

Figure 32a. Baseline Horizon B Strontium Ground Water Concentrations

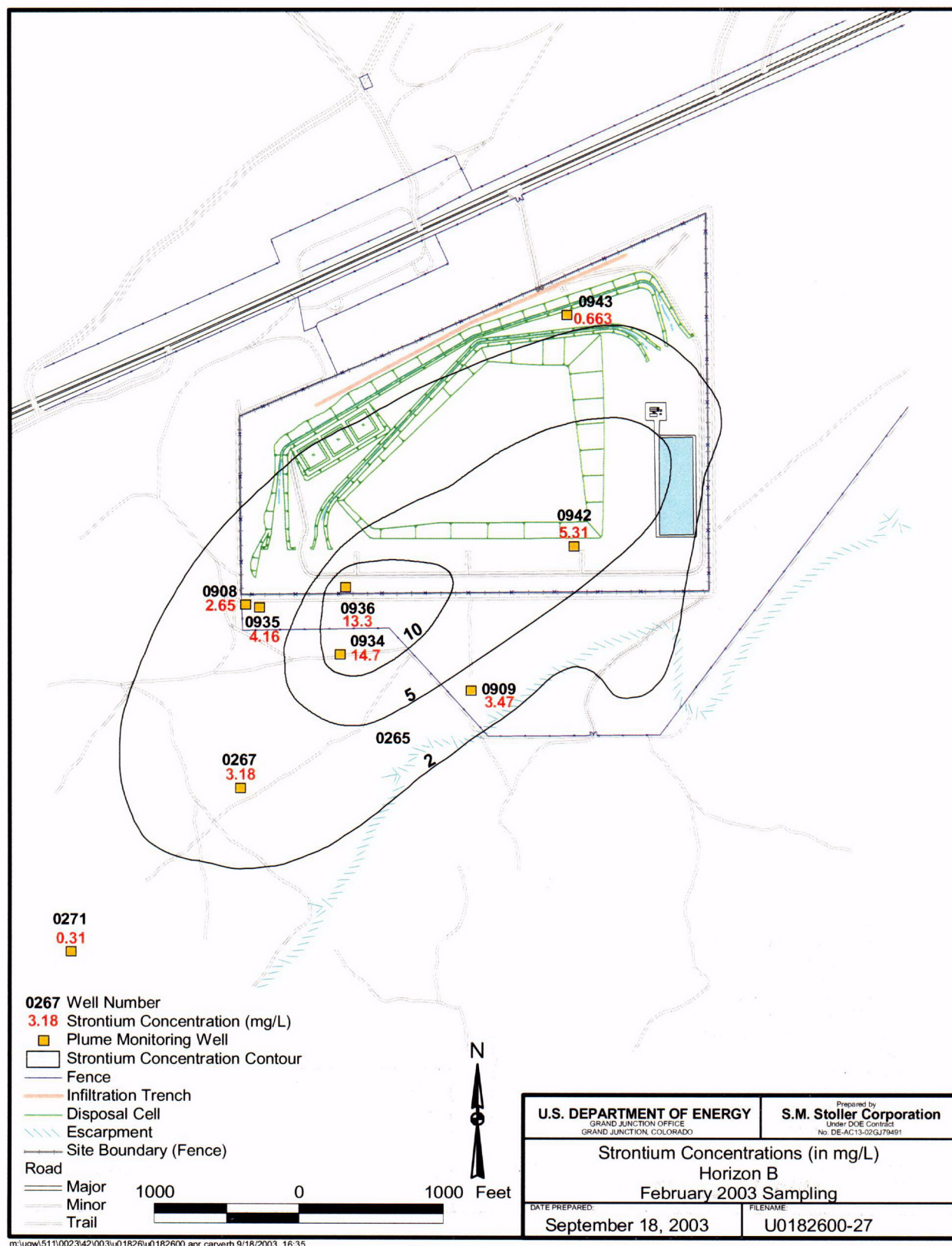


Figure 32b. February 2003 Horizon B Strontium Concentrations

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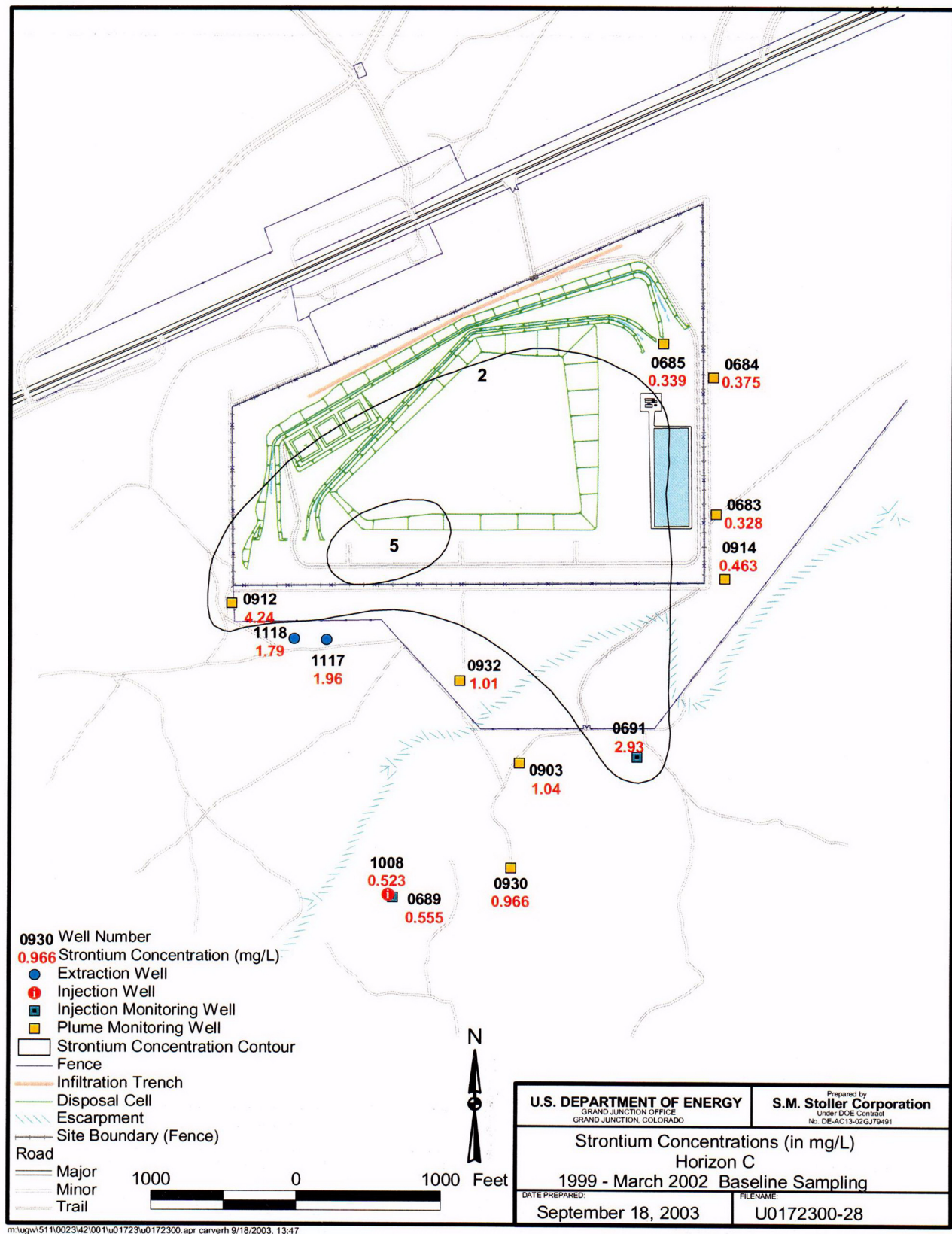


