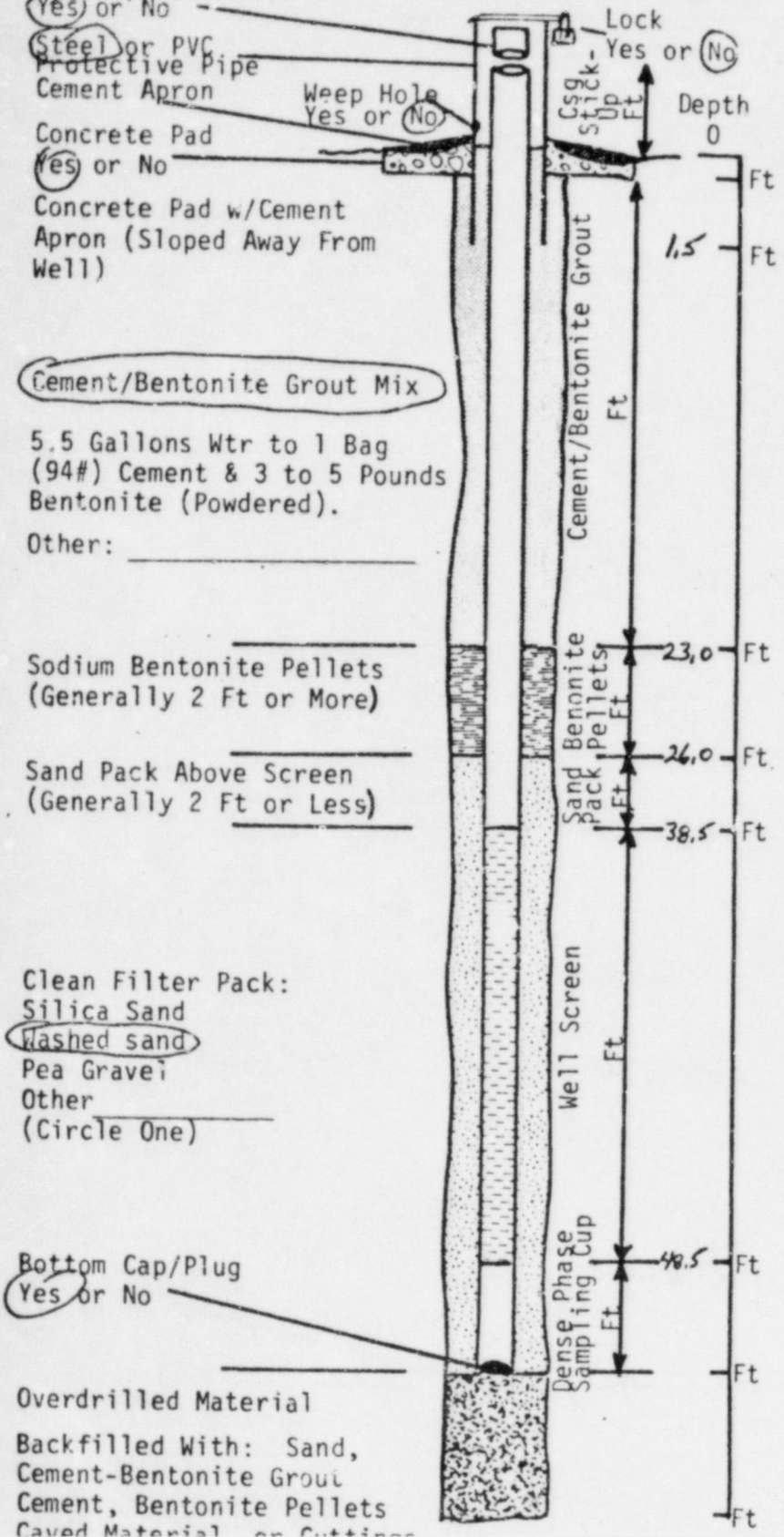


Well Installed: June 16, 1986 by Jim Winnek, Inc.
Water Level on June 23, 1986 - 26.64' Below Top of PVC Casing
Logged by: R. K. Widmann

KERR-McGEE CORPORATION
HYDROLOGY DEPARTMENT
OBSERVATION WELL INSTALLATION DIAGRAM

T-2511

LOCATION: SEQUOYAH FACILITY - BETWEEN PONDS 3E AND 4



1) Type of Casing? (PVC), Galvanized, Teflon, Stainless, Other _____

2) Type of Casing Joints? (Screw-Couple), Glued Coupling, Other _____

3) Type of Well Screen? (PVC), Galvanized, Stainless, Teflon, Other _____

4) Diameter of Casing & Well Screen? Casing 4 in., Screen 4 in.

5) Slot Size of Screen 10

6) Type of Screen Perforation? (Factory Slotted), Hacksaw, Drilled, Other _____

7) Installed Protector Pipe w/Lock. Yes or (No).

8) Borehole Diameter 7 7/8 in.

9) Were Drilling Additives Used? 10 gal. Yes or No. Revert, Bentonite, (Wtr), Solid Auger, Hollow Stem Auger

10) Was Sump or Dense Phase Sampling Cup Installed? Yes or (No).

11) Was Outer Steel Casing Used? (Yes) or No. Depth 0 to 1.5 Ft.

12) How Was Well Developed? (Bailing), Air Surging (Air or Nitrogen), Pumping, Other _____

