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Metallurgical Laboratory Hazardous Waste Management Facility Groundwater Monitoring Report for 3Q90 (U)

December 1990

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ABSTRACT

The Metallurgical Laboratory Hazardous Waste Management Facility (Metlab HWMF) is subject to the requirements of the Resource Conservation and Recovery Act (RCRA) and is currently under interim status regulations. A report describing the results of quarterly detection monitoring at the Metlab HWMF is required to meet South Carolina Hazardous Waste Management Regulations (Ref. R.61-79.265.94).

Ten detection monitoring wells around the Metlab HWMF were sampled during 3Q90. Samples from the detection monitoring wells were sent to certified analytical laboratories for analysis. Forty five constituents were analyzed per sample and 734 analyses were performed. Two lab duplicate analyses and 1 split sample with a blind replicate were collected and analyzed to provide Quality Control (QC) information. In addition to the routine analysis of groundwater samples performed by both the primary and QC laboratories additional analyses were performed by the SRS M-Area laboratories.

Trichloroethylene, tetrachloroethylene, and total radium are the only constituents that were reported above Primary Drinking Water Standards (PDWS) during 3Q90. The SRS has acknowledged the impacts of chlorocarbons in the vicinity of the Metlab HWMF and is addressing the impacts under the provisions in Section J of Volume III to the SRS RCRA Part B Permit (M-Area HWMF Post Closure Permit, Corrective Action Plan).

1.0 INTRODUCTION

The Metallurgical Laboratory Hazardous Waste Management Facility (Metlab HWMF) is subject to the requirements of the Resource Conservation and Recovery Act (RCRA) and is currently under interim status regulations. A report describing the results of quarterly detection monitoring at the Metlab HWMF is required to meet South Carolina Hazardous Waste Management Regulations (Ref. R.61-79.265.94). A map of the Savannah River Site (SRS) showing the location of the Metlab HWMF is presented in Figure 1.

A total of ten monitoring wells are located at the Metlab HWMF. Six water table wells (AMB 4, 5, 6, 8D, 9D, 10D) monitor groundwater quality immediately downgradient of the Metlab HWMF. Wells AMB 11D and AMB 12D monitor groundwater quality upgradient of the Metlab HWMF. Well AMB 7 is sidegradient to the facility and well 10DD monitors the quality of groundwater perched beneath the southern portion of the Metlab HWMF. Figure 2 shows the location of detection monitoring wells around the Metlab HWMF.

A draft Groundwater Assessment Plan for the Metlab HWMF was submitted for SCDHEC approval on October 1, 1990. The plan calls for the installation of 6 additional monitoring wells to assess the extent of vertical migration of contaminants in the immediate vicinity of the Metlab HWMF.

2.0 DISCUSSION

2.1 Groundwater Monitoring Data for 3Q90

Ten detection monitoring wells around the Metlab HWMF were sampled during 3Q90. Samples from the detection monitoring wells were sent to certified analytical laboratories for analysis. Table 1 lists the amount of water purged from each of the wells prior to sample collection. Two wells, AMB 4 and 7 did not yield 4 well volumes prior to sample collection and as a result the samples may not be representative of actual groundwater. Both wells AMB 4 and 7 have had a history of poor water production and as a result the pumps will be removed from the wells. Following removal of the pumps wells AMB 4 and 7 will be used as piezometers. Replacement wells for AMB 4 and 7 will not be necessary because the groundwater monitoring system for the Metlab HWMF will still have 5 downgradient (AMB 5, 6, 8D, 9D, and 10D) and 2 upgradient monitoring wells (AMB 11D and 12D).

Forty five constituents were analyzed per sample and pH, specific conductivity, total organic carbon, and total organic halogens were measured in quadruplicate for a total of 734 analyses. Two lab duplicate analyses (AMB 4 and 5) and 1 split sample with a blind replicate (AMB 8D) were collected and analyzed to provide Quality Control (QC) information. Analytical data from each of the samples are presented in Appendix A.

In addition to the routine analysis of groundwater samples performed by both the primary and QC laboratories additional analyses were performed by the SRS M-Area laboratories. Analyses performed by the SRS M-Area laboratories are performed as part of the assessment monitoring for the A/M Area Corrective Action Program.

Hold times for several organic and inorganic constituents were missed for the 3Q90 samples, see table 1 for complete listing.

2.2 Groundwater Monitoring Results for 3Q90

Trichloroethylene, tetrachloroethylene, and total radium are the only constituents that were reported above the Primary Drinking Water Standards (PDWS) during 3Q90. Table 2 presents a summary of the 3Q90 detection monitoring data and Appendix B contains large scale maps with posted trichloroethylene and tetrachloroethylene maps.

Trichloroethylene and Tetrachloroethylene The SRS has acknowledged the impacts of chlorocarbons in the vicinity of the Metlab HWMF and is addressing the impacts under the provisions in Section J of Volume III to the SRS RCRA Part B Permit (M-Area HWMF Post Closure Permit, Corrective Action Plan).

2.2.1 Time Series Plots

Time series plots of the Groundwater Contamination Indicator Parameters and trichloroethylene were constructed for wells AMB 4-7; time series plots were not constructed for wells AMB 8D - 12D due to a lack of data at this time.

pH and Specific Conductance: Time series plots for pH and specific conductance are presented in figures 4 and 5. Specific conductivity is decreasing or has leveled off in all of the wells except AMB 7. pH increased in samples from all of the wells except AMB 4.

Total Organic Halogens and Trichloroethylene: Total organic halogen and trichloroethylene time series plots, figure 6 and 7, show no strong trend for wells AMB 6, and 7, while wells AMB 4 and 5 had increased concentrations of trichloroethylene for 3Q90. The SRS is investigating potential causes of the increasing trend in trichloroethylene.

Total Organic Carbon: Total organic carbon concentrations are steady in wells AMB 5 and 6 and are in a general downward trend for wells AMB 4 and 7, figure 8.

2.3 Groundwater Flow Direction and Gradient

The water table beneath the Metlab HWMF slopes to the northwest and has an average gradient of 0.0017, figure 3. Figure 9 presents hydrographs for wells AMB 4-7; hydrographs were not prepared for wells AMB 8D-12D due to a lack of data.

2.4 Quality Control Results for 3Q90

General Engineering Laboratories is the primary analytical laboratory and Metatrace is the QC laboratory for Metlab HWMF detection monitoring groundwater samples. Analytical results from the QC samples were in good agreement with the primary analytical results and any variation can be attributed to natural variability and laboratory error. The only results that are not in good agreement with each other are the field pH (9.1) and laboratory pH (6.37) measurements for well AMB 11D.

2.5 Additional Analytical Results

In addition to the routine analysis of groundwater samples performed by both the primary and QC laboratories additional analyses were performed by the SRS M-Area laboratories.

2.5.1 SRS M-Area Laboratory

Analyses performed by the SRS M-Area laboratories are performed as part of the assessment monitoring for the A/M Area Corrective Action Program. The assessment samples were analyzed for chloroform, tetrachloroethylene, trichloroethylene, trans-1-2-dichloroethane, 1,1-dichloroethylene, and 1,1,1-trichloroethane. The M-Area laboratory analyses are in agreement with the primary analytical laboratory for the Metlab HWMF. During 2Q90 the M-Area laboratory result for trichloroethylene in AMB 8D of 11.7 ug/L was notably different from LT 1 ug/L reported by the primary laboratory. 3Q90 trichloroethylene data for AMB 8D from the M-Area laboratory is in agreement with primary and QC laboratory results, 3.72, 4.00, and 5.1 ug/L respectively.

3.0 SUMMARY AND CONCLUSIONS

Ten detection monitoring wells around the Metlab HWMF were sampled during 3Q90. Samples from the detection monitoring wells were sent to certified analytical laboratories for analysis. Forty five constituents were analyzed per sample and 734 analyses were performed. Two lab duplicate analyses and 1 split sample with a blind replicate were collected and analyzed to provide Quality Control (QC) information.

In addition to the routine analysis of groundwater samples performed by both the primary and QC laboratories, additional analyses were performed by the SRS M-Area laboratories.

Trichloroethylene, tetrachloroethylene, and total radium are the only constituents that were reported above Primary Drinking Water Standards (PDWS). The SRS has acknowledged the impacts of chlorocarbons in the vicinity of the Metlab HWMF and is addressing the impacts under the provisions in Section J of Volume III to the SRS RCRA Part B Permit (M-Area HWMF Post Closure Permit, Corrective Action Plan).

Figure 1: Location of the Metallurgical Laboratory Hazardous Waste Management Facility.

Metallurgical Laboratory HWMF

Figure 2: Site Map of Metallurgical Laboratory Hazardous Waste Management Facility.

Metallurgical Laboratory HWMF

Figure 3: Water table elevation map for the Metallurgical Laboratory Hazardous Waste Management Facility for 3Q90.

Well AMB	4	5	6	7	8D	9D	10D	10DD	11D	12D
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Volume of water (gallons)

In well	3.10	3.42	3.10	6.30	5.07	6.49	7.29	11.06	7.04	7.28
purged	4.00	28.00	26.00	7.00	34.00	38.00	42.00	52.00	38.00	38.00

Groundwater Contamination Indicator Parameter Results (ug/L unless otherwise noted)

pH (pH units) (1)	6.0	5.1	5.5	7.1	5.5	5.6	5.9	6.5	9.1	6.3
Specific Conductivity (umhos/cm) (1)	65.0	44.0	40.0	168.0	38.0	43.0	61.0	158.0	134.0	67.0
Total Organic Carbon	2000.0	LT 1000	1000.0	3000.0	LT 1000	1000.0	1000.0	2000.0	1000.0	1000.0
Total Organic Halogens	74.0	82.0	LT 5	LT 5	6.0	LT 5	LT 5	6.0	LT 5	LT 5

Constituents Above the Primary Drinking Water Standards

Trichloroethylene (ug/L)	101.0	186.0	6.0	1.0	4.0	LT 1	LT 1	LT 1	LT 1	LT 1
Tetrachloroethylene (ug/L)	3.0	8.0	LT 1	LT 1	LT 1	LT 1	LT 1	LT 1	LT 1	LT 1
Total Radium (pCi/L)	LT 1	8.7 +- 2.4	LT 1	1.4 +- 3.3	LT 1	LT 1	LT 1	LT 1	1.1 +- 2.1	LT 1

(1) Field measurement

Table 1: Summary of 3Q90 Metallurgical Laboratory Hazardous Waste Management Facility Detection Monitoring.

Constituent	AMB											
	4	5	6	7	8D	9D	10D	10DD	11D	12D		
Endrin					X	X				X		
Lindane					X	X				X		
Methoxychlor					X	X				X		
Silvex	X			X	X	X	X	X	X	X		
Total Dissolved Solids					X							
Total Phosphates	X	X	X	X	X	X	X	X	X	X		
Toxaphene					X	X				X		
2,4-Dichlorophenoxy Acetic Acid	X			X	X	X	X	X	X	X		

Table 2: Constituents and Wells with Missed Hold Times.

Time Series Plot of Field pH

Figure 4: Time Series plot of Field pH.

Time Series Plot of Field Specific Conductivity

Figure 5: Time series plot of Field Specific Conductivity.

Time Series Plot of Total Organic Halogens

Figure 6: Time series plot of Total Organic Halogens.

Time Series Plot of Trichloroethylene

Figure 7: Time series plot of Trichloroethylene.

Time Series Plot of Total Organic Carbon

Figure 8: Time series plot of Total Organic Carbon.