Figure 33a. Baseline Horizon C Strontium Ground Water Concentrations

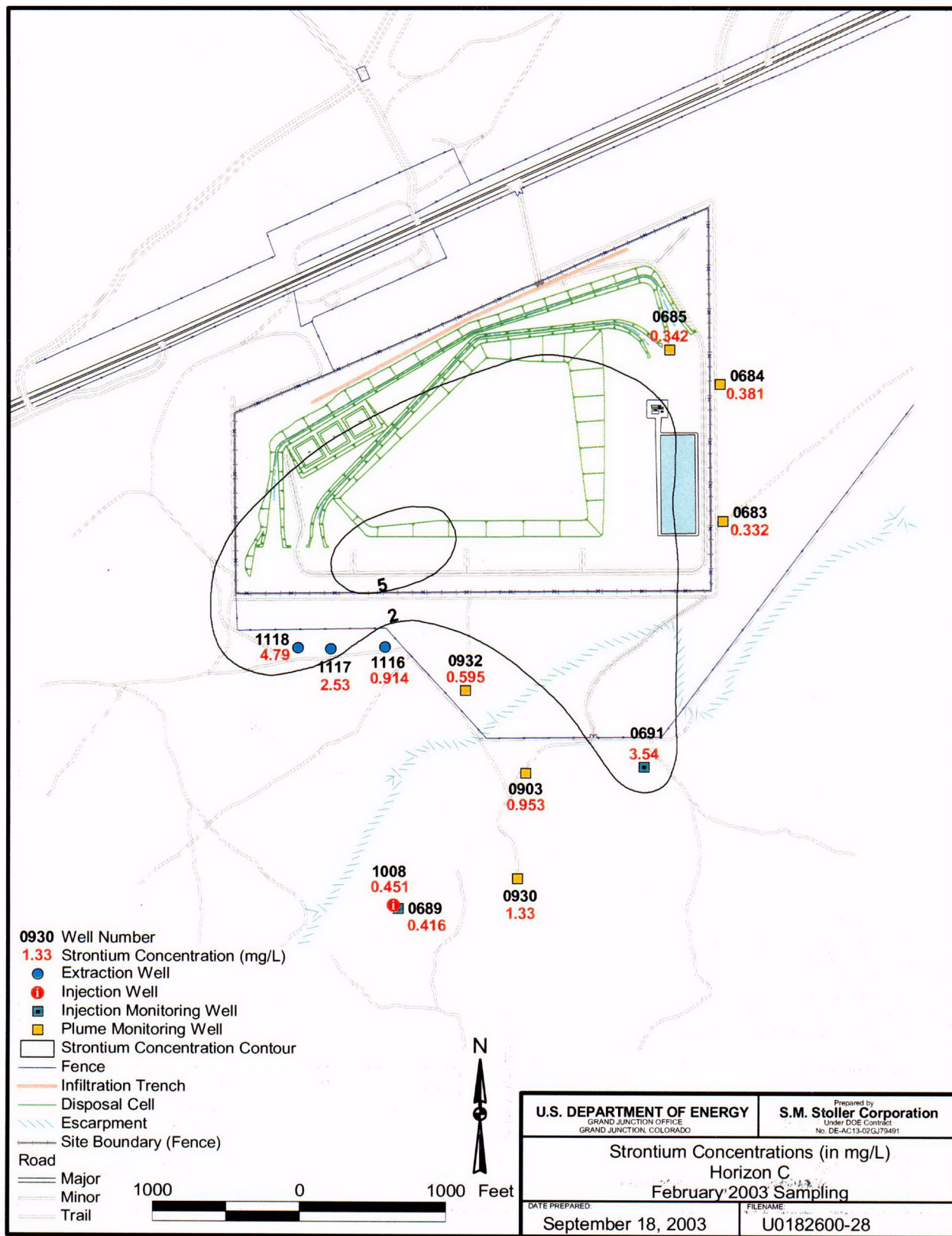


Figure 33b. February 2003 Horizon C Strontium Ground Water Concentrations

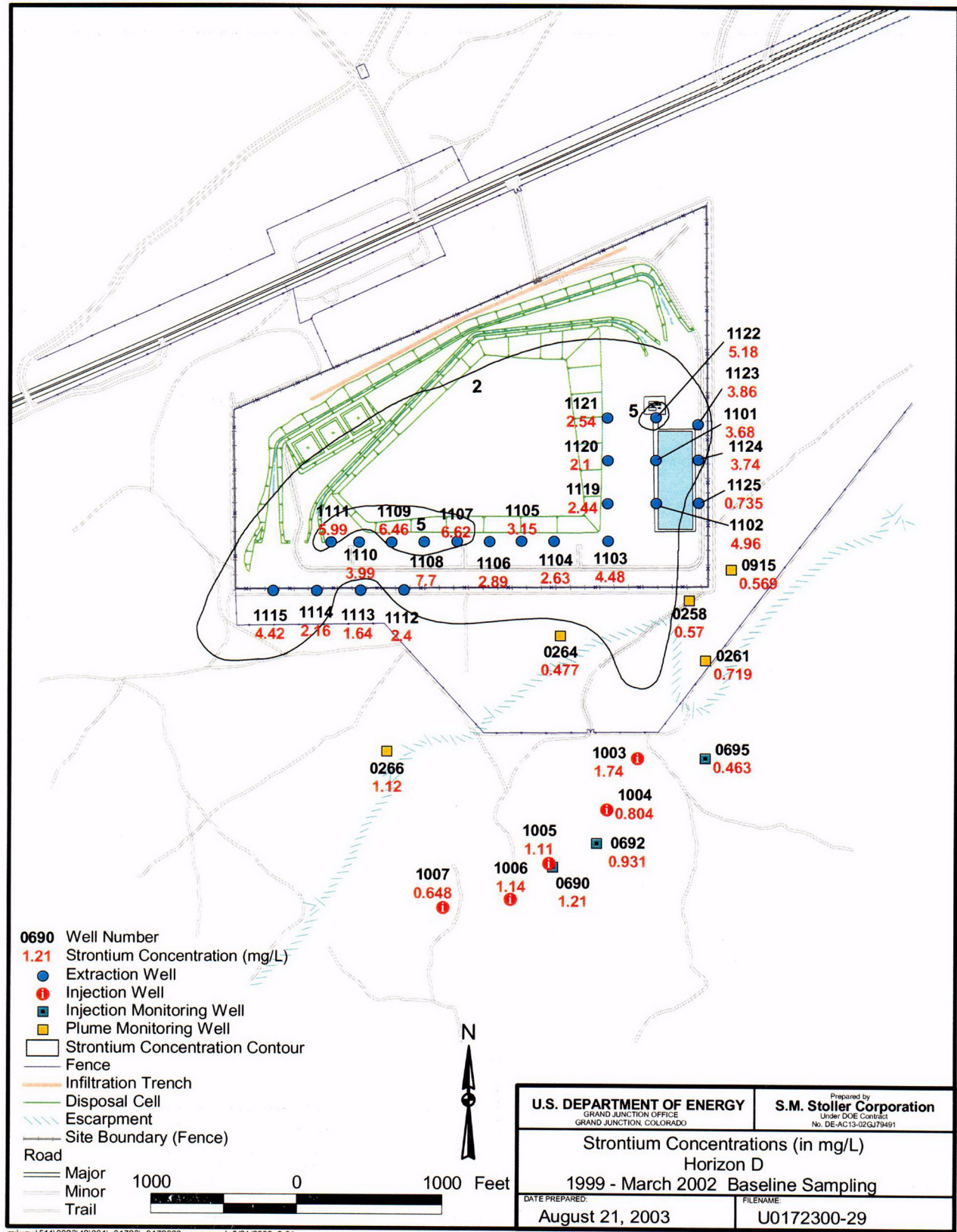


Figure 34a. Baseline Horizon D Strontium Ground Water Concentrations

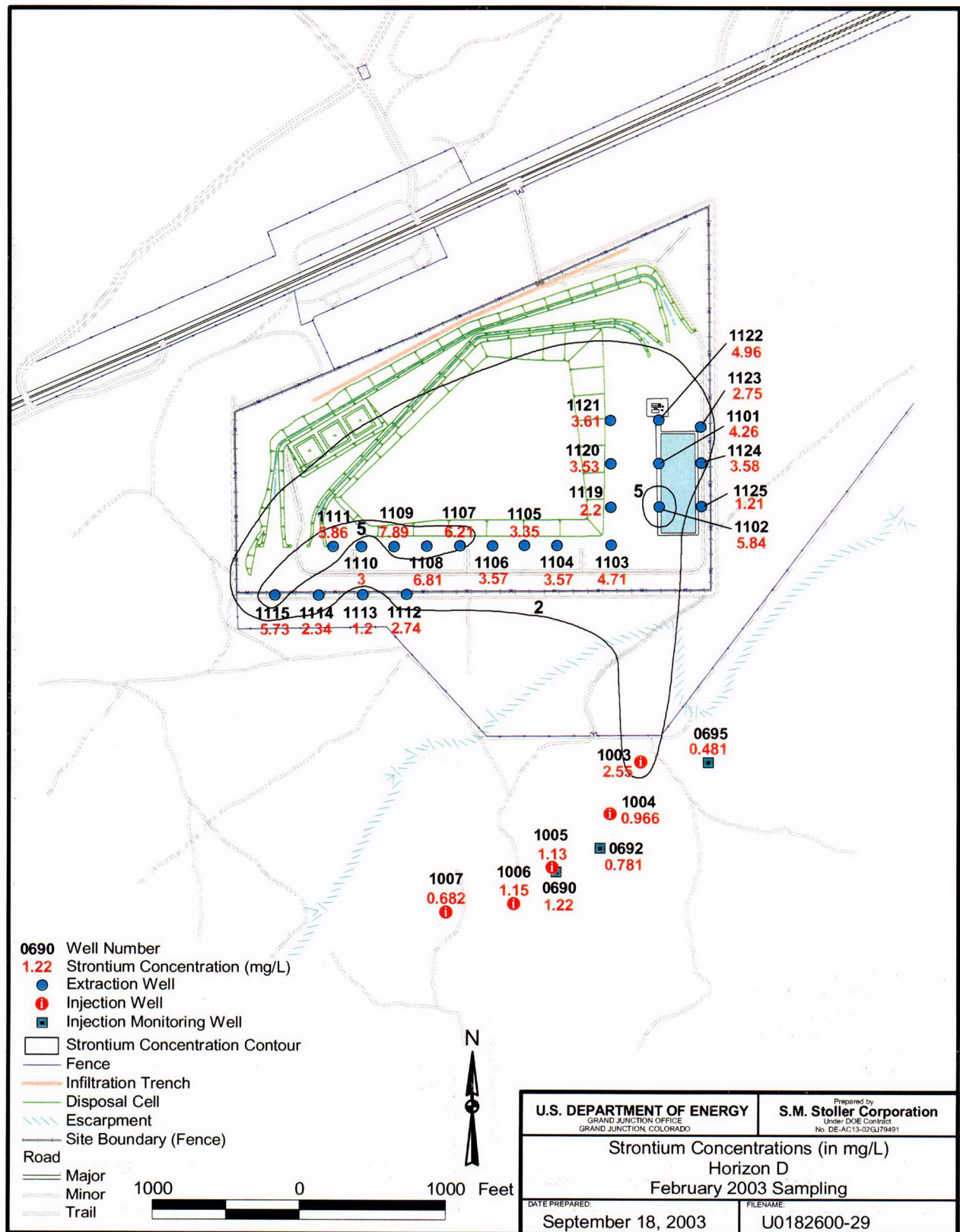


Figure 34b. February 2003 Horizon D Strontium Ground Water Concentrations

