

Appendix F. Groundwater analytical results presented in Data Tables in the Sandia MWL dump summary report by Goering et al (2002).

The four monitoring wells MWL-MW1, -MW2, -MW3 and -BW1 were installed at nearly the same time in 1988 and 1989 with Type 304 stainless steel screens installed across the water table in the fine-grained alluvial fan sediments. DOE/Sandia report corrosion beginning in the four wells in 1992.

The direction of groundwater flow is not accurately know but is to the southwest in a direction that is more to the south.

Wells MWL-MW1 and -MW3 are located 50 feet north and 50 feet west, respectively, from the wastes buried in the MWL dump. The two monitoring wells are at locations that may detect groundwater contamination from the wastes buried in the MWL dump.

Wells MWL-MW2 and -BW1 are located at distances of approximately 100 feet north and 500 feet south of the wastes buried in the MWL dump, respectively and do not detect groundwater contamination from the Sandia MWL dump.

Nickel and chromium concentrations measured in groundwater samples collected from the four monitoring wells for the data tables in the summary groundwater monitoring report by Goering et al (2002) are as follows:

- Dissolved Nickel concentrations. For comparison, the median dissolved nickel concentration measured in the new background monitoring well MWL-BW2 installed in 2008 is 1.22 ug/L.

Background monitoring well MWL- BW1. Nickel is not detected in the groundwater samples collected over the period September 27, 1990 through January 20, 1993. See Table 4-1 below. The maximum dissolved nickel concentration in Table 4-1 was 16 ug/L on April 28, 1993. The maximum concentration may be because of corrosion of the stainless steel well screen.

Background monitoring well MWL- MW2. Nickel is not detected in the groundwater samples collected over the period September 28, 1990 through January 18, 1993. See Table 4-3 below. The maximum dissolved nickel concentration in Table 4-1 was an estimated concentration of 13 ug/L on April 26, 1993. The maximum concentration may be because of corrosion of the stainless steel well screen.

Contaminat detection monitoring well MWL-MW1. Dissolved Nickel is detected in the groundwater samples beginning with the first groundwater sample collected on September 27, 1990. See Table 4-2 below. The dissolved nickel concentrations are summarized as follows: 1). 09-27-90 [43 ug/L] 2). 07-28-92 [63 ug/L] 3). 04-27-93 [94 ug/L] 4). 04-01-98 [538 ug/L] 5). 11-06-98 [467 ug/L] 6). 04-14-99 [313 ug/L] 7). 04-14-00 [281 ug/L]

- The high levels of dissolved nickel measured in monitoring well MWL-MW1 beginning with the first groundwater sample collected on September 27, 1990 are evidence that the nickel wastes buried in the Sandia MWL dump have created a nickel plume in the groundwater below the dump.

Contaminant detection monitoring well MWL-MW3. Dissolved Nickel is detected in the groundwater samples beginning with the groundwater sample collected on July 28, 1992 at 43 ug/L. See Table 4-4 below. The dissolved nickel concentrations are summarized as follows: 1). 07-28-92 [43 ug/L]; 2). 04-27-93 [33 ug/L J(estimated value)]; 3). 04-02-98 [28,5 ug/L]; 4). 11-06-98 [18.3 ug/L]; 5). 04-12-99 [31.3 ug/L]

- The high concentrations of dissolved nickel measured in monitoring well MWL-MW3 compared to the dissolved concentrations measured in wells MWL-MW2 and MWL-BW1 are evidence of nickel groundwater contamination from the wastes buried in the MWL dump. On Table 4-4, the high concentrations begin with the groundwater sample collected on July 28, 1992 and continue to the groundwater sample collected on 04-12-99. The dissolved nickel concentrations measured in groundwater samples collected from well MWL-MW3 increased to concentrations of approximately 100 mg/L in samples collected after 2006.

- Dissolved Chromium concentrations. For comparison, the median dissolved chromium concentration measured in the new background monitoring well MWL-BW2 installed in 2008 is 1.86 ug/L.

Background monitoring well MWL- BW1. Dissolved Chromium is not detected in the groundwater samples collected over the period September 27, 1990 through January 20, 1993. See Table 4-1 below. The maximum dissolved chromium concentration in Table 4-1 was 3.17 ug/L on November 05, 1998.

Background monitoring well MWL- MW2. Dissolved Chromium is not detected in the groundwater samples collected over the period September 28, 1990 through July 27, 1992. See Table 4-3 below. The maximum dissolved nickel concentration in Table 4-3 was an estimated concentration of 7.7 ug/L on April 26, 1993.