Hydrograph

Figure 9: Hydrographs for wells AMB 4-7.

AMB 4			AMB 5			AMB 6			AMB 7		
Date	Result	Mod. Lab	Date	Result	Mod. Lab	Date	Result	Mod. Lab	Date	Result	Mod. Lab
pH (pH units)											
12/88	6.70	FD	12/3/88	5.80	FD	12/4/88	8.50	FD	12/4/88	7.40	FD
3/89	6.40	FD	3/20/89	5.50	FD	3/20/89	5.70	FD	3/21/89	7.50	FD
6/89	5.80	FD	6/3/89	4.70	FD	6/3/89	5.10	FD	6/4/89	7.50	FD
8/89	6.50	FD	8/6/89	5.10	FD	8/6/89	5.40	FD	8/6/89	8.10	FD
5/90	6.20	FD	11/26/89	4.60	FD	11/26/89	5.20	FD	11/26/89	6.60	FD
7/90	6.00	FD	3/3/90	4.70	FD	3/3/90	5.40	FD	3/4/90	7.00	FD
			5/18/90	4.90	FD	4/20/90	5.20	FD	5/17/90	6.10	FD
			7/90	5.10	FD	7/90	5.50	FD	7/90	7.10	FD
Specific Conductance (umhos/cm)											
12/88	142.00	FD	12/88	64.00	FD	12/88	310.00	FD	12/88	232.00	FD
3/89	131.00	FD	3/89	57.00	FD	3/89	55.00	FD	3/89	278.00	FD
6/89	121.00	FD	6/89	49.00	FD	6/89	50.00	FD	6/89	268.00	FD
8/89	109.00	FD	8/89	43.00	FD	8/89	43.00	FD	8/89	215.00	FD
5/90	88.00	FD	11/89	47.00	FD	11/89	47.00	FD	11/89	195.00	FD
7/90	65.00	FD	3/90	42.00	FD	3/90	55.00	FD	3/90	202.00	FD
			5/90	43.00	FD	4/90	42.00	FD	5/90	77.00	FD
			7/90	44.00	FD	7/90	40.00	FD	7/90	168.00	FD
Total Organic Carbon (ug/L)											
12/88	1100	EE	12/88	1000	LT	12/88	3000	EE	12/88	6800	EE
3/89	6300	EE	3/89	1100	EE	3/89	1000	EE	3/89	2200	EE
6/89	6000	GE	6/89	2000	GE	6/89	2000	GE	6/89	5000	GE
8/89	4000	GE	8/89	1000	GE	8/89	1000	GE	8/89	2000	GE
5/90	2000	GE	11/89	1000	LT	11/89	1000	GE	11/89	5000	GE
7/90	2000.00	GE	3/90	1000	GE	3/90	1000	GE	3/90	2000	GE
			5/90	2000	GE	4/90	1000	LT	5/90	1000	LT
			7/90	1000.00	LT	7/90	1000.00	GE	7/90	3000.00	GE

Table 2: Summary of data used to prepare time series plots and hydrographs.

AMB 4			AMB 5			AMB 6			AMB 7		
Date	Result	Mod. Lab	Date	Result	Mod. Lab	Date	Result	Mod. Lab	Date	Result	Mod. Lab
Total Organic Halogens (ug/l)											
12/88	57	EE	12/88	17	EE	12/88	8	EE	12/88	25	EE
3/89	40	EE	3/89	50	EE	3/89	5	LT	3/89	8.9	EE
6/89	55	GE	6/89	110	GE	6/89	14	GE	6/89	8	GE
8/89	40	GE	8/89	113	GE	8/89	5	GE	8/89	72	GE
5/90	52	GE	11/89	133	GE	11/89	8	GE	11/89	7	GE
7/90	74.00	GE	3/90	167	GE	3/90	5	LT	3/90	16	GE
			5/90	121	GE	4/90	5	LT	5/90	5	LT
			7/90	82.00	GE	7/90	5.00	LT	7/90	5.00	LT
Trichloroethylene (ug/L)											
12/88	43	EE	12/88	39	EE	12/88	4	EE	12/88	1	EE
3/89	21.5	MA	3/89	42.5	MA	3/89	2.11	MA	3/89	1.06	MA
6/89	34	GE	6/89	161	GE	6/89	6	GE	6/89	2	GE
8/89	28.5	MA	8/89	160	GE	8/89	8.81	MA	8/89	2.63	MA
5/90	74.00	GE	11/89	300	GE	11/89	6.3	GE	11/89	2.2	GE
7/90	101.00	GE	3/90	180	GE	3/90	5	GE	3/90	1	LT
			5/90	176.00	GE	4/90	6.00	GE	5/90	2.00	LT
			7/90	188.00	GE	7/90	6.00	GF	7/90	1.00	GE
Water Level Elevation (feet above msl)											
12/88	234.82		12/88	234.78		12/88	234.91		12/88	235.14	
3/89	233.73		3/89	233.73		3/89	233.70		3/89	234.02	
6/89	234.01		6/89	231.28		6/89	231.71		6/89	233.46	
8/89	233.02		8/89	233.85		8/89	233.95		8/89	234.35	
11/89	232.75		11/89	233.46		11/89	233.95		11/89	232.91	
3/90	232.57		3/90	232.46		3/90	232.55		3/90	232.63	
5/90	232.14		5/90	232.08		4/90	231.79		5/90	232.55	
7/90	231.93		7/90	231.90		7/90	231.99		7/90	232.18	

Table 2 continued: Summary of data used to prepare time series plots and hydrographs.

Appendix A

WELL AMB 4

SRS Grid N 104125.5 Latitude 33.340044 N
 Coordinates E 51480.4 Longitude 81.733549 W
 Screen Zone Elevation 242.8-222.8 ft msl
 Top of Casing Elevation 380.40 ft msl

MEASUREMENTS CONDUCTED IN THE FIELD

Sample date 07/20/90 Time 1340
 Depth to water = 148.47 ft (45.25 m) below the TOC
 Water elevation = 231.93 ft (70.69 m) msl
 pH = 6.0 Alkalinity = 10 mg/L
 Specific conductance = 65 umhos/cm
 Water temperature = 25.8 degrees Celsius
 Water evacuated from the well prior to sampling = 4 gal
 The well went dry during purging.

LABORATORY ANALYSES

Specific conductance		52.00 umh/cm	Gen. Eng.
Specific conductance		52.00 umh/cm	Gen. Eng.
Specific conductance		52.00 umh/cm	Gen. Eng.
Specific conductance		55.00 umh/cm	Gen. Eng.
Specific conductance		52.00 umh/cm	Gen. Eng.
Specific conductance		52.00 umh/cm	Gen. Eng.
Specific conductance		52.00 umh/cm	Gen. Eng.
Specific conductance		53.00 umh/cm	Gen. Eng.
pH		5.95 pH	Gen. Eng.
pH		5.99 pH	Gen. Eng.
pH		6.02 pH	Gen. Eng.
pH		6.05 pH	Gen. Eng.
pH		5.99 pH	Gen. Eng.
pH		6.01 pH	Gen. Eng.
pH		6.02 pH	Gen. Eng.
pH		6.04 pH	Gen. Eng.
Silver	LT	2 ug/L	Gen. Eng.
Silver	LT	2 ug/L	Gen. Eng.
Arsenic	LT	2 ug/L	Gen. Eng.
Arsenic	LT	2 ug/L	Gen. Eng.
Barium		8 ug/L	Gen. Eng.
Barium		9 ug/L	Gen. Eng.
Calcium		2700 ug/L	Gen. Eng.
Calcium		2800 ug/L	Gen. Eng.
Carbon tetrachloride		1.00 ug/L	Gen. Eng.
Carbon tetrachloride	LT	1.00 ug/L	Gen. Eng.
Cadmium	LT	2 ug/L	Gen. Eng.
Cadmium	LT	2 ug/L	Gen. Eng.
Chloroform	LT	1 ug/L	Gen. Eng.
Chloroform	LT	1 ug/L	Gen. Eng.
Chloroform		2 ug/L	M-Area, SRS
Chloride		2800 ug/L	Gen. Eng.
Chloride		2800 ug/L	Gen. Eng.
Chromium	LT	4 ug/L	Gen. Eng.
Chromium	LT	4 ug/L	Gen. Eng.

CONTINUED

WELL AMB 4 COLLECTED ON 07/20/90 LABORATORY ANALYSES CONTINUED

Cyanide	LT	5 ug/L	Gen. Eng.
Cyanide	LT	5 ug/L	Gen. Eng.
Endrin	LT	0.01 ug/L	Gen. Eng.
Endrin	LT	0.01 ug/L	Gen. Eng.
Fluoride	LT	100 ug/L	Gen. Eng.
Fluoride	LT	100 ug/L	Gen. Eng.
Iron		63 ug/L	Gen. Eng.
Iron		55 ug/L	Gen. Eng.
Mercury	LT	0.20 ug/L	Gen. Eng.
Mercury	LT	0.20 ug/L	Gen. Eng.
Potassium	LT	500 ug/L	Gen. Eng.
Potassium	LT	500 ug/L	Gen. Eng.
gamma-Benzene hexachloride (Lindan)	LT	0.00 ug/L	Gen. Eng.
gamma-Benzene hexachloride (Lindan)	LT	0.00 ug/L	Gen. Eng.
Methoxychlor	LT	0.50 ug/L	Gen. Eng.
Methoxychlor	LT	0.50 ug/L	Gen. Eng.
Magnesium		230 ug/L	Gen. Eng.
Magnesium		240 ug/L	Gen. Eng.
Manganese		20 ug/L	Gen. Eng.
Manganese		20 ug/L	Gen. Eng.
Sodium		6900 ug/L	Gen. Eng.
Sodium		6900 ug/L	Gen. Eng.
Nickel		16 ug/L	Gen. Eng.
Nickel		16 ug/L	Gen. Eng.
Nitrate as nitrogen		1160 ug/L	Gen. Eng.
Nitrate as nitrogen		1160 ug/L	Gen. Eng.
Lead		15 ug/L	Gen. Eng.
Lead		14 ug/L	Gen. Eng.
Phenols	LT	5 ug/L	Gen. Eng.
Phenols	LT	5 ug/L	Gen. Eng.
Selenium	LT	2 ug/L	Gen. Eng.
Selenium	LT	2 ug/L	Gen. Eng.
Silica		7000 ug/L	Gen. Eng.
Silica		6500 ug/L	Gen. Eng.
2,4,5-TP (Silvex)	LT	0.09 ug/L	Gen. Eng.
2,4,5-TP (Silvex)	LT	0.09 ug/L	Gen. Eng.
Sulfate		1700 ug/L	Gen. Eng.
Sulfate		1600 ug/L	Gen. Eng.
Tetrachloroethylene		3.00 ug/L	Gen. Eng.
Tetrachloroethylene		3.00 ug/L	Gen. Eng.
Tetrachloroethylene		3.50 ug/L	M-Area, SRS
Total organic carbon		2000 ug/L	Gen. Eng.
Total organic carbon		2000 ug/L	Gen. Eng.
Total organic carbon		2000 ug/L	Gen. Eng.
Total organic carbon	LT	1000 ug/L	Gen. Eng.
Total organic carbon		1000 ug/L	Gen. Eng.
Total organic carbon		2000 ug/L	Gen. Eng.
Total organic carbon		2000 ug/L	Gen. Eng.
Total organic carbon		2000 ug/L	Gen. Eng.
Total organic halogens		74 ug/L	Gen. Eng.
Total organic halogens		75 ug/L	Gen. Eng.
Total organic halogens		78 ug/L	Gen. Eng.
Total organic halogens		82 ug/L	Gen. Eng.
Total organic halogens		72 ug/L	Gen. Eng.

