



10/19/07

Rusty Wilder, PE
Civil Engineer
USDA Forest Service
Black Hills National Forest
25041 North Hwy 16
Custer, SD 57730

**Subject: Groundwater Monitoring Letter Report, May 2007
Nemo Work Center, Nemo, South Dakota
USDA Forest Service, Black Hills District
Contract No.: 53-84N8-4-013, T.O. 2005-9**

Dear Mr. Wilder:

URS Group, Inc. (URS), under USDA Forest Service contract at the Nemo Work Center Site (Nemo Site) and surrounding areas on Black Hills National Forest, South Dakota, completed the May 2007 groundwater-monitoring event. This letter report was prepared by URS in accordance with the Statement of Work for the contract specified above.

The primary contaminant of concern (COC) at the Nemo Site is ethylene dibromide (EDB) which is associated with the Forest Service's previous use of pesticides. Figures 1 and 2 present the location of the Nemo Site and the layout of the site.

The objective of the groundwater monitoring is to assess changes in contaminant levels during the operation of the Nemo Groundwater Treatment System that was installed during the fall of 2006. Currently, the groundwater monitoring is being conducted on a semi-annual basis.

The following paragraphs summarize the recent field activities, document the results of this sampling event, and present the results in tabular formats in the attached figures and tables.

Groundwater Elevation Measurements

Potentiometric head measurements were performed at selected wells on May 8th-10th, 2007 in order to determine the relative elevation of the shallow groundwater surface. The results of these measurements are summarized on Table 1. Potentiometric contours are shown in Figure 3. The potentiometric head difference across the site was 85.84 feet (ft). Potentiometric head measurements were not obtained at the seven active extraction wells since the access was obstructed by the pump and discharge line.

Groundwater Sampling

During 8 through 10 May 2007, groundwater samples were collected from nine groundwater-monitoring wells, 15 domestic wells, and 7 extraction wells. Samples were collected using low-flow groundwater sampling techniques from the nine monitoring wells and five of the domestic wells. Low-flow groundwater sampling involves measuring the static groundwater level, then slowly purging the well using a low-volume bladder pump. The water level is monitored during purging to minimize drawdown of the water table (e.g., less than 0.3 ft if possible). Field parameters (pH, temperature, conductivity, dissolved oxygen, ORP, and turbidity) were monitored during purging until the measurements stabilized (i.e., three consecutive readings varying by less than 10%). The last recorded measurements of these parameters are summarized in Table 2. When the water level and field parameters stabilized, demonstrating that groundwater representative of the formation surrounding the well was present, a sample was collected for laboratory analysis.

Grab samples were collected from ten domestic wells that have an electric pump installed for domestic use. Grab samples were also collected from the seven extraction wells (i.e., MW-3, -10, -20, -24, -25, -26, and -27 on 09 May 2007). These samples were collected from the influent line sample port for each well located in the treatment shed.

A total of 31 samples were collected for analysis of EDB. Additionally, 27 samples were also analyzed for total petroleum hydrocarbons, diesel range organics (TPH-DRO) and bromide. Upon collection, samples were labeled, placed on ice, and delivered to Mid-Continent Laboratory, Inc., of Rapid City, South Dakota (Mid-Continent) under chain-of-custody procedures. Mid-Continent analyzed the samples using EPA Method 524.2 for low-level 1,2-ethylene dibromide, EPA Method 8015B for TPH-DRO, and SM 4500 for bromide.

Analytical Results

The analytical results for samples collected during the May 2006 groundwater sampling at the Nemo Site are summarized on Table 2 and results are shown graphically on Figure 3. The complete analytical results packet is included as Attachment A. Significant results include:

- EDB was detected at concentrations exceeding the federal maximum contaminant level (MCL) of 0.05 µg/L (EPA 2002) at the following wells:

<u>Sampling Location</u>	<u>EDB Concentration (µg/L)</u>
MW-1	18.8
MW-3	0.079
MW-10	25.6
MW-19	12.4
MW-20	8.09
MW-22	0.537
MW-24	2.27
MW-25	1.6

<u>Sampling Location</u>	<u>EDB Concentration</u> ($\mu\text{g/L}$)
MW-26	0.272
MW-27	5.16
Kaberna	0.0804
School	0.21
Adams	0.233

- TPH-DRO was detected in the sample from MW-10 at a concentration of 9.78 milligrams per liter (mg/L). MW-10 also contained the highest detected concentration of EDB (25.6 $\mu\text{g/L}$). No other samples contained TPH-DRO above laboratory reporting limits. There is no MCL for TPH-DRO. The laboratory-supplied chromatogram for the TPH-DRO is interpreted to suggest that the detected petroleum hydrocarbons have a chromatographic signature more similar to 10W-30 motor oil than No. 2 fuel oil.
- Bromide was detected above the laboratory-reporting limit in six wells (Table 2) ranging from 0.100 to 0.160 mg/L. Elevated bromide levels did not correlate well with elevated EDB concentrations.

Treatment System Performance Samples

Two samples were collected from the system effluent and submitted for laboratory analysis. One was collected between the first and second carbon canisters and one was collected from the treated effluent (i.e., after all three carbon canisters). EDB was not detected above the laboratory-reporting limit in either sample, indicating that the treatment system is performing as designed.

Quality Control Samples

One matrix spike (MS), one matrix spike duplicate (MSD), and two field duplicate samples were collected during this sampling event. Additionally, one trip blank sample was submitted with the collected field samples. Quality control (QC) samples were reviewed as a part of the validation process.

Data Quality Review

A review was conducted on the laboratory data for compliance with generally accepted QC practices. The data are considered usable, as qualified, for the project objectives of determining EDB, TPH, and bromide concentrations in groundwater. The results were reported by Mid-Continent in a data package which included the associated QC samples (field duplicates, MS/MSDs and trip blanks). Samples were collected in laboratory-supplied containers with chemical preservative if appropriate. The temperatures of the coolers containing samples received by Mid-Continent under chain-of-custody were within the 4°C + 2°C acceptance criteria. Samples were analyzed within the holding times as required by the laboratory method.

Summary of Findings

Based on potentiometric head measurements performed at the measuring points, the general groundwater flow direction across the site is from NNW to SSE. However, interpretation of measurements indicates a potentiometric high centered near MW-19. This manifests in mounding of shallow groundwater along a NNW-SSE oriented potentiometric ridge. This creates a localized flow direction falling to either side of this potentiometric ridge that is created, which may affect local contaminant flow.

Concentrations reported in analytical samples collected during this event were generally comparable with previous data. An EDB concentration of 18.8 $\mu\text{g/L}$ was reported in the sample from MW-1, which is the highest concentration reported since April 2001. This result may indicate that EDB is being mobilized from the source area to the north as a result of the re-injection of treated effluent from the system.

The detected concentration of TPH-DRO in MW-10 is chromatographically more similar to 10W-30 motor oil than to diesel. As such, this detection may be unrelated to pesticide use.

If you have questions regarding the activities or results associated with the Nemo Site Groundwater Monitoring, please contact Craig Weber at (303) 796-4667 or David Cox at (303) 796-4659.

Sincerely,

Craig Weber, P.E.
Project Manager

David Cox
Hydrogeologist

Attachments

c: Tony Balistreri, USFS-Spearfish
Project File

References

Environmental Protection Agency (EPA). *List of Drinking Water Contaminants & MCLs*. EPA Publication 816-F-02-013. Effective July 2002.

Tables, Figures, and Attachments
Groundwater Monitoring Letter Report
Spearfish Work Center, Nemo, South Dakota

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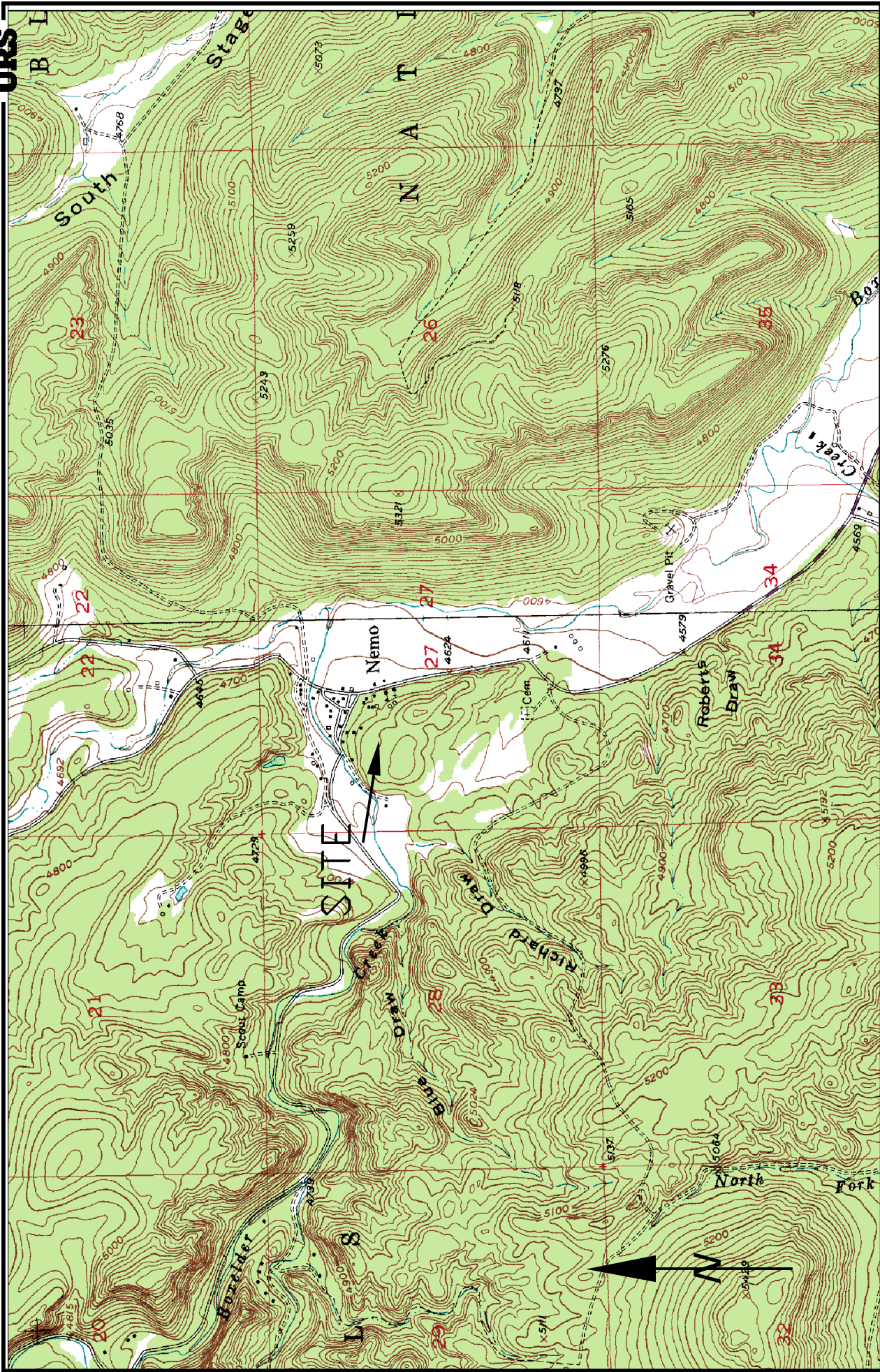