Contaminant detection monitoring well MWL-MW1. Dissolved Chromium is detected in the groundwater samples beginning with a concentration of 21 ug/L in a groundwater sample collected on January 24, 1991. See Table 4-2 below. The dissolved nickel concentrations are summarized as follows: 1). 01-24-91 [21 ug/L]; 2). 05-07-91 [15 ug/L]; 3). 07-31-91 [11 ug/L]; 4). 10-15-91 [19 ug/L]; 5). 10-15-97 [1.94 ug/L J. duplicate 2.07 ug/L J]; 6). 11-06-98 [4.53 ug/L]; 7). 04-14-99 [4.22 ug/L]; 8). 04-14-00 [2.39 ug/L J]

- The high levels of dissolved nickel measured in the early years after installation of monitoring well MWL-MW1 beginning with the concentration of 21 ug/L in the groundwater sample collected on January 24, 1991 and continuing to the concentration of 19 ug/L in the groundwater sample collected on October 15, 1991 are evidence that the chromium wastes buried in the Sandia MWL dump have contaminated the groundwater below the dump. The concentrations of dissolved chromium in the groundwater samples collected from well MWL-MW1 are evidence of groundwater contamination because dissolved chromium was not detected in the groundwater samples collected from wells MWL-MW2 and -BW1 and the low background dissolved chromium concentration of 1.86 ug/L based on the groundwater samples collected from the background monitoring well MWL-BW2.

Contaminant detection monitoring well MWL-MW3. Dissolved Chromium is detected in the groundwater samples beginning with a concentration of 13 ug/L in a groundwater sample collected on September 28, 1990. See Table 4-4 below.

The dissolved nickel concentrations are summarized as follows:

- 1). 09-28-90 [13 ug/L];**
- 2). 01-26-91 [16 ug/L];**
- 3). 08-05-91 [15 ug/L];**
- 4). 04-27-93 [11 ug/L];**
- 5). 10-15-97 [12.3 ug/L];**
- 6). 04-02-98 [2.27 ug/L J];**
- 7). 11-06-98 [3.98 ug/L];**
- 8). 04-12-99 [2.76 ug/L J]**

- The high levels of dissolved chromium measured in the early years after the installation of monitoring well MWL-MW3 beginning with the concentration of 13 ug/L in the groundwater sample collected on September 28, 1990 and continuing to the concentration of 15 ug/L in the groundwater sample collected on August 05, 1991 are evidence that the chromium wastes buried in the Sandia MWL dump have contaminated the groundwater below the dump. The concentrations of dissolved chromium in the groundwater samples collected from well MWL-MW1 are evidence of groundwater contamination because dissolved chromium was not detected in the groundwater samples collected from wells MWL-MW2 and -BW1 and the low background dissolved chromium concentration of 1.86 ug/L based on the groundwater samples collected from the background monitoring well MWL-BW2.**

Background water quality monitoring well MWL-BW1. Nickel is not detected in the groundwater samples collected over the period 09-27-90 through 01-20-93

Table 4-1 (Continued)
Summary of Metals Analytical Results for Groundwater Samples from MWL-BW1
1990 through 2001