13) Time Spent on Well Development? 15 (Minutes)/Hours

14) Approximate Water Volume Removed? 10 Gallons

15) Water Clarity Before Development? Clear, (Turbid), Opaque

16) Water Clarity After Development? Clear, (Turbid), Opaque

17) Did the Water Have Odor? Yes or (No) If Yes, Describe _____

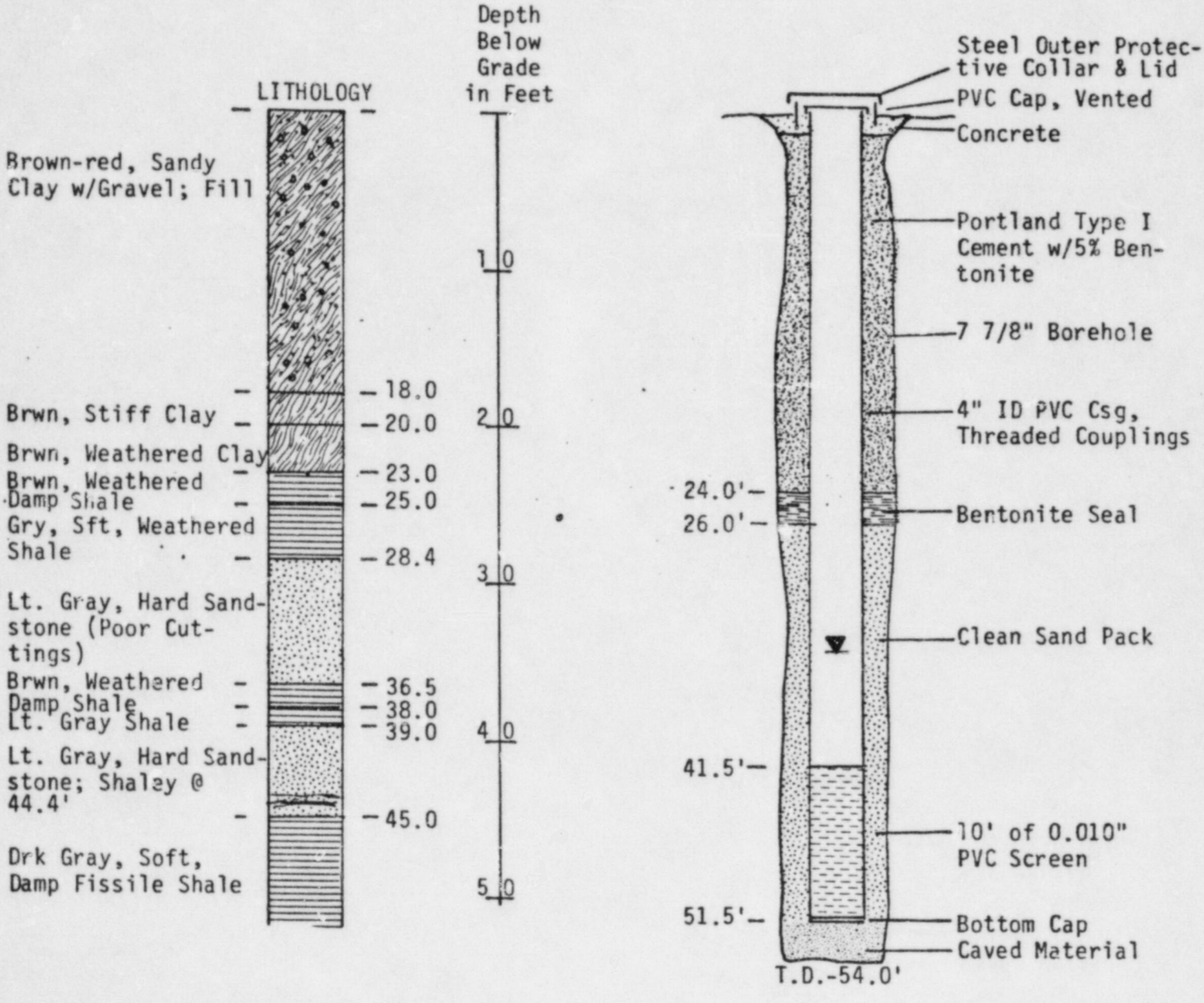
18) Did Water Have Any Color? Yes or (No) If Yes, Describe _____

19) Water Level Summary (Frm Top of Csg)
Before Develop. _____ Ft. Date _____
After Develop. _____ Ft. Date _____
Water Level 26.64 Ft. Date 6-23-86
_____ Ft. Date _____