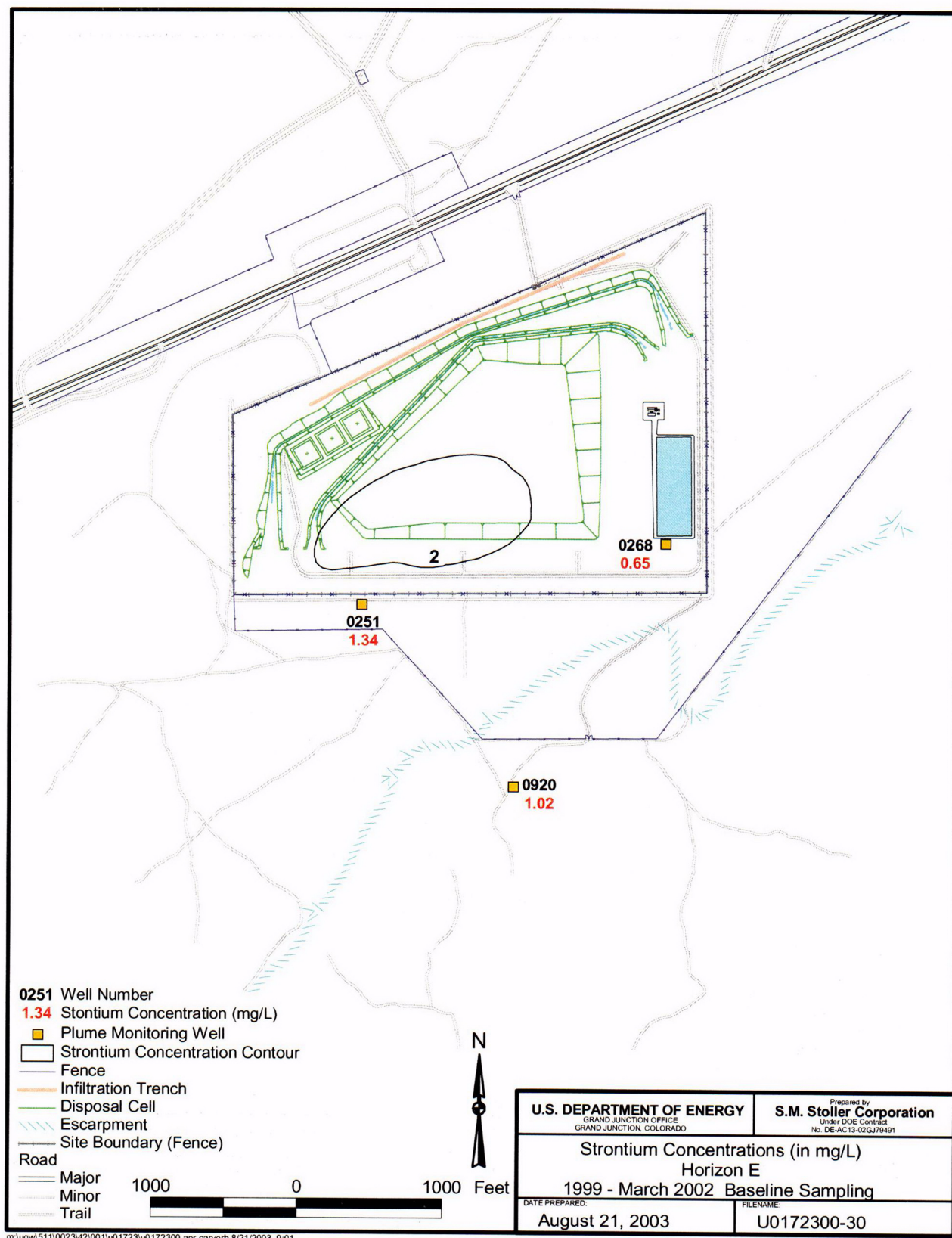


Figure 35a. Baseline Horizon E Strontium Ground Water Concentrations

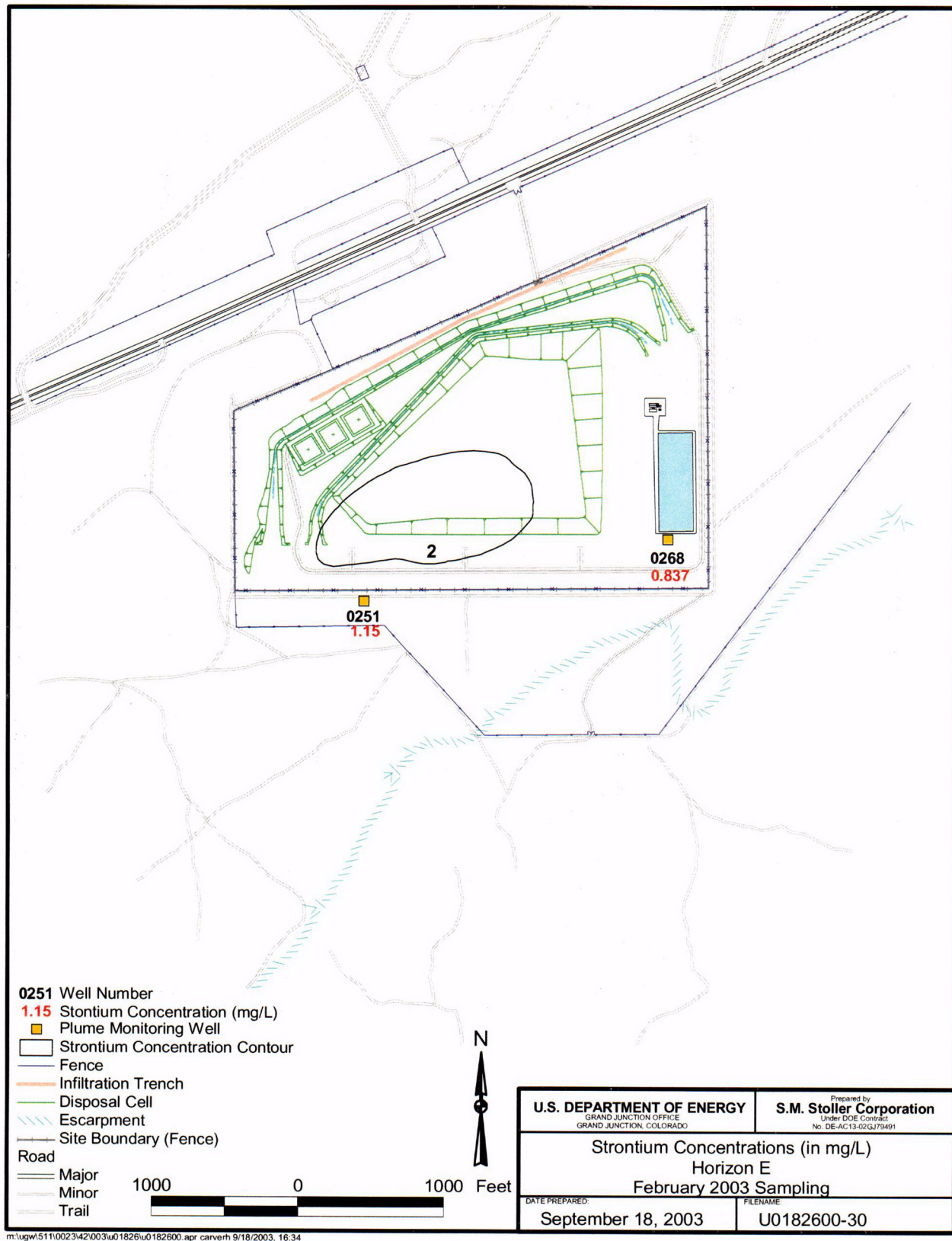


Figure 35b. February 2003 Horizon E Strontium Ground Water Concentrations

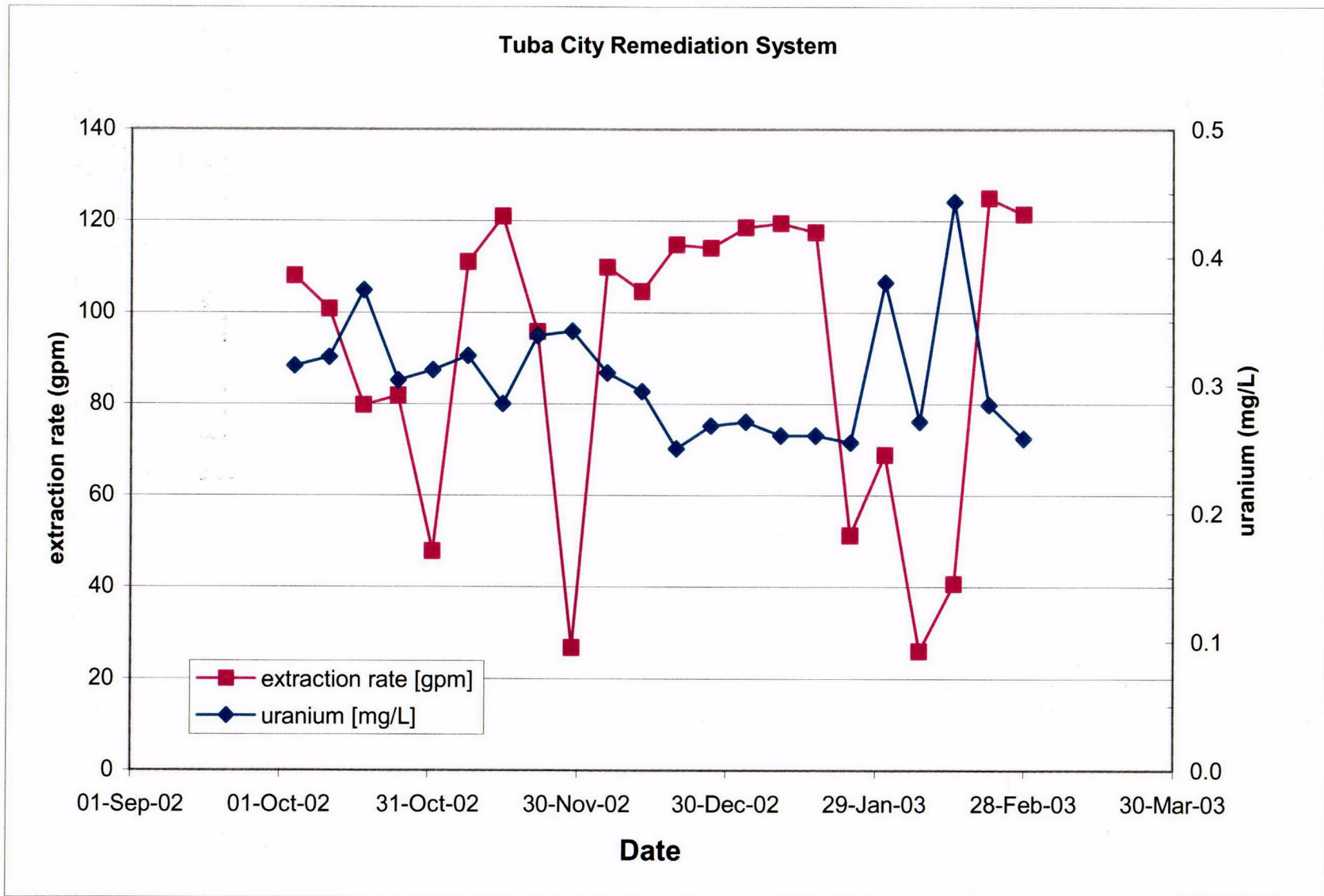


Figure 36. Total Averaged Pumping Rate and Uranium Concentration from Extraction Wells