FIGURE 1

SITE LOCATION MAP
NEMO WORK CENTER
 USDA Forest Service

Job No. : 22238383

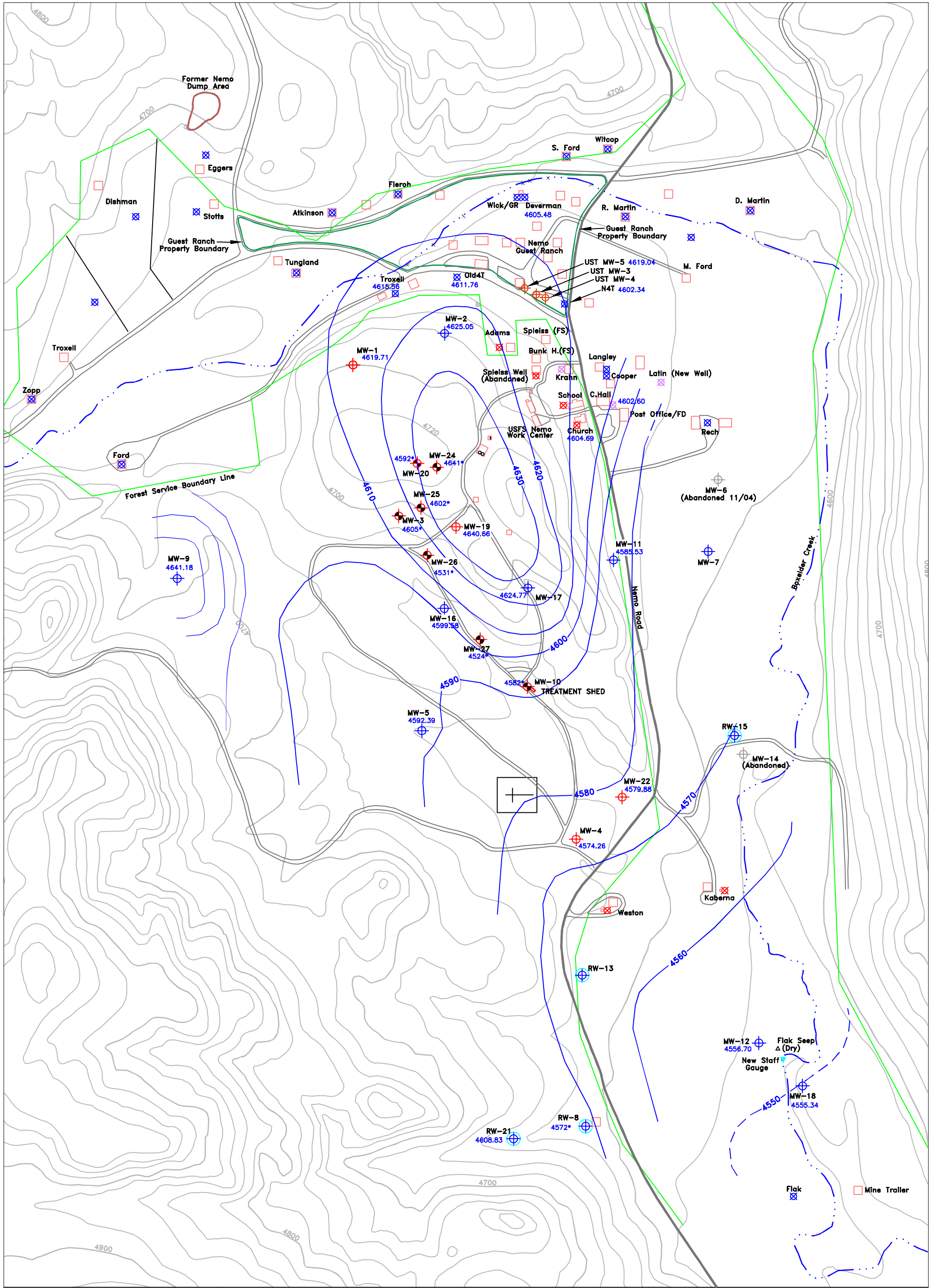
Prepared By : DMC

Date : 1/18/07



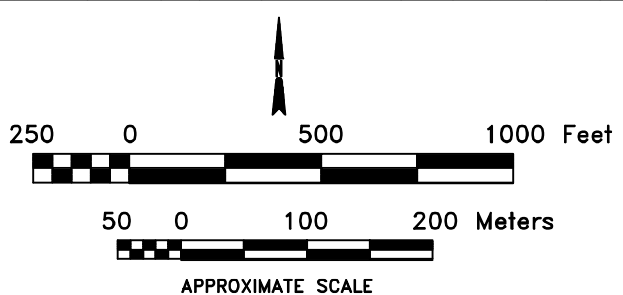
Approximate Scale in Miles

SOURCE: Topozone.com

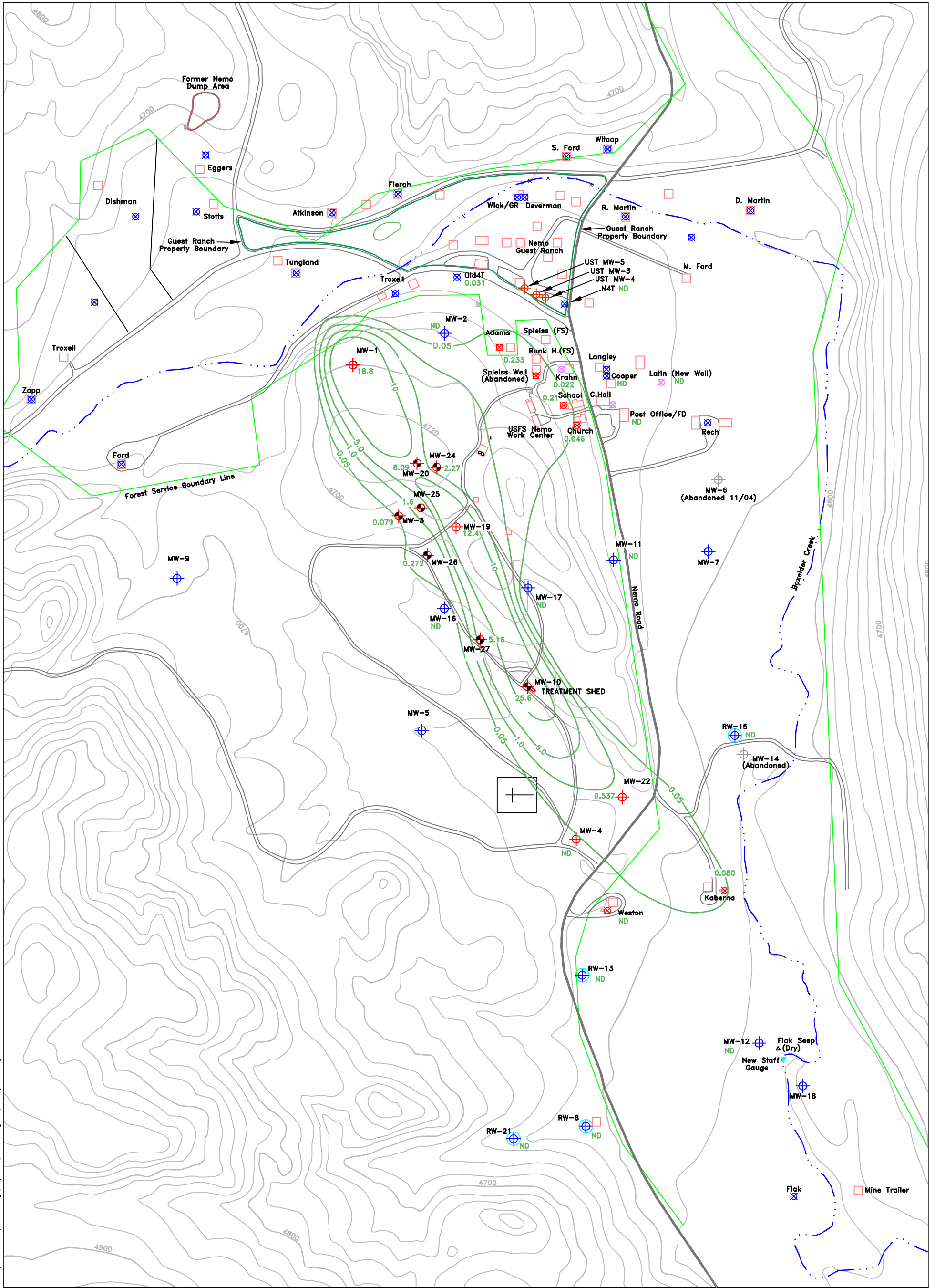


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LEGEND	
	Monitoring Well (Impacted in Red, Non-Impacted in Blue)
	Water Supply Well
	Domestic Well (Impacted in Red, Non-Impacted in Blue)
	Extraction Well
	Building
4823.25	Groundwater Elevation
4203*	Approximate Elevation of Pumping Well (not used in contouring)
	Groundwater Potentiometric Contour



