LMS/NAP/S06371

Verification Monitoring Report for the Naturita, Colorado, Processing Site

May 2010

U.S. DEPARTMENT OF ENERGY | Legacy Management

FSME 20
FSME

Received w/8 cover letter

This page intentionally left blank

LMS/NAP/S06371

Office of Legacy Management

Verification Monitoring Report for the Naturita, Colorado, Processing Site

May 2010

This page intentionally left blank

Contents

Figures

Table

Appendixes

This page intentionally left blank

1.0 Introduction

The Naturita, Colorado, Processing Site is located in western Colorado, Montrose County, approximately 2 miles north of the city of Naturita (Figure 1). The compliance strategy for the Naturita processing site is no remediation with the application of alternate concentration limits (ACLs) for uranium and vanadium—the contaminants of potential concern (COPCs) for the site. Institutional controls and compliance monitoring are also components of the remedy as described in the draft *Ground Water Compliance Action Plan for the Naturita, Colorado, UMTRA Project Site* (GCAP) (DOE 2002a). The GCAP will be revised to incorporate additional information requested by the U.S. Nuclear Regulatory Commission (NRC).

The purpose of this verification monitoring report is to update groundwater and surface water monitoring data that have been collected at the Naturita processing site since 1999 (after surface remediation) and to assess the status of the compliance strategy for groundwater cleanup. This report updates the last verification monitoring report with data from 2008 and 2009.

2.0 Site Conditions

2.1 Hydrogeology

The unconfined alluvial aquifer is the uppermost aquifer at the Naturita site. It consists of a wedge of sediment that varies in thickness from zero where it pinches out along the western bedrock to about 23 ft along the San Miguel River near the northern portion of the site (Figure 2). However, the alluvium generally ranges from only about 5 to 10 ft in thickness over most of the site. The saturated thickness ranged from less than 2 ft to nearly 15 ft at the time site characterization was conducted (DOE 2002b). Recharge and discharge occur along the length of the San Miguel River depending on the river level. Groundwater flow paths in the alluvial aquifer are generally parallel to the San Miguel River. The river is the primary source of surface water in the vicinity of the site and is used for irrigation and livestock water in the area.

The underlying Brushy Basin Member of the Morrison Formation separates the alluvial aquifer from the bedrock Salt Wash aquifer. The Brushy Basin Member is an effective aquitard and prevents downward migration of contamination to the deeper aquifer.

2.2 Water Quality

Uranium and vanadium values are elevated in alluvial groundwater at the former Naturita mill site. In the past, arsenic values in wells NAT03, NAT07, and NAT08 slightly exceeded the maximum concentration limit (MCL) in Title 40 *Code of Federal Regulations* Part 192 (40 CFR 192) of 0.05 milligram per liter (mg/L), but the average concentrations were at 0.05 mg/L or below. Arsenic concentrations in all wells were below the MCL in 2003. Modeling indicated that arsenic concentrations will continue to decrease, and arsenic was removed from the list of COPCs. Arsenic analysis was discontinued at the end of calendar year 2003, after all wells had at least two sampling events with results below the MCL. However, the Safe Drinking Water Act standard for arsenic was lowered to 0.01 mg/L in 2006, and in response to NRC's concerns, arsenic sampling resumed in 2009.