WELL NO.: 2352 DATE INSTALLED: 6-16-86 DRILL RIG TYPE FAILING CF-15

DRILLER/FIRM: JIM WINNEK DRILL CREW HENRY PRICE, NICK REED KERR-McGEE HYDROLOGIST R. WIDMANN

MONITOR WELL 2353
BETWEEN PONDS 3E AND 3W
SEQUOYAH FUELS CORPORATION
GORE, OK

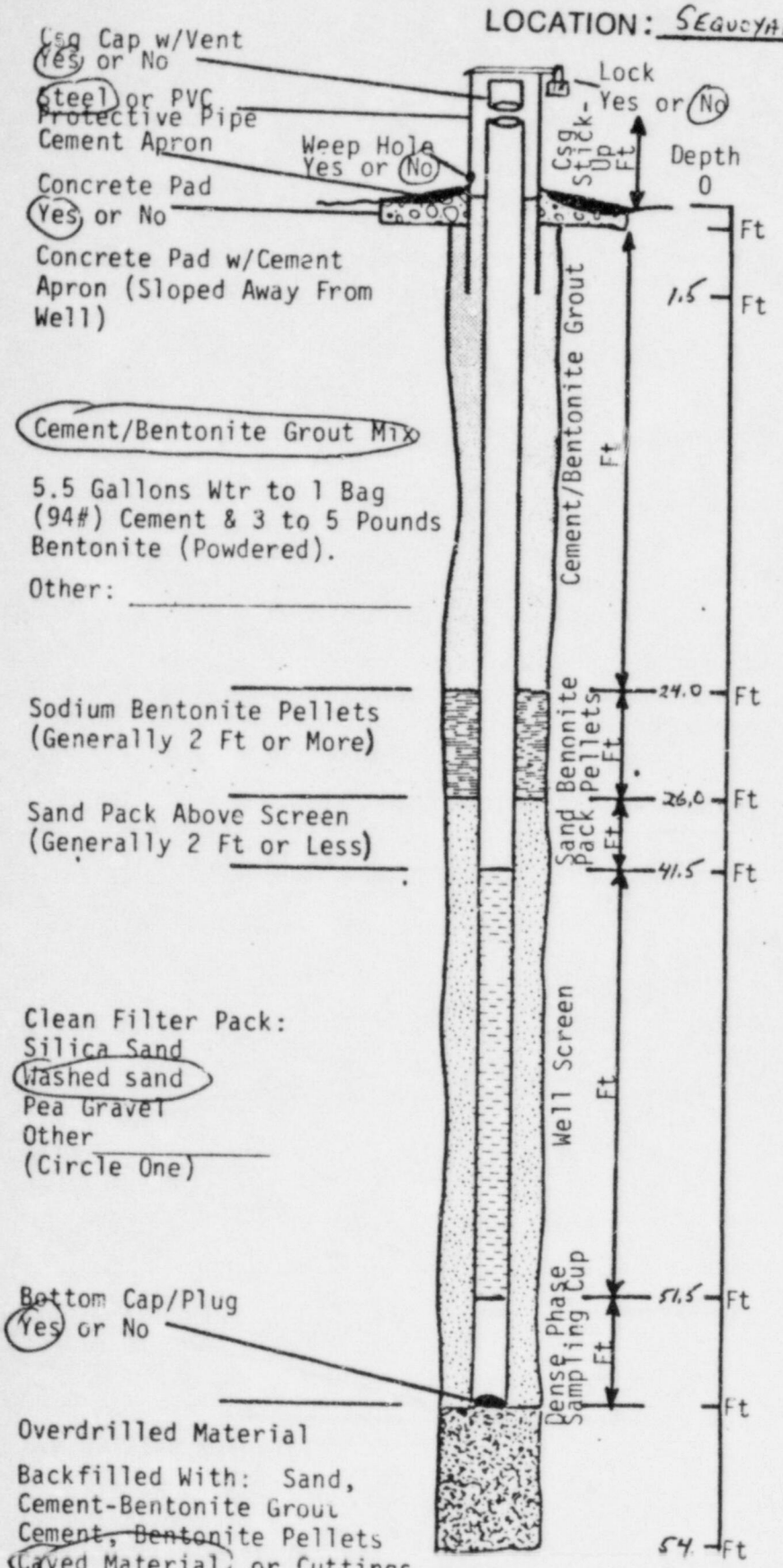


Well Installed: June 12, 1986 by Jim Winnek, Inc.
Water Level on June 23, 1986 - 33.92' Below Top of PVC Casing
Logged by: R. K. Widmann

KERR-McGEE CORPORATION
HYDROLOGY DEPARTMENT
OBSERVATION WELL INSTALLATION DIAGRAM

T-2511

LOCATION: SEQUOYAH FACILITY - BETWEEN PONDS 3E AND 3W



1) Type of Casing? (PVC), Galvanized, Teflon, Stainless, Other _____

2) Type of Casing Joints? (Screw-Couple), Glued Coupling, Other _____

3) Type of Well Screen? (PVC), Galvanized, Stainless, Teflon, Other _____

4) Diameter of Casing & Well Screen? Casing 4 in., Screen 4 in.

5) Slot Size of Screen 10

6) Type of Screen Perforation? (Factory Slotted), Hacksaw, Drilled, Other _____

7) Installed Protector Pipe w/Lock. Yes or (No).

8) Borehole Diameter 7 7/8 in.

9) Were Drilling Additives Used? (Yes) or No. Revert, Bentonite, (Wtr), Solid Auger, Hollow Stem Auger 10 gal.

10) Was Sump or Dense Phase Sampling Cup Installed? Yes or (No).

11) Was Outer Steel Casing Used? (Yes) or No. Depth 0 to 1.5 Ft.

12) How Was Well Developed? (Bailing), Air Surging (Air or Nitrogen), Pumping, Other _____

13) Time Spent on Well Development? 20 (Minutes)/Hours

14) Approximate Water Volume Removed? 10 Gallons

15) Water Clarity Before Development? Clear, (Turbid), Opaque

16) Water Clarity After Development? Clear, (Turbid), Opaque

17) Did the Water Have Odor? Yes or (No) If Yes, Describe _____

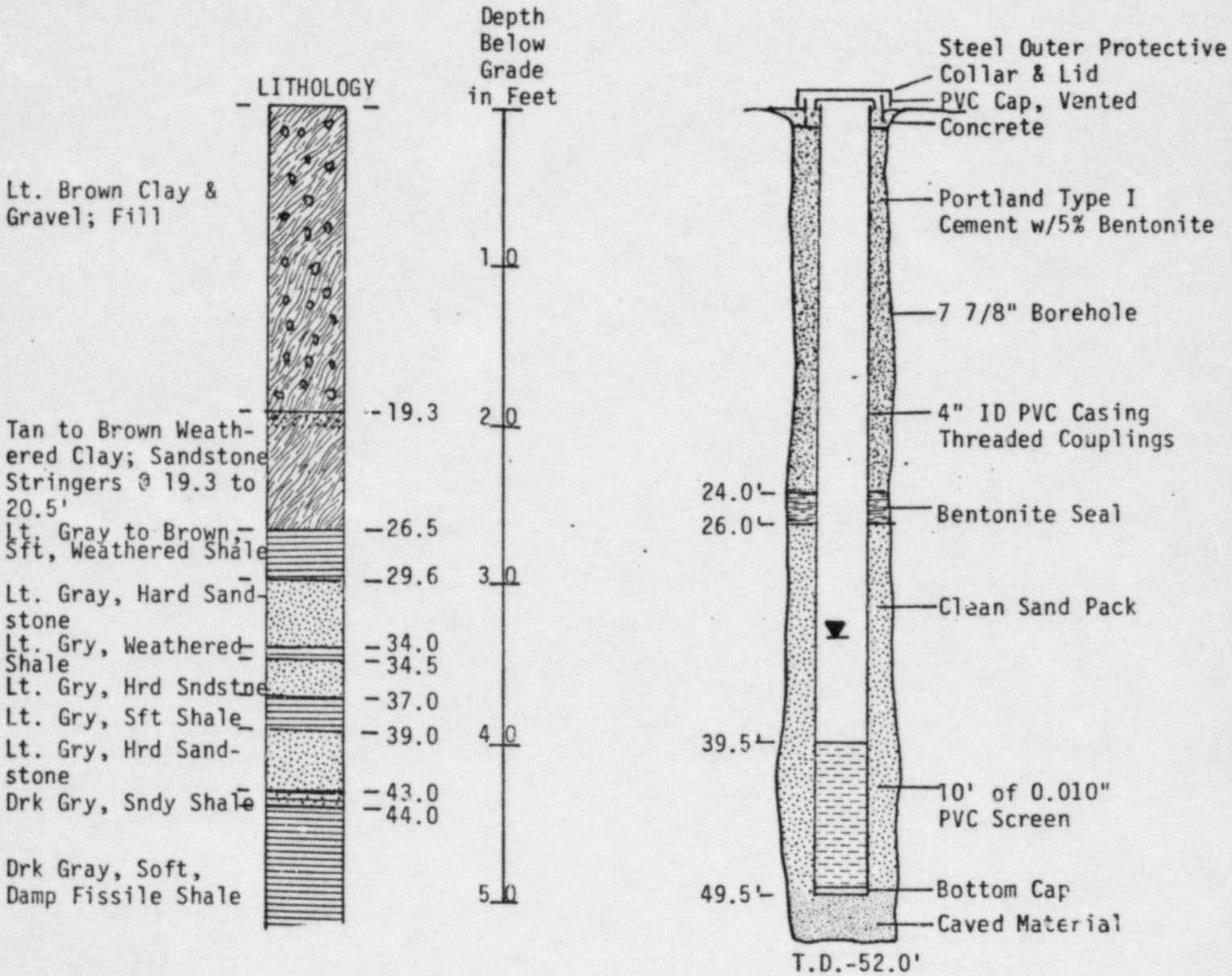
18) Did Water Have Any Color? Yes or (No) If Yes, Describe _____