CONTINUED

WELL AMB 4 COLLECTED ON 07/20/90 LABORATORY ANALYSES CONTINUED

Total organic halogens		73 ug/L	Gen. Eng.
Total organic halogens		75 ug/L	Gen. Eng.
Total organic halogens		75 ug/L	Gen. Eng.
Total phosphates	LT	50 ug/L	Gen. Eng.
Total phosphates	LT	50 ug/L	Gen. Eng.
* Trichloroethylene		101 ug/L	Gen. Eng.
* Trichloroethylene		95.0 ug/L	Gen. Eng.
* Trichloroethylene		91.7 ug/L	M-Area, SRS
Toxaphene	LT	0.24 ug/L	Gen. Eng.
Toxaphene	LT	0.24 ug/L	Gen. Eng.
trans-1,2-Dichloroethene		6 ug/L	M-Area, SRS
1,1-Dichloroethylene	LT	10 ug/L	M-Area, SRS
1,1,1-Trichloroethane	LT	1 ug/L	Gen. Eng.
1,1,1-Trichloroethane	LT	1 ug/L	Gen. Eng.
1,1,1-Trichloroethane	LT	10 ug/L	M-Area, SRS
(2,4-Dichlorophenoxy)acetic acid	LT	0.30 ug/L	Gen. Eng.
(2,4-Dichlorophenoxy)acetic acid	LT	0.30 ug/L	Gen. Eng.
Gross alpha	LT	2 pCi/L	Gen. Eng.
Gross alpha	LT	2 pCi/L	Gen. Eng.
Nonvolatile beta	LT	2 pCi/L	Gen. Eng.
Nonvolatile beta	LT	2 pCi/L	Gen. Eng.
Total radium	LT	1 pCi/L	Gen. Eng.
Total radium	LT	1 pCi/L	Gen. Eng.

WELL AMB 5

SRS Grid N 104083.4 Latitude 33.339929 N
 Coordinates E 51467.2 Longitude 81.733501 W
 Screen Zone Elevation 242.1-222.1 ft msl
 Top of Casing Elevation 379.60 ft msl

MEASUREMENTS CONDUCTED IN THE FIELD

Sample date 07/19/90 Time 1340
 Depth to water = 147.70 ft (45.02 m) below the TOC
 Water elevation = 231.90 ft (70.68 m) msl
 pH = 5.1 Alkalinity = 0 mg/L
 Specific conductance = 44 umhos/cm
 Water temperature = 26.4 degrees Celsius
 Water evacuated from the well prior to sampling = 28 gal

LABORATORY ANALYSES

Specific conductance	40.00 umh/cm	Gen. Eng.
Specific conductance	40.00 umh/cm	Gen. Eng.
Specific conductance	40.00 umh/cm	Gen. Eng.
Specific conductance	40.00 umh/cm	Gen. Eng.
Specific conductance	38.00 umh/cm	Gen. Eng.
Specific conductance	40.00 umh/cm	Gen. Eng.
Specific conductance	40.00 umh/cm	Gen. Eng.
Specific conductance	40.00 umh/cm	Gen. Eng.
pH	5.01 pH	Gen. Eng.

CONTINUED

WELL AMB 5 COLLECTED ON 07/19/90 LABORATORY ANALYSES CONTINUED

pH		5.14	pH	Gen. Eng.
pH		5.21	pH	Gen. Eng.
pH		5.24	pH	Gen. Eng.
pH		5.01	pH	Gen. Eng.
pH		5.14	pH	Gen. Eng.
pH		5.20	pH	Gen. Eng.
pH		5.24	pH	Gen. Eng.
Silver	LT	2	ug/L	Gen. Eng.
Silver	LT	2	ug/L	Gen. Eng.
Arsenic	LT	2	ug/L	Gen. Eng.
Arsenic	LT	2	ug/L	Gen. Eng.
Barium		7	ug/L	Gen. Eng.
Barium		7	ug/L	Gen. Eng.
Calcium		460	ug/L	Gen. Eng.
Calcium		450	ug/L	Gen. Eng.
Carbon tetrachloride		2.00	ug/L	Gen. Eng.
Carbon tetrachloride		2.00	ug/L	Gen. Eng.
Cadmium	LT	2	ug/L	Gen. Eng.
Cadmium	LT	2	ug/L	Gen. Eng.
Chloroform	LT	1	ug/L	Gen. Eng.
Chloroform	LT	1	ug/L	Gen. Eng.
Chloroform	LT	2	ug/L	M-Area, SRS
Chloride		3500	ug/L	Gen. Eng.
Chloride		3600	ug/L	Gen. Eng.
Chromium	LT	4	ug/L	Gen. Eng.
Chromium	LT	4	ug/L	Gen. Eng.
Cyanide	LT	5	ug/L	Gen. Eng.
Cyanide	LT	5	ug/L	Gen. Eng.
Endrin	LT	0.01	ug/L	Gen. Eng.
Endrin	LT	0.01	ug/L	Gen. Eng.
Fluoride	LT	100	ug/L	Gen. Eng.
Fluoride	LT	100	ug/L	Gen. Eng.
Iron		42	ug/L	Gen. Eng.
Iron		42	ug/L	Gen. Eng.
Mercury	LT	0.20	ug/L	Gen. Eng.
Mercury	LT	0.20	ug/L	Gen. Eng.
Potassium	LT	500	ug/L	Gen. Eng.
Potassium	LT	500	ug/L	Gen. Eng.
gamma-Benzene hexachloride (Lindan)	LT	0.00	ug/L	Gen. Eng.
gamma-Benzene hexachloride (Lindan)	LT	0.00	ug/L	Gen. Eng.
Methoxychlor	LT	0.50	ug/L	Gen. Eng.
Methoxychlor	LT	0.50	ug/L	Gen. Eng.
Magnesium		540	ug/L	Gen. Eng.
Magnesium		560	ug/L	Gen. Eng.
Manganese		11	ug/L	Gen. Eng.
Manganese		11	ug/L	Gen. Eng.
Sodium		5000	ug/L	Gen. Eng.
Sodium		5600	ug/L	Gen. Eng.
Nickel	LT	4	ug/L	Gen. Eng.
Nickel	LT	4	ug/L	Gen. Eng.
Nitrate as nitrogen		2020	ug/L	Gen. Eng.
Nitrate as nitrogen		2000	ug/L	Gen. Eng.
Lead		4	ug/L	Gen. Eng.
Lead		5	ug/L	Gen. Eng.

CONTINUED

WELL AMB 5 COLLECTED ON 07/19/90 LABORATORY ANALYSES CONTINUED

Phenols	LT	5 ug/L	Gen. Eng.
Phenols	LT	5 ug/L	Gen. Eng.
Selenium	LT	2 ug/L	Gen. Eng.
Selenium	LT	2 ug/L	Gen. Eng.
Silica		6200 ug/L	Gen. Eng.
Silica		6400 ug/L	Gen. Eng.
2,4,5-TP (Silvex)	LT	0.09 ug/L	Gen. Eng.
2,4,5-TP (Silvex)	LT	0.09 ug/L	Gen. Eng.
Sulfate		1000 ug/L	Gen. Eng.
Sulfate		1200 ug/L	Gen. Eng.
* Tetrachloroethylene		8.00 ug/L	Gen. Eng.
* Tetrachloroethylene		8.00 ug/L	Gen. Eng.
* Tetrachloroethylene		10.3 ug/L	M-Area, SRS
Total organic carbon	LT	1000 ug/L	Gen. Eng.
Total organic carbon	LT	1000 ug/L	Gen. Eng.
Total organic carbon	LT	1000 ug/L	Gen. Eng.
Total organic carbon	LT	1000 ug/L	Gen. Eng.
Total organic carbon	LT	1000 ug/L	Gen. Eng.
Total organic carbon	LT	1000 ug/L	Gen. Eng.
Total organic carbon	LT	1000 ug/L	Gen. Eng.
Total organic carbon	LT	1000 ug/L	Gen. Eng.
Total organic halogens		82 ug/L	Gen. Eng.
Total organic halogens		82 ug/L	Gen. Eng.
Total organic halogens		84 ug/L	Gen. Eng.
Total organic halogens		91 ug/L	Gen. Eng.
Total organic halogens		66 ug/L	Gen. Eng.
Total organic halogens		76 ug/L	Gen. Eng.
Total organic halogens		80 ug/L	Gen. Eng.
Total organic halogens		82 ug/L	Gen. Eng.
Total phosphates	LT	50 ug/L	Gen. Eng.
Total phosphates	LT	50 ug/L	Gen. Eng.
* Trichloroethylene		186 ug/L	Gen. Eng.
* Trichloroethylene		206 ug/L	Gen. Eng.
* Trichloroethylene		219 ug/L	M-Area, SRS
Toxaphene	LT	0.24 ug/L	Gen. Eng.
Toxaphene	LT	0.24 ug/L	Gen. Eng.
trans-1,2-Dichloroethene		6 ug/L	M-Area, SRS
1,1-Dichloroethylene	LT	2 ug/L	M-Area, SRS
1,1,1-Trichloroethane	LT	1 ug/L	Gen. Eng.
1,1,1-Trichloroethane	LT	1 ug/L	Gen. Eng.
1,1,1-Trichloroethane	LT	2 ug/L	M-Area, SRS
(2,4-Dichlorophenoxy)acetic acid	LT	0.30 ug/L	Gen. Eng.
(2,4-Dichlorophenoxy)acetic acid	LT	0.30 ug/L	Gen. Eng.
Gross alpha		5.30+-1.40 pCi/L	Gen. Eng.
Gross alpha		5.80+-1.50 pCi/L	Gen. Eng.
Nonvolatile beta	LT	2 pCi/L	Gen. Eng.
Nonvolatile beta		2.00+-1.80 pCi/L	Gen. Eng.
* Total radium		8.10+-2.40 pCi/L	Gen. Eng.
* Total radium		9.00+-2.50 pCi/L	Gen. Eng.