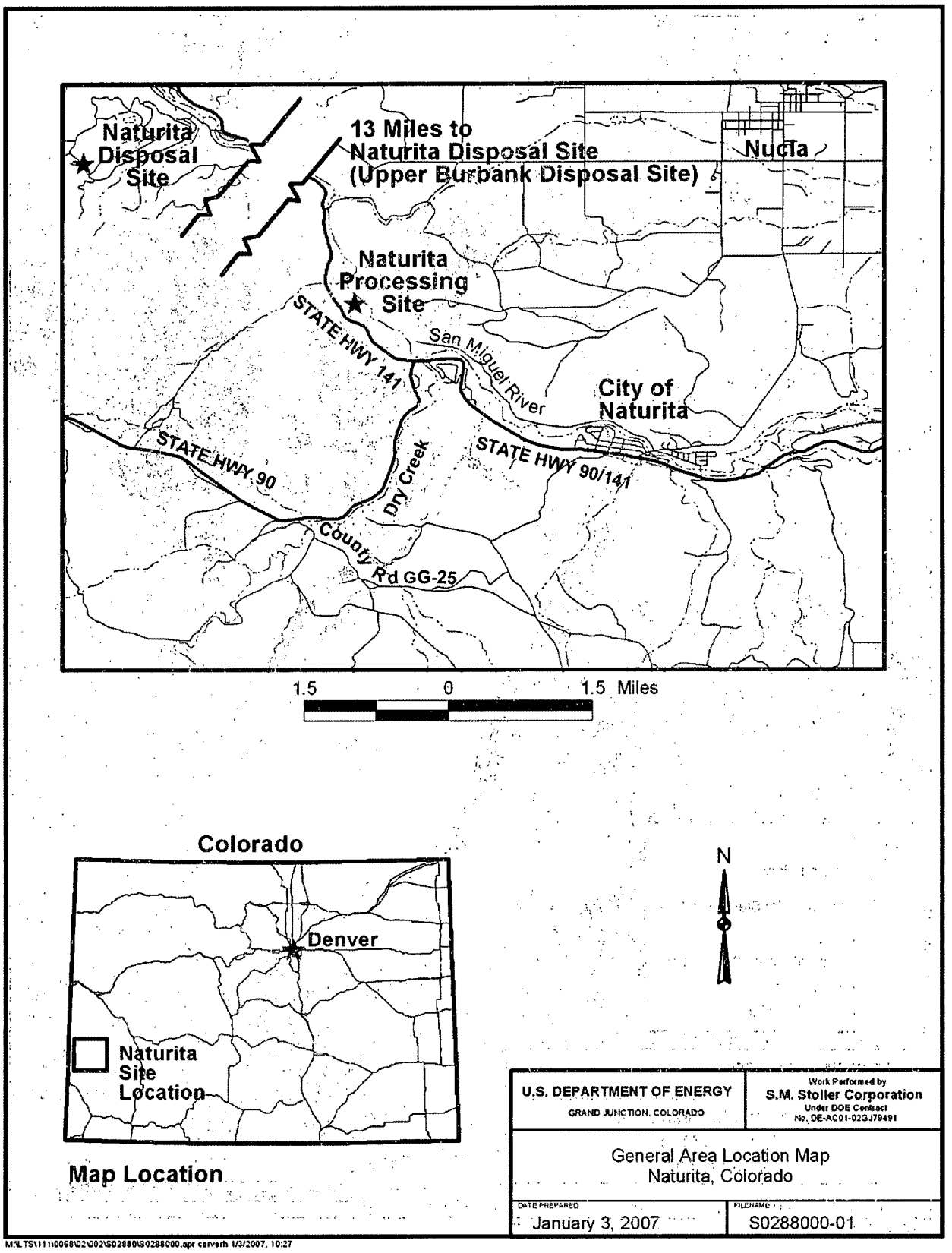


Figure 1. General Area Location Map, Naturita, Colorado

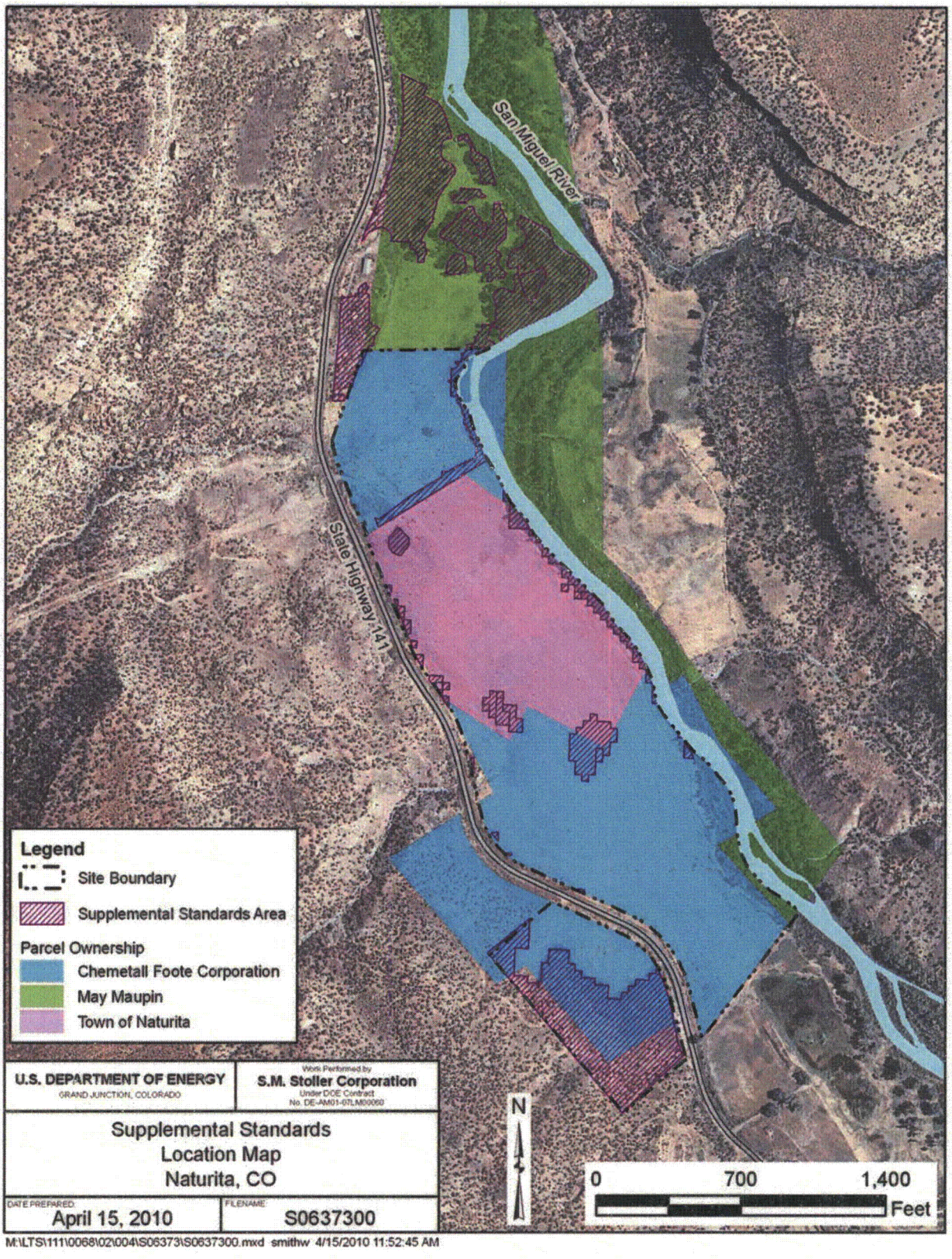


Figure 2. Supplemental Standards Location Map, Naturita Site

Groundwater modeling of uranium and vanadium indicates that constituents will not flush to levels permitting unrestricted use during the 100-year natural flushing period (DOE-2002b). However, because the water is not currently being used, contaminant concentrations in the groundwater do not pose a threat to human health or the environment. ACLs have therefore been proposed for uranium and vanadium.

ACLs of 3 mg/L for uranium and 6 mg/L for vanadium were proposed as action levels at the points of compliance. These values are the approximate maximum concentrations observed in groundwater in the years following surface remediation. They are protective of human health because of the lack of a complete exposure pathway. They are also protective of the environment because of the significant dilution effect of the San Miguel River (a factor of 4000 to 5000; DOE 1995).

In April 2010, a persistent groundwater seep (surface location 0538) was covered with cobbles and sand under a permit issued by the U.S. Army Corps of Engineers. This action was taken to remove the risk of wildlife and livestock drinking the exposed groundwater, which had uranium concentrations above the MCL. Seep location 0538 no longer exists and will be removed from the sampling list.

2.3 Surface Remediation Activities

The site is the location of a former vanadium and uranium mill that operated intermittently from 1939 until 1958. The Uranium Mill Tailings Remedial Action Project surface remediation at the site occurred between January 1993 and September 1998. During that time, 771,400 cubic yards of material was removed from the site and disposed of in the Naturita disposal site (formally the Upper Burbank disposal cell) about 15 miles northwest near the town site of Uravan, Colorado. Supplemental standards were applied to five areas totaling 11 acres on the site, and large supplemental standards areas, also totaling 11 acres, were included in the adjoining vicinity property downgradient of the site (Figure 2). This material was left in place mainly because its removal would cause excessive environmental harm and risk to workers.

2.4 Institutional Controls

Institutional controls have been or will be placed on groundwater associated with the Naturita processing site that is currently contaminated or may become contaminated in the future (Figure 3). The historical site area now consists of 79 acres and includes property owned by the City of Naturita and Chemetall Foote Corporation. Groundwater contamination extends downgradient beneath private property (owned by the Maupin family) adjacent to the site.

The institutional controls for the Naturita site are environmental covenants between the landowners and the State of Colorado, represented by the Colorado Department of Public Health and Environment. The covenants prohibit the installation of wells in the alluvial aquifer for purposes other than environmental monitoring and remediation. Controls are in place on property owned by the City of Naturita and the Maupin family and are being negotiated for property owned by Chemetall Foote Corporation.