Sample Attributes			Metals (EPA Method 6010/6010A/7060/7421/ 7470/7740/3005 ^a) (mg/L)			
NMED-Approved Background ^b			0.002		0.028	
EPA Drinking Water MCL ^c			0.002		NE	
AR/COC Number	Date Sampled	Lab	Mercury		Nickel	
			Total	Dissolved	Total	Dissolved
1541	09-27-90	QSTL	ND (0.0002)	ND (0.0002)	ND (0.04)	ND (0.04)
1543	09-27-90	QSTL	ND (0.0002)	ND (0.0002)	ND (0.04)	ND (0.04)
2314	01-24-91	QSTL	ND (0.0002)	ND (0.0002)	NA	NA
1994	01-24-91	QSTL	ND (0.0002)	ND (0.0002)	NA	NA
2020	05-07-91	QSTL	ND (0.0002)	ND (0.0002)	NA	NA
2415	05-07-91	QSTL	ND (0.0002)	ND (0.0002)	NA	NA
2189	08-06-91	QSTL	ND (0.0002)	ND (0.0002)	NA	NA
2203	08-06-91	QSTL	ND (0.0002)	ND (0.0002)	NA	NA
2719	10-16-91	QSTL	ND (0.0002)	ND (0.0002)	NA	NA
2721	10-16-91	QSTL	ND (0.0002)	ND (0.0002)	NA	NA
2725	10-16-91	QSTL	ND (0.0002)	ND (0.0002)	NA	NA
4096	07-29-92	QSTL	ND (0.0002)	ND (0.0002)	ND (0.04)	ND (0.04)
4133 ^d	07-29-92	QSTL	ND (0.0002)	ND (0.0002)	ND (0.04)	ND (0.04)
5841	01-20-93	QSTL	ND (0.0002)	NA	ND (0.04)	NA
5841 ^d	01-20-93	QSTL	ND (0.0002)	NA	ND (0.04)	NA
6316	04-28-93	QSTL	ND (0.0002)	ND (0.0002)	0.012 J (0.04)	0.011
6316 ^d	04-28-93	QSTL	ND (0.0002)	ND (0.0002)	0.0075	0.016
6997	11-10-93	QSTL	ND (0.0002)	NA	ND (0.04)	NA
6997 ^d	11-10-93	QSTL	ND (0.0002)	NA	ND (0.04)	NA
1014	10-27-94	QSTL	ND (0.0002)	NA	ND (0.04)	NA
1015	10-27-94	QSTL	ND (0.0002)	NA	ND (0.04)	NA
4397	10-23-95	GEL	0.00003 J,B (0.0002)	NA	0.00196 J (0.01)	NA
5030	04-16-96	GEL	ND (0.00001)	NA	ND (0.00081)	NA
06619	04-28-97	ERCL	ND (0.00022)	NA	NA	NA
06882	10-17-97	GEL	ND (0.0001)	ND (0.0001)	NA	NA
510607	03-31-98	QSTL	ND (0.0001)	NA	0.0029 J (0.04)	NA
510612 ^e	03-31-98	GEL	ND (0.0001)	ND (0.0001)	ND (0.00227)	ND (0.00227)
601044	11-05-98	GEL	ND (0.00004)	ND (0.00004)	0.00719	0.00947
601388	04-13-99	GEL	ND (0.00004)	ND (0.00004)	0.0128	0.0143
602692	04-06-00	GEL	ND (0.00006)	NA	0.0165	NA
603961	04-06-01	GEL	ND (0.00007)	NA	0.191	NA

NOTE;

- Total is the concentration measured in an unfiltered groundwater sample
- Dissolved is the concentration measured in a filtered groundwater sample
- ND (0.04) means nickel was not detected in the groundwater sample at a method detection limit of 0.04 mg/L.
- NA means the groundwater sample was not analyzed for nickel.
- J means the listed value is an estimated concentration.

Source: Table 4-1 in *Mixed Waste Landfill Groundwater Report, 1990 through 2001, Sandia National Laboratories, Albuquerque, New Mexico SAND 2002-4098* (Goering et al., 2002).

Contaminant detection monitoring well MWL-MW1. Nickel is detected in the groundwater samples beginning with the first groundwater sample collected on September 27, 1990.

Table 4-2 (Continued)
Summary of Metals Analytical Results for Groundwater Samples from MWL-MW1
1990 through 2001

Sample Attributes			Metals (EPA Method 6010/6010B/6020/7470 ^a) (mg/L)			
NMED-Approved Background ^b			0.002		0.028	
EPA Drinking Water MCL ^c			0.002		NE	
AR/COC Number	Date Sampled	Lab	Mercury		Nickel	
			Total	Dissolved	Total	Dissolved
1541	09-27-90	QSTL	ND (0.005)	ND (0.005)	0.046	0.043
01990	01-24-91	QSTL	ND (0.005)	ND (0.005)	NA	NA
02416	05-07-91	QSTL	ND (0.0002)	ND (0.0002)	NA	NA
02187	07-31-91	QSTL	ND (0.0002)	ND (0.0002)	NA	NA
02731	10-15-91	QSTL	ND (0.0002)	ND (0.0002)	NA	NA
4097	07-28-92	QSTL	ND (0.0002)	ND (0.0002)	0.15	0.063
5839	01-19-93	QSTL	ND (0.0002)	NA	0.078	NA
6312	04-27-93	QARV	ND (0.0002)	ND (0.0002)	0.097	0.094
6994	11-09-93	QSTL	ND (0.0002)	NA	0.095	NA
00140	05-03-94	QSTL	ND (0.0002)	NA	0.15	NA
00143 ^d	05-04-94	QSTL	ND (0.0002)	NA	0.13	NA
01010	10-25-94	QSTL	ND (0.0002)	NA	0.1	NA
01012 ^d	10-25-94	QSTL	ND (0.0002)	NA	0.13	NA
03315	04-19-95	QARV	ND (0.04)	NA	0.12	NA
04407	10-20-95	GEL	ND (0.00001)	NA	0.107	NA
5048	04-18-96	GEL	ND (0.00001)	NA	0.145	NA
06617	04-23-97	ERCL	ND (0.00022)	NA	NA	NA
06880	10-15-97	GEL	0.00032	0.00033	NA	NA
06880 ^d	10-15-97	GEL	0.00035	0.00045	NA	NA
510613	04-01-98	GEL	ND (0.0001)	ND (0.0001)	0.398	0.538
510608 ^e	04-01-98	QSTL	ND (0.0001)		0.5	NA
601045	11-06-98	GEL	ND (0.0002)	ND (0.0002)	0.490	0.467
601388	04-14-99	GEL	ND (0.00004)	ND (0.00004)	0.266	0.313
602682 ^e	04-14-00	ERCL	0.00011 J (0.0002)	0.00011	0.279	0.281
602683	04-14-00	GEL	0.000132 J (0.0002)	NA	0.228	NA
602683 ^d	04-14-00	GEL	ND (0.00023)	NA	0.270	NA
603962	04-13-01	GEL	ND (0.00007)	NA	0.252	NA