WELL AMB 6

SRS Grid N 104034.1 Latitude 33.339819 N
 Coordinates E 51466.0 Longitude 81.733409 W
 Screen Zone Elevation 242.6-222.6 ft msl
 Top of Casing Elevation 377.20 ft msl

MEASUREMENTS CONDUCTED IN THE FIELD

Sample date 07/19/90 Time 1425
 Depth to water = 145.21 ft (44.26 m) below the TOC
 Water elevation = 231.99 ft (70.71 m) msl
 pH = 5.5 Alkalinity = 10 mg/L
 Specific conductance = 40 umhos/cm
 Water temperature = 24.4 degrees Celsius
 Water evacuated from the well prior to sampling = 26 gal

LABORATORY ANALYSES

Specific conductance		35.00 umh/cm	Gen. Eng.
Specific conductance		35.00 umh/cm	Gen. Eng.
Specific conductance		35.00 umh/cm	Gen. Eng.
Specific conductance		35.00 umh/cm	Gen. Eng.
pH		5.74 pH	Gen. Eng.
pH		5.74 pH	Gen. Eng.
pH		5.77 pH	Gen. Eng.
pH		5.79 pH	Gen. Eng.
Silver	LT	2 ug/L	Gen. Eng.
Arsenic	LT	2 ug/L	Gen. Eng.
Barium	LT	3 ug/L	Gen. Eng.
Calcium		210 ug/L	Gen. Eng.
Carbon tetrachloride	LT	1.00 ug/L	Gen. Eng.
Cadmium	LT	2 ug/L	Gen. Eng.
Chloroform	LT	1 ug/L	Gen. Eng.
Chloroform	LT	1 ug/L	M-Area, SRS
Chloride		3100 ug/L	Gen. Eng.
Chromium	LT	4 ug/L	Gen. Eng.
Cyanide	LT	5 ug/L	Gen. Eng.
Endrin	LT	0.01 ug/L	Gen. Eng.
Fluoride	LT	100 ug/L	Gen. Eng.
Iron		53 ug/L	Gen. Eng.
Mercury	LT	0.20 ug/L	Gen. Eng.
Potassium	LT	500 ug/L	Gen. Eng.
gamma-Benzene hexachloride (Lindan)	LT	0.00 ug/L	Gen. Eng.
Methoxychlor	LT	0.50 ug/L	Gen. Eng.
Magnesium		50 ug/L	Gen. Eng.
Manganese		4 ug/L	Gen. Eng.
Sodium		6500 ug/L	Gen. Eng.
Nickel	LT	4 ug/L	Gen. Eng.
Nitrate as nitrogen		180 ug/L	Gen. Eng.
Lead		4 ug/L	Gen. Eng.
Phenols	LT	5 ug/L	Gen. Eng.
Selenium	LT	2 ug/L	Gen. Eng.
Silica		6500 ug/L	Gen. Eng.
2,4,5-TP (Silvex)	LT	0.09 ug/L	Gen. Eng.
Sulfate		2600 ug/L	Gen. Eng.

CONTINUED

WELL AMB 6 COLLECTED ON 07/19/90 LABORATORY ANALYSES CONTINUED

Tetrachloroethylene	LT	1.00 ug/L	Gen. Eng.
Tetrachloroethylene	LT	1.00 ug/L	M-Area, SRS
Total organic carbon		1000 ug/L	Gen. Eng.
Total organic carbon		1000 ug/L	Gen. Eng.
Total organic carbon		2000 ug/L	Gen. Eng.
Total organic carbon	LT	1000 ug/L	Gen. Eng.
Total organic halogens	LT	5 ug/L	Gen. Eng.
Total organic halogens	LT	5 ug/L	Gen. Eng.
Total organic halogens	LT	5 ug/L	Gen. Eng.
Total organic halogens	LT	5 ug/L	Gen. Eng.
Total phosphates		250 ug/L	Gen. Eng.
* Trichloroethylene		6.00 ug/L	Gen. Eng.
* Trichloroethylene		6.02 ug/L	M-Area, SRS
Toxaphene	LT	0.24 ug/L	Gen. Eng.
trans-1,2-Dichloroethene	LT	1 ug/L	M-Area, SRS
1,1-Dichloroethylene	LT	1 ug/L	M-Area, SRS
1,1,1-Trichloroethane	LT	1 ug/L	Gen. Eng.
1,1,1-Trichloroethane	LT	1 ug/L	M-Area, SRS
(2,4-Dichlorophenoxy)acetic acid	LT	0.30 ug/L	Gen. Eng.
Gross alpha	LT	2 pCi/L	Gen. Eng.
Nonvolatile beta	LT	2 pCi/L	Gen. Eng.
Total radium	LT	1 pCi/L	Gen. Eng.

WELL AMB 7

SRS Grid N 103920.0 Latitude 33.339824 N
 Coordinates E 51624.9 Longitude 81.732767 W
 Screen Zone Elevation 242.1-222.1 ft msl
 Top of Casing Elevation 369.90 ft msl

MEASUREMENTS CONDUCTED IN THE FIELD

Sample date 07/20/90 Time 1250
 Depth to water = 137.72 ft (41.98 m) below the TOC
 Water elevation = 232.18 ft (70.77 m) msl
 pH = 7.1 Alkalinity = 16 mg/L
 Specific conductance = 168 umhos/cm
 Water temperature = 24.2 degrees Celsius
 Water evacuated from the well prior to sampling = 7 gal
 The well went dry during purging.

LABORATORY ANALYSES

Specific conductance		102.0 umh/cm	Gen. Eng.
Specific conductance		110.0 umh/cm	Gen. Eng.
Specific conductance		111.0 umh/cm	Gen. Eng.
Specific conductance		111.0 umh/cm	Gen. Eng.
pH		6.58 pH	Gen. Eng.
pH		6.59 pH	Gen. Eng.
pH		6.68 pH	Gen. Eng.
pH		6.69 pH	Gen. Eng.
Silver	LT	2 ug/L	Gen. Eng.
Arsenic	LT	2 ug/L	Gen. Eng.

CONTINUED

WELL AMB 7 COLLECTED ON 07/20/90 LABORATORY ANALYSES CONTINUED

Barium		32 ug/L	Gen. Eng.
Calcium		4000 ug/L	Gen. Eng.
Carbon tetrachloride	LT	1.00 ug/L	Gen. Eng.
Cadmium	LT	2 ug/L	Gen. Eng.
Chloroform		3 ug/L	Gen. Eng.
Chloroform		2 ug/L	M-Area, SRS
Chloride		2600 ug/L	Gen. Eng.
Chromium		7 ug/L	Gen. Eng.
Cyanide	LT	5 ug/L	Gen. Eng.
Endrin	LT	0.01 ug/L	Gen. Eng.
Fluoride		110 ug/L	Gen. Eng.
Iron		63 ug/L	Gen. Eng.
Mercury	LT	0.20 ug/L	Gen. Eng.
Potassium		1300 ug/L	Gen. Eng.
gamma-Benzene hexachloride (Lindan)	LT	0.00 ug/L	Gen. Eng.
Methoxychlor	LT	0.50 ug/L	Gen. Eng.
Magnesium		400 ug/L	Gen. Eng.
Manganese		19 ug/L	Gen. Eng.
Sodium		16000 ug/L	Gen. Eng.
Nickel		11 ug/L	Gen. Eng.
Nitrate as nitrogen		70 ug/L	Gen. Eng.
Lead		8 ug/L	Gen. Eng.
Phenols	LT	5 ug/L	Gen. Eng.
Selenium	LT	2 ug/L	Gen. Eng.
Silica		7670 ug/L	Gen. Eng.
2,4,5-TP (Silvex)	LT	0.09 ug/L	Gen. Eng.
Sulfate		4400 ug/L	Gen. Eng.
Tetrachloroethylene	LT	1.00 ug/L	Gen. Eng.
Tetrachloroethylene	LT	2.50 ug/L	M-Area, SRS
Total organic carbon		3000 ug/L	Gen. Eng.
Total organic carbon		3000 ug/L	Gen. Eng.
Total organic carbon		3000 ug/L	Gen. Eng.
Total organic carbon		4000 ug/L	Gen. Eng.
Total organic halogens	LT	5 ug/L	Gen. Eng.
Total organic halogens	LT	5 ug/L	Gen. Eng.
Total organic halogens	LT	5 ug/L	Gen. Eng.
Total organic halogens	LT	5 ug/L	Gen. Eng.
Total phosphates	LT	50 ug/L	Gen. Eng.
Trichloroethylene		1.00 ug/L	Gen. Eng.
Trichloroethylene	LT	2.50 ug/L	M-Area, SRS
Toxaphene	LT	0.24 ug/L	Gen. Eng.
trans-1,2-Dichloroethene	LT	3 ug/L	M-Area, SRS
1,1-Dichloroethylene	LT	3 ug/L	M-Area, SRS
1,1,1-Trichloroethane		2 ug/L	Gen. Eng.
1,1,1-Trichloroethane		2 ug/L	M-Area, SRS
(2,4-Dichlorophenoxy)acetic acid	LT	0.30 ug/L	Gen. Eng.
Gross alpha	LT	2 pCi/L	Gen. Eng.
Nonvolatile beta		2.30+-1.90 pCi/L	Gen. Eng.
Total radium		1.40+-3.30 pCi/L	Gen. Eng.

WELL AMB 8D

SRS Grid N 103874.7 Latitude N
Coordinates E 51400.5 Longitude W
Screen Zone Elevation 240.8-220.8 ft msl
Top of Casing Elevation 369.60 ft msl

MEASUREMENTS CONDUCTED IN THE FIELD

Sample date 07/20/90 Time 1115
Depth to water = 137.74 ft (41.98 m) below the TOC
Water elevation = 231.86 ft (70.67 m) msl
pH = 5.5 Alkalinity = 7 mg/L
Specific conductance = 38 umhos/cm
Water temperature = 23.9 degrees Celsius
Water evacuated from the well prior to sampling = 34 gal

LABORATORY ANALYSES

Specific conductance		37.10 umh/cm	MetaTrace
Specific conductance		42.80 umh/cm	MetaTrace
Specific conductance		41.80 umh/cm	MetaTrace
Specific conductance		41.80 umh/cm	MetaTrace
Specific conductance		40.00 umh/cm	Gen. Eng.
Specific conductance		40.00 umh/cm	Gen. Eng.
Specific conductance		40.00 umh/cm	Gen. Eng.
Specific conductance		40.00 umh/cm	Gen. Eng.
Specific conductance		41.80 umh/cm	MetaTrace
pH		5.38 pH	MetaTrace
pH		5.35 pH	MetaTrace
pH		5.35 pH	MetaTrace
pH		5.42 pH	MetaTrace
pH		5.57 pH	Gen. Eng.
pH		5.80 pH	Gen. Eng.
pH		5.81 pH	Gen. Eng.
pH		5.96 pH	Gen. Eng.
pH		5.42 pH	MetaTrace
Silver	LT	0.60 ug/L	MetaTrace
Silver	LT	2 ug/L	Gen. Eng.
Arsenic	LT	3 ug/L	MetaTrace
Arsenic	LT	2 ug/L	Gen. Eng.
Barium	LT	3 ug/L	Gen. Eng.
Barium		2 ug/L	MetaTrace
Calcium		630 ug/L	Gen. Eng.
Calcium		572 ug/L	MetaTrace
Carbon tetrachloride	LT	1.00 ug/L	MetaTrace
Carbon tetrachloride	LT	1.00 ug/L	Gen. Eng.
Cadmium	LT	2 ug/L	Gen. Eng.
Cadmium	LT	4 ug/L	MetaTrace
Chloroform	LT	0.40 ug/L	MetaTrace
Chloroform	LT	1 ug/L	Gen. Eng.
Chloroform	LT	1 ug/L	M-Area, SRS
Chloride		3560 ug/L	MetaTrace
Chloride		3200 ug/L	Gen. Eng.
Chromium	LT	4 ug/L	Gen. Eng.
Chromium	LT	5 ug/L	MetaTrace