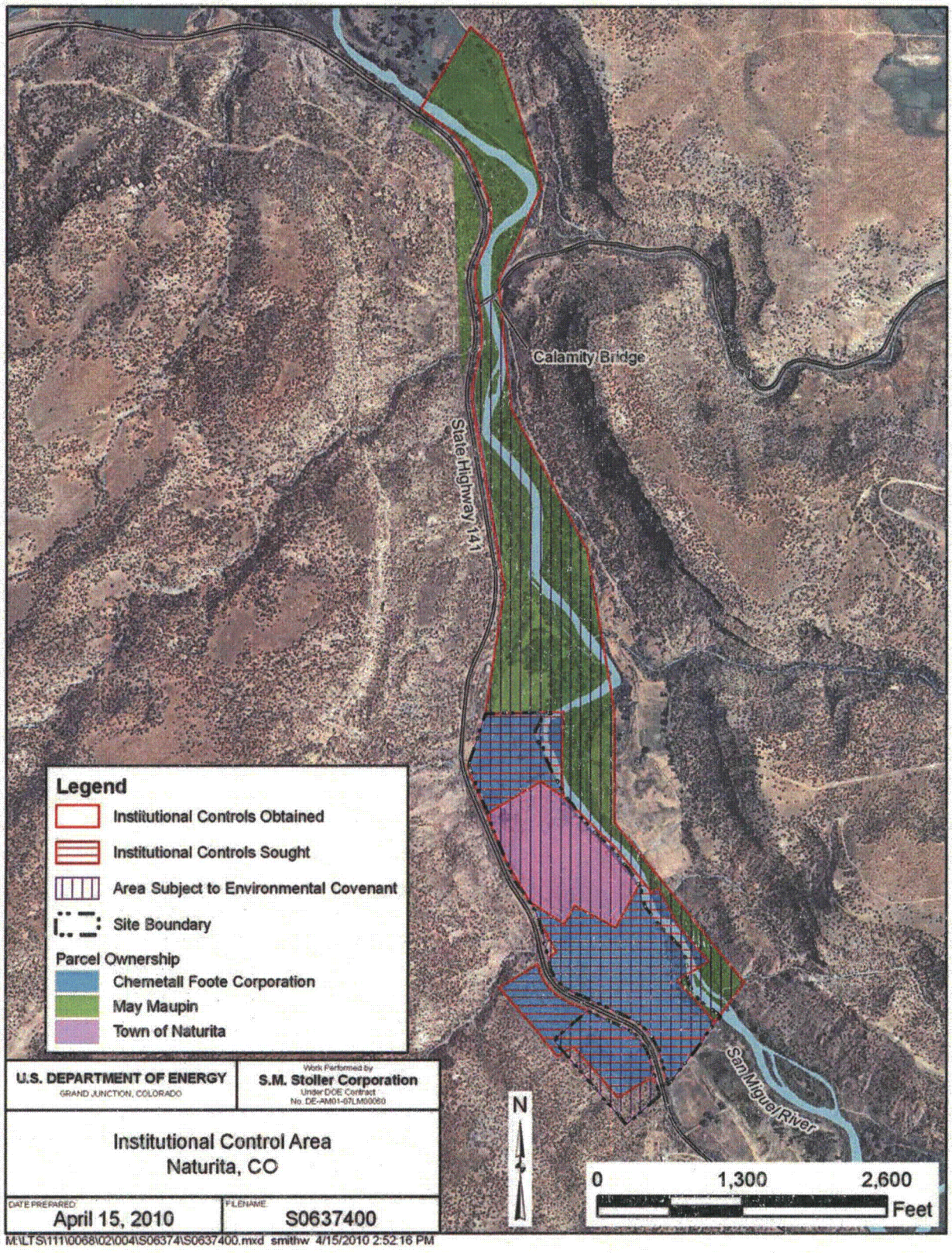


Figure 3. Institutional Controls Area, Naturita, Colorado

3.0 Monitoring Program

The monitoring program ensures continued protection of human health and the environment. Table 1 provides monitoring requirements; Figure 4 shows locations. Monitoring wells 0715 and 0718 were recently added to the monitoring network in an attempt to better understand the movement of alluvial groundwater downgradient of the site boundary.

Table 1. Summary of Monitoring Requirements

Location	Monitoring Purpose	Analytes	Frequency
Well DM1	Background groundwater	Arsenic, uranium, vanadium, total dissolved solids, field parameters	Annually for 5 years after NRC approval of the GCAP; afterward, every 3 years for 30 years
Well NAT01-1	Point-of-compliance (POC) well, added at NRC's request to monitor vanadium concentration migrating toward river.		
Well NAT02	POC well for uranium and vanadium plume.		
Well NAT08	POC well for maximum vanadium concentration		
Well NAT26	POC well for maximum uranium concentration		
Well MAU07	POC well; last well before groundwater enters the San Miguel River		
Well MAU08	POC well for uranium plume		
Well 0715	Alluvium on east side of San Miguel River, downgradient of site boundary		
Well 0718	Alluvial well immediately upstream of Calamity Bridge		
Surface 0531	Upgradient San Miguel River		
Surface 0533	Point-of-exposure (POE) location, downgradient San Miguel River		
Surface 0538	Seep on Maupin property		
Surface SM2	POE location, crossgradient from uranium plume		
Surface SM4	POE location, crossgradient from vanadium plume		

As mentioned, the arsenic MCL in 40 CFR 192 is 0.05 mg/L, and the proposed ACLs for uranium and vanadium in groundwater are 3.0 mg/L and 6.0 mg/L, respectively. The ACLs are to be met at the points of compliance, which are considered to be all wells in the monitoring network. Points of exposure are any points along the San Miguel River and the alluvium downgradient of the area protected under institutional controls or environmental covenants. Meeting ACLs at points of compliance will result in acceptable concentrations at the points of exposure.

The sampling frequency is once every year for the first 5 years following NRC's acceptance of the GCAP. Thereafter, sampling will be conducted every 3 years for the next 30 years. At that time, future risks and the monitoring plan will be reevaluated. Contaminants are expected to remain above levels suitable for unrestricted use for over 100 years. However, if concentrations decline to acceptable levels, the need for continued monitoring will be reevaluated.

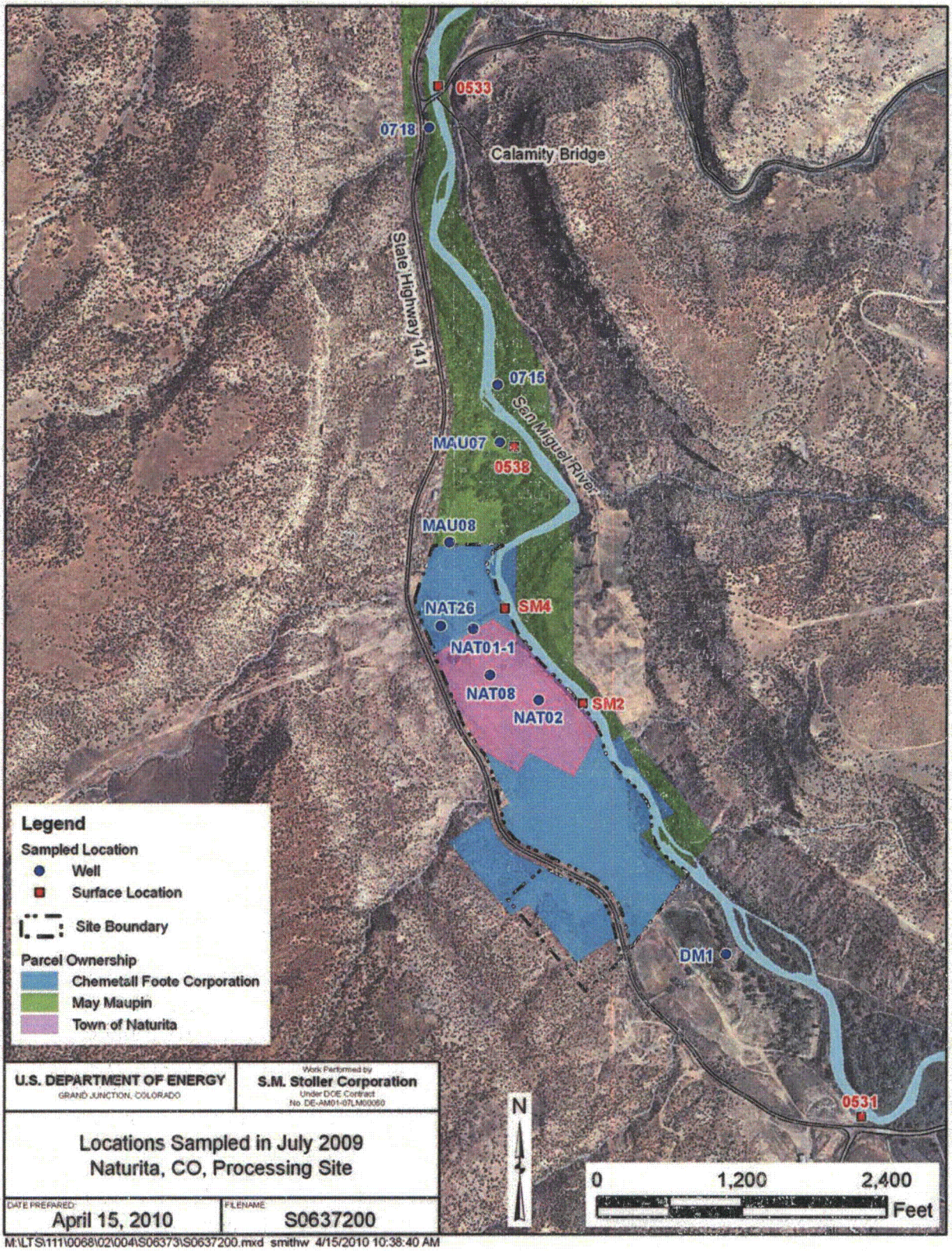


Figure 4. Locations Sampled in July 2009, Naturita Site

4.0 Results of 2008 and 2009 Monitoring

Monitoring conducted since the completion of surface remediation showed an initial decline in both uranium and vanadium in wells with the highest concentrations. In recent years, however, concentrations appear to have leveled off somewhat, although they have remained well below the proposed ACLs for uranium and vanadium. The well with the highest concentration of uranium in 2008 and 2009 was NAT26 (1.4 mg/L). The vanadium concentration was highest in well NAT08 in 2008 (2.6 mg/L) and 2009 (2.4 mg/L). Arsenic concentrations in all wells have been below the MCL of 0.05 mg/L; however, arsenic in the well with the highest concentration, well NAT08, did exceed the Safe Drinking Water Act standard of 0.01 mg/L by more than a factor of two when sampling resumed in 2009.