19) Water Level Summary (Frm Top of Csg)
Before Develop. _____ Ft. Date _____
After Develop. _____ Ft. Date _____
Water Level 33.92 Ft. Date 6-23-86
_____ Ft. Date _____

WELL NO.: 2353 DATE INSTALLED: 6-12-86 DRILL RIG TYPE FAILING CF-15

DRILLER/FIRM: JIM WINNEK DRILL CREW HENRY PRICE, RICK REED KERR-McGEE HYDROLOGIST R. W. [illegible]

MONITOR WELL 2354
BETWEEN PONDS 3E AND 3W
SEQUOYAH FUELS CORPORATION
GORE, OK

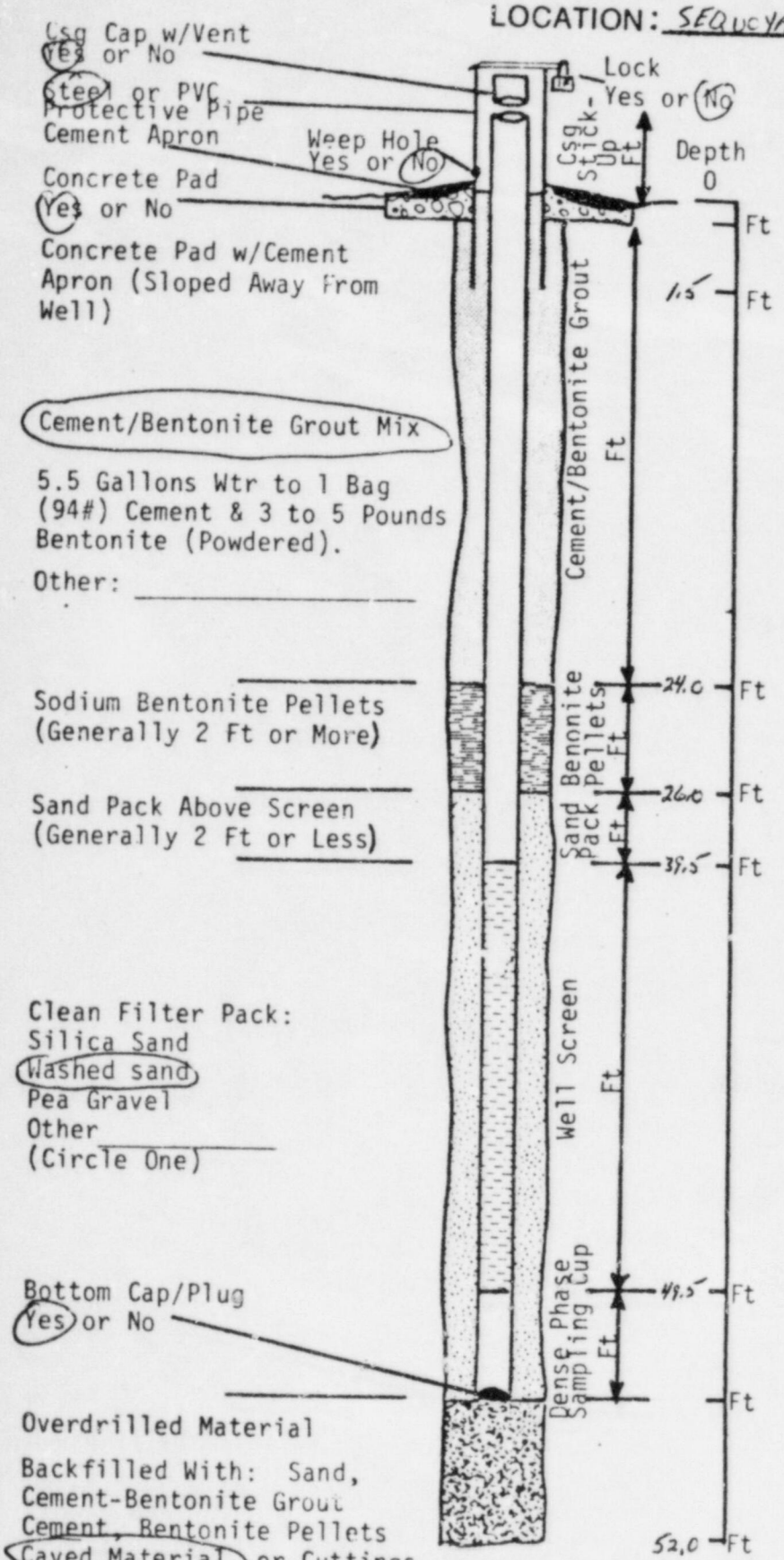


Well Installed: June 12, 1986 by Jim Winnek, Inc.
Water Level on June 23, 1986 - 33.20' Below Top of PVC Casing
Logged by: W. Goodman

KERR-McGEE CORPORATION
HYDROLOGY DEPARTMENT
OBSERVATION WELL INSTALLATION DIAGRAM

T-2511

LOCATION: SEQUOYAH FACILITY - BETWEEN PONDS 3E AND 3W



1) Type of Casing? (PVC), Galvanized, Teflon, Stainless, Other _____

2) Type of Casing Joints? (Screw-Couple), Glued Coupling, Other _____

3) Type of Well Screen? (PVC), Galvanized Stainless, Teflon, Other _____

4) Diameter of Casing & Well Screen? Casing 4 in., Screen 4 in.

5) Slot Size of Screen 10

6) Type of Screen Perforation? (Factory Slotted), Hacksaw, Drilled, Other _____

7) Installed Protector Pipe w/Lock. Yes or (No).

8) Borehole Diameter 7 7/8 in.