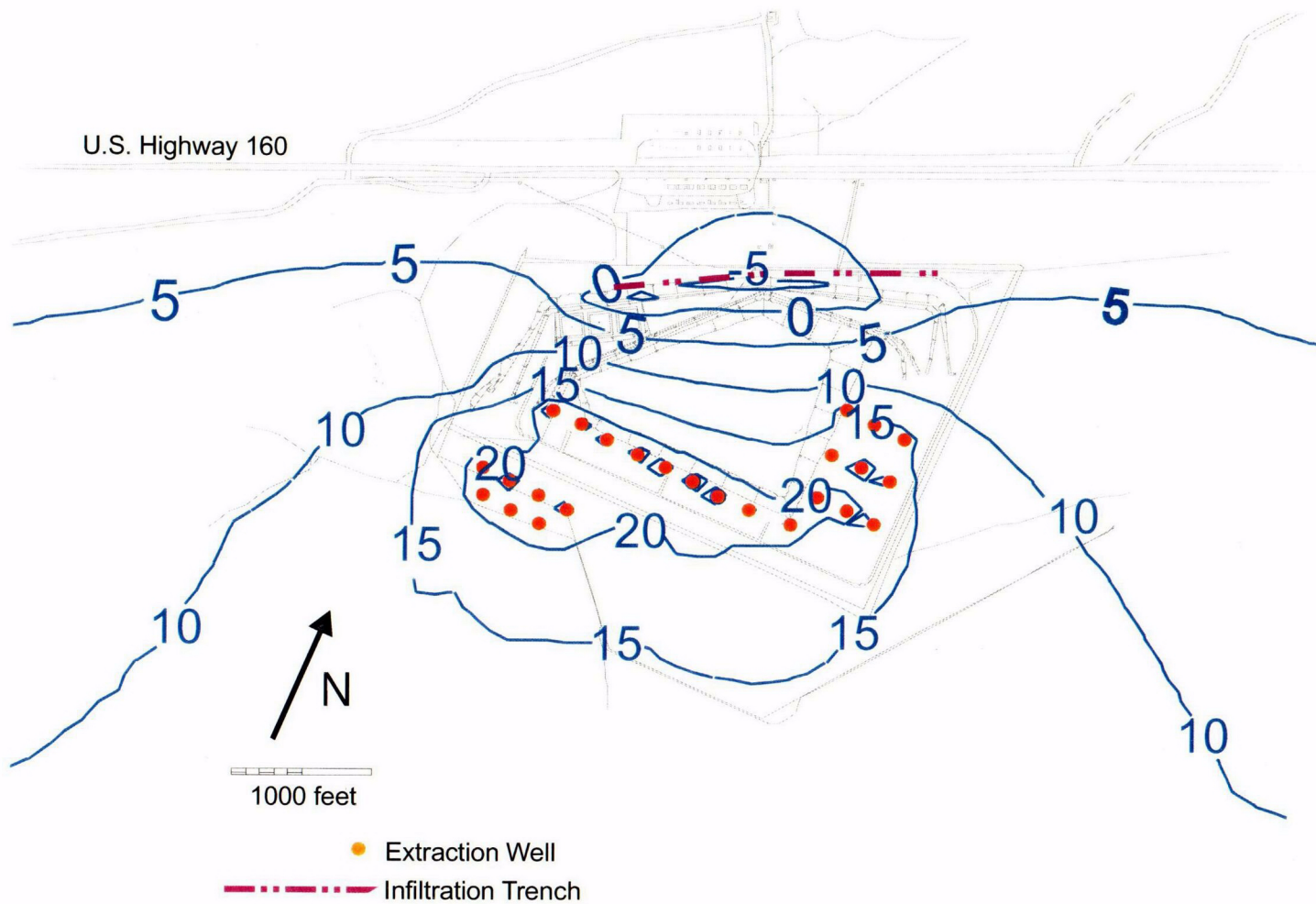


Figure 37. Model-Predicted Drawdown (feet) in the Navajo Sandstone

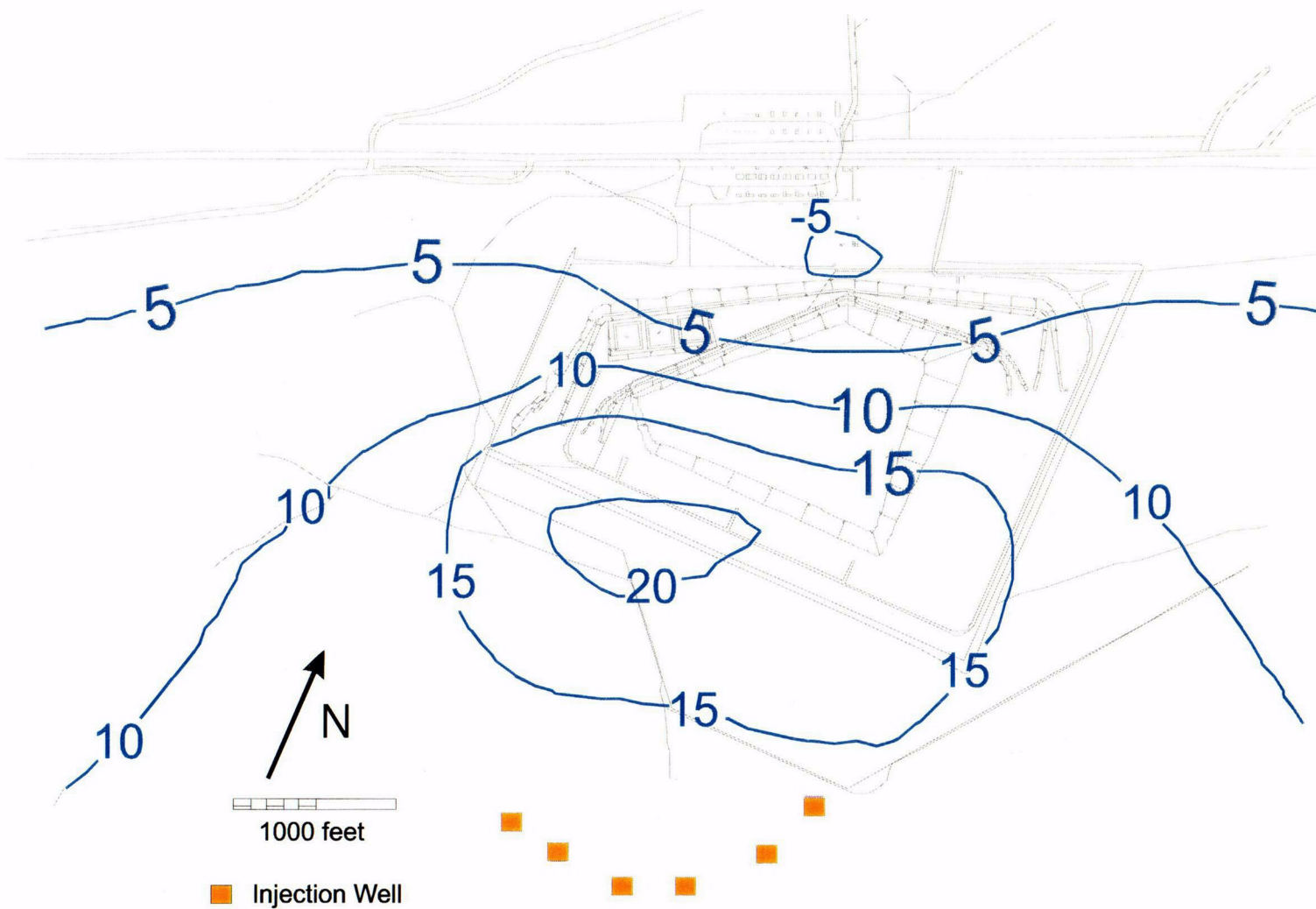


Figure 38. Model-Predicted Drawdown (feet) in the Intertonguing Interval

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Tables

Table 1. Ground Water Remediation Goals

Contaminant	Cleanup Level	Baseline Concentrations in Plume
Aquifer Restoration Standards (required by 40 CFR 192)		
Nitrate	10 mg/L as N (44 mg/L as NO ₃ ⁻)	840–1,500 mg/L
Molybdenum	0.10 mg/L	0.01–0.58 mg/L
Selenium	0.01 mg/L	0.01–0.10 mg/L
Uranium	30 pCi/L (0.044 mg/L) U-234 & U-238	0.3–0.6 mg/L
Aquifer Restoration Goals (requested by the Navajo Nation)		
TDS	500 mg/L	3,500–10,000 mg/L
Sulfate	250 mg/L	1,700–3,500 mg/L
Chloride	250 mg/L	20–440 mg/L
pH	6.5–8.5	6.3–7.6
Corrosivity	not corrosive	not applicable

Table 2. Horizon Elevations

Horizon	Depth Interval, ft above msl ^a	Number of Wells	Geologic Unit
A	5,000 – 5,050	10	Navajo Sandstone
B	4,950 – 5,000	21	Navajo Sandstone
C	4,900 – 4,950	15	Navajo Sandstone
D	4,850 – 4,900	36	Intertonguing Interval
E	4,800 – 4,850	4	Intertonguing Interval
F	4,750 – 4,800	1	Intertonguing Interval
G	4,700 – 4,750	3	Intertonguing Interval
H	4,650 – 4,700	1	Intertonguing Interval
I	4,600 – 4,650	4	Intertonguing Interval
J	4,550 – 4,600	0	Intertonguing Interval
K	4,500 – 4,550	0	Kayenta Formation
L	4,450 – 4,500	0	Kayenta Formation
M	4,400 – 4,450	3	Kayenta Formation