NOTE;

- Total is the concentration measured in an unfiltered groundwater sample
- Dissolved is the concentration measured in a filtered groundwater sample
- ND (0.04) means nickel was not detected in the groundwater sample at a method detection limit of 0.04 mg/L.
- NA means the groundwater sample was not analyzed for nickel.
- J means the listed value is an estimated concentration.

Source: Table 4-2 in *Mixed Waste Landfill Groundwater Report, 1990 through 2001, Sandia National Laboratories, Albuquerque, New Mexico SAND 2002-4098* (Goering et al., 2002).

Background water quality monitoring well MWL-MW2. Nickel is not detected in the groundwater samples collected over the period September 28, 1990 through January 18, 1993.

Table 4-3 (Continued)
Summary of Metals Analytical Results for Groundwater Samples from MWL-MW2
1990 through 2001

Sample Attributes			Metals (EPA Method 6010/6010A/6020/7060/7421/ 7470/7740 ^a) (mg/L)			
NMED-Approved Background ^b			0.002		0.028	
EPA Drinking Water MCL ^c			0.002		NE	
AR/COC Number	Date Sampled	Lab	Mercury		Nickel	
			Total	Dissolved	Total	Dissolved
01547	09-28-90	QSTL	ND (0.0002)	ND (0.0002)	ND (0.04)	ND (0.04)
01991	01-28-91	QSTL	ND (0.0002)	ND (0.0002)	NA	NA
02351	04-02-91	QSTL	ND (0.0002)	ND (0.0002)	NA	NA
02205	08-01-91	QSTL	ND (0.0002)	ND (0.0002)	NA	NA
02217	10-14-91	QSTL	ND (0.0002)	ND (0.0002)	NA	NA
4098	07-27-92	QSTL	0.0007	ND (0.0002)	ND (0.04)	ND (0.04)
5834	01-18-93	QSTL	ND (0.0002)	NA	ND (0.04)	NA
6314	04-26-93	QSTL	ND (0.0002)	ND (0.0002)	0.014 J (0.04)	0.013 J (0.04)
6995	11-08-93	QSTL	ND (0.0002)	NA	ND (0.04)	NA
00138	05-02-94	QSTL	ND (0.0002)	NA	ND (0.04)	NA
01009	10-24-94	QSTL	ND (0.0002)	NA	ND (0.04)	NA
03306	04-17-95	QSTL	ND (0.04)	NA	0.0075 J (0.04)	NA
5027	04-15-96	QSTL	ND (0.00001)	NA	0.00342 J (0.01)	NA
06618	04-24-97	ERCL	ND (0.00022)	NA	NA	NA
06881	10-16-97	GEL	ND (0.0001)	ND (0.0001)	NA	NA
510614	04-02-98	GEL	ND (0.0001)	ND (0.0001)	0.00351 J (0.005)	0.004
510608 ^d	04-02-98	QSTL	ND	NA	0.005 J	NA
601046	11-06-98	GEL	ND (0.00004)	ND (0.00004)	0.00449	0.00342
601386	04-19-99	GEL	ND (0.00004)	ND (0.00004)	0.00531	0.00437
602685	04-24-00	GEL	ND (0.00006)	NA	0.124	NA
603963	04-23-01	GEL	ND (0.00007)	NA	0.0882	NA

NOTE;

- Total is the concentration measured in an unfiltered groundwater sample
- Dissolved is the concentration measured in a filtered groundwater sample
- ND (0.04) means nickel was not detected in the groundwater sample at a method detection limit of 0.04 mg/L.

- NA means the groundwater sample was not analyzed for nickel.
- J means the listed value is an estimated concentration.