In 2009, uranium concentrations in downgradient wells 0715 and 0718 exceeded the uranium MCL of 0.044 mg/L (the concentration in well 0715 was 0.061 mg/L, and the concentration in well 0718 was 0.067 mg/L). However, the concentrations in both wells were below the proposed ACL. A higher uranium concentration (0.085 mg/L) was detected in well 0715 when it was last sampled in 2002. The uranium concentration in well 0718 has approximately doubled since it was sampled immediately after its installation in October 2008, when its concentration was 0.033 mg/L.

Appendix A presents groundwater data for 2008 and 2009. Appendix C includes time-concentration plots for uranium and vanadium for the entire monitoring period.

Surface water samples from the San Miguel River adjacent to and downgradient of the site continue to indicate that the site is having no measurable impact on river water quality; concentrations of COPCs in samples from site locations are indistinguishable from those of background locations. Surface water from seep location 0538 continues to show concentrations of uranium elevated above the 40 CFR 192 MCL. However, concentrations in the seep samples are consistently lower and less variable than those of groundwater samples from the closest well (MAU07). Seep samples typically have uranium concentrations around 0.2 mg/L, while samples from MAU07 range from 0.4 to 0.8 mg/L. The 2009 analytical result for location 0538 (0.180 mg/L) was within the range of previously observed concentrations and was slightly higher than the result for 2008 (0.13 mg/L). Appendix B includes surface water data for 2008 and 2009.

5.0 Conclusions

The compliance strategy selected for groundwater at the Naturita processing site continues to be protective of human health and the environment. Arsenic in groundwater remains below the MCL in 40 CFR 192. Vanadium and uranium concentrations in groundwater continue to decline or have leveled off and remain below the proposed ACLs. With the exception of seep location 0538, surface water quality adjacent to and downgradient of the site is indistinguishable from water quality at background locations in the San Miguel River. No changes in the monitoring program are recommended at this time.

In April 2010, seep 0538 and areas adjacent to the seep were remediated by being filled with cobbles and sand. This action will preserve the area as wetlands but will prevent the surface

exposure of groundwater that animals could ingest. Seep location 0538 no longer exists, so no further samples will be collected at the location.

6.0 References

40 CFR 192. "Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings," *Code of Federal Regulations*, July 1, 2009.

DOE (U.S. Department of Energy), 1995. *Baseline Risk Assessment of Ground Water Contamination at the Uranium Mill Tailings Site near Naturita, Colorado*, DOE/AL/62350-195, Rev. 1, Albuquerque Operation Office, Albuquerque, New Mexico.

DOE (U.S. Department of Energy), 2002a. *Ground Water Compliance Action Plan for the Naturita, Colorado, UMTRA Project Site,* GJO-2002-355-TAC, GJO-GWNAT 1.0, Grand Junction Office, Grand Junction, Colorado, September.

DOE (U.S. Department of Energy), 2002b. *Site Observational Work Plan for the Naturita, Colorado, UMTRA Project Site*, GJO-2001-234-TAR, MAC-GWNAT 1.1, Grand Junction Office, Grand Junction, Colorado, May.

This page intentionally left blank

Appendix A

Groundwater Quality Data by Parameter

This page intentionally left blank

GROUND WATER QUALITY DATA BY PARAMETER WITH DEPTH (USEE200) FOR SITE NAT01, Naturita Processing Site
REPORT DATE: 3/29/2010 2:36 pm

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity, Total (As CaCO3)	mg/L	0715	WL	07/14/2009	N001	5.49 - 10.42	91		FQ	#	-	-
	mg/L	0718	WL	10/23/2008	N001	8.60 - 18.60	330			#	-	-
	mg/L	0718	WL	07/14/2009	N001	8.60 - 18.60	233		F	#	-	-
	mg/L	DM1	WL	07/29/2008	N001	2.67 - 7.67	148		F	#	-	-
	mg/L	DM1	WL	09/24/2009	N001	2.67 - 7.67	209			#	-	-
	mg/L	MAU07	WL	07/30/2008	N001	2.92 - 7.92	428		F	#	-	-
	mg/L	MAU07	WL	07/14/2009	N001	2.92 - 7.92	209		F	#	-	-
	mg/L	MAU08	WL	07/30/2008	N001	6.17 - 11.17	488		FQ	#	-	-
	mg/L	MAU08	WL	07/14/2009	N001	6.17 - 11.17	297		F	#	-	-
	mg/L	NAT01-1	WL	07/29/2008	N001	17.00 - 17.50	299		F	#	-	-
	mg/L	NAT01-1	WL	07/13/2009	N001	17.00 - 17.50	242		F	#	-	-
	mg/L	NAT02	WL	07/29/2008	N001	6.42 - 11.42	241		F	#	-	-
	mg/L	NAT02	WL	07/13/2009	N001	6.42 - 11.42	153		F	#	-	-
	mg/L	NAT08	WL	07/29/2008	N001	6.30 - 11.30	305		F	#	-	-
	mg/L	NAT08	WL	07/13/2009	N001	6.30 - 11.30	216		F	#	-	-
	mg/L	NAT26	WL	07/29/2008	N001	10.67 - 15.67	410		F	#	-	-
	mg/L	NAT26	WL	07/13/2009	N001	10.67 - 15.67	312		F	#	-	-
Arsenic	mg/L	0715	WL	07/14/2009	N001	5.49 - 10.42	0.0046		FQ	#	8.4E-06	-
	mg/L	0718	WL	10/23/2008	N001	8.60 - 18.60	0.0022			#	1.7E-05	-
	mg/L	0718	WL	10/23/2008	N002	8.60 - 18.60	0.0022			#	1.7E-05	-
	mg/L	0718	WL	07/14/2009	N001	8.60 - 18.60	0.0031		F	#	8.4E-06	-
	mg/L	DM1	WL	09/24/2009	N001	2.67 - 7.67	0.0016			#	8.4E-06	-
	mg/L	DM1	WL	09/24/2009	N002	2.67 - 7.67	0.0016			#	8.4E-06	-
	mg/L	MAU07	WL	07/14/2009	N001	2.92 - 7.92	0.0051		F	#	8.4E-06	-
	mg/L	MAU08	WL	07/14/2009	N001	6.17 - 11.17	0.00044		F	#	8.4E-06	-
	mg/L	NAT01-1	WL	07/13/2009	N001	17.00 - 17.50	0.0064		F	#	8.4E-06	-

GROUND WATER QUALITY DATA BY PARAMETER WITH DEPTH (USEE200) FOR SITE NAT01, Naturita Processing Site
REPORT DATE: 3/29/2010 2:36 pm