CONTINUED

WELL AMB 8D COLLECTED ON 07/20/90 LABORATORY ANALYSES CONTINUED

Cyanide	LT	5 ug/L	MetaTrace
Cyanide	LT	5 ug/L	Gen. Eng.
Endrin	LT	0.01 ug/L	MetaTrace
Endrin	LT	0.01 ug/L	Gen. Eng.
Fluoride	LT	250 ug/L	MetaTrace
Fluoride	LT	100 ug/L	Gen. Eng.
Iron		25 ug/L	Gen. Eng.
Iron	LT	21 ug/L	MetaTrace
Mercury	LT	0.20 ug/L	MetaTrace
Mercury	LT	0.20 ug/L	Gen. Eng.
Potassium	LT	416 ug/L	MetaTrace
Potassium	LT	500 ug/L	Gen. Eng.
gamma-Benzene hexachloride (Lindan)	LT	0.00 ug/L	MetaTrace
gamma-Benzene hexachloride (Lindan)	LT	0.00 ug/L	Gen. Eng.
Methoxychlor	LT	0.50 ug/L	MetaTrace
Methoxychlor	LT	0.50 ug/L	Gen. Eng.
Magnesium		140 ug/L	Gen. Eng.
Magnesium		151 ug/L	MetaTrace
Manganese		4 ug/L	Gen. Eng.
Manganese		4 ug/L	MetaTrace
Sodium		5800 ug/L	Gen. Eng.
Sodium		6025 ug/L	MetaTrace
Nickel	LT	3 ug/L	MetaTrace
Nickel	LT	4 ug/L	Gen. Eng.
Nitrate as nitrogen		320 ug/L	MetaTrace
Nitrate as nitrogen		320 ug/L	Gen. Eng.
Lead	LT	2 ug/L	MetaTrace
Lead		8 ug/L	Gen. Eng.
Phenols		6 ug/L	MetaTrace
Phenols	LT	5 ug/L	Gen. Eng.
Selenium	LT	3 ug/L	MetaTrace
Selenium	LT	2 ug/L	Gen. Eng.
Silica		7582 ug/L	MetaTrace
Silica		6530 ug/L	Gen. Eng.
2,4,5-TP (Silvex)	LT	0.07 ug/L	MetaTrace
2,4,5-TP (Silvex)	LT	0.09 ug/L	Gen. Eng.
Sulfate		1680 ug/L	MetaTrace
Sulfate		1500 ug/L	Gen. Eng.
Tetrachloroethylene	LT	0.40 ug/L	MetaTrace
Tetrachloroethylene	LT	1.00 ug/L	Gen. Eng.
Tetrachloroethylene	LT	1.00 ug/L	M-Area, SRS
Total dissolved solids		33000 ug/L	MetaTrace
Total dissolved solids		25000 ug/L	Gen. Eng.
Total organic carbon	LT	1000 ug/L	MetaTrace
Total organic carbon	LT	1000 ug/L	MetaTrace
Total organic carbon	LT	1000 ug/L	MetaTrace
Total organic carbon	LT	1000 ug/L	MetaTrace
Total organic carbon	LT	1000 ug/L	Gen. Eng.
Total organic carbon	LT	1000 ug/L	Gen. Eng.
Total organic carbon	LT	1000 ug/L	Gen. Eng.
Total organic carbon	LT	1000 ug/L	Gen. Eng.
Total organic halogens		6 ug/L	MetaTrace
Total organic halogens		6 ug/L	MetaTrace
Total organic halogens		7 ug/L	MetaTrace

CONTINUED

WELL AMB 8D COLLECTED ON 07/20/90 LABORATORY ANALYSES CONTINUED

Total organic halogens		6 ug/L	MetaTrace
Total organic halogens	LT	5 ug/L	Gen. Eng.
Total organic halogens	LT	5 ug/L	Gen. Eng.
Total organic halogens	LT	5 ug/L	Gen. Eng.
Total organic halogens	LT	5 ug/L	Gen. Eng.
Total organic halogens		6 ug/L	MetaTrace
Total phosphates		36 ug/L	MetaTrace
Total phosphates	LT	50 ug/L	Gen. Eng.
* Trichloroethylene		5.10 ug/L	MetaTrace
Trichloroethylene		4.00 ug/L	Gen. Eng.
Trichloroethylene		3.72 ug/L	M-Area, SRS
Toxaphene	LT	0.24 ug/L	MetaTrace
Toxaphene	LT	0.24 ug/L	Gen. Eng.
trans-1,2-Dichloroethene	LT	1 ug/L	M-Area, SRS
1,1-Dichloroethylene	LT	1 ug/L	M-Area, SRS
1,1,1-Trichloroethane	LT	0.40 ug/L	MetaTrace
1,1,1-Trichloroethane	LT	1 ug/L	Gen. Eng.
1,1,1-Trichloroethane	LT	1 ug/L	M-Area, SRS
(2,4-Dichlorophenoxy)acetic acid	LT	0.46 ug/L	MetaTrace
(2,4-Dichlorophenoxy)acetic acid	LT	0.30 ug/L	Gen. Eng.
Gross alpha	LT	2 pCi/L	MetaTrace
Gross alpha	LT	2 pCi/L	Gen. Eng.
Nonvolatile beta	LT	5 pCi/L	MetaTrace
Nonvolatile beta	LT	2 pCi/L	Gen. Eng.
Total radium	LT	1 pCi/L	MetaTrace
Total radium	LT	1 pCi/L	Gen. Eng.
Tritium	LT	1 pCi/mL	MetaTrace
Tritium	LT	0.70 pCi/mL	Gen. Eng.

WELL AMB 8D

SRS Grid N 103874.7 Latitude N
 Coordinates E 51400.5 Longitude W
 Screen Zone Elevation 240.8-220.8 ft msl
 Top of Casing Elevation 369.60 ft msl

MEASUREMENTS CONDUCTED IN THE FIELD

Sample date 07/20/90 Time 1115
 Depth to water - 137.74 ft (41.98 m) below the TOC
 Water elevation - 231.86 ft (70.67 m) msl
 pH - 5.5 Alkalinity - 7 mg/L
 Specific conductance - 38 umhos/cm
 Water temperature - 23.9 degrees Celsius
 Water evacuated from the well prior to sampling - 34 gal

LABORATORY ANALYSES

Specific conductance	37.70 umh/cm	MetaTrace
Specific conductance	44.10 umh/cm	MetaTrace
Specific conductance	43.80 umh/cm	MetaTrace
Specific conductance	37.20 umh/cm	MetaTrace

CONTINUED

WELL AMB 8D COLLECTED ON 07/20/90 LABORATORY ANALYSES CONTINUED

Specific conductance		33.00 umh/cm	Gen. Eng.
Specific conductance		35.00 umh/cm	Gen. Eng.
Specific conductance		36.00 umh/cm	Gen. Eng.
Specific conductance		36.00 umh/cm	Gen. Eng.
Specific conductance		38.30 umh/cm	MetaTrace
pH		5.43 pH	MetaTrace
pH		5.36 pH	MetaTrace
pH		5.38 pH	MetaTrace
pH		5.36 pH	MetaTrace
pH		5.65 pH	Gen. Eng.
pH		5.80 pH	Gen. Eng.
pH		5.83 pH	Gen. Eng.
pH		5.84 pH	Gen. Eng.
pH		5.36 pH	MetaTrace
Silver	LT	0.60 ug/L	MetaTrace
Silver	LT	2 ug/L	Gen. Eng.
Arsenic	LT	3 ug/L	MetaTrace
Arsenic	LT	2 ug/L	Gen. Eng.
Barium	LT	3 ug/L	Gen. Eng.
Barium		41 ug/L	MetaTrace
Calcium		810 ug/L	Gen. Eng.
Calcium		566 ug/L	MetaTrace
Carbon tetrachloride	LT	1.00 ug/L	MetaTrace
Carbon tetrachloride	LT	1.00 ug/L	Gen. Eng.
Cadmium	LT	2 ug/L	Gen. Eng.
Cadmium	LT	4 ug/L	MetaTrace
Chloroform	LT	0.40 ug/L	MetaTrace
Chloroform	LT	1 ug/L	Gen. Eng.
Chloroform	LT	1 ug/L	M-Area, SRS
Chloride		3450 ug/L	MetaTrace
Chloride		3200 ug/L	Gen. Eng.
Chromium	LT	4 ug/L	Gen. Eng.
Chromium		5 ug/L	MetaTrace
Cyanide	LT	5 ug/L	MetaTrace
Cyanide	LT	5 ug/L	Gen. Eng.
Endrin	LT	0.01 ug/L	MetaTrace
Endrin		0.10 ug/L	Gen. Eng.
Fluoride	LT	250 ug/L	MetaTrace
Fluoride	LT	100 ug/L	Gen. Eng.
Iron		31 ug/L	Gen. Eng.
Iron	LT	21 ug/L	MetaTrace
Mercury	LT	0.20 ug/L	MetaTrace
Mercury	LT	0.20 ug/L	Gen. Eng.
Potassium	LT	416 ug/L	MetaTrace
Potassium	LT	500 ug/L	Gen. Eng.
gamma-Benzene hexachloride (Lindan)	LT	0.00 ug/L	MetaTrace
gamma-Benzene hexachloride (Lindan)		0.09 ug/L	Gen. Eng.
Methoxychlor	LT	0.50 ug/L	MetaTrace
Methoxychlor	LT	0.50 ug/L	Gen. Eng.
Magnesium		150 ug/L	Gen. Eng.
Magnesium		155 ug/L	MetaTrace
Manganese		5 ug/L	Gen. Eng.
Manganese	LT	2 ug/L	MetaTrace
Sodium		6300 ug/L	Gen. Eng.

CONTINUED

WELL AMB SD COLLECTED ON 07/20/90 LABORATORY ANALYSES CONTINUED

Sodium		5992 ug/L	MetaTrace
Nickel	LT	3 ug/L	MetaTrace
Nickel	LT	4 ug/L	Gen. Eng.
Nitrate as nitrogen	LT	100 ug/L	MetaTrace
Nitrate as nitrogen		330 ug/L	Gen. Eng.
Lead	LT	2 ug/L	MetaTrace
Lead		6 ug/L	Gen. Eng.
Phenols	LT	5 ug/L	MetaTrace
Phenols	LT	5 ug/L	Gen. Eng.
Phenols	LT	5 ug/L	MetaTrace
Selenium	LT	3 ug/L	MetaTrace
Selenium	LT	2 ug/L	Gen. Eng.
Silica		27092 ug/L	MetaTrace
Silica		6390 ug/L	Gen. Eng.
2,4,5-TP (Silvex)	LT	0.07 ug/L	MetaTrace
2,4,5-TP (Silvex)	LT	0.09 ug/L	Gen. Eng.
Sulfate		1820 ug/L	MetaTrace
Sulfate		1400 ug/L	Gen. Eng.
Tetrachloroethylene	LT	0.40 ug/L	MetaTrace
Tetrachloroethylene	LT	1.00 ug/L	Gen. Eng.
Tetrachloroethylene	LT	1.00 ug/L	M-Area, SRS
Total dissolved solids		21000 ug/L	MetaTrace
Total dissolved solids		25000 ug/L	Gen. Eng.
Total organic carbon	LT	1000 ug/L	MetaTrace
Total organic carbon	LT	1000 ug/L	MetaTrace
Total organic carbon	LT	1000 ug/L	MetaTrace
Total organic carbon	LT	1000 ug/L	MetaTrace
Total organic carbon		1000 ug/L	Gen. Eng.
Total organic carbon	LT	1000 ug/L	Gen. Eng.
Total organic carbon	LT	1000 ug/L	Gen. Eng.
Total organic carbon	LT	1000 ug/L	Gen. Eng.
Total organic carbon	LT	1000 ug/L	Gen. Eng.
Total organic halogens		6 ug/L	MetaTrace
Total organic halogens		5 ug/L	MetaTrace
Total organic halogens	LT	5 ug/L	MetaTrace
Total organic halogens		6 ug/L	MetaTrace
Total organic halogens	LT	5 ug/L	Gen. Eng.
Total organic halogens	LT	5 ug/L	Gen. Eng.
Total organic halogens	LT	5 ug/L	Gen. Eng.
Total organic halogens	LT	5 ug/L	Gen. Eng.
Total phosphates		48 ug/L	MetaTrace
Total phosphates	LT	50 ug/L	Gen. Eng.
Trichloroethylene		4.30 ug/L	MetaTrace
Trichloroethylene		3.00 ug/L	Gen. Eng.
Trichloroethylene		4.63 ug/L	M-Area, SRS
Toxaphene	LT	0.24 ug/L	MetaTrace
Toxaphene	LT	0.24 ug/L	Gen. Eng.
trans-1,2-Dichloroethene	LT	1 ug/L	M-Area, SRS
1,1-Dichloroethylene	LT	1 ug/L	M-Area, SRS
1,1,1-Trichloroethane	LT	0.40 ug/L	MetaTrace
1,1,1-Trichloroethane	LT	1 ug/L	Gen. Eng.
1,1,1-Trichloroethane	LT	1 ug/L	M-Area, SRS
(2,4-Dichlorophenoxy)acetic acid	LT	0.46 ug/L	MetaTrace
(2,4-Dichlorophenoxy)acetic acid	LT	0.30 ug/L	Gen. Eng.
Gross alpha	LT	2 pCi/L	MetaTrace