URS	USDA Forest Service
FIGURE 2 USDA FOREST SERVICE, SPEARFISH WORK CENTER NEMO SITE LAYOUT GROUNDWATER ELEVATIONS	
BLACK HILLS NATIONAL FOREST, SOUTH DAKOTA	
07-11-07	22238383
DMC	



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LEGEND	
	Monitoring Well (Impacted in Red, Non-Impacted in Blue)
	Water Supply Well
	Domestic Well (Impacted in Red, Non-Impacted in Blue)
	Extraction Well
	Building
	EDB Concentration (ug/L)
	Isoconcentration Contour

APPROXIMATE SCALE

URS		USDA Forest Service
FIGURE 4		
USDA FOREST SERVICE, SPEARFISH WORK CENTER NEMO SITE LAYOUT EDB CONCENTRATIONS		
BLACK HILLS NATIONAL FOREST, SOUTH DAKOTA		
09-28-07	22238383	DMC

Tables

TABLE 1
Potentiometric Head Measurements
USFS Nemo Work Center

Monitoring Location	Top of Casing Elevation (ft. above MSL)	Date	Depth to Water (ft btoc)	Groundwater Elevation (ft. above MSL)
MW-1	4696.04	3/26/1997	72.53	4623.51
MW-1	4696.04	5/29/1997	66.33	4629.71
MW-1	4696.04	11/18/1997	77.10	4618.94
MW-1	4696.04	4/21/1998	76.45	4619.59
MW-1	4696.04	7/14/1998	75.72	4620.32
MW-1	4696.04	10/14/1998	76.44	4619.60
MW-1	4696.04	1/25/1999	76.07	4619.97
MW-1	4696.04	4/19/1999	75.37	4620.67
MW-1	4696.04	9/13/1999	75.94	4620.10
MW-1	4696.04	4/17/2000	77.46	4618.58
MW-1	4696.04	10/22/2000	77.00	4619.04
MW-1	4696.04	4/21/2001	76.56	4619.48
MW-1	4696.04	9/28/2001	77.33	4618.71
MW-1	4696.04	4/26/2002	77.96	4618.06
MW-1	4696.04	10/9/2002	78.32	4617.72
MW-1	4696.04	5/26/2003	77.61	4618.43
MW-1	4696.04	12/17/2003	78.19	4617.84
MW-1	4696.04	10/15/2004	80.60	4615.44
MW-1	4696.04	12/1/2004	78.90	4617.14
MW-1	4696.04	5/22/2005	78.18	4617.86
MW-1	4696.04	10/24/2006	77.32	4618.72
MW-1	4696.04	5/8/2007	76.33	4619.71
MW-2	4677.17	3/28/1997	47.8	4629.31
MW-2	4677.17	5/29/1997	46.76	4630.35
MW-2	4677.17	11/18/1997	47.4	4629.71
MW-2	4677.17	4/21/1998	47.54	4629.57
MW-2	4677.17	7/14/1998	47.73	4629.38
MW-2	4677.17	10/14/1998	47.52	4629.59
MW-2	4677.17	1/25/1999	47.06	4630.05
MW-2	4677.17	4/19/1999	47.37	4629.74
MW-2	4677.17	9/13/1999	46.56	4630.55
MW-2	4677.17	4/17/2000	47.8	4629.31
MW-2	4677.17	10/23/2000	47.33	4629.78
MW-2	4677.17	4/21/2001	48.06	4629.05
MW-2	4677.17	9/28/2001	48.39	4628.72
MW-2	4677.17	4/26/2002	48.39	4628.39
MW-2	4677.17	10/9/2002	49.09	4628.08
MW-2	4677.17	5/26/2003	49.57	4627.60
MW-2	4677.17	12/17/2003	49.81	4627.32
MW-2	4677.17	10/15/2004	52.33	4624.84
MW-2	4677.17	5/22/2005	50.76	4626.41
MW-2	4677.17	10/25/2006	51.78	4625.39
MW-2	4677.17	5/8/2007	52.12	4625.05
MW-3	4683.15	3/24/1997	66.5	4616.65
MW-3	4683.15	5/29/1997	58.28	4624.87
MW-3	4683.15	11/18/1998	72.9	4610.25
MW-3	4683.15	4/21/1998	71.12	4612.03
MW-3	4683.15	7/14/1998	68.33	4614.82
MW-3	4683.15	10/14/1998	72.02	4611.13
MW-3	4683.15	1/25/1999	69.68	4613.47
MW-3	4683.15	4/19/1999	69.84	4613.31
MW-3	4683.15	9/13/1999	69.4	4613.75
MW-3	4683.15	4/17/2000	74.02	4609.13
MW-3	4683.15	10/23/2000	72.31	4610.84
MW-3	4683.15	4/21/2001	70.22	4612.93
MW-3	4683.15	9/28/2001	73.32	4609.83
MW-3	4683.15	4/26/2002	75.52	4607.63
MW-3	4683.15	10/9/2002	76.7	4606.45
MW-3	4683.15	5/26/2003	75.97	4606.18
MW-3	4683.15	12/17/2003	77.24	4605.91
MW-3	4683.15	10/15/2004	80.47	4602.68
MW-3	4683.15	12/1/2004	79.07	4604.08
MW-3	4683.15	12/1/2004	79.08	4604.07

TABLE 1
Potentiometric Head Measurements
USFS Nemo Work Center

Monitoring Location	Top of Casing Elevation (ft. above MSL)	Date	Depth to Water (ft btoc)	Groundwater Elevation (ft. above MSL)
MW-4	4624.02	3/17/1997	29.38	4594.64
MW-4	4624.02	5/29/1997	23.74	4600.28
MW-4	4624.02	11/18/1997	34.8	4589.22
MW-4	4624.02	4/21/1998	33.71	4590.31
MW-4	4624.02	7/14/1998	30.03	4593.99
MW-4	4624.02	10/14/1998	35.3	4588.72
MW-4	4624.02	1/25/1999	32.28	4591.74
MW-4	4624.02	4/19/1999	31.75	4592.27
MW-4	4624.02	9/13/1999	32.88	4591.14
MW-4	4624.02	4/17/2000	48.24	4575.78
MW-4	4624.02	10/23/2000	39.82	4584.20
MW-4	4624.02	4/21/2001	33.44	4590.58
MW-4	4624.02	9/28/2001	48.48	4575.54
MW-4	4624.02	4/26/2002	47.64	4576.38
MW-4	4624.02	10/9/2002	48.7	4575.32
MW-4	4624.02	5/26/2003	48.32	4575.70
MW-4	4624.02	10/15/2004	55.18	4568.84
MW-4	4624.02	5/22/2005	49.62	4574.44
MW-4	4624.02	10/24/2006	50.33	4573.69
MW-4	4624.02	5/8/2007	49.76	4574.26
MW-5	4635.28	3/27/1997	27.31	4607.97
MW-5	4635.28	5/29/1997	21.93	4613.35
MW-5	4635.28	11/18/1997	33.5	4601.78
MW-5	4635.28	4/21/1998	31.3	4603.98
MW-5	4635.28	7/14/1998	28.23	4607.05
MW-5	4635.28	10/14/1998	32.3	4602.98
MW-5	4635.28	1/25/1999	30.21	4605.07
MW-5	4635.28	4/19/1999	29.94	4605.34
MW-5	4635.28	9/13/1999	30.73	4604.55
MW-5	4635.28	4/17/2000	35.16	4600.12
MW-5	4635.28	10/23/2000	33.14	4602.14
MW-5	4635.28	4/21/2001	30.92	4604.36
MW-5	4635.28	9/28/2001	34.18	4601.10
MW-5	4635.28	4/26/2002	36.2	4599.08
MW-5	4635.28	10/9/2002	37.87	4597.41
MW-5	4635.28	5/26/2003	37.07	4598.21
MW-5	4635.28	10/15/2004	41.42	4593.86
MW-5	4635.28	5/22/2005	40.22	4595.06
MW-5	4635.28	5/8/2007	42.89	4592.39
MW-6	4600.09	3/29/1997	13.7	4589.39
MW-6	4600.09	5/29/1997	12.48	4587.61
MW-6	4600.09	11/18/1997	14.3	4585.79
MW-6	4600.09	4/21/1998	13.74	4586.35
MW-6	4600.09	7/14/1998	13.55	4586.54
MW-6	4600.09	10/14/1998	13.72	4586.37
MW-6	4600.09	1/25/1999	13.86	4586.23
MW-6	4600.09	4/19/1999	13.45	4586.64
MW-6	4600.09	9/13/1999	13.45	4586.36
MW-6	4600.09	4/17/2000	16.26	4583.83
MW-6	4600.09	10/23/2000	14.14	4585.95
MW-6	4600.09	4/21/2001	13.8	4586.29
MW-6	4600.09	9/28/2001	14.38	4585.71
MW-6	4600.09	4/26/2002	14.24	4585.84
MW-6	4600.09	10/9/2002	14.36	4585.73
MW-6	4600.09	5/26/2003	13.69	4586.40
MW-6	4600.09	10/15/2004	16.62	4583.47
MW-6 Abandoned	NA	NA	NA	NA
MW-7	4597.63	3/29/1997	18.63	4579.00
MW-7	4597.63	5/29/1997	15.89	4581.74
MW-7	4597.63	11/18/1997	20.3	4577.33
MW-7	4597.63	4/21/1998	19.1	4578.53