9) Were Drilling Additives Used? Yes or No. Revert, Bentonite, (Wtr) Solid Auger, Hollow Stem Auger

10) Was Sump or Dense Phase Sampling Cup Installed? Yes or (No).

11) Was Outer Steel Casing Used? (Yes) or No. Depth 0 to 1.5 Ft.

12) How Was Well Developed? (Bailing), Air Surging (Air or Nitrogen), Pumping, Other _____

13) Time Spent on Well Development? 15 (Minutes)/Hours

14) Approximate Water Volume Removed? 10 Gallons

15) Water Clarity Before Development? Clear, (Turbid), Opaque

16) Water Clarity After Development? Clear, (Turbid), Opaque

17) Did the Water Have Odor? Yes or (No) If Yes, Describe _____

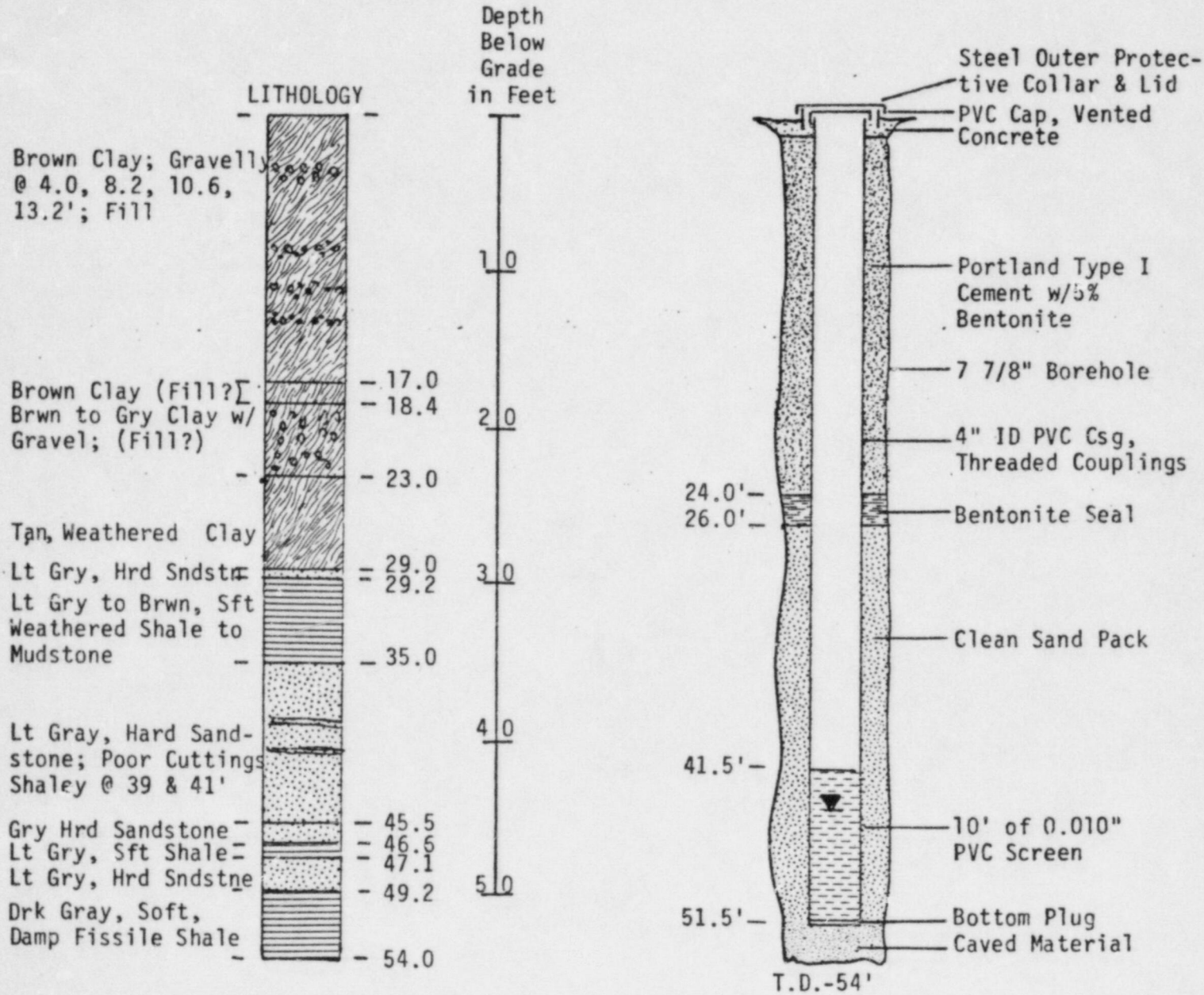
18) Did Water Have Any Color? Yes or (No) If Yes, Describe _____

19) Water Level Summary (Frm Top of Csg)
Before Develop. _____ Ft. Date _____
After Develop. _____ Ft. Date _____
Water Level 33.20 Ft. Date 6-23-86
_____ Ft. Date _____