^amsl = mean sea level

Table 3. Horizons Assigned to Wells

Well ID	Mid-Screen Horizon	Screen Length [ft]	Top of Screen Elevation (ft)	Mid-Screen Elevation (ft)	Bottom of Screen Elevation (ft)	Well Type
0686	A	40	5,045.5	5,025.5	5,005.5	Monitor well
0687	A	40	5,047.6	5,027.6	5,007.6	Monitor well
0688	A	40	5,044.1	5,024.1	5,004.1	Monitor well
0901	A	20	5,045.8	5,035.8	5,025.8	Monitor well
0906	A	20	5,016.9	5,006.9	4,996.9	Monitor well
0928	A	25	5,022.1	5,009.6	4,997.1	Monitor well
0940	A	15	5,017.9	5,010.4	5,002.9	Monitor well
0941	A	20	5,018.0	5,008.0	4,998.0	Monitor well
0945	A	20	5,028.1	5,018.1	5,008.1	Monitor well
0946	A	20	5,057.6	5,047.6	5,037.6	Monitor well
0262	B	40	4,999.2	4,979.2	4,959.2	Monitor well
0263	B	40	5,000.2	4,980.2	4,960.2	Monitor well
0265	B	40	4,991.1	4,971.1	4,951.1	Monitor well
0267	B	40	4,990.8	4,970.8	4,950.8	Monitor well
0271	B	40	4,984.0	4,964.0	4,944.0	Monitor well
0905	B	15	5,006.0	4,998.5	4,991.0	Monitor well
0908	B	15	5,005.3	4,997.8	4,990.3	Monitor well
0909	B	15	4,990.8	4,983.3	4,975.8	Monitor well
0910	B	100	5,007.6	4,957.6	4,907.6	Monitor well
0918	B	5	4,986.2	4,983.7	4,981.2	Monitor well
0925	B	40	5,005.8	4,985.8	4,965.8	Monitor well
0926	B	50	5,018.3	4,993.3	4,968.3	Monitor well
0934	B	45	5,013.0	4,990.5	4,968.0	Monitor well
0935	B	40	5,008.8	4,988.8	4,968.8	Monitor well
0936	B	40	5,017.9	4,997.9	4,977.9	Monitor well
0937	B	55	5,020.2	4,992.7	4,965.2	Monitor well
0938	B	55	5,020.4	4,992.9	4,965.4	Monitor well
0939	B	55	5,021.1	4,993.6	4,966.1	Monitor well
0942	B	20	5,009.5	4,999.5	4,989.5	Monitor well
0943	B	20	4,994.1	4,984.1	4,974.1	Monitor well
0947	B	20	4,990.0	4,980.0	4,970.0	Monitor well
0683	C	50	4,973.2	4,948.2	4,923.2	Monitor well
0684	C	51	4,943.1	4,917.4	4,891.8	Monitor well
0685	C	52	4,975.6	4,949.7	4,923.8	Monitor well
0689	C	40	4,923.9	4,903.9	4,883.9	Monitor well
0691	C	40	4,921.9	4,901.9	4,881.9	Monitor well
0903	C	20	4,953.5	4,943.5	4,933.5	Monitor well
0912	C	40	4,934.7	4,914.7	4,894.7	Monitor well
0914	C	17	4,930.3	4,921.8	4,913.3	Monitor well
0917	C	20	4,917.8	4,907.8	4,897.8	Monitor well
0930	C	30	4,933.0	4,918.0	4,903.0	Monitor well
0932	C	20	4,942.3	4,932.3	4,922.3	Monitor well
1008	C	50	4,926.8	4,901.6	4,876.4	Injection well

Table 3 (continued). Horizons Assigned to Wells

Well ID	Mid-Screen Horizon	Screen Length [ft]	Top of Screen Elevation (ft)	Mid-Screen Elevation (ft)	Bottom of Screen Elevation (ft)	Well Type
1116	C	103	4,964.1	4,912.5	4,861.0	Extraction well
1117	C	103	4,965.3	4,913.7	4,862.1	Extraction well
1118	C	106	4,967.9	4,915.1	4,862.3	Extraction well
0258	D	40	4,894.0	4,874.0	4,854.0	Monitor well
0261	D	40	4,907.0	4,887.0	4,867.0	Monitor well
0264	D	40	4,899.6	4,879.6	4,859.6	Monitor well
0266	D	40	4,890.6	4,870.6	4,850.6	Monitor well
0690	D	40	4,893.3	4,873.3	4,853.3	Monitor well
0692	D	40	4,895.6	4,875.6	4,855.6	Monitor well
0695	D	40	4,919.3	4,899.3	4,879.3	Monitor well
0904	D	10	4,873.8	4,868.8	4,863.8	Monitor well
0915	D	10	4,897.8	4,892.8	4,887.8	Monitor well
1003	D	50	4,923.4	4,898.4	4,873.4	Injection well
1004	D	50	4,918.1	4,893.1	4,868.1	Injection well
1005	D	50	4,904.7	4,879.7	4,854.7	Injection well
1006	D	50	4,903.7	4,878.7	4,853.7	Injection well
1007	D	50	4,915.6	4,890.5	4,865.4	Injection well
1101	D	155	4,974.2	4,896.6	4,818.9	Extraction well
1102	D	150	4,968.8	4,893.8	4,818.8	Extraction well
1103	D	150	4,962.3	4,887.3	4,812.3	Extraction well
1104	D	155	4,972.3	4,894.8	4,817.3	Extraction well
1105	D	155	4,972.1	4,894.6	4,817.1	Extraction well
1106	D	155	4,966.0	4,888.7	4,811.4	Extraction well
1107	D	154	4,971.2	4,894.0	4,816.8	Extraction well
1108	D	150	4,966.1	4,891.1	4,816.1	Extraction well
1109	D	155	4,972.1	4,894.7	4,817.3	Extraction well
1110	D	150	4,966.8	4,891.8	4,816.8	Extraction well
1111	D	154	4,971.9	4,894.7	4,817.5	Extraction well
1112	D	155	4,969.1	4,891.6	4,814.1	Extraction well
1113	D	155	4,968.7	4,891.2	4,813.7	Extraction well
1114	D	155	4,968.5	4,891.0	4,813.6	Extraction well
1115	D	155	4,968.6	4,891.2	4,813.7	Extraction well
1119	D	150	4,968.7	4,893.7	4,818.7	Extraction well
1120	D	150	4,971.0	4,896.0	4,821.0	Extraction well
1121	D	150	4,972.0	4,897.0	4,822.0	Extraction well
1122	D	154	4,973.4	4,896.3	4,819.2	Extraction well
1123	D	154	4,976.2	4,899.2	4,822.2	Extraction well
1124	D	158	4,978.7	4,899.9	4,821.1	Extraction well
1125	D	150	4,972.8	4,897.8	4,822.8	Extraction well
0251	E	100	4,858.9	4,808.9	4,758.9	Monitor well
0268	E	100	4,864.5	4,814.5	4,764.5	Monitor well
0920	E	40	4,866.0	4,846.0	4,826.0	Monitor well
0948	E	180	4,893.9	4,803.9	4,713.9	Monitor well

Table 3 (continued). Horizons Assigned to Wells

Well ID	Mid-Screen Horizon	Screen Length [ft]	Top of Screen Elevation (ft)	Mid-Screen Elevation (ft)	Bottom of Screen Elevation (ft)	Well Type
0911	F	40	4,795.2	4,775.2	4,755.2	Monitor well
0913	G	40	4,729.2	4,709.2	4,689.2	Monitor well
0916	G	10	4,721.7	4,716.7	4,711.7	Monitor well
0919	G	10	4,707.9	4,702.9	4,697.9	Monitor well
0902	H	10	4,673.7	4,668.7	4,663.7	Monitor well
0252	I	100	4,658.9	4,608.9	4,558.9	Monitor well
0254	I	100	4,662.7	4,612.7	4,562.7	Monitor well
0256	I	100	4,664.0	4,614.0	4,564.0	Monitor well
0921	I	40	4,663.7	4,643.7	4,623.7	Monitor well
0253	M	100	4,458.8	4,408.8	4,358.8	Monitor well
0255	M	100	4,462.3	4,412.3	4,362.3	Monitor well
0257	M	100	4,463.4	4,413.4	4,363.4	Monitor well

Table 4. Comparison of Baseline and February 2003 Horizontal Hydraulic Gradients

Well 1	Well 2	Well 3	Date	Gradient		Date	Gradient	
				Direction, degrees	Magnitude, ft/ft		Direction, degrees	Magnitude, ft/ft
A Horizon								
687	686	906	8/2001	188.1	9.44×10^{-3}	2/2003	139.0	2.85×10^{-2}
688	687	906	8/2001	128.0	1.99×10^{-2}	2/2003	128.2	3.78×10^{-2}
B Horizon								
943	935	936	8/2001	205.9	7.81×10^{-3}	2/2003	150.3	3.37×10^{-2}
943	942	936	8/2001	186.1	8.31×10^{-3}	2/2003	199.2	1.31×10^{-2}
936	935	934	8/2001	178.4	2.20×10^{-2}	2/2003	126.9	1.47×10^{-2}
942	936	909	8/2001	177.8	1.67×10^{-2}	2/2003	210.4	9.90×10^{-3}
936	934	909	8/2001	189.4	2.19×10^{-2}	2/2003	209.0	8.64×10^{-3}
935	267	934	8/2001	130.3	1.19×10^{-2}	2/2003	112.0	1.48×10^{-2}
934	909	267	8/2001	142.7	3.01×10^{-3}	2/2003	352.5	5.03×10^{-3}
935	271	267	8/2001	170.4	6.96×10^{-3}	2/2003	196.7	4.16×10^{-3}
909	267	271	8/2001	153.5	1.29×10^{-2}	2/2003	151.0	1.36×10^{-2}
C Horizon								
684	683	1116	8/2001	171.5	1.14×10^{-2}	2/2003	216.8	1.86×10^{-2}
1116	932	683	8/2001	162.5	4.44×10^{-2}	2/2003	292.8	2.16×10^{-2}
683	691	932	8/2001	170.4	2.80×10^{-2}	2/2003	177.7	2.29×10^{-2}
932	930	691	8/2001	160.2	2.10×10^{-2}	2/2003	161.0	1.47×10^{-2}
1116	932	930	8/2001	115.4	3.22×10^{-2}	2/2003	236.2	4.66×10^{-2}
1116	1117	930	8/2001	18.0	3.12×10^{-2}	2/2003	62.5	9.91×10^{-2}
1118	1117	930	8/2001	140.0	2.87×10^{-2}	2/2003	74.1	4.99×10^{-2}
684	1116	1117	8/2001	147.7	5.38×10^{-2}	2/2003	147.4	1.77×10^{-1}
684	1117	1118	8/2001	148.8	3.52×10^{-2}	2/2003	149.3	8.85×10^{-2}
D Horizon								
1122	1120	1101	9/2000	117.6	3.02×10^{-2}	2/2003	19.0	3.40×10^{-2}
1120	1119	1104	9/2000	130.2	2.36×10^{-2}	2/2003	118.7	1.38×10^{-2}
1120	1106	1104	9/2000	145.3	7.84×10^{-3}	2/2003	304.2	4.28×10^{-2}
915	258	264	9/2000	146.5	4.53×10^{-2}	2/2003	143.5	1.09×10^{-2}
915	261	258	9/2000	145.8	6.04×10^{-2}	2/2003	143.5	5.51×10^{-2}
258	264	261	9/2000	150.7	5.89×10^{-2}	2/2003	159.9	5.15×10^{-2}
1006	1007	692	9/2000	141.0	2.67×10^{-2}	2/2003	142.9	2.74×10^{-2}
264	1003	261	9/2000	133.1	4.43×10^{-2}	2/2003	133.5	3.07×10^{-2}
261	695	1003	9/2000	134.2	3.93×10^{-2}	2/2003	132.9	3.29×10^{-2}
264	1004	1003	9/2000	125.7	4.63×10^{-2}	2/2003	121.0	3.34×10^{-2}
1003	695	1004	9/2000	127.3	3.55×10^{-2}	2/2003	121.0	2.82×10^{-3}
1120	1119	1101	9/2000	119.6	3.08×10^{-2}	2/2003	120.1	1.32×10^{-3}
1004	692	695	9/2000	142.0	8.32×10^{-2}	2/2003	142.6	8.66×10^{-3}
1120	1109	1108	9/2000	153.8	3.07×10^{-2}	2/2003	331.5	1.64×10^{-1}
1006	692	904	9/2000	141.2	2.75×10^{-2}	2/2003	142.7	2.59×10^{-3}
695	962	904	9/2000	143.0	2.68×10^{-2}	2/2003	145.5	2.50×10^{-3}
1119	1102	1101	9/2000	103.2	1.67×10^{-2}	2/2003	128.9	2.65×10^{-3}
1101	1124	1102	9/2000	125.0	6.79×10^{-2}	2/2003	127.3	2.75×10^{-3}
1124	1125	1102	9/2000	132.0	3.91×10^{-2}	2/2003	32.5	3.05×10^{-3}
1007	1006	904	9/2000	141.9	2.74×10^{-2}	2/2003	141.3	2.62×10^{-3}
1007	266	692	9/2000	155.3	2.43×10^{-2}	2/2003	130.3	1.49×10^{-3}