TABLE 1
Potentiometric Head Measurements
USFS Nemo Work Center

Monitoring Location	Top of Casing Elevation (ft. above MSL)	Date	Depth to Water (ft btoc)	Groundwater Elevation (ft. above MSL)
MW-7	4597.63	7/14/1998	18.93	4578.70
MW-7	4597.63	10/14/1998	19	4578.63
MW-7	4597.63	1/25/1999	19.4	4578.23
MW-7	4597.63	4/19/1999	18.6	4579.03
MW-7	4597.63	9/13/1999	19.31	4578.32
MW-7	4597.63	4/17/2000	20.05	4577.58
MW-7	4597.63	10/23/2000	20.23	4577.40
MW-7	4597.63	4/21/2001	19.54	4578.09
MW-7	4597.63	9/28/2001	20.45	4577.18
MW-7	4597.63	4/26/2002	20	4577.83
MW-7	4597.63	10/9/2002	20.35	4577.28
MW-7	4597.63	5/26/2003	19.49	4578.14
MW-7	4597.63	10/15/2004	22.63	4575.00
MW-7	4597.63	5/22/2005	19.9	4577.73
RW-8	4604.67	3/13/1997	21.18	4583.49
RW-8	4604.67	5/29/1997	8.14	4596.53
RW-8	4604.67	11/12/1998	22.72	4581.95
RW-8	4604.67	12/2/2004	33.58	4571.09
RW-8	4604.67	5/8/2007	32.74	4571.93
MW-9	4694.39	5/29/1997	36.69	4657.70
MW-9	4694.39	11/18/1997	50.3	4644.09
MW-9	4694.39	4/21/1998	49.4	4644.99
MW-9	4694.39	7/14/1998	47.61	4646.78
MW-9	4694.39	10/14/1998	48.94	4645.45
MW-9	4694.39	1/25/1999	49.21	4645.18
MW-9	4694.39	4/19/1999	48.2	4646.19
MW-9	4694.39	9/13/1999	50.28	4644.11
MW-9	4694.39	4/17/2000	34.58	4659.81
MW-9	4694.39	10/23/2000	52.1	4642.29
MW-9	4694.39	4/21/2001	50.9	4643.49
MW-9	4694.39	9/28/2001	52.81	4641.58
MW-9	4694.39	4/26/2002	53.44	4640.95
MW-9	4694.39	10/9/2002	54.4	4639.99
MW-9	4694.39	5/26/2003	52.86	4641.53
MW-9	4694.39	10/15/2004	57.58	4636.81
MW-9	4694.39	5/22/2005	55.02	4639.37
MW-9	4694.39	5/8/2007	53.21	4641.18
MW-10	4630.18	5/29/1997	19.23	4610.95
MW-10	4630.18	11/18/1997	29.8	4600.38
MW-10	4630.18	4/21/1998	28.8	4601.38
MW-10	4630.18	7/14/1998	25.7	4604.48
MW-10	4630.18	10/14/1998	30.49	4599.69
MW-10	4630.18	1/25/1999	27.57	4602.61
MW-10	4630.18	4/19/1999	27.24	4604.61
MW-10	4630.18	9/13/1999	27.89	4602.29
MW-10	4630.18	4/17/2000	35	4595.18
MW-10	4630.18	10/23/2000	32.54	4597.64
MW-10	4630.18	4/21/2001	28.38	4601.80
MW-10	4630.18	9/28/2001	34.21	4595.97
MW-10	4630.18	4/26/2002	35.84	4594.34
MW-10	4630.18	10/9/2002	36.87	4593.31
MW-10	4630.18	5/26/2003	36.46	4593.72
MW-10	4630.18	10/15/2004	39.9	4590.28
MW-10	4630.18	12/1/2004	38.22	4591.96
MW-10	4630.18	5/22/2005	38.68	4591.15
MW-11	4631.85	5/29/1997	27.97	4603.88
MW-11	4631.85	11/18/1997	33.4	4598.45
MW-11	4631.85	4/21/1998	37	4594.85
MW-11	4631.85	7/14/1998	35.79	4596.06
MW-11	4631.85	10/14/1998	36.6	4595.25
MW-11	4631.85	1/25/1999	35.58	4596.27

TABLE 1
Potentiometric Head Measurements
USFS Nemo Work Center

Monitoring Location	Top of Casing Elevation (ft. above MSL)	Date	Depth to Water (ft btoc)	Groundwater Elevation (ft. above MSL)
MW-11	4631.85	4/19/1999	35.74	4596.11
MW-11	4631.85	9/13/1999	32.71	4599.14
MW-11	4631.85	4/17/2000	36.8	4595.05
MW-11	4631.85	10/23/2000	35.1	4596.75
MW-11	4631.85	4/21/2001	36.4	4595.45
MW-11	4631.85	9/28/2001	38.52	4593.33
MW-11	4631.85	4/26/2002	40.63	4591.22
MW-11	4631.85	10/9/2002	43.41	4588.44
MW-11	4631.85	5/26/2003	43.51	4588.34
MW-11	4631.85	10/15/2004	48.29	4583.56
MW-11	4631.85	5/22/2005	47.4	4584.45
MW-11	4631.85	10/25/2006	47.65	4584.20
MW-11	4631.85	5/10/2007	46.32	4585.53
MW-12	4568.62	5/29/2007	3.12	4565.50
MW-12	4568.62	11/18/2007	12.8	4555.82
MW-12	4568.62	4/21/2008	11.66	4556.96
MW-12	4568.62	7/14/2008	10.86	4557.76
MW-12	4568.62	10/14/2008	11.8	4556.82
MW-12	4568.62	1/25/2009	12.1	4556.52
MW-12	4568.62	4/19/1999	10.97	4557.65
MW-12	4568.62	9/13/2009	9.99	4556.73
MW-12	4568.62	4/17/2000	13.24	4555.38
MW-12	4568.62	10/23/2000	13.54	4555.08
MW-12	4568.62	4/21/2001	12.56	4556.06
MW-12	4568.62	9/28/2001	13.64	4554.98
MW-12	4568.62	4/26/2002	12.91	4555.81
MW-12	4568.62	10/9/2002	13.8	4554.82
MW-12	4568.62	5/26/2003	12.38	4556.24
MW-12	4568.62	10/15/2004	16.4	4552.22
MW-12	4568.62	5/22/2005	12.92	4555.70
MW-12	4568.62	10/25/2006	14.51	4554.11
MW-12	4568.62	5/10/2007	11.92	4556.70
RW-13	4613.68	6/19/1997	18.4	4595.28
RW-13	4613.68	11/4/1997	36	4577.68
RW-14 Abandoned	NA	NA	NA	NA
RW-15	4584.38	11/13/1997	14.12	4570.26
MW-16	4650.57	5/4/1998	41.02	4609.55
MW-16	4650.57	7/14/1998	38.15	4612.42
MW-16	4650.57	10/14/1998	41.5	4609.09
MW-16	4650.57	1/25/1999	40.28	4610.29
MW-16	4650.57	4/19/1999	39.76	4610.81
MW-16	4650.57	9/13/1999	40.58	4609.99
MW-16	4650.57	4/17/2000	43.64	4606.93
MW-16	4650.57	10/23/2000	33.31	4617.26
MW-16	4650.57	4/21/2001	40.58	4609.99
MW-16	4650.57	9/28/2001	43.02	4607.55
MW-16	4650.57	4/26/2002	44.36	4606.21
MW-16	4650.57	10/9/2002	45.31	4605.26
MW-16	4650.57	5/26/2003	44.47	4606.10
MW-16	4650.57	10/15/2004	48.92	4601.65
MW-16	4650.57	5/22/2005	47.4	4603.17
MW-16	4650.57	10/24/2006	46.08	4604.49
MW-16	4650.57	5/8/2007	50.99	4599.58
MW-17	4679.75	5/5/1998	45.4	4634.35
MW-17	4679.75	7/14/1998	44.41	4635.34
MW-17	4679.75	10/14/1998	47.54	4632.21
MW-17	4679.75	1/25/1999	49.11	4630.64
MW-17	4679.75	4/19/1999	47.56	4632.19
MW-17	4679.75	9/13/1999	47.1	4632.65