CONTINUED

WELL AMB SD COLLECTED ON 07/20/90 LABORATORY ANALYSES CONTINUED

Gross alpha	LT	2 pCi/L	Gen. Eng.
Nonvolatile beta	LT	5 pCi/L	MetaTrace
Nonvolatile beta	LT	2 pCi/L	Gen. Eng.
Total radium	LT	1 pCi/L	MetaTrace
Total radium	LT	1 pCi/L	Gen. Eng.
Tritium	LT	1 pCi/mL	MetaTrace
Tritium	LT	0.70 pCi/mL	Gen. Eng.

WELL AMB 9D

SRS Grid N 103585.2 Latitude N
 Coordinates E 51263.0 Longitude W
 Screen Zone Elevation 239.7-219.7 ft msl
 Top of Casing Elevation 367.90 ft msl

MEASUREMENTS CONDUCTED IN THE FIELD

Sample date 07/23/90 Time 735
 Depth to water = 135.86 ft (41.41 m) below the TOC
 Water elevation = 232.04 ft (70.73 m) msl
 pH = 5.6 Alkalinity = 9 mg/L
 Specific conductance = 43 umhos/cm
 Water temperature = 21.6 degrees Celsius
 Water evacuated from the well prior to sampling = 38 gal

LABORATORY ANALYSES

Specific conductance		38.00 umh/cm	Gen. Eng.
Specific conductance		38.00 umh/cm	Gen. Eng.
Specific conductance		39.00 umh/cm	Gen. Eng.
Specific conductance		39.00 umh/cm	Gen. Eng.
pH		6.04 pH	Gen. Eng.
pH		6.05 pH	Gen. Eng.
pH		6.05 pH	Gen. Eng.
pH		6.09 pH	Gen. Eng.
Silver	LT	2 ug/L	Gen. Eng.
Arsenic	LT	2 ug/L	Gen. Eng.
Barium	LT	3 ug/L	Gen. Eng.
Calcium		540 ug/L	Gen. Eng.
Carbon tetrachloride	LT	1.00 ug/L	Gen. Eng.
Cadmium	LT	2 ug/L	Gen. Eng.
Chloroform	LT	1 ug/L	Gen. Eng.
Chloroform	LT	1 ug/L	M-Area, SRS
Chloride		2800 ug/L	Gen. Eng.
Chromium	LT	4 ug/L	Gen. Eng.
Cyanide	LT	5 ug/L	Gen. Eng.
Endrin	LT	0.01 ug/L	Gen. Eng.
Fluoride	LT	100 ug/L	Gen. Eng.
Iron		12 ug/L	Gen. Eng.
Mercury	LT	0.20 ug/L	Gen. Eng.
Potassium	LT	500 ug/L	Gen. Eng.
gamma-Benzene hexachloride (Lindan)	LT	0.00 ug/L	Gen. Eng.

CONTINUED

WELL AMB 9D COLLECTED ON 07/23/90 LABORATORY ANALYSES CONTINUED

Methoxychlor	LT	0.50 ug/L	Gen. Eng.
Magnesium		98 ug/L	Gen. Eng.
Manganese		6 ug/L	Gen. Eng.
Sodium		7500 ug/L	Gen. Eng.
Nickel	LT	4 ug/L	Gen. Eng.
Nitrate as nitrogen		140 ug/L	Gen. Eng.
Lead	LT	3 ug/L	Gen. Eng.
Phenols	LT	5 ug/L	Gen. Eng.
Selenium	LT	2 ug/L	Gen. Eng.
Silica		6000 ug/L	Gen. Eng.
2,4,5-TP (Silvex)	LT	0.09 ug/L	Gen. Eng.
Sulfate		2700 ug/L	Gen. Eng.
Tetrachloroethylene	LT	1.00 ug/L	Gen. Eng.
Tetrachloroethylene	LT	1.00 ug/L	M-Area, SRS
Total dissolved solids		36000 ug/L	Gen. Eng.
Total organic carbon		1000 ug/L	Gen. Eng.
Total organic carbon		1000 ug/L	Gen. Eng.
Total organic carbon		1000 ug/L	Gen. Eng.
Total organic carbon		1000 ug/L	Gen. Eng.
Total organic halogens	LT	5 ug/L	Gen. Eng.
Total organic halogens	LT	5 ug/L	Gen. Eng.
Total organic halogens	LT	5 ug/L	Gen. Eng.
Total organic halogens	LT	5 ug/L	Gen. Eng.
Total phosphates	LT	50 ug/L	Gen. Eng.
Trichloroethylene	LT	1.00 ug/L	Gen. Eng.
Trichloroethylene	LT	1.00 ug/L	M-Area, SRS
Toxaphene	LT	0.24 ug/L	Gen. Eng.
trans-1,2-Dichloroethene	LT	1 ug/L	M-Area, SRS
1,1-Dichloroethylene	LT	1 ug/L	M-Area, SRS
1,1,1-Trichloroethane	LT	1 ug/L	Gen. Eng.
1,1,1-Trichloroethane	LT	1 ug/L	M-Area, SRS
(2,4-Dichlorophenoxy)acetic acid	LT	0.30 ug/L	Gen. Eng.
Gross alpha	LT	2 pCi/L	Gen. Eng.
Nonvolatile beta	LT	2 pCi/L	Gen. Eng.
Total radium	LT	1 pCi/L	Gen. Eng.
Tritium		0.93+-0.20 pCi/mL	Gen. Eng.

WELL AMB 10DD COLLECTED ON 07/20/90 LABORATORY ANALYSES CONTINUED

Silver		2 ug/L	Gen. Eng.
Arsenic	LT	5 ug/L	Gen. Eng.
Barium		11 ug/L	Gen. Eng.
Calcium		6300 ug/L	Gen. Eng.
Carbon tetrachloride	LT	1.00 ug/L	Gen. Eng.
Cadmium	LT	2 ug/L	Gen. Eng.
Chloroform	LT	1 ug/L	Gen. Eng.
Chloroform	LT	1 ug/L	M-Area, SRS
Chloride		1800 ug/L	Gen. Eng.
Chromium	LT	4 ug/L	Gen. Eng.
Cyanide	LT	5 ug/L	Gen. Eng.
Endrin	LT	0.01 ug/L	Gen. Eng.
Fluoride	LT	100 ug/L	Gen. Eng.
Iron		6300 ug/L	Gen. Eng.
Mercury	LT	0.20 ug/L	Gen. Eng.
Potassium	LT	500 ug/L	Gen. Eng.
gamma-Benzene hexachloride (Lindan)	LT	0.00 ug/L	Gen. Eng.
Methoxychlor	LT	0.50 ug/L	Gen. Eng.
Magnesium		420 ug/L	Gen. Eng.
Manganese		260 ug/L	Gen. Eng.
Sodium		20000 ug/L	Gen. Eng.
Nickel	LT	4 ug/L	Gen. Eng.
Nitrate as nitrogen	LT	50 ug/L	Gen. Eng.
Lead		8 ug/L	Gen. Eng.
Phenols	LT	5 ug/L	Gen. Eng.
Selenium	LT	2 ug/L	Gen. Eng.
Silica		5400 ug/L	Gen. Eng.
2,4,5-TP (Silvex)	LT	0.09 ug/L	Gen. Eng.
Sulfate	LT	1000 ug/L	Gen. Eng.
Tetrachloroethylene	LT	1.00 ug/L	Gen. Eng.
Tetrachloroethylene	LT	1.00 ug/L	M-Area, SRS
Total dissolved solids		69000 ug/L	Gen. Eng.
Total organic carbon		2000 ug/L	Gen. Eng.
Total organic carbon		2000 ug/L	Gen. Eng.
Total organic carbon		3000 ug/L	Gen. Eng.
Total organic carbon		3000 ug/L	Gen. Eng.
Total organic halogens		6 ug/L	Gen. Eng.
Total organic halogens	LT	5 ug/L	Gen. Eng.
Total organic halogens	LT	5 ug/L	Gen. Eng.
Total organic halogens	LT	5 ug/L	Gen. Eng.
Total phosphates	LT	50 ug/L	Gen. Eng.
Trichloroethylene	LT	1.00 ug/L	Gen. Eng.
Trichloroethylene	LT	1.00 ug/L	M-Area, SRS
Toxaphene	LT	0.24 ug/L	Gen. Eng.
trans-1,2-Dichloroethene	LT	1 ug/L	M-Area, SRS
1,1-Dichloroethylene	LT	1 ug/L	M-Area, SRS
1,1,1-Trichloroethane	LT	1 ug/L	Gen. Eng.
1,1,1-Trichloroethane	LT	1 ug/L	M-Area, SRS
(2,4-Dichlorophenoxy)acetic acid	LT	0.30 ug/L	Gen. Eng.
Gross alpha	LT	2 pCi/L	Gen. Eng.
Nonvolatile beta	LT	2 pCi/L	Gen. Eng.
Total radium	LT	1 pCi/L	Gen. Eng.
Tritium	LT	0.70 pCi/mL	Gen. Eng.