Source: Table 4-3 in *Mixed Waste Landfill Groundwater Report, 1990 through 2001, Sandia National Laboratories, Albuquerque, New Mexico SAND 2002-4098* (Goering et al., 2002).

Contaminant detection monitoring well MWL-MW3. Nickel is detected in the groundwater samples beginning with the groundwater sample collected on July 28, 1992.

Table 4-4 (Continued)
Summary of Metals Analytical Results for Groundwater Samples from MWL-MW3
1990 through 2001

Sample Attributes			Metals (EPA Method 6010A/6010B/7060/7421/ 7470/7740 ^a) (mg/L)			
NMED-Approved Background ^b			0.002		0.028	
EPA Drinking Water MCL ^c			0.002		NE	
AR/COC Number	Date Sampled	Lab	Mercury		Nickel	
			Total	Dissolved	Total	Dissolved
01549	09-28-90	QSTL	ND (0.0002)	ND (0.0002)	ND (0.04)	ND (0.04)
01992	01-28-91	QSTL	ND (0.0002)	ND (0.0002)	NA	NA
02352	04-02-91	QSTL	ND (0.0002)	ND (0.0002)	NA	NA
02204	08-05-91	QSTL	ND (0.0002)	ND (0.0002)	NA	NA
02728	10-15-91	QSTL	ND (0.0002)	ND (0.0002)	NA	NA
4099	07-28-92	QSTL	ND (0.0002)	ND (0.0002)	0.066	0.043
5837	01-19-93	QSTL	ND (0.0002)	NA	0.026 J (0.04)	NA
6315	04-27-93	QSTL	ND (0.0002)	ND (0.0002)	0.037 J (0.04)	0.033 J (0.04)
6994	11-09-93	QSTL	ND (0.0002)	NA	0.014 J (0.04)	NA
00141	05-02-94	QSTL	ND (0.0002)	NA	0.011 J (0.04)	NA
01011	10-25-94	QSTL	ND (0.0002)	NA	0.0098 J (0.04)	NA
03306	04-17-95	QARV	ND (0.04)	NA	0.0093 J (0.04)	NA
04393	10-16-95	GEL	ND (0.00001)	NA	0.00799 J (0.01)	NA
5027	04-18-96	GEL	ND (0.00001)	NA	0.00367 J (0.01)	NA
06618	04-24-97	ERCL	ND (0.00022)	NA	NA	NA
06881	10-15-97	GEL	ND (0.0001)	ND (0.0001)	NA	NA
510614	04-02-98	GEL	ND (0.0001)	ND (0.0001)	0.0362	0.0285
601047	11-06-98	GEL	ND (0.00004)	ND (0.00004)	0.018	0.0183
601388	04-12-99	GEL	ND (0.00004)	ND (0.00004)	0.031	0.0313
602687	04-13-00	GEL	ND (0.00006)	NA	0.0251	NA
603964	04-08-01	GEL	ND (0.00007)	NA	0.0141	NA

NOTE;

- Total is the concentration measured in an unfiltered groundwater sample
- Dissolved is the concentration measured in a filtered groundwater sample
- ND (0.04) means nickel was not detected in the groundwater sample at a method detection limit of 0.04 mg/L.
- NA means the groundwater sample was not analyzed for nickel.
- J means the listed value is an estimated concentration.

Source: Table 4-4 in *Mixed Waste Landfill Groundwater Report, 1990 through 2001, Sandia National Laboratories, Albuquerque, New Mexico SAND 2002-4098* (Goering et al., 2002).

Background water quality monitoring well MWL-BW1. Chromium is not detected as a dissolved constituent in the groundwater samples collected over the period September 27, 1990 through April 28, 1993.

Table 4-1 (Continued)
Summary of Metals Analytical Results for Groundwater Samples from MWL-BW1
1990 through 2001