Table 4 (continued). Comparison of Baseline and February 2003 Horizontal Hydraulic Gradients

Well 1	Well 2	Well 3	Date	Gradient		Date	Gradient	
				Direction, degrees	Magnitude, ft/ft		Direction, degrees	Magnitude, ft/ft
E Horizon								
251	268	920	5/2001	154.8	2.83×10^{-2}	2/2003	154.5	2.25×10^{-3}
G Horizon								
913	916	919	9/1998	158.3	4.04×10^{-2}	2/2003	157.9	3.86×10^{-2}
I Horizon								
252	254	921	3/2002	178.3	3.92×10^{-2}	2/2003	176.5	3.70×10^{-2}
254	256	921	3/2002	140.1	4.24×10^{-2}	2/2003	133.8	4.27×10^{-2}

Table 5. Vertical Gradients Between Horizons

Well Pair	Horizons	Date	Gradient ^a (ft/ft)	Date	Gradient ^a (ft/ft)
901-910	A-B	September 1998	0.024	February 2003	0.029
906-938	A-B	February 1999	0.04	February 2003	0.059
908-912	B-C	March 2000	0.019	February 2003	0.012 ^b
909-932	B-C	September 2000	0.67	February 2003	0.82
934-1117	B-C	March 2000	0.10	February 2003	0.263
914-915	C-D	February 1999	-0.24	February 2003	-0.13
691-1003	C-D	September 2000	0.012	February 2003	0.0089
915-916	D-G	February 1999	0.14	February 2003	0.12
251-252	E-I	May 2000	0.040	February 2003	-0.018
254-255	I-M	May 2000	0.073	February 2003	0.14
256-257	I-M	May 2000	0.011	February 2003	-0.0084

^aPositive gradient indicates downward flow potential; negative gradient indicates upward flow potential.

^bExcept for the February 2003 measurements, the downward gradient at this location during the evaluation period was much greater than during the baseline period.

Table 6. Baseline and February 2003 Nitrate Concentrations

Well Number	Horizon	Baseline Nitrate Concentration (mg/L)	Year Sampled	February 2003 Nitrate Concentration (mg/L)
		MCL=44.0 mg/L		
0929		69.5	2002	72.8
0686	A	32.2	2002	12.6
0687	A	60.6	2002	12.6
0688	A	35.1	2002	33.3
0901	A	13	2001	NS
0906	A	1,470	2002	1,220
0940	A	1,800	2002	1,630
0941	A	358	2002	525
0945	A	12.7	2002	10.1
0946	A	NS		75.3
0262	B	380	2001	NS
0263	B	1,140	2001	NS
0265	B	720	2001	NS
0267	B	1,640	2002	1,460
0271	B	15.6	2002	15.7
0908	B	651	2002	619
0909	B	485	2002	495
0910	B	NS		NS
0918	B	NS		NS
0934	B	2,320	2002	2,350
0935	B	525	2002	668
0936	B	2,950	2002	2,340
0938	B	1,450	1999	NS
0942	B	1,360	2002	1,110
0943	B	22.1	2002	89.3
0944	B	1,010	1999	NS
0947	B	12.5	2002	NS
0683	C	14.1	2002	14.6
0684	C	13.9	2002	14.3
0685	C	14.3	2002	12.5
0689	C	14.3	2002	14.2
0691	C	298	2002	303
0903	C	54.8	2002	42.7
0912	C	403	2001	NS
0914	C	13	2001	NS
0917	C	15.7	2001	NS
0930	C	50.9	2002	63.1
0932	C	25.3	2002	26.5
1008	C	15.7	2000	14.3
1116	C	106	2002	25
1117	C	225	2002	211
1118	C	164	2002	523
0258	D	15	2000	NS
0261	D	14	2001	NS

Table 6 (continued). Baseline and February 2003 Nitrate Concentrations

Well Number	Horizon	Baseline Nitrate Concentration (mg/L)	Year Sampled	February 2003 Nitrate Concentration (mg/L)
0264	D	24.3	2001	NS
0266	D	14	2001	NS
0690	D	12.5	2002	11.6
0692	D	12.5	2002	12.6
0695	D	25.4	2002	23.4
0904	D	5.13	2001	NS
0915	D	14.1	2001	NS
1003	D	176	2000	239
1004	D	49.1	2000	51.6
1005	D	14.5	2000	14.2
1006	D	14.1	2000	13.5
1007	D	15.3	2000	15.1
1101	D	438	2002	515
1102	D	650	2002	802
1103	D	1,120	2002	1,230
1104	D	993	2002	1,080
1105	D	648	2002	482
1106	D	614	2002	407
1107	D	1,060	2002	882
1108	D	1,410	2002	1,130
1109	D	798	2002	793
1110	D	227	2002	226
1111	D	421	2002	429
1112	D	617	2002	205
1113	D	143	2002	58.3
1114	D	228	2002	188
1115	D	766	2002	938
1119	D	468	2002	334
1120	D	493	2002	646
1121	D	573	2002	606
1122	D	954	2002	830
1123	D	643	2002	300
1124	D	781	2002	618
1125	D	104	2002	125
0251	E	426	2002	13.1
0268	E	15.4	2002	15.5
0920	E	14.8	2001	NS
0948	E	NS		NS
0911	F	NS		NS
0913	G	12.4	2001	NS
0916	G	11.6	2001	NS
0919	G	NS		NS
0902	H	NS		NS
0252	I	15.3	2002	11.7
0254	I	354	2002	420

Table 6 (continued). Baseline and February 2003 Nitrate Concentrations

Well Number	Horizon	Baseline Nitrate Concentration (mg/L)	Year Sampled	February 2003 Nitrate Concentration (mg/L)
0256	I	189	2002	147
0921	I	11	2001	NS
0255	M	9.6	2000	0.02
0257	M	6.9	2000	0.02

NS = Not sampled.

Table 7. Baseline and February 2003 Sulfate Concentrations

Well Number	Horizon	Baseline Sulfate Concentration (mg/L)	Year Sampled	February 2003 Sulfate Concentration (mg/L)
		No MCL for sulfate		
0929		28.1	2002	27.6
0686	A	98.6	2002	40.4
0687	A	329	2002	31
0688	A	40	2002	40.7
0901	A	26.2	2001	NS
0906	A	1,660	2002	1,660
0940	A	7,550	2002	9,180
0941	A	745	2002	920
0945	A	32.1	2002	15.6
0946	A	NS		191
0262	B	931	2001	NS
0263	B	1,990	2001	NS
0265	B	1,520	2001	NS
0267	B	3,680	2002	3,550
0271	B	16.4	2002	15.7
0908	B	2,430	2002	2,430
0909	B	666	2002	629
0910	B	NS		NS
0918	B	NS		NS
0934	B	7,360	2002	2,970
0935	B	2,690	2002	2,690
0936	B	4,360	2002	4,880
0938	B	2,120	1999	NS
0942	B	3,030	2002	2,790
0943	B	29	2002	129
0944	B	1,590	1999	NS
0947	B	18.7	2002	NS
0683	C	21.6	2002	18.9
0684	C	18	2002	16.5
0685	C	26.2	2002	15.7
0689	C	13.7	2002	14.2
0691	C	587	2002	592
0903	C	76.5	2002	55.9
0912	C	846	2001	NS
0914	C	15.6	2001	NS
0917	C	13.9	2001	NS
0930	C	59.8	2002	77.1
0932	C	30.2	2002	28
1008	C	13	2000	14.1
1116	C	176	2002	31
1117	C	255	2002	338
1118	C	163	2002	1,210
0258	D	17.4	2000	NS

Table 7 (continued). Baseline and February 2003 Sulfate Concentrations

Well Number	Horizon	Baseline Sulfate Concentration (mg/L)	Year Sampled	February 2003 Sulfate Concentration (mg/L)
0261	D	18.2	2001	NS
0264	D	37.7	2001	NS
0266	D	10.9	2001	NS
0690	D	13.8	2002	14.1
0692	D	20.8	2002	21.8
0695	D	50.4	2002	45
0904	D	96.5	2001	NS
0915	D	17.8	2001	NS
1003	D	302	2000	467
1004	D	66.2	2000	77.9
1005	D	12.7	2000	13.1
1006	D	12.2	2000	13
1007	D	11.7	2000	13.2
1101	D	960	2002	1,270
1102	D	1,320	2002	1,600
1103	D	2,570	2002	2,530
1104	D	1,870	2002	1,930
1105	D	1,590	2002	1,170
1106	D	1,050	2002	889
1107	D	1,200	2002	1,070
1108	D	3,400	2002	2,260
1109	D	3,280	2002	2,470
1110	D	512	2002	447
1111	D	988	2002	970
1112	D	1,140	2002	312
1113	D	136	2002	50.6
1114	D	328	2002	242
1115	D	1,930	2002	1,860
1119	D	1,560	2002	1,080
1120	D	2,330	2002	2,960
1121	D	2,590	2002	3,240
1122	D	2,960	2002	2,820
1123	D	1,240	2002	571
1124	D	1,170	2002	1,020
1125	D	165	2002	207
0251	E	617	2002	11
0268	E	17.4	2002	19
0920	E	12.7	2001	NS
0948	E	NS		NS
0911	F	NS		NS
0913	G	8.43	2001	NS
0916	G	13.5	2001	NS
0919	G	NS		NS
0902	H	NS		NS
0252	I	19.2	2002	9.9