TABLE 1
Potentiometric Head Measurements
USFS Nemo Work Center

Monitoring Location	Top of Casing Elevation (ft. above MSL)	Date	Depth to Water (ft btoc)	Groundwater Elevation (ft. above MSL)
MW-17	4679.75	4/17/2000	50.4	4629.35
MW-17	4679.75	10/23/2000	49.13	4630.62
MW-17	4679.75	4/21/2001	49.62	4630.13
MW-17	4679.75	9/28/2001	50.4	4629.35
MW-17	4679.75	4/26/2002	51.46	4628.28
MW-17	4679.75	10/9/2002	51.62	4628.13
MW-17	4679.75	5/26/2003	51.25	4628.50
MW-17	4679.75	10/15/2004	57.49	4622.26
MW-17	4679.75	12/1/2004	56.5	4623.25
MW-17	4679.75	5/22/2005	58	4621.75
MW-17	4679.75	10/24/2006	51.5	4628.25
MW-17	4679.75	5/8/2007	54.98	4624.77
MW-18	4562.96	6/1/1998	8.42	4554.54
MW-18	4562.96	7/14/1998	7.72	4555.24
MW-18	4562.96	10/14/1998	8.24	4554.74
MW-18	4562.96	1/25/1999	8.66	4554.30
MW-18	4562.96	4/19/1999	7.72	4555.24
MW-18	4562.96	9/13/1999	8.58	4554.38
MW-18	4562.96	4/17/2000	9.05	4553.91
MW-18	4562.96	10/23/2000	9.51	4553.45
MW-18	4562.96	4/21/2001	8.6	4554.36
MW-18	4562.96	9/28/2001	9.48	4553.48
MW-18	4562.96	4/26/2002	8.5	4554.46
MW-18	4562.96	10/9/2002	8.5	4554.46
MW-18	4562.96	5/26/2003	8.17	4554.79
MW-18	4562.96	10/15/2004	11.9	4551.06
MW-18	4562.96	5/22/2005	8.58	4554.38
MW-18	4562.96	5/10/2007	7.62	4555.34
MW-19	4684.87	6/2/1998	41.38	4643.49
MW-19	4684.87	7/14/1998	54.36	4630.51
MW-19	4684.87	10/14/1998	54.01	4630.86
MW-19	4684.87	1/25/1999	54.26	4630.61
MW-19	4684.87	4/19/1999	55.22	4629.65
MW-19	4684.87	9/13/1999	53.11	4631.76
MW-19	4684.87	4/17/2000	57.44	4627.43
MW-19	4684.87	10/23/2000	55.84	4629.03
MW-19	4684.87	4/21/2001	54.9	4629.97
MW-19	4684.87	9/28/2001	57.72	4627.15
MW-19	4684.87	4/26/2002	59.05	4625.82
MW-19	4684.87	10/9/2002	60.07	4624.80
MW-19	4684.87	5/26/2003	60.78	4624.09
MW-19	4684.87	10/15/2004	63.82	4621.05
MW-19	4684.87	12/1/2004	62.36	4622.51
MW-19	4684.87	5/22/2005	62	4622.87
MW-19	4684.87	10/24/2006	46.82	4638.05
MW-19	4684.87	5/8/2007	44.21	4640.66
MW-20	4727.01	10/21/1998	88.08	4638.93
MW-20	4727.01	1/25/1999	87.62	4639.39
MW-20	4727.01	4/19/1999	87.42	4639.59
MW-20	4727.01	9/13/1999	83.6	4643.41
MW-20	4727.01	4/17/2000	88.4	4638.61
MW-20	4727.01	10/23/2000	87.04	4639.97
MW-20	4727.01	4/21/2001	88.06	4638.95
MW-20	4727.01	9/28/2001	88.3	4638.71
MW-20	4727.01	4/26/2002	90.02	4636.99
MW-20	4727.01	10/9/2002	91.18	4635.83
MW-20	4727.01	5/26/2003	92.47	4634.54
MW-20	4727.01	12/17/2003	92.19	4634.82
MW-20	4727.01	10/15/2004	95.06	4631.95
MW-20	4727.01	12/1/2004	93.69	4633.32
MW-20	4727.01	5/22/2005	93.9	4633.11

TABLE 1
Potentiometric Head Measurements
USFS Nemo Work Center

Monitoring Location	Top of Casing Elevation (ft. above MSL)	Date	Depth to Water (ft btoc)	Groundwater Elevation (ft. above MSL)
RW-21	4625.07	10/25/2003	16.6	4608.47
RW-21	4625.07	12/2/2004	17.14	4607.90
RW-21	4625.07	5/8/2007	16.24	4608.83
MW-22	4604.63	10/25/2003	28.68	4575.95
MW-22	4604.63	10/15/2004	32.38	4572.25
MW-22	4604.63	5/22/2005	30.46	4574.17
MW-22	4604.63	10/24/2006	31.29	4573.34
MW-22	4604.63	5/8/2007	24.75	4579.88
MW-23 Abandoned	NA	NA	NA	NA
Staff Gauge	4,559.15**	7/14/1998	2.6	4556.55
Staff Gauge	4,559.15**	10/14/1998	2.7	4556.65
Staff Gauge	4,559.15**	1/25/1999	2.0	4555.95
Staff Gauge	4,559.15**	4/19/1999	NA	NA
N4T	4621.56	12/17/2003	20.96	4600.60
N4T	4621.56	5/28/2005	19.87	4601.69
N4T	4621.56	5/10/2007	19.22	4602.34
GR UST MW-3	4622.80	12/17/2003	18.86	4603.94
GR UST MW-3	4622.80	5/28/2005	18.4	4604.40
GR UST MW-4	4620.60	12/17/2003	18.62	4601.98
GR UST MW-4	4620.60	5/28/2005	17.68	4602.92
GR UST MW-5	4622.97	12/17/2003	19.2	4603.77
GR UST MW-5	4622.97	5/28/2005	17.52	4605.45
GR UST MW-5	4635.28	10/25/2006	18.3	4616.98
GR UST MW-5	4635.28	5/10/2007	16.24	4619.04
Wick/GR	4620.28	12/17/2003	14.65	4605.63
Wick/GR	4620.28	5/10/2007	NA	NA
Deverman	4620.24	12/17/2003	NA	NA
Deverman	4620.24	5/10/2007	14.76	4605.48
Adams	4652.59	12/17/2003	45.03	4607.56
Adams	4652.59	5/22/2005	44.7	4607.89
Krahn	4635.40	12/17/2003	NA	NA
Krahn	4635.40	5/10/2007	NA	NA
Troxell	4641.67	12/17/2003	26.72	4614.95
Troxell	4641.67	5/22/2005	26.52	4615.15
Troxell	4641.67	10/25/2006	26.59	4615.08
Troxell	4641.67	5/11/2007	26.11	4615.56
Old 4T	4633.01	12/17/2003	21.93	4611.08
Old 4T	4633.01	5/22/2005	21.64	4611.37
Old 4T	4633.01	5/10/2007	21.25	4611.76
Church	4644.29	12/17/2003	41.54	4602.75
Church	4644.29	5/22/2005	40.14	4604.15
Church	4644.29	10/25/2006	41.39	4602.90
Church	4644.29	5/11/2007	39.60	4604.69
Cooper	4631.92	12/17/2003	31.48	4600.44
Cooper	4631.92	5/22/2005	30.88	4601.04

TABLE 1
Potentiometric Head Measurements
USFS Nemo Work Center

Monitoring Location	Top of Casing Elevation (ft. above MSL)	Date	Depth to Water (ft btoc)	Groundwater Elevation (ft. above MSL)
Post Office	4630.38	12/17/2003	29.94	4600.44
Post Office	4630.38	5/22/2005	29.18	4601.20
Post Office	4630.38	5/10/2007	27.78	4602.60
Creek PT 165	NA	12/17/2003	0.0	4604.17
Creek PT 169	NA	12/17/2003	0.0	4606.00
Creek PT 166	NA	12/17/2003	0.0	4606.59
Creek PT 170	NA	12/17/2003	0.0	4607.81
Creek PT 167	NA	12/17/2003	0.0	4608.99
Creek PT 168	NA	12/17/2003	0.0	4610.43
Creek PT 171	NA	12/17/2003	0.0	4612.96
Creek PT 172	NA	12/17/2003	0.0	4614.90
New Staff Gauge	4551.67	5/10/2007	4.26	4547.41

Notes:

* Top of casing elevations and groundwater elevations shown in feet above mean sea level (MSL).

**Elevation measured at top of staff gauge

btoc = below top of casing

ft = feet

MSL = mean sea level

NA = not available

TABLE 2
Summary of Groundwater Analyses
USFS Nemo Work Center

Sampling Location	Date Sampled	EDB (ug/L)	EDC (ug/L)	1,2-DCA (ug/L)	TPH DRO (mg/L)	Bromide (mg/L)
MW-1	3/27/97	0.13	<0.50			
MW-1	4/23/98	6.7				
MW-1	10/15/98	5.7				
MW-1	1/26/99	11				
MW-1	4/26/99	2.4				
MW-1	9/14/99	32				
MW-1	4/18/00	21				
MW-1	10/24/00	24				
MW-1	4/24/01	37				
MW-1	10/2/01	8.6				
MW-1	4/29/02	6.7				
MW-1	10/11/02	4.7				
MW-1	5/28/03	1.6				
MW-1	12/18/03	1.3				
MW-1, Pre Pumping Test	11/30/04	0.332				
MW-1, Post Pumping Test	12/2/04	0.335				
MW-1, grundfos pump	11/1/06	2.110		<0.05		
MW-1, low-flow	10/24/06	1.950		<0.05		
MW-1, low-flow duplicate	10/24/06	2.07		<0.05		
MW-1	5/10/07	18.8			<0.500	<0.100
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MW-2	3/31/97	<0.020	<0.50			
MW-2	4/23/98	<0.020				
MW-2	4/26/99	<0.020				
MW-2	4/24/01	<0.020				
MW-2	10/10/02	<0.020				
MW-2	12/18/03	<0.020	NA			
MW-2	10/25/06	<0.020		<0.05		
MW-2	5/10/07	<0.020			<0.500	<0.100
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MW-3	3/24/97	0.025	<0.50			
MW-3	5/13/97	<0.020	<0.50			
MW-3	6/19/97	0.16	<0.50			
MW-3	6/28/97	0.91	<0.50			
MW-3	4/23/98	0.051				
MW-3	7/17/98	0.024				
MW-3	10/16/98	<0.020				
MW-3	4/26/99	<0.020				
MW-3	4/25/01	8.6				
MW-3	10/2/01	2.6				
MW-3	4/28/02	18.				
MW-3	10/11/02	29.				
MW-3	5/28/03	37.				
MW-3	12/18/03	28.	NA			
MW-3, Pre Pumping Test	11/30/04	26.7	NA			
MW-3, Post Pumping Test	12/2/04	3.6	NA			
MW-3	9/20/06	8.51		<0.05		
MW-3	5/9/07	0.079			<0.500	<0.100
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MW-4	3/17/97	1	<0.50			