Sample Attributes			Metals (EPA Method 6010A/6010B/7060/7421/ 7470/7740/7470 ^a) (mg/L)			
NMED-Approved Background ^b			0.043		0.01	
EPA Drinking Water MCL ^c			0.1		0.015	
AR/COC Number	Date Sampled	Lab	Chromium		Lead	
			Total	Dissolved	Total	Dissolved
1541	09-27-90	QSTL	ND (0.01)	ND (0.01)	ND (0.02)	ND (0.005)
1543	09-27-90	QSTL	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.005)
2314	01-24-91	QSTL	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.005)
1994	01-24-91	QSTL	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.005)
2020	05-07-91	QSTL	ND (0.01)	ND (0.01)	ND (0.005)	ND (0.005)
2415	05-07-91	QSTL	ND (0.01)	ND (0.01)	ND (0.005)	ND (0.005)
2189	08-06-91	QSTL	ND (0.01)	ND (0.01)	ND (0.005)	ND (0.01)
2203	08-06-91	QSTL	ND (0.01)	ND (0.01)	ND (0.005)	ND (0.01)
2719	10-16-91	QSTL	ND (0.01)	ND (0.01)	ND (0.005)	ND (0.005)
2721	10-16-91	QSTL	ND (0.01)	ND (0.01)	ND (0.005)	ND (0.005)
2725	10-16-91	QSTL	ND (0.01)	ND (0.01)	ND (0.005)	ND (0.005)
4096	07-29-92	QSTL	ND (0.01)	ND (0.01)	ND (0.005)	ND (0.005)
4133 ^d	07-29-92	QSTL	ND (0.01)	ND (0.01)	ND (0.005)	ND (0.005)
5841	01-20-93	QSTL	0.017	NA	ND (0.01)	NA
5841 ^d	01-20-93	QSTL	0.012	NA	0.0012 J (0.01)	NA
6316	04-28-93	QSTL	ND (0.01)	ND (0.01)	ND (0.02)	ND (0.02)
6316 ^d	04-28-93	QSTL	ND (0.01)	ND (0.01)	ND (0.02)	ND (0.02)
6997	11-10-93	QSTL	0.0092 J (0.01)	NA	ND (0.01)	NA
6997 ^d	11-10-93	QSTL	0.011	NA	ND (0.01)	NA
1014	10-27-94	QSTL	0.0041 J (0.01)	NA	ND (0.003)	NA
1015	10-27-94	QSTL	ND (0.01)	NA	ND (0.003)	NA
4397	10-23-95	GEL	0.00411 J (0.01)	NA	ND (0.00113)	NA
5030	04-16-96	GEL	0.00134 J,B (0.01)	NA	ND (0.00113)	NA
06619	04-28-97	ERCL	ND (0.0084)	NA	ND (0.0017)	NA
06882	10-17-97	GEL	0.00318 J,B (0.005)	0.00194 J,B (0.005)	ND (0.00068)	ND (0.00068)
510607	03-31-98	QSTL	0.0041 J (0.01)	NA	ND (0.0011)	NA
510612 ^a	03-31-98	GEL	0.00101 J (0.005)	ND (0.00073)	ND (0.00068)	ND (0.00068)
601044	11-05-98	GEL	0.00223 J (0.003)	0.00317	0.00083 J (0.002)	ND (0.00031)
601388	04-13-99	GEL	0.00228 J (0.003)	0.00255	ND (0.00031)	ND (0.00031)
602692	04-06-00	GEL	0.00425 J (0.005)	NA	ND (0.00183)	NA
603961	04-06-01	GEL	0.0942	NA	0.00558	NA

NOTE;

- Total is the concentration measured in an unfiltered groundwater sample
- Dissolved is the concentration measured in a filtered groundwater sample
- ND (0.01) means chromium was not detected in the groundwater sample at a method detection limit of 0.01 mg/L.
- NA means the groundwater sample was not analyzed for chromium.
- J means the listed value is an estimated concentration.

Source: Table 4-1 in *Mixed Waste Landfill Groundwater Report, 1990 through 2001, Sandia National Laboratories, Albuquerque, New Mexico SAND 2002-4098* (Goering et al., 2002). Contaminant detection monitoring well MWL-MW1. Chromium is detected as a dissolved constituent in the groundwater samples beginning on January 24, 1991.

Table 4-2 (Continued)
Summary of Metals Analytical Results for Groundwater Samples from MWL-MW1
1990 through 2001