Table 7 (continued). Baseline and February 2003 Sulfate Concentrations

Well Number	Horizon	Baseline Sulfate Concentration (mg/L)	Year Sampled	February 2003 Sulfate Concentration (mg/L)
0254	I	505	2002	509
0256	I	368	2002	294
0921	I	8.52	2001	NS
0255	M	102	2000	3,700
0257	M	13.4	2000	255

NS = not sampled

Table 8. Baseline and February 2003 Uranium Concentrations

Well Number	Horizon	Baseline Uranium Concentration (mg/L)	Year Sampled	February 2003 Uranium Concentration (mg/L)
		MCL=0.044 mg/L		
0929		0.0012	2002	0.0015
0686	A	0.0021	2002	0.0001
0687	A	0.0208	2002	0.00037
0688	A	0.002	2002	0.0024
0901	A	0.0026	2001	NS
0906	A	0.951	2002	0.653
0940	A	0.546	2002	0.432
0941	A	0.0886	2002	0.102
0945	A	0.0031	2002	0.0015
0946	A	NS		0.0032
0262	B	0.379	2001	NS
0263	B	0.485	2001	NS
0265	B	0.0897	2001	NS
0267	B	0.0731	2002	0.0765
0271	B	0.0014	2002	0.0016
0908	B	0.122	2002	0.124
0909	B	0.0389	2002	0.0333
0910	B	NS		NS
0918	B	NS		NS
0934	B	0.312	2002	0.355
0935	B	0.0868	2002	0.105
0936	B	0.267	2002	0.582
0938	B	0.21	1999	NS
0942	B	0.246	2002	0.221
0943	B	0.0049	2002	0.0633
0944	B	0.95	1999	NS
0947	B	0.0024	2002	NS
0683	C	0.0012	2002	0.0015
0684	C	0.0019	2002	0.0016
0685	C	0.0012	2002	0.0015
0689	C	0.0011	2002	0.0013
0691	C	0.0657	2002	0.0616
0903	C	0.0022	2002	0.0021
0912	C	0.0342	2001	NS
0914	C	0.0013	2001	NS
0917	C	0.0013	2001	NS
0930	C	0.0023	2002	0.0029
0932	C	0.0016	2002	0.0018
1008	C	0.001	2000	0.0013
1116	C	0.0081	2002	0.002
1117	C	0.0151	2002	0.0178
1118	C	0.0098	2002	0.0456
0258	D	0.0018	2000	NS

Table 8 (continued). Baseline and February 2003 Uranium Concentrations

Well Number	Horizon	Baseline Uranium Concentration (mg/L)	Year Sampled	February 2003 Uranium Concentration (mg/L)
0261	D	0.0018	2001	NS
0264	D	0.0033	2001	NS
0266	D	0.0019	2001	NS
0690	D	0.0018	2002	0.0025
0692	D	0.0015	2002	0.0017
0695	D	0.002	2002	0.0021
0904	D	0.0044	2001	NS
0915	D	0.0017	2001	NS
1003	D	0.0205	2000	0.0355
1004	D	0.0053	2000	0.0086
1005	D	0.0013	2000	0.0016
1006	D	0.0014	2000	0.0014
1007	D	0.0012	2000	0.0015
1101	D	0.245	2002	0.353
1102	D	0.533	2002	0.64
1103	D	0.355	2002	0.393
1104	D	0.194	2002	0.179
1105	D	2.1	2002	1.68
1106	D	2.1	2002	2.08
1107	D	0.118	2002	0.129
1108	D	0.646	2002	0.345
1109	D	0.565	2002	0.502
1110	D	0.0528	2002	0.0705
1111	D	0.161	2002	0.157
1112	D	0.13	2002	0.0561
1113	D	0.0149	2002	0.0059
1114	D	0.0277	2002	0.0201
1115	D	0.41	2002	0.344
1119	D	0.555	2002	0.342
1120	D	1.3	2002	1.51
1121	D	0.857	2002	1.09
1122	D	0.878	2002	0.823
1123	D	0.261	2002	0.132
1124	D	0.171	2002	0.147
1125	D	0.0176	2002	0.0387
0251	E	0.0481	2002	0.0016
0268	E	0.0014	2002	0.0023
0920	E	0.0017	2001	NS
0948	E	NS		NS
0911	F	NS		NS
0913	G	0.0016	2001	NS
0916	G	0.0014	2001	NS
0919	G	NS		NS
0902	H	NS		NS
0252	I	0.0024	2002	0.0023

Table 8 (continued). Baseline and February 2003 Uranium Concentrations

Well Number	Horizon	Baseline Uranium Concentration (mg/L)	Year Sampled	February 2003 Uranium Concentration (mg/L)
0254	I	0.209	2002	0.146
0256	I	0.0775	2002	0.062
0921	I	0.0047	2001	NS
0255	M	0.0029	2000	0.0021
0257	M	0.0037	2000	0.0136

NS = not sampled

Table 9. Baseline and February 2003 Selenium Concentrations

Well Number	Horizon	Baseline Selenium Concentration (mg/L)	Year Sampled	February 2003 Selenium Concentration (mg/L)
		MCL=0.01 mg/L		
0929		0.0028	2002	0.003
0686	A	0.0088	2002	0.00091
0687	A	0.0145	2002	0.00043
0688	A	0.0033	2002	0.0035
0901	A	0.0024	2001	NS
0906	A	0.0335	2002	0.0477
0940	A	0.105	2002	0.0833
0941	A	0.0348	2002	0.0619
0945	A	0.0035	2002	0.0021
0946	A	NS		0.0175
0262	B	0.0621	2001	NS
0263	B	0.0632	2001	NS
0265	B	0.0071	2001	NS
0267	B	0.0532	2002	0.0493
0271	B	0.0016	2002	0.0017
0908	B	0.0163	2002	0.0176
0909	B	0.0224	2002	0.0227
0910	B	NS		NS
0918	B	NS		NS
0934	B	0.0116	2002	0.0111
0935	B	0.0195	2002	0.0193
0936	B	0.0869	2002	0.0786
0938	B	0.0432	1999	NS
0942	B	0.0348	2002	0.0331
0943	B	0.0021	2002	0.0029
0944	B	0.0401	1999	NS
0947	B	0.0019	2002	NS
0683	C	0.0022	2002	0.0018
0684	C	0.0019	2002	0.0021
0685	C	0.0017	2002	0.0019
0689	C	0.0014	2002	0.0015
0691	C	0.0046	2002	0.005
0903	C	0.0023	2002	0.0021
0912	C	0.0137	2001	NS
0914	C	0.0016	2001	NS
0917	C	0.0017	2001	NS
0930	C	0.002	2002	0.0024
0932	C	0.0019	2002	0.0019
1008	C	0.0015	2000	0.0016
1116	C	0.0018	2002	0.0016
1117	C	0.0028	2002	0.0057
1118	C	0.0028	2002	0.0161
0258	D	0.0018	2000	NS
0261	D	0.0021	2001	NS
0264	D	0.0018	2001	NS
0266	D	0.0013	2001	NS
0690	D	0.0014	2002	0.0013

Table 9 (continued). Baseline and February 2003 Selenium Concentrations

Well Number	Horizon	Baseline Selenium Concentration (mg/L)	Year Sampled	February 2003 Selenium Concentration (mg/L)
0692	D	0.0022	2002	0.0025
0695	D	0.0019	2002	0.0019
0904	D	0.0131	2001	NS
0915	D	0.0019	2001	NS
1003	D	0.003	2000	0.0041
1004	D	0.0021	2000	0.0023
1005	D	0.0014	2000	0.0016
1006	D	0.0013	2000	0.0015
1007	D	0.0013	2000	0.0015
1101	D	0.0188	2002	0.0292
1102	D	0.0121	2002	0.0175
1103	D	0.0613	2002	0.0472
1104	D	0.0344	2002	0.035
1105	D	0.0871	2002	0.0774
1106	D	0.0925	2002	0.0913
1107	D	0.0903	2002	0.0583
1108	D	0.0704	2002	0.0444
1109	D	0.0372	2002	0.038
1110	D	0.0081	2002	0.0094
1111	D	0.0172	2002	0.0191
1112	D	0.0154	2002	0.0067
1113	D	0.0025	2002	0.002
1114	D	0.0035	2002	0.0039
1115	D	0.0362	2002	0.0317
1119	D	0.029	2002	0.0181
1120	D	0.0563	2002	0.0669
1121	D	0.0455	2002	0.0527
1122	D	0.0558	2002	0.0559
1123	D	0.0449	2002	0.016
1124	D	0.0186	2002	0.0188
1125	D	0.0025	2002	0.0031
0251	E	0.0035	2002	0.0012
0268	E	0.0018	2002	0.0018
0920	E	0.0014	2001	NS
0948	E	NS		NS
0911	F	NS		NS
0913	G	0.00063	2001	NS
0916	G	0.001	2001	NS
0919	G	NS		NS
0902	H	NS		NS
0252	I	0.00092	2002	0.00095
0254	I	0.0531	2002	0.0466
0256	I	0.0031	2002	0.0028
0921	I	0.00091	2001	NS
0255	M	0.0011	2000	0.0001
0257	M	0.0013	2000	0.00025