TABLE 2
Summary of Groundwater Analyses
USFS Nemo Work Center

Sampling Location	Date Sampled	EDB (ug/L)	EDC (ug/L)	1,2-DCA (ug/L)	TPH DRO (mg/L)	Bromide (mg/L)
MW-4	11/21/97	0.18				
MW-4	4/23/98	1.5				
MW-4	7/18/98	0.4				
MW-4	10/15/98	0.75				
MW-4	4/21/99	0.31				
MW-4	4/25/01	2.3				
MW-4	5/28/03	0.11				
MW-4	10/24/06	0.346		<0.05		
MW-4	5/10/07	<0.020			<0.500	<0.100
MW-4 Duplicate	5/10/07	<0.020			<0.500	<0.100
MW-5	3/15/97	0.021				
MW-5	3/28/97	<0.020	<0.50			
MW-5	11/20/97	<0.020				
MW-5	4/22/98	<0.020				
MW-5	4/26/99	<0.020				
MW-6	3/31/97	<0.020				
MW-6	4/21/98	<0.020				
MW-6 (Abandoned 11/23/04)	4/21/98	<0.020				
MW-7	3/31/97	<0.020	<0.50			
MW-7	4/21/98	<0.020				
MW-7	7/15/98	<0.020				
MW-7	10/19/98	<0.020				
MW-9	5/12/97	<0.020	<0.50			
MW-10	5/12/97	18.5	<0.50			
MW-10	11/21/97	5.1				
MW-10	4/24/98	150				
MW-10	7/18/98	51				
MW-10	10/21/98	43				
MW-10	1/27/99	5.2				
MW-10	4/26/99	4				
MW-10	9/15/99	6.3				
MW-10	4/18/00	13.2				
MW-10	10/24/00	19				
MW-10	4/26/01	7.3				
MW-10	10/3/01	34				
MW-10	4/29/02	19.				
MW-10	10/11/02	14.				
MW-10	5/28/03	12.				
MW-10, Pre Pumping Test	11/30/04	6.70				
MW-10, Post Pumping Test	12/2/04	14.0				
MW-10	9/20/06	17.7		<0.05		
MW-10	5/9/07	25.6			9.78	0.1
MW-11	5/14/97	<0.020	<0.50			
MW-11	11/20/97	<0.020				

TABLE 2
Summary of Groundwater Analyses
USFS Nemo Work Center

Sampling Location	Date Sampled	EDB (ug/L)	EDC (ug/L)	1,2-DCA (ug/L)	TPH DRO (mg/L)	Bromide (mg/L)
MW-11	4/22/98	<0.020				
MW-11	7/16/98	<0.020				
MW-11	10/15/98	<0.020				
MW-11	1/26/99	<0.020				
MW-11	4/20/99	<0.020				
MW-11	9/13/99	<0.020				
MW-11	4/17/00	<0.020				
MW-11	10/23/00	<0.020				
MW-11	4/24/01	<0.020				
MW-11	10/1/01	<0.020				
MW-11	4/27/02	<0.020				
MW-11	10/9/02	<0.020				
MW-11	5/27/03	<0.020				
MW-11	10/25/06	<0.020		<0.05		
MW-11	5/10/07	<0.020			<0.500	<0.100
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MW-12	5/14/97	0.55	<0.50			
MW-12	11/20/97	<0.020				
MW-12	4/28/98	<0.020				
MW-12	7/15/98	<0.020				
MW-12	10/16/98	<0.020				
MW-12	1/26/99	0.055				
MW-12	4/23/99	<0.020				
MW-12	9/13/99	0.051				
MW-12	4/17/00	<0.020				
MW-12	10/23/00	<0.020				
MW-12	4/24/01	<0.020				
MW-12	10/1/01	<0.020				
MW-12	4/27/02	<0.020				
MW-12	10/9/02	<0.020				
MW-12	5/27/03	<0.020				
MW-12	10/25/06	<0.020		<0.05		
MW-12	5/10/07	<0.020			<0.500	<0.100
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MW-16	5/4/98	<0.020				
MW-16	7/16/98	<0.020				
MW-16	10/16/98	<0.020				
MW-16	4/22/99	<0.020				
MW-16	10/10/02	<0.020				
MW-16	10/24/06	<0.020		<0.05		
MW-16	5/9/07	<0.020			<0.500	<0.100
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MW-17	5/5/98	0.035				
MW-17	7/18/98	0.26				
MW-17	10/19/98	0.042				
MW-17	4/22/99	0.16				
MW-17	4/26/01	0.059				
MW-17	5/27/03	<0.020				
MW-17	10/24/06	<0.020		<0.05		
MW-17	5/9/07	<0.020			<0.500	0.11

TABLE 2
Summary of Groundwater Analyses
USFS Nemo Work Center

Sampling Location	Date Sampled	EDB (ug/L)	EDC (ug/L)	1,2-DCA (ug/L)	TPH DRO (mg/L)	Bromide (mg/L)
MW-18	5/28/98	<0.020				
MW-18	4/20/99	<0.020				
MW-19	6/1/98	14				
MW-19	7/16/98	15				
MW-19	10/21/98	16				
MW-19	1/28/99	17				
MW-19	4/27/99	16				
MW-19, Pre Pumping Test	11/30/04	3.73				
MW-19, Post Pumping Test	12/2/04	7.25				
MW-19, grundfos	11/1/06	25.6		<0.05		
MW-19, grundfos duplicate	11/1/06	24.4		<0.05		
MW-19, low-flow	10/24/06	3.64		<0.05		
MW-19, low-flow - duplicate	10/24/06	4.07		<0.05		
MW-19	5/10/07	12.4			<0.500	0.14
MW-20	10/21/98	51				
MW-20	1/27/99	70				
MW-20	4/27/99	81				
MW-20	9/15/99	71				
MW-20	4/18/00	144				
MW-20	10/24/00	92				
MW-20	4/27/01	88				
MW-20	10/3/01	160				
MW-20	4/29/02	110.				
MW-20	10/12/02	94.				
MW-20	5/29/03	61.				
MW-20	9/20/06	51		<0.05		
MW-20	5/9/07	8.09			<0.500	<0.100
RW-21	10/27/03	<0.020				
RW-21	5/9/07	<0.020				
MW-22	10/25/03	3.30				
MW-22	10/24/06	1.55		<0.05		
MW-22	5/10/07	0.537			<0.500	<0.100
MW-22 Duplicate	5/10/07	0.539			<0.500	<0.100
MW-24	9/20/06	59.3		<0.05		
MW-24	5/9/07	2.27			<0.500	
MW-25	9/20/06	6.39		<0.05		
MW-25	5/9/07	1.60			<0.500	0.16
MW-26	9/20/06	0.14		<0.05		
MW-26	5/9/07	0.27			<0.500	<0.100
MW-27	9/20/06	14.7		<0.05		
MW-27	5/9/07	5.2			<0.500	0.1

TABLE 2
Summary of Groundwater Analyses
USFS Nemo Work Center

Sampling Location	Date Sampled	EDB (ug/L)	EDC (ug/L)	1,2-DCA (ug/L)	TPH DRO (mg/L)	Bromide (mg/L)
RW-8 (Nemo Supply) / MW-8	3/13/97	<0.020	<0.50			
RW-8 (Nemo Supply)	1/27/98	<0.020				
RW-8 (Nemo Supply)	4/24/98	<0.020				
RW-8 (Nemo Supply)	7/18/98	<0.020				
RW-8 (Nemo Supply)	10/15/98	<0.020				
RW-8 (Nemo Supply)	1/26/99	<0.020				
RW-8 (Nemo Supply)	4/21/99	<0.020				
RW-8 (Nemo Supply)	9/14/99	<0.020				
RW-8 (Nemo Supply)	4/20/00	<0.020				
RW-8 (Nemo Supply)	10/25/00	<0.020				
RW-8 (Nemo Supply)	4/23/01	<0.020				
RW-8 (Nemo Supply)	10/4/01	<0.020				
RW-8 (Nemo Supply)	4/30/02	<0.020				
RW-8 (Nemo Supply)	10/12/02	<0.020				
RW-8 (Nemo Supply)	5/29/03	<0.020				
RW-8 (Nemo Supply)	5/9/07	<0.020				
RW-13 (Weston Supply) / MW-13	6/20/97	<0.020	<0.50			
RW-13 (Weston Supply)	6/25/97	<0.020	<0.50			
RW-13 (Weston Supply)	1/27/98	<0.020				
RW-13 (Weston Supply)	4/24/98	<0.020				
RW-13 (Weston Supply)	7/15/98	<0.020				
RW-13 (Weston Supply)	10/18/98	<0.020				
RW-13 (Weston Supply)	1/26/99	<0.020				
RW-13 (Weston Supply)	4/21/99	<0.020				
RW-13 (Weston Supply)	9/14/99	<0.020				
RW-13 (Weston Supply)	4/20/00	<0.020				
RW-13 (Weston Supply)	10/23/00	<0.020				
RW-13 (Weston Supply)	4/23/01	<0.020				
RW-13 (Weston Supply)	10/1/01	<0.020				
RW-13 (Weston Supply)	5/27/02	<0.020				
RW-13 (Weston Supply)	10/10/02	<0.020				
RW-13 (Weston Supply)	5/27/03	<0.020				
RW-13 (Weston Supply)	5/9/07	<0.020				
RW-15 (Kaberna Supply)	1/27/98	<0.020				
RW-15 (Kaberna Supply)	4/25/98	<0.020				
RW-15 (Kaberna Supply)	7/15/98	<0.020				
RW-15 (Kaberna Supply)	10/18/98	<0.020				
RW-15 (Kaberna Supply)	1/26/99	<0.020				
RW-15 (Kaberna Supply)	4/21/99	<0.020				
RW-15 (Kaberna Supply)	9/13/99	<0.020				
RW-15 (Kaberna Supply)	4/20/00	<0.020				
RW-15 (Kaberna Supply)	10/25/00	<0.020				
RW-15 (Kaberna Supply)	4/23/01	<0.020				
RW-15 (Kaberna Supply)	10/1/01	<0.020				
RW-15 (Kaberna Supply)	4/28/02	<0.020				
RW-15 (Kaberna Supply)	10/10/02	<0.020				
RW-15 (Kaberna Supply)	5/27/03	<0.020				