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	NAT01-1	WL	07/13/2009	N002	17.00 - 17.50	0.0062		F	#	8.4E-06	-
	mg/L	NAT02	WL	07/13/2009	N001	6.42 - 11.42	0.0059		F	#	8.4E-06	-
	mg/L	NAT08	WL	07/13/2009	N001	6.30 - 11.30	0.024		F	#	4.2E-05	-
	mg/L	NAT26	WL	07/13/2009	N001	10.67 - 15.67	0.00024		F	#	8.4E-06	-
Molybdenum	mg/L	0718	WL	10/23/2008	N001	8.60 - 18.60	0.0044			#	4.5E-05	-
	mg/L	0718	WL	10/23/2008	N002	8.60 - 18.60	0.0044			#	4.5E-05	-
Oxidation Reduction Potential	mV	0715	WL	07/14/2009	N001	5.49 - 10.42	220.5		FQ	#	-	-
	mV	0718	WL	10/23/2008	N001	8.60 - 18.60	83.8			#	-	-
	mV	0718	WL	07/14/2009	N001	8.60 - 18.60	-27.7		F	#	-	-
	mV	DM1	WL	07/29/2008	N001	2.67 - 7.67	-98.8		F	#	-	-
	mV	DM1	WL	09/24/2009	N001	2.67 - 7.67	24.7			#	-	-
	mV	MAU07	WL	07/30/2008	N001	2.92 - 7.92	-58.5		F	#	-	-
	mV	MAU07	WL	07/14/2009	N001	2.92 - 7.92	-29.8		F	#	-	-
	mV	MAU08	WL	07/30/2008	N001	6.17 - 11.17	159.6		FQ	#	-	-
	mV	MAU08	WL	07/14/2009	N001	6.17 - 11.17	76.2		F	#	-	-
	mV	NAT01-1	WL	07/29/2008	N001	17.00 - 17.50	-24.2		F	#	-	-
	mV	NAT01-1	WL	07/13/2009	N001	17.00 - 17.50	-23.0		F	#	-	-
	mV	NAT02	WL	07/29/2008	N001	6.42 - 11.42	182.8		F	#	-	-
	mV	NAT02	WL	07/13/2009	N001	6.42 - 11.42	46.2		F	#	-	-
	mV	NAT08	WL	07/29/2008	N001	6.30 - 11.30	6.1		F	#	-	-
	mV	NAT08	WL	07/13/2009	N001	6.30 - 11.30	41.7		F	#	-	-
	mV	NAT26	WL	07/29/2008	N001	10.67 - 15.67	194.8		F	#	-	-
	mV	NAT26	WL	07/13/2009	N001	10.67 - 15.67	256.5		F	#	-	-
pH	s.u.	0715	WL	07/14/2009	N001	5.49 - 10.42	7.30		FQ	#	-	-
	s.u.	0718	WL	10/23/2008	N001	8.60 - 18.60	7.10			#	-	-

GROUND WATER QUALITY DATA BY PARAMETER WITH DEPTH (USEE200) FOR SITE NAT01, Naturita Processing Site
REPORT DATE: 3/29/2010 2:36 pm

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
pH	s.u.	0718	WL	07/14/2009	N001	8.60 - 18.60	7.23		F	#	-	-
	s.u.	DM1	WL	07/29/2008	N001	2.67 - 7.67	7.14		F	#	-	-
	s.u.	DM1	WL	09/24/2009	N001	2.67 - 7.67	6.72			#	-	-
	s.u.	MAU07	WL	07/30/2008	N001	2.92 - 7.92	6.95		F	#	-	-
	s.u.	MAU07	WL	07/14/2009	N001	2.92 - 7.92	7.13		F	#	-	-
	s.u.	MAU08	WL	07/30/2008	N001	6.17 - 11.17	7.16		FQ	#	-	-
	s.u.	MAU08	WL	07/14/2009	N001	6.17 - 11.17	7.30		F	#	-	-
	s.u.	NAT01-1	WL	07/29/2008	N001	17.00 - 17.50	7.13		F	#	-	-
	s.u.	NAT01-1	WL	07/13/2009	N001	17.00 - 17.50	7.24		F	#	-	-
	s.u.	NAT02	WL	07/29/2008	N001	6.42 - 11.42	7.24		F	#	-	-
	s.u.	NAT02	WL	07/13/2009	N001	6.42 - 11.42	7.36		F	#	-	-
	s.u.	NAT08	WL	07/29/2008	N001	6.30 - 11.30	7.20		F	#	-	-
	s.u.	NAT08	WL	07/13/2009	N001	6.30 - 11.30	7.20		F	#	-	-
	s.u.	NAT26	WL	07/29/2008	N001	10.67 - 15.67	7.22		F	#	-	-
	s.u.	NAT26	WL	07/13/2009	N001	10.67 - 15.67	7.23		F	#	-	-
Specific Conductance	umhos/cm	0715	WL	07/14/2009	N001	5.49 - 10.42	101		FQ	#	-	-
	umhos/cm	0718	WL	10/23/2008	N001	8.60 - 18.60	1340			#	-	-
	umhos/cm	0718	WL	07/14/2009	N001	8.60 - 18.60	1614		F	#	-	-
	umhos/cm	DM1	WL	07/29/2008	N001	2.67 - 7.67	520		F	#	-	-
	umhos/cm	DM1	WL	09/24/2009	N001	2.67 - 7.67	1187			#	-	-
	umhos/cm	MAU07	WL	07/30/2008	N001	2.92 - 7.92	2759		F	#	-	-
	umhos/cm	MAU07	WL	07/14/2009	N001	2.92 - 7.92	2110		F	#	-	-
	umhos/cm	MAU08	WL	07/30/2008	N001	6.17 - 11.17	5235		FQ	#	-	-
	umhos/cm	MAU08	WL	07/14/2009	N001	6.17 - 11.17	2844		F	#	-	-
	umhos/cm	NAT01-1	WL	07/29/2008	N001	17.00 - 17.50	2001		F	#	-	-
	umhos/cm	NAT01-1	WL	07/13/2009	N001	17.00 - 17.50	1859		F	#	-	-

GROUND WATER QUALITY DATA BY PARAMETER WITH DEPTH (USEE200) FOR SITE NAT01, Naturita Processing Site
REPORT DATE: 3/29/2010 2:36 pm

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Specific Conductance	umhos/cm	NAT02	WL	07/29/2008	N001	6.42 - 11.42	1010		F	#	-	-
	umhos/cm	NAT02	WL	07/13/2009	N001	6.42 - 11.42	945		F	#	-	-
	umhos/cm	NAT08	WL	07/29/2008	N001	6.30 - 11.30	1721		F	#	-	-
	umhos/cm	NAT08	WL	07/13/2009	N001	6.30 - 11.30	1636		F	#	-	-
	umhos/cm	NAT26	WL	07/29/2008	N001	10.67 - 15.67	3549		F	#	-	-
	umhos/cm	NAT26	WL	07/13/2009	N001	10.67 - 15.67	3534		F	#	-	-
Temperature	C	0715	WL	07/14/2009	N001	5.49 - 10.42	15.32		FQ	#	-	-
	C	0718	WL	10/23/2008	N001	8.60 - 18.60	6.57			#	-	-
	C	0718	WL	07/14/2009	N001	8.60 - 18.60	12.78		F	#	-	-
	C	DM1	WL	07/29/2008	N001	2.67 - 7.67	20.77		F	#	-	-
	C	DM1	WL	09/24/2009	N001	2.67 - 7.67	19.61			#	-	-
	C	MAU07	WL	07/30/2008	N001	2.92 - 7.92	19.18		F	#	-	-
	C	MAU07	WL	07/14/2009	N001	2.92 - 7.92	17.38		F	#	-	-
	C	MAU08	WL	07/30/2008	N001	6.17 - 11.17	16.79		FQ	#	-	-
	C	MAU08	WL	07/14/2009	N001	6.17 - 11.17	15.60		F	#	-	-
	C	NAT01-1	WL	07/29/2008	N001	17.00 - 17.50	16.89		F	#	-	-
	C	NAT01-1	WL	07/13/2009	N001	17.00 - 17.50	15.50		F	#	-	-
	C	NAT02	WL	07/29/2008	N001	6.42 - 11.42	17.90		F	#	-	-
	C	NAT02	WL	07/13/2009	N001	6.42 - 11.42	16.55		F	#	-	-
	C	NAT08	WL	07/29/2008	N001	6.30 - 11.30	18.64		F	#	-	-
	C	NAT08	WL	07/13/2009	N001	6.30 - 11.30	16.59		F	#	-	-
	C	NAT26	WL	07/29/2008	N001	10.67 - 15.67	16.03		F	#	-	-
	C	NAT26	WL	07/13/2009	N001	10.67 - 15.67	15.22		F	#	-	-
Total Dissolved Solids	mg/L	0715	WL	07/14/2009	N001	5.49 - 10.42	600		FQ	#	20	-
	mg/L	0718	WL	10/23/2008	N001	8.60 - 18.60	950			#	40	-
	mg/L	0718	WL	10/23/2008	N002	8.60 - 18.60	930			#	40	-