WELL NO.: 2354 DATE INSTALLED: 6-12-86 DRILL RIG TYPE FAILING CF-15

DRILLER/FIRM: JIM WINNEK DRILL CREW HENRY PRICE RICK REED KERR-McGEE HYDROLOGIST R. WIDMANN

MONITOR WELL 2355
BETWEEN PONDS 3W AND 5
SEQUOYAH FUELS CORPORATION
GORE, OK

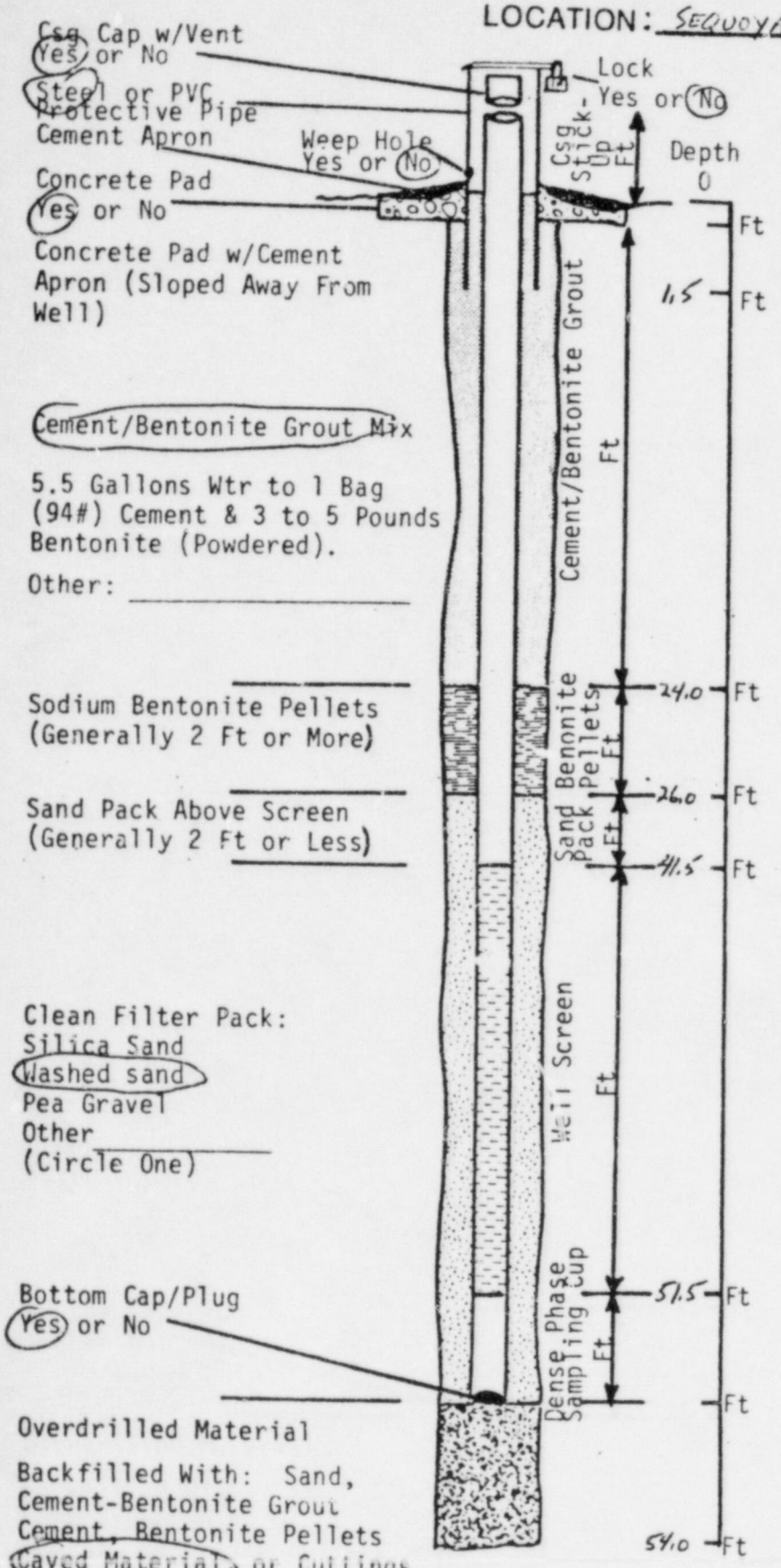


Well Installed: June 11, 1986 by Jim Winnek, Inc.
Water Level on June 23, 1986 - 44.70' Below Top of PVC Csg.
Logged by: R. K. Widmann

KERR-McGEE CORPORATION
HYDROLOGY DEPARTMENT
OBSERVATION WELL INSTALLATION DIAGRAM

T-2511

LOCATION: SEQUOYAH FACILITY - BETWEEN PONDS 3W AND 5



1) Type of Casing? (PVC), Galvanized, Teflon, Stainless, Other _____

2) Type of Casing Joints? (Screw-Couple), Glued Coupling, Other _____

3) Type of Well Screen? (PVC), Galvanized Stainless, Teflon, Other _____

4) Diameter of Casing & Well Screen? Casing 4 in., Screen 4 in.

5) Slot Size of Screen 10

6) Type of Screen Perforation? (Factory Slotted), Hacksaw, Drilled, Other _____

7) Installed Protector Pipe w/Lock. Yes or (No).

8) Borehole Diameter 7 7/8 in.

9) Were Drilling Additives Used? Yes or (No). Revert, Bentonite, Wtr, Solid Auger, Hollow Stem Auger

10) Was Sump or Dense Phase Sampling Cup Installed? Yes or (No).

11) Was Outer Steel Casing Used? (Yes) or No. Depth 0 to 1.5 Ft.

12) How Was Well Developed? (Bailing), Air Surging (Air or Nitrogen), Pumping, Other _____