TABLE 2
Summary of Groundwater Analyses
USFS Nemo Work Center

Sampling Location	Date Sampled	EDB (ug/L)	EDC (ug/L)	1,2-DCA (ug/L)	TPH DRO (mg/L)	Bromide (mg/L)
RW-15 (Kaberna Supply)	5/9/07	<0.020				
Adams	10/8/96	0.93				
Adams	10/16/96	0.86	<0.20			
Adams	5/27/97	0.73	<0.50			
Adams	4/29/98	1.2				
Adams	4/24/99	1.1				
Adams	5/28/03	0.91				
Adams	12/18/03	0.65	NA			
Adams	5/10/07	0.233			<0.500	<0.100
Boxelder Creek Above Kaberna	10/29/96	<0.020				
Boxelder Creek Below Kaberna	10/29/96	<0.020				
Boxelder Creek	11/20/97	<0.020				
Boxelder Creek	4/30/98	<0.020				
Boxelder Creek	7/19/98	<0.020				
Boxelder Creek	10/19/98	<0.020				
Boxelder Creek	4/27/99	<0.020				
Cooper	10/8/96	<0.010				
Cooper	4/27/98	<0.020				
Cooper	7/16/98	0.022				
Cooper	10/15/98	<0.020				
Cooper	4/21/99	<0.020				
Cooper	9/14/99	<0.020				
Cooper	4/20/00	<0.020				
Cooper	10/25/00	<0.020				
Cooper	4/23/01	<0.020				
Cooper	10/3/01	<0.020				
Cooper	10/25/06	<0.020		<0.05		
Cooper	5/10/07	<0.020			<0.500	<0.100
Deverman #1	10/8/96	<0.010				
Deverman #1	5/24/97	<0.020	<0.50			
Deverman #1	11/19/97	<0.020				
Deverman #1	4/27/98	<0.020				
Deverman #1	7/16/98	<0.020				
Deverman #1	10/15/98	<0.020				
Deverman #1	4/21/99	<0.020				
Deverman #1	9/14/99	<0.020				
Deverman #1	10/24/00	<0.020				
Deverman #1	4/23/01	<0.020				
Deverman #1	10/4/01	<0.020				
Deverman #1	4/30/02	<0.020				
Deverman #1	5/28/03	<0.020				
Deverman #1	12/17/03	<0.020	NA			
Deverman #2	10/8/96	<0.010				
Deverman #2	5/24/97	<0.020	<0.50			

TABLE 2
Summary of Groundwater Analyses
USFS Nemo Work Center

Sampling Location	Date Sampled	EDB (ug/L)	EDC (ug/L)	1,2-DCA (ug/L)	TPH DRO (mg/L)	Bromide (mg/L)
Deverman #2	4/27/98	<0.020				
Deverman #2	7/16/98	<0.020				
Deverman #2 Abandoned	4/26/99	NA				
Flak	3/28/97	<0.020	<0.50			
Flak	5/16/97	<0.020	<0.50			
Flak	4/28/98	<0.020				
Flak	7/15/98	<0.020				
Flak	10/18/98	<0.020				
Flak	4/24/99	<0.020				
Flak	4/17/00	<0.020				
Flak Seep	5/12/97	0.069	<0.50			
Flak Seep Not Flowing	10/23/00	NA				
Krahn	10/8/96	0.17				
Krahn	10/16/96	0.13	<0.20			
Krahn	7/1/97	0.045	<0.50			
Krahn	4/27/98	0.033				
Krahn	9/15/99	0.054				
Krahn	5/27/03	0.098				
Krahn	10/24/03	0.14				
Krahn	10/26/06	0.027		<0.05		
Krahn	5/10/07	0.0223			<0.500	<0.100
Langley	10/16/96	<0.040	<0.20			
Langley	3/31/97	<0.020	<0.50			
Langley	4/28/98	<0.020				
Langley	7/16/98	<0.020				
Langley	10/15/98	<0.020				
Langley	4/21/99	<0.020				
Langley	9/14/99	<0.020				
Langley	4/21/00	<0.020				
Langley	10/25/00	<0.020				
Langley	4/23/01	<0.020*/Tr				
Langley	10/3/01	<0.020				
Langley	4/30/02	<0.020				
Langley	10/12/02	<0.020				
Langley	5/29/03	<0.020				
Langley	10/24/03	<0.020				
Lattin	10/25/06	<0.020		<0.05		
Lattin	5/11/07	<0.020			<0.500	<0.100
Martin. R	9/14/99	<0.020				
Martin. Dan	10/3/01	<0.020				
Mine	3/19/97	<0.020	<0.50			

TABLE 2
Summary of Groundwater Analyses
USFS Nemo Work Center

Sampling Location	Date Sampled	EDB (ug/L)	EDC (ug/L)	1,2-DCA (ug/L)	TPH DRO (mg/L)	Bromide (mg/L)
M Ford Well	5/28/03	<0.020				
N4T, - Former New 4T Well	7/14/99	0.064				
N4T	10/24/00	0.53				
N4T	4/23/01	0.3				
N4T	10/4/01	0.41				
N4T	4/30/02	0.36				
N4T	10/12/02	0.12				
N4T	5/28/03	0.057				
N4T	10/24/03	0.039				
N4T	10/25/06	<0.02		<0.05		
N4T	5/10/07	<0.020			<0.500	<0.100
Old 4T	3/18/97	0.053	<0.50			
Old 4T	10/24/03	<0.020				
Old 4T	10/25/06	0.025		<0.05		
Old 4T	5/10/07	0.0314			<0.500	<0.100
Nemo Church	10/8/96	1.3-1.8				
Nemo Church	10/16/96	1.4	<0.20			
Nemo Church	5/25/97	0.29	<0.50			
Nemo Church	11/21/97	0.073				
Nemo Church	4/24/98	0.11				
Nemo Church	7/17/98	0.21				
Nemo Church	10/20/98	0.08				
Nemo Church	1/26/99	0.099				
Nemo Church	4/23/99	0.19				
Nemo Church	9/14/99	0.15				
Nemo Church	4/17/00	0.15				
Nemo Church	10/23/00	0.072				
Nemo Church	4/25/01	0.32				
Nemo Church	10/1/01	0.14				
Nemo Church	4/27/02	0.7				
Nemo Church	10/11/02	0.53				
Nemo Church	5/28/03	0.17				
Nemo Church	12/18/03	0.34	NA			
Nemo Church	10/25/06	<0.02		<0.05		
Nemo Church	5/11/07	0.0459			<0.500	<0.100
Original Kaberna	10/22/96	13				
Original Kaberna	10/29/96	10	<0.20			
Original Kaberna	3/25/97	9.4	<0.50			
Original Kaberna	5/17/97	12	<0.50			
Original Kaberna	11/18/97	14				
Original Kaberna	4/25/98	5.3				
Original Kaberna	7/18/98	12				
Original Kaberna	10/15/98	5.9				
Original Kaberna	1/26/99	17				
Original Kaberna	4/21/99	3.4				
Original Kaberna	9/13/99	13				

TABLE 2
Summary of Groundwater Analyses
USFS Nemo Work Center

Sampling Location	Date Sampled	EDB (ug/L)	EDC (ug/L)	1,2-DCA (ug/L)	TPH DRO (mg/L)	Bromide (mg/L)
Original Kaberna	4/21/00	0.47				
Original Kaberna	10/25/00	5.8				
Original Kaberna	4/27/01	2.4				
Original Kaberna	10/1/01	0.71				
Original Kaberna	4/28/02	0.13				
Original Kaberna	10/10/02	0.11				
Original Kaberna	5/27/03	0.11				
Original Kaberna	10/25/06	0.12		<0.05		
Original Kaberna	5/11/07	0.0804			<0.500	<0.100
Original Weston	10/22/96	2.2				
Original Weston	10/29/96	1.7	<0.20			
Original Weston	5/16/97	0.28	<0.50			
Original Weston	11/21/97	0.057				
Original Weston	4/24/98	0.26				
Original Weston	7/18/98	0.025				
Original Weston	10/20/98	0.023				
Original Weston	4/23/99	0.045				
Original Weston	9/14/99	0.06				
Original Weston	4/18/00	0.46				
Original Weston	10/23/00	0.22				
Original Weston	4/26/01	0.86				
Original Weston	10/1/01	0.14				
Original Weston	5/27/02	<0.020				
Original Weston	10/10/02	0.11				
Original Weston	5/27/03	0.063				
Original Weston	10/25/06	<0.02		<0.05		
Original Weston	5/11/07	<0.020			<0.500	<0.100
Post Office/Fire Dept.	10/8/96	0.062				
Post Office/Fire Dept.	10/16/96	0.045	<0.20			
Post Office/Fire Dept.	10/29/96	0.053	<0.20			
Post Office/Fire Dept.	5/27/97	0.023	<0.50			
Post Office/Fire Dept.	4/27/98	0.11				
Post Office/Fire Dept.	12/18/03	0.030	NA			
Post Office/Fire Dept.	10/26/06	<0.02		<0.05		
Post Office/Fire Dept.	5/10/07	<0.020			<0.500	<0.100
Rech	10/25/00	<0.020				
Rech	4/23/01	<0.020				
School	10/8/96	1.12				
School	10/16/96	0.82	<0.20			
School	6/25/97	1.1	<0.50			
School	4/28/98	0.78				
School	4/22/99	0.75				
School	10/25/06	0.18		<0.05		
School	5/10/07	0.21			<0.500	0.15
Spleiss	10/8/96	0.47				