GROUND WATER QUALITY DATA BY PARAMETER WITH DEPTH (USEE200) FOR SITE NAT01, Naturita Processing Site
REPORT DATE: 3/29/2010 2:36 pm

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Total Dissolved Solids	mg/L	0718	WL	07/14/2009	N001	8.60 - 18.60	1300		F	#	40	-
	mg/L	DM1	WL	07/29/2008	N001	2.67 - 7.67	320		F	#	20	-
	mg/L	DM1	WL	09/24/2009	N001	2.67 - 7.67	940			#	20	-
	mg/L	DM1	WL	09/24/2009	N002	2.67 - 7.67	930			#	21	-
	mg/L	MAU07	WL	07/30/2008	N001	2.92 - 7.92	2300		F	#	80	-
	mg/L	MAU07	WL	07/30/2008	N002	2.92 - 7.92	2300		F	#	80	-
	mg/L	MAU07	WL	07/14/2009	N001	2.92 - 7.92	1800		F	#	40	-
	mg/L	MAU08	WL	07/30/2008	N001	6.17 - 11.17	4300		FQ	#	80	-
	mg/L	MAU08	WL	07/14/2009	N001	6.17 - 11.17	2300		F	#	40	-
	mg/L	NAT01-1	WL	07/29/2008	N001	17.00 - 17.50	1600		F	#	40	-
	mg/L	NAT01-1	WL	07/13/2009	N001	17.00 - 17.50	1500		F	#	40	-
	mg/L	NAT01-1	WL	07/13/2009	N002	17.00 - 17.50	1500		F	#	40	-
	mg/L	NAT02	WL	07/29/2008	N001	6.42 - 11.42	690		F	#	40	-
	mg/L	NAT02	WL	07/13/2009	N001	6.42 - 11.42	710		F	#	20	-
	mg/L	NAT08	WL	07/29/2008	N001	6.30 - 11.30	1400		F	#	40	-
	mg/L	NAT08	WL	07/13/2009	N001	6.30 - 11.30	1300		F	#	40	-
	mg/L	NAT26	WL	07/29/2008	N001	10.67 - 15.67	2700		F	#	80	-
	mg/L	NAT26	WL	07/13/2009	N001	10.67 - 15.67	2800		F	#	80	-
Turbidity	NTU	0715	WL	07/14/2009	N001	5.49 - 10.42	8.21		FQ	#	-	-
	NTU	0718	WL	10/23/2008	N001	8.60 - 18.60	4.89			#	-	-
	NTU	0718	WL	07/14/2009	N001	8.60 - 18.60	5.88		F	#	-	-
	NTU	DM1	WL	07/29/2008	N001	2.67 - 7.67	1.86		F	#	-	-
	NTU	DM1	WL	09/24/2009	N001	2.67 - 7.67	2.32			#	-	-
	NTU	MAU07	WL	07/30/2008	N001	2.92 - 7.92	0.88		F	#	-	-
	NTU	MAU07	WL	07/14/2009	N001	2.92 - 7.92	2.72		F	#	-	-
	NTU	MAU08	WL	07/30/2008	N001	6.17 - 11.17	8.12		FQ	#	-	-

GROUND WATER QUALITY DATA BY PARAMETER WITH DEPTH (USEE200) FOR SITE NAT01, Naturita Processing Site
REPORT DATE: 3/29/2010 2:36 pm

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Turbidity	NTU	MAU08	WL	07/14/2009	N001	6.17 - 11.17	3.19		F	#	-	-
	NTU	NAT01-1	WL	07/29/2008	N001	17.00 - 17.50	4.44		F	#	-	-
	NTU	NAT01-1	WL	07/13/2009	N001	17.00 - 17.50	1.14		F	#	-	-
	NTU	NAT02	WL	07/29/2008	N001	6.42 - 11.42	1.37		F	#	-	-
	NTU	NAT02	WL	07/13/2009	N001	6.42 - 11.42	5.03		F	#	-	-
	NTU	NAT08	WL	07/29/2008	N001	6.30 - 11.30	1.49		F	#	-	-
	NTU	NAT08	WL	07/13/2009	N001	6.30 - 11.30	2.29		F	#	-	-
	NTU	NAT26	WL	07/29/2008	N001	10.67 - 15.67	0.77		F	#	-	-
	NTU	NAT26	WL	07/13/2009	N001	10.67 - 15.67	1.19		F	#	-	-
Uranium	mg/L	0715	WL	07/14/2009	N001	5.49 - 10.42	0.061		FQ	#	1.7E-06	-
	mg/L	0718	WL	10/23/2008	N001	8.60 - 18.60	0.033			#	3.6E-06	-
	mg/L	0718	WL	10/23/2008	N002	8.60 - 18.60	0.034			#	3.6E-06	-
	mg/L	0718	WL	07/14/2009	N001	8.60 - 18.60	0.067		F	#	1.7E-06	-
	mg/L	DM1	WL	07/29/2008	N001	2.67 - 7.67	0.002		F	#	4.5E-06	-
	mg/L	DM1	WL	09/24/2009	N001	2.67 - 7.67	0.0077			#	1.7E-06	-
	mg/L	DM1	WL	09/24/2009	N002	2.67 - 7.67	0.0074			#	1.7E-06	-
	mg/L	MAU07	WL	07/30/2008	N001	2.92 - 7.92	0.770		F	#	4.5E-05	-
	mg/L	MAU07	WL	07/30/2008	N002	2.92 - 7.92	0.720		F	#	4.5E-05	-
	mg/L	MAU07	WL	07/14/2009	N001	2.92 - 7.92	0.510		F	#	1.7E-05	-
	mg/L	MAU08	WL	07/30/2008	N001	6.17 - 11.17	1.600		FQ	#	0.00009	-
	mg/L	MAU08	WL	07/14/2009	N001	6.17 - 11.17	0.740		F	#	1.7E-05	-
	mg/L	NAT01-1	WL	07/29/2008	N001	17.00 - 17.50	0.720		F	#	4.5E-05	-
	mg/L	NAT01-1	WL	07/13/2009	N001	17.00 - 17.50	0.620		F	#	1.7E-05	-
	mg/L	NAT01-1	WL	07/13/2009	N002	17.00 - 17.50	0.620		F	#	1.7E-05	-
	mg/L	NAT02	WL	07/29/2008	N001	6.42 - 11.42	0.180		F	#	9E-06	-
	mg/L	NAT02	WL	07/13/2009	N001	6.42 - 11.42	0.160		F	#	8.7E-06	-