NS = not sampled

Table 10. Baseline and February 2003 Strontium Concentrations

Well Number	Horizon	Baseline Strontium Concentration (mg/L)	Year Sampled	February 2003 Strontium Concentration (mg/L)
		No MCL for strontium		
0929		0.32	2000	0.4
0686	A	0.927	2001	0.114
0687	A	1.08	2001	0.0671
0688	A	0.413	2001	0.398
0901	A	0.349	2001	NS
0906	A	9.99	2000	8.53
0940	A	9.51	2000	11.6
0941	A	2.63	2001	3.31
0945	A	0.487	2000	0.389
0946	A	NS		1.68
0262	B	3.78	2001	NS
0263	B	5.87	2001	NS
0265	B	7.24	2001	NS
0267	B	3.92	2001	3.18
0271	B	0.318	2001	0.31
0908	B	2.33	2001	2.65
0909	B	4.3	2000	3.47
0910	B	NS		NS
0918	B	NS		NS
0934	B	10.2	2000	14.7
0935	B	4.06	2000	4.16
0936	B	7.95	2000	13.3
0938	B	10.6	1999	NS
0942	B	5.92	2000	5.31
0943	B	0.344	2000	0.663
0944	B	5.97	1999	NS
0947	B	0.348	2000	NS
0683	C	0.328	2000	0.332
0684	C	0.375	2000	0.381
0685	C	0.339	2000	0.342
0689	C	0.555	2001	0.416
0691	C	2.93	2001	3.54
0903	C	1.04	2000	0.953
0912	C	4.31	2001	NS
0914	C	0.463	2001	NS
0917	C	0.35	2001	NS
0930	C	0.966	2000	1.33
0932	C	1.01	2000	0.595
1008	C	0.523	2000	0.451
1116	C	1.48	2000	0.914
1117	C	1.96	2000	2.53
1118	C	1.79	2000	4.79
0258	D	0.57	2000	NS
0261	D	0.719	2001	NS
0264	D	0.477	2001	NS
0266	D	1.12	2001	NS
0690	D	1.21	2001	1.22

Table 10 (continued). Baseline and February 2003 Strontium Concentrations

Well Number	Horizon	Baseline Strontium Concentration (mg/L)	Year Sampled	February 2003 Strontium Concentration (mg/L)
0692	D	0.931	2001	0.781
0695	D	0.463	2001	0.481
0904	D	1.2	2001	NS
0915	D	0.569	2001	NS
1003	D	1.74	2000	2.55
1004	D	0.804	2000	0.966
1005	D	1.11	2000	1.13
1006	D	1.14	2000	1.15
1007	D	0.648	2000	0.682
1101	D	3.68	2000	4.26
1102	D	4.96	2000	5.84
1103	D	4.48	2000	4.71
1104	D	2.63	2000	3.57
1105	D	3.15	2000	3.44
1106	D	2.89	2000	3.57
1107	D	6.62	2000	6.21
1108	D	7.7	2000	6.84
1109	D	6.46	2000	7.89
1110	D	3.99	2000	3
1111	D	5.99	2000	5.86
1112	D	2.4	2000	2.74
1113	D	1.64	2000	1.2
1114	D	2.16	2000	2.34
1115	D	4.42	2000	5.73
1119	D	2.44	2000	2.2
1120	D	2.1	2000	3.53
1121	D	2.54	2000	3.61
1122	D	5.18	2000	4.96
1123	D	3.86	2001	2.75
1124	D	3.74	2000	3.58
1125	D	0.735	2000	1.21
0251	E	1.34	2000	1.15
0268	E	0.65	2000	0.837
0920	E	1.02	2001	NS
0948	E	NS		NS
0911	F	NS		NS
0913	G	0.791	2001	NS
0916	G	0.808	2001	NS
0919	G	NS		NS
0902	H	NS		NS
0252	I	0.873	2000	0.765
0254	I	0.733	2000	2.86
0256	I	0.569	2000	1.73
0921	I	0.755	2001	NS
0255	M	0.0919	2000	5.53
0257	M	0.0139	2000	0.0747

NS = Not sampled.

Table 11. Extraction and Injection Well Design Rates and Screened Horizons

Well Number	Well Type	Design Pumping Rate (gpm)	Screen Length (ft)	Horizon Top of Well Screen	Horizon Bottom Of Well Screen
1003	Injection	1.0	50	C	D
1004	Injection	1.0	50	C	D
1005	Injection	1.0	50	C	D
1006	Injection	1.0	50	C	D
1007	Injection	1.0	50	C	D
1008	Injection	1.0	50	C	D
Infiltration Trench	Infiltration Trench	57.0	NA	NA	NA
1101	Extraction	4.0	155	B	D
1102	Extraction	3.0	150	B	E
1103	Extraction	4.0	150	B	E
1104	Extraction	4.0	155	B	E
1105	Extraction	5.0	155	B	E
1106	Extraction	5.1	155	B	E
1107	Extraction	5.1	154	B	E
1108	Extraction	5.1	150	B	E
1109	Extraction	5.1	155	B	E
1110	Extraction	5.0	150	B	E
1111	Extraction	8.6	154	B	E
1112	Extraction	3.1	155	B	E
1113	Extraction	2.0	155	B	E
1114	Extraction	3.5	155	B	E
1115	Extraction	3.5	155	B	E
1116	Extraction	2.0	103	B	D
1117	Extraction	2.0	103	B	D
1118	Extraction	3.2	106	B	D
1119	Extraction	2.6	155	B	E
1120	Extraction	2.6	150	B	E
1121	Extraction	3.1	150	B	E
1122	Extraction	2.6	154	B	E
1123	Extraction	3.1	154	B	E
1124	Extraction	2.6	158	B	E
1125	Extraction	2.6	150	B	E

Table 12. February 2003 Drawdown from Baseline Ground Water Levels

Monitor Well Number	Baseline Water-Level Elevation (ft above msl ^a)	December 2002 Water-Level Elevation (ft above msl ^a)	Drawdown ^b	February 2003 Water-Level Elevation (ft above msl ^a)	Drawdown ^b
Horizon A					
686	5,028.11	5,050.37	-22.3	5,051.92	-23.8
687	5,035.35	5,043.29	-7.9	5,043.05	-7.7
688	5,027.11	5,027.28	-0.2	5,027.42	-0.3
906	5,017.71	5,010.13	7.6	5,009.35	8.4
940	5,017.59	5,000.68	16.9	5,002.85	14.7
941	5,017.05	4,998.04	19.0	5,005.55	11.5
943	5,028.64	5,029.03	-0.4	5,029.05	-0.4
945	5,036.57	5,038.14	-1.6	5,038.22	-1.7
946	5,039.74	5,047.90	-8.2	5,051.76	-12.0
947	5,025.86	5,023.98	1.9	5,024.68	1.2
Horizon B					
262	5,013.73	5,003.03	10.7	5,005.91	7.8
263	5,009.87	5,004.35	5.5	5,004.22	5.6
267	5,000.08	4,999.42	0.7	4,999.25	0.8
271	4,993.49	4,993.34	0.1	4,993.26	0.2
908	5,008.12	5,004.74	3.4	5,004.18	3.9
909	4,998.81	4,997.48	1.3	4,996.88	1.9
934	5,001.08	4,995.50	5.6	4,995.01	6.1
935	5,008.66	5,004.07	4.6	5,004.47	4.2
936	5,011.45	4,994.62	16.8	4,998.74	12.7
938	5,018.89	5,008.89	10.0	5,009.14	9.8
942	5,015.24	5,010.06	5.2	5,009.27	6.0
943	5,028.63	5,029.03	-0.4	5,029.05	-0.4
Horizon C					
683	4,990.11	4,976.64	13.5	4,980.44	9.7
684	5,000.85	4,980.50	20.4	4,994.93	5.9
685	5,019.09	5,014.37	4.7	5,016.34	2.8
691	4,944.80	4,941.51	3.3	4,941.92	2.9
912	5,008.61	4,994.98	13.6	5,003.16	5.4
914	4,969.90	4,963.05	6.8	4,964.22	5.7
930	4,935.67	4,935.40	0.3	4,935.32	0.4
932	4,964.01	no data	no data	4,955.18	8.8
Horizon D					
258	4,975.01	4,964.85	10.2	4,966.66	8.4
261	4,950.28	4,945.54	4.7	4,945.80	4.5
264	4,987.60	4,962.69	24.9	4,971.56	16.0
266	4,967.17	4,945.86	21.3	4,951.39	15.8
690	4,928.09	4,926.83	1.3	4,926.60	1.5
692	4,930.87	4,929.13	1.7	4,928.84	2.0
695	4,931.54	4,930.89	0.6	4,930.50	1.0
904	4,882.55	4,882.36	0.2	4,882.29	0.3
915	4,975.88	4,965.12	10.8	4,968.03	7.9

Table 12 (continued). February 2003 Drawdown from Baseline Ground Water Levels

Monitor Well Number	Baseline Water-Level Elevation (ft above msl ^a)	December 2002 Water-Level Elevation (ft above msl ^a)	Drawdown ^b	February 2003 Water-Level Elevation (ft above msl ^a)	Drawdown ^b
1003	4,944.72	4,941.57	3.2	4,941.79	2.9
1004	4,943.01	4,941.86	1.2	4,941.69	1.3
1005	4,926.44	4,926.40	0.0	4,926.42	0.0
1006	4,932.76	4,930.25	2.5	4,930.14	2.6
1007	4,939.34	4,936.34	3.0	4,936.54	2.8
Horizon E					
251	4,999.51	4,947.96	51.6	4,979.75	19.8
268	4,985.41	4,945.24	40.2	4,968.26	17.1
920	4,954.53	4,941.12	13.4	4,944.02	10.5
Horizon F					
911	5,057.28	5,057.71	-0.4	5,057.53	-0.3
Horizon G					
913	4,995.04	4,988.96	6.1	4,987.94	7.1
916	4,957.55	4,947.18	10.4	4,946.19	11.4
919	4,903.39	4,902.82	0.6	4,902.49	0.9
Horizon I					
252	4,994.81	4,985.15	9.7	4,983.28	11.5
254	5,009.54	4,988.33	21.2	4,997.10	12.4
256	4,968.31	4,957.10	11.2	4,956.97	11.3
921	4,943.98	4,936.40	7.6	4,934.53	9.4
Horizon M					
255	4,974.49	4,972.47	2.0	4,969.65	4.8
257	4,962.07	4,959.88	2.2	4,958.66	3.4

^amsl = mean sea level^bDrawdown = Baseline water level – August 2002 water level. Positive values indicate drawdown; negative values indicate mounding.

Table 13. COPC Mass Removal Summary

COPC	Mass Removed During Review Period (lb)	Cumulative Mass Removed through February 3, 2003 (lb)	Estimated Initial Mass above Standard (lb) ^a	Estimated Initial Volume of Ground Water above Standard (gal) ^a	Cumulative Mass Reduction (%)	Cumulative Mass Reduction Rate (%/yr)
Nitrate	74,024	159,307	12,377,287	3,398,471,628	1.3	1.7
Sulfate	195,266	398,287	17,899,676	2,665,756,349	2.2	2.9
Uranium	55.6	124.8	2,766	3,027,643,260	4.5	6.0

^aSource: DOE 2003a