WELL AMB 100

SRS Grid N 103293.4 Latitude N
 Coordinates E 51456.0 Longitude W
 Screen Zone Elevation 239.4-219.4 ft msl
 Top of Casing Elevation 365.50 ft msl

MEASUREMENTS CONDUCTED IN THE FIELD

Sample date 07/20/90 Time 855
 Depth to water = 132.63 ft (40.43 m) below the TOC
 Water elevation = 232.87 ft (70.98 m) msl
 pH = 5.9 Alkalinity = 17 mg/L
 Specific conductance = 61 umhos/cm
 Water temperature = 20.4 degrees Celsius
 Water evacuated from the well prior to sampling = 42 gal

LABORATORY ANALYSES

Specific conductance		53.00 umh/cm	Gen. Eng.
Specific conductance		53.00 umh/cm	Gen. Eng.
Specific conductance		55.00 umh/cm	Gen. Eng.
Specific conductance		56.00 umh/cm	Gen. Eng.
pH		5.90 pH	Gen. Eng.
pH		6.18 pH	Gen. Eng.
pH		6.34 pH	Gen. Eng.
pH		6.40 pH	Gen. Eng.
Silver	LT	2 ug/L	Gen. Eng.
Arsenic	LT	2 ug/L	Gen. Eng.
Barium		7 ug/L	Gen. Eng.
Calcium		1600 ug/L	Gen. Eng.
Carbon tetrachloride	LT	1.00 ug/L	Gen. Eng.
Cadmium	LT	2 ug/L	Gen. Eng.
Chloroform	LT	1 ug/L	Gen. Eng.
Chloroform	LT	1 ug/L	M-Area, SRS
Chloride		2600 ug/L	Gen. Eng.
Chromium	LT	4 ug/L	Gen. Eng.
Cyanide	LT	5 ug/L	Gen. Eng.
Endrin	LT	0.01 ug/L	Gen. Eng.
Fluoride	LT	100 ug/L	Gen. Eng.
Iron		24 ug/L	Gen. Eng.
Mercury	LT	0.20 ug/L	Gen. Eng.
Potassium		870 ug/L	Gen. Eng.
gamma-Benzene hexachloride (Lindan)	LT	0.00 ug/L	Gen. Eng.
Methoxychlor	LT	0.50 ug/L	Gen. Eng.
Magnesium		100 ug/L	Gen. Eng.
Manganese		15 ug/L	Gen. Eng.
Sodium		7400 ug/L	Gen. Eng.
Nickel	LT	4 ug/L	Gen. Eng.
Nitrate as nitrogen		100 ug/L	Gen. Eng.
Lead		17 ug/L	Gen. Eng.
Phenols	LT	5 ug/L	Gen. Eng.
Selenium	LT	2 ug/L	Gen. Eng.
Silica		4480 ug/L	Gen. Eng.
2,4,5-TP (Silvex)	LT	0.09 ug/L	Gen. Eng.
Sulfate		4800 ug/L	Gen. Eng.

CONTINUED

WELL AMB 10D COLLECTED ON 07/20/90 LABORATORY ANALYSES CONTINUED

Tetrachloroethylene	LT	1.00 ug/L	Gen. Eng.
Tetrachloroethylene	LT	1.00 ug/L	M-Area, SRS
Total dissolved solids		37000 ug/L	Gen. Eng.
Total organic carbon		1000 ug/L	Gen. Eng.
Total organic carbon	LT	1000 ug/L	Gen. Eng.
Total organic carbon	LT	1000 ug/L	Gen. Eng.
Total organic carbon	LT	1000 ug/L	Gen. Eng.
Total organic halogens	LT	5 ug/L	Gen. Eng.
Total organic halogens	LT	5 ug/L	Gen. Eng.
Total organic halogens	LT	5 ug/L	Gen. Eng.
Total organic halogens	LT	5 ug/L	Gen. Eng.
Total phosphates	LT	50 ug/L	Gen. Eng.
Trichloroethylene	LT	1.00 ug/L	Gen. Eng.
Trichloroethylene	LT	1.00 ug/L	M-Area, SRS
Toxaphene	LT	0.24 ug/L	Gen. Eng.
trans-1,2-Dichloroethene	LT	1 ug/L	M-Area, SRS
1,1-Dichloroethylene	LT	1 ug/L	M-Area, SRS
1,1,1-Trichloroethane	LT	1 ug/L	Gen. Eng.
1,1,1-Trichloroethane	LT	1 ug/L	M-Area, SRS
(2,4-Dichlorophenoxy)acetic acid	LT	0.30 ug/L	Gen. Eng.
Gross alpha	LT	2 pCi/L	Gen. Eng.
Nonvolatile beta	LT	2 pCi/L	Gen. Eng.
Total radium	LT	1 pCi/L	Gen. Eng.
Tritium	LT	0.70 pCi/mL	Gen. Eng.

WELL AMB 10DD

SRS Grid	N 103278.7	Latitude	N
Coordinates	E 51456.0	Longitude	W
Screen Zone Elevation	358.6-338.6 ft msl		
Top of Casing Elevation	365.40 ft msl		

MEASUREMENTS CONDUCTED IN THE FIELD

Sample date 07/20/90 Time 955
 Depth to water - 7.76 ft (2.37 m) below the TOC
 Water elevation - 357.64 ft (109.01 m) msl
 pH - 6.5 Alkalinity - 49 mg/L
 Specific conductance - 158 umhos/cm
 Water temperature - 23.3 degrees Celsius
 Water evacuated from the well prior to sampling - 52 gal

LABORATORY ANALYSES

Specific conductance	125.0 umh/cm	Gen. Eng.
Specific conductance	128.0 umh/cm	Gen. Eng.
Specific conductance	128.0 umh/cm	Gen. Eng.
Specific conductance	129.0 umh/cm	Gen. Eng.
pH	6.39 pH	Gen. Eng.
pH	6.47 pH	Gen. Eng.
pH	6.52 pH	Gen. Eng.
pH	6.57 pH	Gen. Eng.

CONTINUED

WELL AMB 11D

SRS Grid N 103132.3 Latitude N
 Coordinates E 51932.6 Longitude W
 Screen Zone Elevation 240.5-220.5 ft msl
 Top of Casing Elevation 364.00 ft msl

MEASUREMENTS CONDUCTED IN THE FIELD

Sample date 07/20/90 Time 1450
 Depth to water = 130.47 ft (39.77 m) below the TOC
 Water elevation = 233.53 ft (71.18 m) msl
 pH = 9.1 Alkalinity = 49 mg/L
 Specific conductance = 134 umhos/cm
 Water temperature = 24.2 degrees Celsius
 Water evacuated from the well prior to sampling = 38 gal

LABORATORY ANALYSES

Specific conductance		58.00 umh/cm	Gen. Eng.
Specific conductance		69.00 umh/cm	Gen. Eng.
Specific conductance		98.00 umh/cm	Gen. Eng.
Specific conductance		100.0 umh/cm	Gen. Eng.
pH		6.37 pH	Gen. Eng.
pH		6.62 pH	Gen. Eng.
pH		7.13 pH	Gen. Eng.
pH		7.20 pH	Gen. Eng.
Silver	LT	2 ug/L	Gen. Eng.
Arsenic	LT	2 ug/L	Gen. Eng.
Barium		14 ug/L	Gen. Eng.
Calcium		5300 ug/L	Gen. Eng.
Carbon tetrachloride	LT	1.00 ug/L	Gen. Eng.
Cadmium	LT	2 ug/L	Gen. Eng.
Chloroform	LT	1 ug/L	Gen. Eng.
Chloroform	LT	1 ug/L	M-Area, SRS
Chloride		2400 ug/L	Gen. Eng.
Chromium	LT	4 ug/L	Gen. Eng.
Cyanide	LT	5 ug/L	Gen. Eng.
Endrin	LT	0.01 ug/L	Gen. Eng.
Fluoride	LT	100 ug/L	Gen. Eng.
Iron		27 ug/L	Gen. Eng.
Mercury	LT	0.20 ug/L	Gen. Eng.
Potassium	LT	500 ug/L	Gen. Eng.
gamma-Benzene hexachloride (Lindan)	LT	0.00 ug/L	Gen. Eng.
Methoxychlor	LT	0.50 ug/L	Gen. Eng.
Magnesium		54 ug/L	Gen. Eng.
Manganese	LT	2 ug/L	Gen. Eng.
Sodium		5800 ug/L	Gen. Eng.
Nickel	LT	4 ug/L	Gen. Eng.
Nitrate as nitrogen		100 ug/L	Gen. Eng.
Lead		4 ug/L	Gen. Eng.
Phenols	LT	5 ug/L	Gen. Eng.
Selenium	LT	2 ug/L	Gen. Eng.
Silica		3150 ug/L	Gen. Eng.
2,4,5-TP (Silvex)	LT	0.09 ug/L	Gen. Eng.
Sulfate		3300 ug/L	Gen. Eng.

CONTINUED

WELL AMB 11D COLLECTED ON 07/20/90 LABORATORY ANALYSES CONTINUED

Tetrachloroethylene	LT	1.00 ug/L	Gen. Eng.
Tetrachloroethylene	LT	1.00 ug/L	M-Area, SRS
Total dissolved solids		61000 ug/L	Gen. Eng.
Total organic carbon		1000 ug/L	Gen. Eng.
Total organic carbon		1000 ug/L	Gen. Eng.
Total organic carbon		1000 ug/L	Gen. Eng.
Total organic carbon		3000 ug/L	Gen. Eng.
Total organic halogens	LT	5 ug/L	Gen. Eng.
Total organic halogens	LT	5 ug/L	Gen. Eng.
Total organic halogens	LT	5 ug/L	Gen. Eng.
Total organic halogens	LT	5 ug/L	Gen. Eng.
Total phosphates	LT	50 ug/L	Gen. Eng.
Trichloroethylene	LT	1.00 ug/L	Gen. Eng.
Trichloroethylene	LT	1.00 ug/L	M-Area, SRS
Toxaphene	LT	0.24 ug/L	Gen. Eng.
trans-1,2-Dichloroethene	LT	1 ug/L	M-Area, SRS
1,1-Dichloroethylene	LT	1 ug/L	M-Area, SRS
1,1,1-Trichloroethane	LT	1 ug/L	Gen. Eng.
1,1,1-Trichloroethane	LT	1 ug/L	M-Area, SRS
(2,4-Dichlorophenoxy)acetic acid	LT	0.30 ug/L	Gen. Eng.
Gross alpha	LT	2 pCi/L	Gen. Eng.
Nonvolatile beta	LT	2 pCi/L	Gen. Eng.
Total radium		1.10+-2.10 pCi/L	Gen. Eng.
Tritium	LT	0.70 pCi/mL	Gen. Eng.

WELL AMB 12D

SRS Grid	N 103602.4	Latitude	N
Coordinates	E 51901.6	Longitude	W
Screen Zone Elevation	239.4-219.4	ft msl	
Top of Casing Elevation	369.80	ft msl	

MEASUREMENTS CONDUCTED IN THE FIELD

Sample date 07/23/90 Time 830
 Depth to water = 137.05 ft (41.77 m) below the TOC
 Water elevation = 232.75 ft (70.94 m) msl
 pH = 6.3 Alkalinity = 11 mg/L
 Specific conductance = 67 umhos/cm
 Water temperature = 22.1 degrees Celsius
 Water evacuated from the well prior to sampling = 38 gal

LABORATORY ANALYSES

Specific conductance	51.00 umh/cm	Gen. Eng.
Specific conductance	51.00 umh/cm	Gen. Eng.
Specific conductance	52.00 umh/cm	Gen. Eng.
Specific conductance	52.00 umh/cm	Gen. Eng.
pH	6.69 pH	Gen. Eng.
pH	6.70 pH	Gen. Eng.
pH	6.71 pH	Gen. Eng.
pH	6.72 pH	Gen. Eng.