GROUND WATER QUALITY DATA BY PARAMETER WITH DEPTH (USEE200) FOR SITE NAT01, Naturita Processing Site
REPORT DATE: 3/29/2010 2:36 pm

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Uranium	mg/L	NAT08	WL	07/29/2008	N001	6.30 - 11.30	0.410		F	#	2.2E-05	-
	mg/L	NAT08	WL	07/13/2009	N001	6.30 - 11.30	0.390		F	#	1.7E-05	-
	mg/L	NAT26	WL	07/29/2008	N001	10.67 - 15.67	1.400		F	#	0.00009	-
	mg/L	NAT26	WL	07/13/2009	N001	10.67 - 15.67	1.400		F	#	8.7E-05	-
Vanadium	mg/L	0715	WL	07/14/2009	N001	5.49 - 10.42	0.0036		FQ	#	0.00005	-
	mg/L	0718	WL	10/23/2008	N001	8.60 - 18.60	0.00034			#	6.7E-05	-
	mg/L	0718	WL	10/23/2008	N002	8.60 - 18.60	0.00031			#	6.7E-05	-
	mg/L	0718	WL	07/14/2009	N001	8.60 - 18.60	0.00035		F	#	0.00005	-
	mg/L	DM1	WL	07/29/2008	N001	2.67 - 7.67	0.00033		F	#	0.0001	-
	mg/L	DM1	WL	09/24/2009	N001	2.67 - 7.67	0.00029	B		#	0.00005	-
	mg/L	DM1	WL	09/24/2009	N002	2.67 - 7.67	0.00027	B		#	0.00005	-
	mg/L	MAU07	WL	07/30/2008	N001	2.92 - 7.92	0.0001	U	F	#	0.0001	-
	mg/L	MAU07	WL	07/30/2008	N002	2.92 - 7.92	0.0001	U	F	#	0.0001	-
	mg/L	MAU07	WL	07/14/2009	N001	2.92 - 7.92	0.00018	B	F	#	0.00005	-
	mg/L	MAU08	WL	07/30/2008	N001	6.17 - 11.17	0.00082		FQ	#	0.0001	-
	mg/L	MAU08	WL	07/14/2009	N001	6.17 - 11.17	0.0002	B	F	#	0.00005	-
	mg/L	NAT01-1	WL	07/29/2008	N001	17.00 - 17.50	0.0027		F	#	0.0001	-
	mg/L	NAT01-1	WL	07/13/2009	N001	17.00 - 17.50	0.0024		F	#	0.00005	-
	mg/L	NAT01-1	WL	07/13/2009	N002	17.00 - 17.50	0.0024		F	#	0.00005	-
	mg/L	NAT02	WL	07/29/2008	N001	6.42 - 11.42	0.920		F	#	0.017	-
	mg/L	NAT02	WL	07/13/2009	N001	6.42 - 11.42	0.660		F	#	0.0017	-
	mg/L	NAT08	WL	07/29/2008	N001	6.30 - 11.30	2.600		F	#	0.034	-
	mg/L	NAT08	WL	07/13/2009	N001	6.30 - 11.30	2.400		F	#	0.017	-
	mg/L	NAT26	WL	07/29/2008	N001	10.67 - 15.67	0.00056		F	#	0.0001	-
	mg/L	NAT26	WL	07/13/2009	N001	10.67 - 15.67	0.00052		F	#	0.00005	-

GROUND WATER QUALITY DATA BY PARAMETER WITH DEPTH (USEE200) FOR SITE NAT01, Naturita Processing Site
REPORT DATE: 3/29/2010 2:36 pm

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY

RECORDS: SELECTED FROM USEE200 WHERE site_code='NAT01' AND (data_validation_qualifiers IS NULL OR data_validation_qualifiers NOT LIKE '%R%' AND data_validation_qualifiers NOT LIKE '%X%') AND DATE_SAMPLED >= #1/1/2008#

SAMPLE ID CODES: 000X = Filtered sample. N00X = Unfiltered sample. X = replicate number.

LOCATION TYPES: WL WELL

LAB QUALIFIERS:

*	Replicate analysis not within control limits.
+	Correlation coefficient for MSA < 0.995.
>	Result above upper detection limit.
A	TIC is a suspected aldol-condensation product.
B	Inorganic: Result is between the IDL and CRDL. Organic & Radiochemistry: Analyte also found in method blank.
C	Pesticide result confirmed by GC-MS.
D	Analyte determined in diluted sample.
E	Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
H	Holding time expired, value suspect.
I	Increased detection limit due to required dilution.
J	Estimated
M	GFAA duplicate injection precision not met.
N	Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compund (TIC).
P	> 25% difference in detected pesticide or Arochlor concentrations between 2 columns.
S	Result determined by method of standard addition (MSA).
U	Analytical result below detection limit.
W	Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
X	Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
Y	Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
Z	Laboratory defined (USEPA CLP organic) qualifier, see case narrative.

DATA QUALIFIERS:

F	Low flow sampling method used.	G	Possible grout contamination, pH > 9.	J	Estimated value.
L	Less than 3 bore volumes purged prior to sampling.	N	Presumptive evidence that analyte is present. The analyte is "tentatively identified".	Q	Qualitative result due to sampling technique
R	Unusable result.	U	Parameter analyzed for but was not detected.	X	Location is undefined.

QA QUALIFIER: # = validated according to Quality Assurance guidelines.

GROUND WATER QUALITY DATA BY PARAMETER WITH DEPTH (USEE200) FOR SITE NAT01, Naturita Processing Site
REPORT DATE: 3/25/2010 1:47 pm

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity, Total (As CaCO3)	mg/L	0715	WL	07/14/2009	N001	5.49 - 10.42	91		FQ	#	-	-
	mg/L	0718	WL	07/14/2009	N001	8.60 - 18.60	233		F	#	-	-
	mg/L	DM1	WL	09/24/2009	N001	2.67 - 7.67	209			#	-	-
	mg/L	MAU07	WL	07/14/2009	N001	2.92 - 7.92	209		F	#	-	-
	mg/L	MAU08	WL	07/14/2009	N001	6.17 - 11.17	297		F	#	-	-
	mg/L	NAT01-1	WL	07/13/2009	N001	17.00 - 17.50	242		F	#	-	-
	mg/L	NAT02	WL	07/13/2009	N001	6.42 - 11.42	153		F	#	-	-
	mg/L	NAT08	WL	07/13/2009	N001	6.30 - 11.30	216		F	#	-	-
	mg/L	NAT26	WL	07/13/2009	N001	10.67 - 15.67	312		F	#	-	-
Arsenic	mg/L	0715	WL	07/14/2009	N001	5.49 - 10.42	0.0046		FQ	#	8.4E-06	-
	mg/L	0718	WL	07/14/2009	N001	8.60 - 18.60	0.0031		F	#	8.4E-06	-
	mg/L	DM1	WL	09/24/2009	N001	2.67 - 7.67	0.0016			#	8.4E-06	-
	mg/L	DM1	WL	09/24/2009	N002	2.67 - 7.67	0.0016			#	8.4E-06	-
	mg/L	MAU07	WL	07/14/2009	N001	2.92 - 7.92	0.0051		F	#	8.4E-06	-
	mg/L	MAU08	WL	07/14/2009	N001	6.17 - 11.17	0.00044		F	#	8.4E-06	-
	mg/L	NAT01-1	WL	07/13/2009	N001	17.00 - 17.50	0.0064		F	#	8.4E-06	-
	mg/L	NAT01-1	WL	07/13/2009	N002	17.00 - 17.50	0.0062		F	#	8.4E-06	-
	mg/L	NAT02	WL	07/13/2009	N001	6.42 - 11.42	0.0059		F	#	8.4E-06	-
	mg/L	NAT08	WL	07/13/2009	N001	6.30 - 11.30	0.024		F	#	4.2E-05	-
	mg/L	NAT26	WL	07/13/2009	N001	10.67 - 15.67	0.00024		F	#	8.4E-06	-
Oxidation Reduction Potential	mV	0715	WL	07/14/2009	N001	5.49 - 10.42	220.5		FQ	#	-	-
	mV	0718	WL	07/14/2009	N001	8.60 - 18.60	-27.7		F	#	-	-
	mV	DM1	WL	09/24/2009	N001	2.67 - 7.67	24.7			#	-	-
	mV	MAU07	WL	07/14/2009	N001	2.92 - 7.92	-29.8		F	#	-	-
	mV	MAU08	WL	07/14/2009	N001	6.17 - 11.17	76.2		F	#	-	-