TABLE 2
Summary of Groundwater Analyses
USFS Nemo Work Center

Sampling Location	Date Sampled	EDB (ug/L)	EDC (ug/L)	1,2-DCA (ug/L)	TPH DRO (mg/L)	Bromide (mg/L)
Spleiss	10/16/96	1	<0.20			
Spleiss	10/22/96	1				
Spleiss (TS-INF) Abandoned 5/97	5/22/97	3.6				
Troxell	10/8/96	4.7-5.4				
Troxell	10/16/96	3.5	<0.20			
Troxell	5/27/97	5.4	<0.50			
Troxell	4/28/98	0.75				
Troxell	7/18/98	1.7				
Troxell	10/20/98	0.47				
Troxell	4/23/99	0.61				
Troxell	9/14/99	11				
Troxell	4/18/00	0.51				
Troxell	10/23/00	3.5				
Troxell	4/26/01	2.4				
Troxell	10/2/01	0.27				
Troxell	4/28/02	<0.020				
Troxell	10/10/02	<0.020				
Troxell	5/27/03	<0.020				
Troxell	12/18/03	<0.020	NA			
Troxell	10/25/06	<0.020		<0.05		
Wick/GR	10/24/00	<0.020				
Wick/GR	4/23/01	<0.020				
Wick/GR	10/4/01	<0.020				
Wick/GR	10/12/02	<0.020				
Wick/GR	12/17/03	<0.020	NA			
GR UST MW-5	12/16/03	43	47			
GR UST MW-5	10/25/06	20		23.9		
GR UST MW-3	12/16/03	<0.040	<0.040			
GR UST MW-4	12/16/03	0.071	<0.020			
Treatment System Samples						
Filter 1 (Canister 1)	5/9/07	<0.020				
Skid Discharge	10/26/06	<0.020		<0.05		
Skid Discharge (Canister 3)	5/9/07	<0.020				

(Additional Uncontaminated Wells Sampled by The Forest Service)

Donna Zopp	10/22/96	<0.010				
Tungland	10/22/96	<0.010				
Atkinson	10/22/96	<0.010				
Fieroh	10/22/96	<0.010				

TABLE 2
Summary of Groundwater Analyses
USFS Nemo Work Center

Sampling Location	Date Sampled	EDB (ug/L)	EDC (ug/L)	1,2-DCA (ug/L)	TPH DRO (mg/L)	Bromide (mg/L)
Fieroh 2nd House	10/22/96	<0.010				
Ford	10/16/96	<0.010				
Shirly Ford	10/22/96	<0.010				
Witcop	10/22/96	<0.010				
Martin	10/22/96	<0.010				
Ox yoke	10/29/96	<0.010				
Meyer	10/29/96	<0.010				
Meyer Well #2	10/29/96	<0.010				
Solass	10/29/96	<0.010				
Krammer	10/29/96	<0.010				
Tonkyn	10/29/96	<0.010				
Paulson	10/29/96	<0.010				
Don Keough	10/29/96	<0.010				
Pearson	10/29/96	<0.010				
Lilian Troxell	10/22/96	<0.010				
Lilian Troxell	11/22/97	<0.010				
Buck Troxell	10/29/96	<0.010				
Camping	10/29/96	<0.010				
Balistreri	10/29/96	<0.010				
Deverman Boarding	10/29/96	<0.010				
Daul	10/29/96	<0.010				
Mckey	10/29/96	<0.010				
Sween	10/29/96	<0.010				
Clay Johnson	10/29/96	<0.010				
Lavern Johnson	10/29/96	<0.010				
Boxelder Creek	10/29/96	<0.010				
Eggers	7/1/97	<0.020				
Smith	7/1/97	<0.020				
Wickman	7/18/99	<0.020				
Federal Drinking Water MCL (ug/L)		0.05	5	5	NA	NA

Notes:

Values that exceed the MCL are shown in ***bold italics***

1,2-DCA = 1,2-dichloroethane

EDB = ethylene dibromide

EDC = ethylene dichloride

DRO = diesel range organics

MCL = maximum contaminant level

mg/L = milligrams per liter

NA = not available

TPH = total petroleum hydrocarbons

ug/L = micrograms per liter

TABLE 3
Well Construction Details
USFS Nemo Work Center

Well ID	Installation Date	Casing Diameter (in)	TOC Elevation (ft amsl)	Total Depth (ft bgs)	BOC elevation (ft amsl)	Screen Length (ft)	Screened Interval (ft bgs)	Elevation of Screened Interval (ft amsl)
MW-1	Mar-97	4.5	4696.04	98.5	4597.54	20	79 - 99	4617.54 - 4597.54
MW-2	Mar-97	4.5	4677.17	75	4602.17	20	55 - 75	4622.17 - 4602.17
MW-3	Mar-97	4.5	4683.15	88.5	4594.65	20	69 - 89	4614.65 - 4594.65
MW-4	Mar-97	4	4624.02	60	4564.02	20	40 - 60	4584.02 - 4564.02
MW-5	Mar-97	4.5	4635.28	69	4566.28	20	49 - 69	4586.28 - 4566.28
MW-6	Mar-97	4.5	4600.09	55	4545.09	20	35 - 55	4565.09 - 4545.09
MW-7	Mar-97	4.5	4597.63	50	4547.63	20	30 - 50	4567.63 - 4547.63
RW-8	Mar-97	4	4604.67	60	4544.67	20	40 - 60	4564.67 - 4544.67
MW-9	May-97	4.5	4694.39	129	4565.39	40	89 - 129	4605.39 - 4565.39
MW-10	May-97	4	4630.18	58	4572.18	20	38 - 58	4592.18 - 4572.18
MW-11	May-97	4	4631.85	65	4566.85	20	45 - 65	4586.85 - 4566.85
MW-12	May-97	4	4568.62	21	4547.62	12	9 - 21	4559.62 - 4547.62
RW-13	Jun-97	6	4613.68	130	4483.68	61	65 - 126	4548.68 - 4487.68
RW-15	Nov-97	4.5	4584.38	65	4519.38	34	31 - 65	4553.38 - 4519.38
MW-16	Apr-98	4.5	4650.57	85	4565.57	10	75 - 85	4575.57 - 4565.57
MW-17	May-98	4	4679.75	123	4556.75	30	93 - 123	4586.75 - 4556.75
MW-18	May-98	4	4562.96	25	4537.96	15	10 - 25	4552.96 - 4537.96
MW-19	Jun-98	4	4684.87	90	4594.87	30	60 - 90	4624.87 - 4594.87
MW-20	Oct-98	4	4727.01	140	4587.01	30	110 - 140	4617.01 - 4587.01
RW-21	Oct-03	4.5	4625.07	70	4555.07	37	33 - 70	4592.07 - 4555.07
MW-22	Oct-03	4.5	4604.63	85	4519.63	20	65 - 85	4539.63 - 4519.63
MW-24	Apr-06	4	4723.13	87	4636.13	30	57 87	4666.13 4636.13
MW-25	May-06	4	4706.51	109	4597.51	30	79 109	4627.51 4597.51
MW-26	May-06	4	4667.54	142	4525.54	30	112 142	4555.54 4525.54
MW-27	May-06	4	4654.10	135	4519.1	30	105 135	4549.1 4519.1
N4T	Jun-99	6	4621.56	125	4496.56	95	30 - 125	4591.56 - 4496.56
GR UST MW-3	Mar-00	2	4622.80	33	4589.8	8	25 33	4597.8 4589.8
GR UST MW-4	Jul-01	2	4620.60	42	4578.6	20	22 42	4598.6 4578.6
GR UST MW-5	Jul-01	2	4622.97	30	4592.97	10	20 30	4602.97 4592.97
Wick/GR	Feb-00	6	4620.28	90	4530.28	52	38 90	4582.28 4530.28
Deverman	Dec-93	5.5	4620.24	220	4400.24	150	70 220	4550.24 4400.24
Adams	NA	6	4652.59	60	4592.59	40	20 60	4632.59 4592.59
Krahn	NA	6	4635.4	NA	NA	NA	NA	NA
Troxell	NA	6	4641.67	NA	NA	NA	NA	NA
Old 4T	NA	6	4633.01	NA	NA	NA	NA	NA
Church	Jul-87	6	4644.29	104	4540.29	54	50 104	4594.29 4540.29
Cooper	NA	6	4631.92	NA	NA	NA	NA	NA
Post Office	NA	6	4630.38	NA	NA	NA	NA	NA

Notes:

- amsl = above mean sea level
- bgs = below ground surface
- ft = feet
- NA = not available
- TOC = top of casing
- BOC = bottom of casing

Attachment A

Laboratory Analytical Reports

Attachment B

Field Notes