13) Time Spent on Well Development? 5 (Minutes)/Hours

14) Approximate Water Volume Removed? 3 Gallons

15) Water Clarity Before Development? Clear, (Turbid), Opaque

16) Water Clarity After Development? Clear, (Turbid), Opaque

17) Did the Water Have Odor? Yes or (No) If Yes, Describe _____

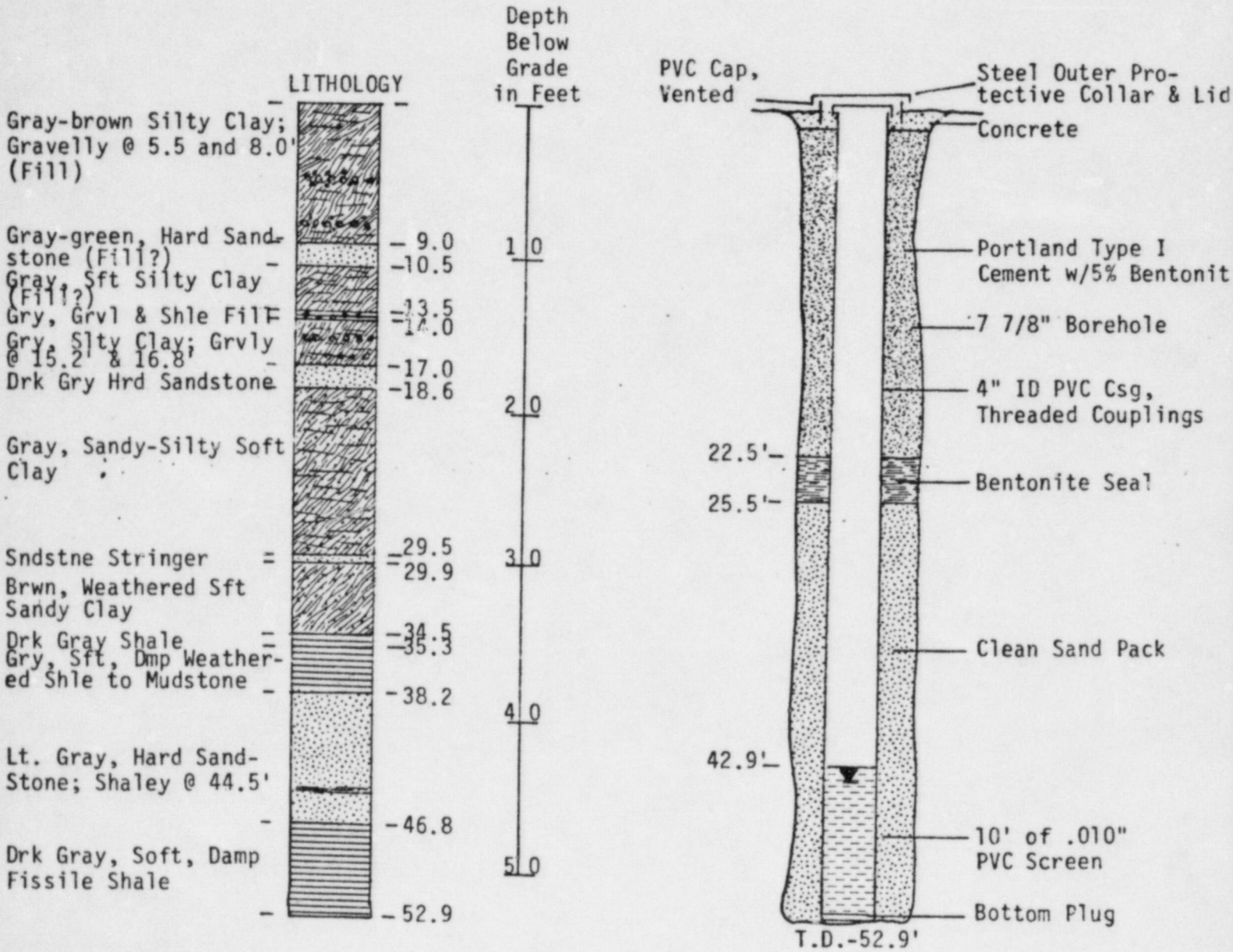
18) Did Water Have Any Color? Yes or (No) If Yes, Describe _____

19) Water Level Summary (Frm Top of Csg)
Before Develop. _____ Ft. Date _____
After Develop. _____ Ft. Date _____
Water Level 44.70 Ft. Date 6-23-86
_____ Ft. Date _____

WELL NO.: 2355 DATE INSTALLED: 6-11-86 DRILL RIG TYPE FAILING CF-15

DRILLER/FIRM: JIM WINNEK DRILL CREW HENRY PRICE CARL RICHTER KERR-McGEE HYDROLOGIST R. WIDMANN

MONITOR WELL 2356
BETWEEN PONDS 3W AND 5
SEQUOYAH FUELS CORPORATION
GORE, OK

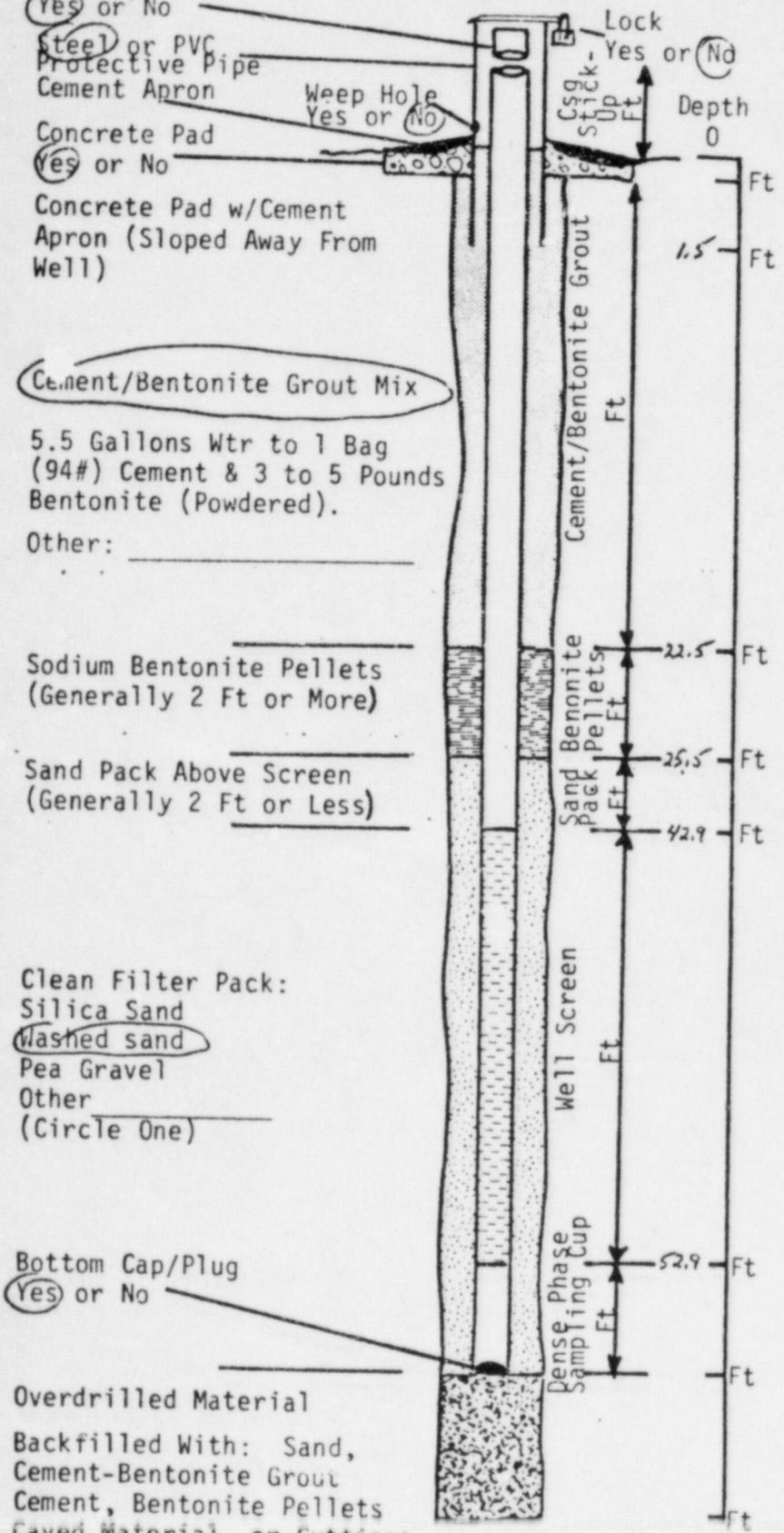


Well Installed: June 10, 1986 by Jim Winnek, Inc.
Water Level on June 23, 1986 - 43.60' Below Top of PVC Csg
Logged by : R. K. Widmann