Sample Attributes			Metals (EPA Method 6010/6010B/6020/7470 ^a) (mg/L)			
NMED-Approved Background ^b			0.043		0.01	
EPA Drinking Water MCL ^c			0.1		0.015	
AR/COC Number	Date Sampled	Lab	Chromium		Lead	
			Total	Dissolved	Total	Dissolved
1541	09-27-90	QSTL	ND (0.01)	ND (0.01)	ND (0.005)	ND (0.005)
01990	01-24-91	QSTL	ND (0.01)	0.021	ND (0.01)	ND (0.005)
02416	05-07-91	QSTL	ND (0.01)	0.015	ND (0.005)	ND (0.005)
02187	07-31-91	QSTL	ND (0.01)	0.011	ND (0.01)	ND (0.005)
02731	10-15-91	QSTL	ND (0.01)	0.019	ND (0.005)	ND (0.01)
4097	07-28-92	QSTL	0.011	ND (0.01)	ND (0.005)	ND (0.005)
5839	01-19-93	QSTL	0.011	NA	ND (0.005)	NA
6312	04-27-93	QARV	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.05)
6994	11-09-93	QSTL	0.01	NA	0.018	NA
00140	05-03-94	QSTL	ND (0.01)	NA	ND (0.003)	NA
00143 ^d	05-04-94	QSTL	ND (0.01)	NA	ND (0.003)	NA
01010	10-25-94	QSTL	ND (0.01)	NA	ND (0.003)	NA
01012 ^d	10-25-94	QSTL	ND (0.01)	NA	ND (0.003)	NA
03315	04-19-95	QARV	ND (0.003)	NA	ND (0.031)	NA
04407	10-20-95	GEL	0.0428	NA	ND (0.00113)	NA
5048	04-18-96	GEL	0.0116 B	NA	ND (0.00113)	NA
06617	04-23-97	ERCL	1.1	NA	ND (0.0017)	NA
06880	10-15-97	GEL	0.0474	0.00194 J (0.005)	ND (0.00068)	ND (0.00068)
06880 ^d	10-15-97	GEL	0.0405	0.00207 J (0.005)	ND (0.00068)	ND (0.00068)
510613	04-01-98	GEL	0.326	ND (0.00073)	ND (0.00068)	ND (0.00068)
510608 ^e	04-01-98	QSTL	0.26	NA	ND (0.0011)	NA
601045	11-06-98	GEL	0.0694	0.00453	0.000315 J (0.002)	ND (0.002)
601388	04-14-99	GEL	0.0634	0.00422	ND (0.00031)	ND (0.00031)
602682 ^e	04-14-00	ERCL	0.0113	ND (0.0085)	ND (0.00183)	ND (0.00183)
602683	04-14-00	GEL	0.00867	0.00239 J (0.005)	0.00292 J (0.005)	NA
602683 ^d	04-14-00	GEL	0.0113	NA	ND (0.0017)	NA
603962	04-13-01	GEL	0.0349	NA	ND (0.00344)	NA

NOTE;

- Total is the concentration measured in an unfiltered groundwater sample
- Dissolved is the concentration measured in a filtered groundwater sample
- ND (0.01) means chromium was not detected in the groundwater sample at a method detection limit of 0.01 mg/L.
- NA means the groundwater sample was not analyzed for chromium.
- J means the listed value is an estimated concentration.

Source: Table 4-2 in *Mixed Waste Landfill Groundwater Report, 1990 through 2001, Sandia National Laboratories, Albuquerque, New Mexico SAND 2002-4098* (Goering et al., 2002).

Background water quality monitoring well MWL-MW2. Chromium is not detected as a dissolved constituent in the groundwater samples collected over the period September 28, 1990 through July 27, 1992.

Table 4-3 (Continued)
Summary of Metals Analytical Results for Groundwater Samples from MWL-MW2
1990 through 2001

Sample Attributes			Metals (EPA Method 6010/6010A/6020/7060/7421/ 7470/7740 ^a) (mg/L)			
NMED-Approved Background ^b			0.043		0.01	
EPA Drinking Water MCL ^c			0.1		0.015	
AR/COC Number	Date Sampled	Lab	Chromium		Lead	
			Total	Dissolved	Total	Dissolved
01547	09-28-90	QSTL	ND (0.01)	ND (0.01)	ND (0.005)	ND (0.005)
01991	01-28-91	QSTL	0.017	ND (0.01)	ND (0.005)	ND (0.01)
02351	04-02-91	QSTL	0.014	ND (0.01)	ND (0.005)	ND (0.005)
02205	08-01-91	QSTL	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.005)
02217	10-14-91	QSTL	0.02	ND (0.01)	ND (0.005)	ND (0.005)
4098	07-27-92	QSTL	ND (0.01)	ND (0.01)	ND (0.005)	ND (0.005)
5834	01-18-93	QSTL	0.014	NA	ND (0.01)	NA
6314	04-26-93	QSTL	0.016	0.0077 J (0.01)	ND (0.01)	ND (0.01)
6995	11-08-93	QSTL	ND (0.01)	NA	ND (0.005)	NA
00138	05-02-94	QSTL	(0.01)	NA	ND (0.003)	NA
01009	10-24-94	QSTL	0.0085 J (0.01)	NA	ND (0.003)	NA
03306	04-17-95	QSTL	ND (0.003)	NA	ND (0.031)	NA
5027	04-15-96	QSTL	0.0121 B (0.01)	NA	ND (0.001)	NA
06618	04-24-97	ERCL	0.014 J (0.034)	NA	ND (0.0017)	NA
06881	10-16-97	GEL	0.00669	0.00553	ND (0.00068)	ND (0.00068)
510614	04-02-98	GEL	0.00582	0.00468 J (0.005)	ND (0.00068)	ND (0.00068)
510608 ^d	04-02-98	QSTL	0.0007 J (0.005)	NA	ND (0.003)	NA
601046	11-06-98	GEL	0.00652	0.00357	0.00083 J (0.002)	ND (0.00031)
601386	04-19-99	GEL	0.0211	0.003	0.00069 J (0.002)	ND (0.00031)
602685	04-24-00	GEL	0.0131	NA	ND (0.00183)	NA
603963	04-23-01	GEL	0.0241	NA	ND (0.00344)	NA