CONTINUED

WELL AMB 12D COLLECTED ON 07/23/90 LABORATORY ANALYSES CONTINUED

Silver	LT	2 ug/L	Gen. Eng.
Arsenic	LT	2 ug/L	Gen. Eng.
Barium		4 ug/L	Gen. Eng.
Calcium		1200 ug/L	Gen. Eng.
Carbon tetrachloride	LT	1.00 ug/L	Gen. Eng.
Cadmium	LT	2 ug/L	Gen. Eng.
Chloroform	LT	1 ug/L	Gen. Eng.
Chloroform	LT	1 ug/L	M-Area, SRS
Chloride		1400 ug/L	Gen. Eng.
Chromium	LT	4 ug/L	Gen. Eng.
Cyanide	LT	5 ug/L	Gen. Eng.
Endrin	LT	0.01 ug/L	Gen. Eng.
Fluoride	LT	100 ug/L	Gen. Eng.
Iron		21 ug/L	Gen. Eng.
Mercury	LT	0.20 ug/L	Gen. Eng.
Potassium		2500 ug/L	Gen. Eng.
gamma-Benzene hexachloride (Lindan)	LT	0.00 ug/L	Gen. Eng.
Methoxychlor	LT	0.50 ug/L	Gen. Eng.
Magnesium		270 ug/L	Gen. Eng.
Manganese		9 ug/L	Gen. Eng.
Sodium		10000 ug/L	Gen. Eng.
Nickel	LT	4 ug/L	Gen. Eng.
Nitrate as nitrogen		870 ug/L	Gen. Eng.
Lead	LT	3 ug/L	Gen. Eng.
Phenols	LT	5 ug/L	Gen. Eng.
Selenium	LT	2 ug/L	Gen. Eng.
Silica		6400 ug/L	Gen. Eng.
2,4,5-TP (Silvex)	LT	0.09 ug/L	Gen. Eng.
Sulfate		1800 ug/L	Gen. Eng.
Tetrachloroethylene	LT	1.00 ug/L	Gen. Eng.
Tetrachloroethylene	LT	1.00 ug/L	M-Area, SPS
Total dissolved solids		44000 ug/L	Gen. Eng.
Total organic carbon		1000 ug/L	Gen. Eng.
Total organic carbon		1000 ug/L	Gen. Eng.
Total organic carbon	LT	1000 ug/L	Gen. Eng.
Total organic carbon	LT	1000 ug/L	Gen. Eng.
Total organic halogens	LT	5 ug/L	Gen. Eng.
Total organic halogens	LT	5 ug/L	Gen. Eng.
Total organic halogens	LT	5 ug/L	Gen. Eng.
Total organic halogens	LT	5 ug/L	Gen. Eng.
Total phosphates	LT	50 ug/L	Gen. Eng.
Trichloroethylene	LT	1.00 ug/L	Gen. Eng.
Trichloroethylene	LT	1.00 ug/L	M-Area, SRS
Toxaphene	LT	0.24 ug/L	Gen. Eng.
trans-1,2-Dichloroethene	LT	1 ug/L	M-Area, SRS
1,1-Dichloroethylene	LT	1 ug/L	M-Area, SRS
1,1,1-Trichloroethane	LT	1 ug/L	Gen. Eng.
1,1,1-Trichloroethane	LT	1 ug/L	M-Area, SRS
(2,4-Dichlorophenoxy)acetic acid	LT	0.30 ug/L	Gen. Eng.
Gross alpha	LT	2 pCi/L	Gen. Eng.
Nonvolatile beta	LT	2 pCi/L	Gen. Eng.
Total radium	LT	1 pCi/L	Gen. Eng.
Tritium		2.20+-0.30 pCi/mL	Gen. Eng.

E38500

E40500

N109000

N107000

N105000

E 42500

E 44500

E46500

E48500

E48500

E50500

E5

E52500

E54500

000545E

000545E

N1C

N107000

05000

N105000

N103000

N101000

SRW 12C
LT 1.0

SRW 9
LT 1.0

SRW 6
LT 1.0

SRW 11
4.0

SRW 8
LT 1.0

SRW 7
2.0

SRW 13C
LT 1.0

SRW 10
LT 1.0

250

LT 1.0

MSB 61D

LT 1.0

ASB 9
LT 1.0

N105000

N103000

11000

350

300

250

250

300

N101000

N99000

N97000

AC BB
ND

300

A-AREA BURNING
RUBBLE PIT

ARP 2

LT 1.0

ARP 1A

2.0

350

ARP 4

1.0

A-AREA METALS
BURNING PIT

ABP 2A

2.0

ABP 6D

ND

ABP 8D

ND

ABP 3

LT 1.0

ABP 2DD

ND

ABP 4DD

ND

ABP 1A

LT 1.0

ABP 7D

ND

ABP 4

2.9

ABP 1DD

ND

MCE 180

MSB 41D
ND

250

250

300

32

MSB 51D
LT 10

MSB 51DD

WSRC-RP-90-67-3 -6

M-AREA HAZARDOUS WASTE MAN

N101000

N99000

WSRC-RP-90-67-3 -6

M-AREA HAZARDOUS WASTE MANAGEMENT
FACILITY POST-CLOSURE CARE PERMIT

N990000

N970000

300

F38500

F4

E44500

500 E50500 E5250

WSRC-RP-90-67-3 -6

**M-AREA HAZARDOUS WASTE MA
FACILITY POST-CLOSURE CAR
GROUNDWATER MONITORING
CORRECTIVE ACTION PRO
TETRACHLOROETHYLENE POSTINGS
WATER TABLE UNIT**

LEGEND

- MSB 29D ← WELL IDENTIFICATIO
- ← WELL SYMBOL
- LT 1 ← TETRACHLOROETHYLENE
(ND = No Data)

SCALE 1" = 500'

SOURCE

USGS 7.5 MINUTE QUADRANGLE MAPS FOR NEW ELL

30066N

WSRQ-RP-90-67-3 -6

M-AREA HAZARDOUS WASTE MANAGEMENT FACILITY POST-CLOSURE CARE PERMIT

GROUNDWATER MONITORING AND CORRECTIVE ACTION PROGRAM

TETRACHLOROETHYLENE POSTINGS (3Q90)
WATER TABLE UNIT

LEGEND

- MSB 29D ← WELL IDENTIFICATION
⊗ ← WELL SYMBOL
LT 1 ← TETRACHLOROETHYLENE (ppb)
(ND = No Data)

SCALE 1" = 500'

SOURCE

USGS 7.5 MINUTE QUADRANGLE MAPS FOR NEW ELLENTON SW

E38500

E40500

E

N109000

N107000

5000

E42500

E44500

4500

E 46500

E 485

E48500

E50500

E52500

E54500

E54500

E50500

N109000

N107000

1105000

48D

MSB 53D
LT_1.0

MSB 61D
LT_1.0

N105000

N103000

N101000

ASB 4 SRL BASINS

ASB 3A 2.6

153 2A 1.7

ASB 9
LT_1 0

MSB 52D
ND

MSB 41D
ND

300

300

250

250

N105000

N103000

N101000

N101000

N99000

N97000

LOST LAKE

A
0

MSB 7A
3.0

MSB 49
8A

MSB 39D
2.0

MSB 36D
ND

350

300

MSB 400
LT 1.0

300

MSB 74C
0.6

CHEMICAL

MSB 9C
132.0

MSB 74D
6.6

MSB 32
LT 1.0

MSB 33
12.0

MSB 51D
LT 1.0

MSB 51DD
ND

MSB 50D
LT 1.0

N1011

N990000

WSRC-RP-90-67-3 -11

**M-AREA HAZARDOUS WASTE MANAGEMENT
FACILITY POST-CLOSURE CARE PERMIT**

**GROUNDWATER MONITORING AND
CORRECTIVE ACTION PROGRAM**

TRICHLOROETHYLENE POSTINGS
WATER TABLE UNIT

(3090)

LEGEND

N97000

N99000

MSB 49D
LT 1.0

350

300

MCB 9D
ND

ICB 4
87.9

MCB 6
1.1

MSB 40D
LT 1.0

MCB 5

620.0

MISCELLANEOUS CHEMICAL
BASIN

MCB 2
40.0

300

E 10500

E 18500

F18500

F50500

E

M-AREA 1
FACILITY

GROUP
CORR
TRICHL

E52500

M

L

e

US

N990000

WSRC-RP-90-67-3 -11

M-AREA HAZARDOUS WASTE MANAGEMENT FACILITY POST-CLOSURE CARE PERMIT

GROUNDWATER MONITORING AND CORRECTIVE ACTION PROGRAM

TRICHLOROETHYLENE POSTINGS (3Q90)
WATER TABLE UNIT

LEGEND

- MSB 29D ← WELL IDENTIFICATION
⊗ ← WELL SYMBOL
LT 1 ← TRICHLOROETHYLENE (ppb)
(ND = No Data)

SCALE 1" = 500'

SOURCE

USGS 7.5 MINUTE QUADRANGLE MAPS FOR NEW ELLENTON SW

E38500

E40500

N109000

N107000

05000

SRP PLANT BOUNDARY

250

250

A

E42500

E44500

E 46500

E 48500

48500

E50500

E52

E52500

E54500

E54500

E56500

N109000

N107000

105000

PL BASINS

N10100

N101000

N103000

7

N101000

N990000

N97000

250

300

AC 8B
10.21

0

A-AREA BURNING RUBBLE PIT

A-AREA METALS BURNING PIT

ARP 2

213.91

ARP ND

ARP 4

ND

ARP 6D

216.51

ABP 2A

216.46

ABP 8D

216.32

ABP 3DD

216.33

ABP 4DD

216.77

ABP 4

216.85

ABP 7D

216.89

ABP 3

216.46

ARP 1A

218.33

ABP 1BD

218.86

MCB 218.96

MCB 9D

217.51

MCB 6

214.59

MCB

219

MCB 2

218.88

MCB 8D

219.49

MISCELLA

MSB

224

MSB

218

MSB 49D

223.66

MSB 6A
222.94

MSB 8C
224.34

MSB 18B
218.71

MSB 7A
224.69

MSB 8A
ND

MSB 39D
229.51

MSB 36D
ND

3D
66

350

300

222

218

MSB 40D
ND

300

MCB 9
219.46

CELLANEOUS CHEMICAL
BASIN

N990000

WSRC-RP-90-67-3-1

**M-AREA HAZARDOUS WASTE MANAGEMENT
FACILITY POST-CLOSURE CARE PERMIT
GROUNDWATER MONITORING AND
CORRECTIVE ACTION PROGRAM**

WATER ELEVATION MAP (3090)
WATER TABLE UNIT

LEGEND

MSB 30A ← WELL IDENTIFICATION

← WELL SYMBOL

234.5 ← WATER ELEVATION (FT ABOVE MSL)

SCALE 1" = 500'

N990000

N970000

A-AREA BURNING
RUBBLE PIT

ARP 2

213.9

ARP

ND

353

ARP 4

ARP 3

215.88

A-AREA METALS
BURNING PIT

ABP 2A

216.46

ABP 6D

216.51

ABP 8D

216.32

ABP 3

216.46

ABP 2DD

216.33

ABP 4DD

216.77

ABP 4

216.05

ABP 7D

216.89

ABP 1A

218.33

ABP 1DD

218.86

MCB

218.96

MCB 9D

217.51

MCB 6

214.59

MCB 5

219.46

MCB 2

218.88

MCB 8D

219.49

MISCELLANEOUS CHEMICAL
BASIN

223.66

300

49D
3.66

350

300

222

218

MSB 400
ND

300

MCB 5
219.46

SCCELLANEOUS CHEMICAL
BASIN

300

EE2500

EE2500

11000000

WSRC-RP-90-67-3-1

**M-AREA HAZARDOUS WASTE MANAGEMENT
FACILITY POST-CLOSURE CARE PERMIT
GROUNDWATER MONITORING AND
CORRECTIVE ACTION PROGRAM**

WATER ELEVATION MAP (3Q90)
WATER TABLE UNIT

LEGEND

- MSB 30A ← WELL IDENTIFICATION
- ← WELL SYMBOL
- 234.5 ← WATER ELEVATION (FT ABOVE MSL)

SCALE 1" = 500'

SOURCE

END

**DATE
FILMED**
8/25/93