KERR-McGEE CORPORATION
HYDROLOGY DEPARTMENT
OBSERVATION WELL INSTALLATION DIAGRAM

T-2511

LOCATION: SEQUOYAH FACILITY - BETWEEN PONDS 3W AND 5



1) Type of Casing? (PVC), Galvanized, Teflon, Stainless, Other _____

2) Type of Casing Joints? (Screw-Couple), Glued Coupling, Other _____

3) Type of Well Screen? (PVC), Galvanized Stainless, Teflon, Other _____

4) Diameter of Casing & Well Screen? Casing 4 in., Screen 4 in.

5) Slot Size of Screen 10

6) Type of Screen Perforation? (Factory Slotted), Hacksaw, Drilled, Other _____

7) Installed Protector Pipe w/Lock. Yes or (No).

8) Borehole Diameter 7 7/8 in.

9) Were Drilling Additives Used? Yes or (No). Revert, Bentonite, Wtr, Solid Auger, Hollow Stem Auger

10) Was Sump or Dense Phase Sampling Cup Installed? Yes or (No).

11) Was Outer Steel Casing Used? (Yes) or No. Depth 0 to 1.5 Ft.

12) How Was Well Developed? (Bailing), Air Surging (Air or Nitrogen), Pumping, Other _____

13) Time Spent on Well Development? 5 (Minutes)/Hours

14) Approximate Water Volume Removed? 3 Gallons

15) Water Clarity Before Development? Clear, (Turbid), Opaque

16) Water Clarity After Development? Clear, (Turbid), Opaque

17) Did the Water Have Odor? Yes or (No) If Yes, Describe _____

18) Did Water Have Any Color? Yes or (No) If Yes, Describe _____

19) Water Level Summary (Frm Top of Csg)
Before Develop. _____ Ft. Date _____
After Develop. _____ Ft. Date _____
Water Level 43.60 Ft. Date 6-23-86
_____ Ft. Date _____

WELL NO.: 2356 DATE INSTALLED: 6-10-86 DRILL RIG TYPE FAILING CF-15

DRILLER/FIRM: JIM WINNEK DRILL CREW HENRY PRICE, CARL RICHTER KERR-McGEE HYDROLOGIST R. WIDMANN

APPENDIX B

WATER QUALITY DATA
MONITOR WELLS IN LINED POND AREA
JAN - SEPT, 1986

WATER QUALITY DATA
MONITOR WELLS IN LINED POND AREA
JANUARY - SEPTEMBER, 1986

WELL NO.	DATE	URANIUM ug/l	NO3-N mg/l
2322A	28-Feb-86	15	0.1
2322A	30-May-86	5	0.2
2322A	29-Aug-86	5	0.2
2323	29-Aug-86	------DRY------	
2340A	28-Feb-86	112	8.0
2340A	30-Apr-86	20	4.5
2340A	30-May-86	27	7.0
2340A	28-Jun-86	21	7.0
2340A	29-Aug-86	35	8.0
2341	28-Feb-86	31	0.6
2341	30-May-86	14	0.2
2341	29-Aug-86	20	0.8
2342	28-Feb-86	15	0.1
2342	30-May-86	9	0.1
2342	29-Aug-86	6	0.0
2343	28-Feb-86	46	
2343	30-May-86	25	
2343	05-Aug-86	--	21.5
2343	06-Aug-86	--	26.0
2343	29-Aug-86	51	28.0
2344	28-Feb-86	7	14.0
2344	30-May-86	8	13.0
2344	29-Aug-86	13	12.0
2345	28-Feb-86	49	0.3
2345	30-May-86	7	0.1
2345	29-Aug-86	20	0.4
2346	28-Feb-86	88	11.5
2346	30-May-86	13	16.5
2346	29-Aug-86	13	15.0
2347	28-Feb-86	63	3.0
2347	30-May-86	14	17.0
2347	05-Aug-86	--	22.5
2347	05-Aug-86	--	20.0
2347	06-Aug-86	--	13.5
2347	29-Aug-86	32	13.0
2348	28-Feb-86	13	25.5
2348	30-May-86	5	97.0
2348	05-Aug-86	--	113.0
2348	05-Aug-86	--	116.0
2348	06-Aug-86	--	114.0
2348	29-Aug-86	12	33.5
2349	28-Feb-86	12	24.5
2349	30-May-86	12	1.0
2349	29-Aug-86	13	0.7
2350	28-Feb-86	9	1.2
2350	30-May-86	10	1.0
2350	29-Aug-86	8	1.5
2351	09-Jul-86	16	218.0
2351	23-Jul-86	15	200.0
2351	24-Jul-86	9	180.0
2351	01-Aug-86	--	148.0
2351	04-Aug-86	--	152.0
2351	04-Aug-86	--	276.0
2351	04-Sep-86	34	146.0
2351	05-Sep-86	<5	168.0
2352	09-Jul-86	22	0.3
2352	01-Aug-86	--	1.8
2352	01-Aug-86	--	0.4
2352	04-Sep-86	20	0.9
2352	05-Sep-86	<5	0.8
2353	09-Jul-86	20	11.5
2353	23-Jul-86	13	9.0
2353	24-Jul-86	11	9.5
2353	01-Aug-86	--	16.0
2353	04-Aug-86	--	13.0
2353	04-Aug-86	--	40.5
2353	04-Sep-86	23	12.0
2353	05-Sep-86	24	29.0
2354	09-Jul-86	20	0.5
2354	01-Aug-86	--	0.8
2354	04-Sep-86	17	1.0
2354	05-Sep-86	23	0.4
2355	09-Jul-86	20	1.2
2355	01-Aug-86	--	1.2
2355	04-Sep-86	91	0.9
2355	05-Sep-86	95	2.0
2356	09-Jul-86	23	1.6
2356	04-Sep-86	95	1.2
2356	05-Sep-86	120	1.5
FTP-2A	24-Apr-86	--	25.0
FTP-2A	11-Jun-86	--	23.0
FTP-2A	14-Aug-86	--	<0.1