NOTE;

- Total is the concentration measured in an unfiltered groundwater sample
- Dissolved is the concentration measured in a filtered groundwater sample
- ND (0.01) means chromium was not detected in the groundwater sample at a method detection limit of 0.01 mg/L.
- NA means the groundwater sample was not analyzed for chromium.
- J means the listed value is an estimated concentration.

Source: Table 4-3 in *Mixed Waste Landfill Groundwater Report, 1990 through 2001, Sandia National Laboratories, Albuquerque, New Mexico SAND 2002-4098* (Goering et al., 2002).

Contaminant detection monitoring well MWL-MW3. Chromium is detected as a dissolved constituent in the groundwater samples beginning with the first groundwater sample collected on September 28, 1990.

**Table 4-4 (Continued)
Summary of Metals Analytical Results for Groundwater Samples from MWL-MW3
1990 through 2001**

Sample Attributes			Metals (EPA Method 6010A/6010B/7060/7421/ 7470/7740 ^a) (mg/L)			
NMED-Approved Background ^b			0.043		0.01	
EPA Drinking Water MCL ^c			0.1		0.015	
AR/COC Number	Date Sampled	Lab	Chromium		Lead	
			Total	Dissolved	Total	Dissolved
01549	09-28-90	QSTL	ND (0.01)	0.013	ND (0.005)	0.0058
01992	01-28-91	QSTL	0.021	0.016	ND (0.005)	ND (0.005)
02352	04-02-91	QSTL	0.017	ND (0.01)	ND (0.005)	ND (0.01)
02204	08-05-91	QSTL	0.027	0.015	ND (0.005)	ND (0.005)
02728	10-15-91	QSTL	0.018	ND (0.01)	ND (0.01)	ND (0.005)
4099	07-28-92	QSTL	0.056	ND (0.01)	ND (0.005)	ND (0.005)
5837	01-19-93	QSTL	0.026	NA	ND (0.01)	NA
6315	04-27-93	QSTL	0.029	0.011	ND (0.05)	ND (0.05)
6994	11-09-93	QSTL	0.01	NA	ND (0.005)	NA
00141	05-02-94	QSTL	0.0092 J (0.01)	NA	ND (0.003)	NA
01011	10-25-94	QSTL	ND (0.01)	NA	ND (0.003)	NA
03306	04-17-95	QARV	ND (0.003)	NA	ND (0.031)	NA
04393	10-16-95	GEL	0.0369	NA	ND (0.00113)	NA
5027	04-18-96	GEL	0.0207 J,B (0.01)	NA	ND (0.00113)	NA
06618	04-24-97	ERCL	ND (0.0084)	NA	ND (0.0017)	NA
06881	10-15-97	GEL	0.00264 J (0.005)	0.0123	ND (0.00068)	ND (0.00068)
510614	04-02-98	GEL	0.00871	0.00227 J (0.005)	ND (0.00068)	ND (0.00068)
601047	11-06-98	GEL	0.00979	0.00398	0.00046 J (0.002)	0.00031 J (0.002)
601388	04-12-99	GEL	0.00506 B	0.00276 J,B (0.003)	ND (0.00031)	ND (0.00031)
602687	04-13-00	GEL	0.00849	NA	ND (0.00183)	NA
603964	04-08-01	GEL	0.0876	NA	0.00058 J (0.002)	NA

NOTE;

- Total is the concentration measured in an unfiltered groundwater sample
- Dissolved is the concentration measured in a filtered groundwater sample
- ND (0.01) means chromium was not detected in the groundwater sample at a method detection limit of 0.01 mg/L.
- NA means the groundwater sample was not analyzed for chromium.
- J means the listed value is an estimated concentration.

Source: Table 4-1 in *Mixed Waste Landfill Groundwater Report, 1990 through 2001, Sandia National Laboratories, Albuquerque, New Mexico SAND 2002-4098* (Goering et al., 2002).