GROUND WATER QUALITY DATA BY PARAMETER WITH DEPTH (USEE200) FOR SITE NAT01, Naturita Processing Site
REPORT DATE: 3/25/2010 1:47 pm

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Oxidation Reduction Potential	mV	NAT01-1	WL	07/13/2009	N001	17.00 - 17.50	-23.0		F	#	-	-
	mV	NAT02	WL	07/13/2009	N001	6.42 - 11.42	46.2		F	#	-	-
	mV	NAT08	WL	07/13/2009	N001	6.30 - 11.30	41.7		F	#	-	-
	mV	NAT26	WL	07/13/2009	N001	10.67 - 15.67	256.5		F	#	-	-
pH	s.u.	0715	WL	07/14/2009	N001	5.49 - 10.42	7.30		FQ	#	-	-
	s.u.	0718	WL	07/14/2009	N001	8.60 - 18.60	7.23		F	#	-	-
	s.u.	DM1	WL	09/24/2009	N001	2.67 - 7.67	6.72			#	-	-
	s.u.	MAU07	WL	07/14/2009	N001	2.92 - 7.92	7.13		F	#	-	-
	s.u.	MAU08	WL	07/14/2009	N001	6.17 - 11.17	7.30		F	#	-	-
	s.u.	NAT01-1	WL	07/13/2009	N001	17.00 - 17.50	7.24		F	#	-	-
	s.u.	NAT02	WL	07/13/2009	N001	6.42 - 11.42	7.36		F	#	-	-
	s.u.	NAT08	WL	07/13/2009	N001	6.30 - 11.30	7.20		F	#	-	-
	s.u.	NAT26	WL	07/13/2009	N001	10.67 - 15.67	7.23		F	#	-	-
Specific Conductance	umhos/cm	0715	WL	07/14/2009	N001	5.49 - 10.42	101		FQ	#	-	-
	umhos/cm	0718	WL	07/14/2009	N001	8.60 - 18.60	1614		F	#	-	-
	umhos/cm	DM1	WL	09/24/2009	N001	2.67 - 7.67	1187			#	-	-
	umhos/cm	MAU07	WL	07/14/2009	N001	2.92 - 7.92	2110		F	#	-	-
	umhos/cm	MAU08	WL	07/14/2009	N001	6.17 - 11.17	2844		F	#	-	-
	umhos/cm	NAT01-1	WL	07/13/2009	N001	17.00 - 17.50	1859		F	#	-	-
	umhos/cm	NAT02	WL	07/13/2009	N001	6.42 - 11.42	945		F	#	-	-
	umhos/cm	NAT08	WL	07/13/2009	N001	6.30 - 11.30	1636		F	#	-	-
	umhos/cm	NAT26	WL	07/13/2009	N001	10.67 - 15.67	3534		F	#	-	-
Temperature	C	0715	WL	07/14/2009	N001	5.49 - 10.42	15.32		FQ	#	-	-
	C	0718	WL	07/14/2009	N001	8.60 - 18.60	12.78		F	#	-	-
	C	DM1	WL	09/24/2009	N001	2.67 - 7.67	19.61			#	-	-

GROUND WATER QUALITY DATA BY PARAMETER WITH DEPTH (USEE200) FOR SITE NAT01, Naturita Processing Site
REPORT DATE: 3/25/2010 1:47 pm

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Temperature	C	MAU07	WL	07/14/2009	N001	2.92 - 7.92	17.38		F	#	-	-
	C	MAU08	WL	07/14/2009	N001	6.17 - 11.17	15.60		F	#	-	-
	C	NAT01-1	WL	07/13/2009	N001	17.00 - 17.50	15.50		F	#	-	-
	C	NAT02	WL	07/13/2009	N001	6.42 - 11.42	16.55		F	#	-	-
	C	NAT08	WL	07/13/2009	N001	6.30 - 11.30	16.59		F	#	-	-
	C	NAT26	WL	07/13/2009	N001	10.67 - 15.67	15.22		F	#	-	-
Total Dissolved Solids	mg/L	0715	WL	07/14/2009	N001	5.49 - 10.42	600		FQ	#	20	-
	mg/L	0718	WL	07/14/2009	N001	8.60 - 18.60	1300		F	#	40	-
	mg/L	DM1	WL	09/24/2009	N001	2.67 - 7.67	940			#	20	-
	mg/L	DM1	WL	09/24/2009	N002	2.67 - 7.67	930			#	21	-
	mg/L	MAU07	WL	07/14/2009	N001	2.92 - 7.92	1800		F	#	40	-
	mg/L	MAU08	WL	07/14/2009	N001	6.17 - 11.17	2300		F	#	40	-
	mg/L	NAT01-1	WL	07/13/2009	N001	17.00 - 17.50	1500		F	#	40	-
	mg/L	NAT01-1	WL	07/13/2009	N002	17.00 - 17.50	1500		F	#	40	-
	mg/L	NAT02	WL	07/13/2009	N001	6.42 - 11.42	710		F	#	20	-
	mg/L	NAT08	WL	07/13/2009	N001	6.30 - 11.30	1300		F	#	40	-
	mg/L	NAT26	WL	07/13/2009	N001	10.67 - 15.67	2800		F	#	80	-
Turbidity	NTU	0715	WL	07/14/2009	N001	5.49 - 10.42	8.21		FQ	#	-	-
	NTU	0718	WL	07/14/2009	N001	8.60 - 18.60	5.88		F	#	-	-
	NTU	DM1	WL	09/24/2009	N001	2.67 - 7.67	2.32			#	-	-
	NTU	MAU07	WL	07/14/2009	N001	2.92 - 7.92	2.72		F	#	-	-
	NTU	MAU08	WL	07/14/2009	N001	6.17 - 11.17	3.19		F	#	-	-
	NTU	NAT01-1	WL	07/13/2009	N001	17.00 - 17.50	1.14		F	#	-	-
	NTU	NAT02	WL	07/13/2009	N001	6.42 - 11.42	5.03		F	#	-	-
	NTU	NAT08	WL	07/13/2009	N001	6.30 - 11.30	2.29		F	#	-	-
	NTU	NAT26	WL	07/13/2009	N001	10.67 - 15.67	1.19		F	#	-	-

GROUND WATER QUALITY DATA BY PARAMETER WITH DEPTH (USEE200) FOR SITE NAT01, Naturita Processing Site
REPORT DATE: 3/25/2010 1:47 pm

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Uranium	mg/L	0715	WL	07/14/2009	N001	5.49 - 10.42	0.061		FQ	#	1.7E-06	-
	mg/L	0718	WL	07/14/2009	N001	8.60 - 18.60	0.067		F	#	1.7E-06	-
	mg/L	DM1	WL	09/24/2009	N001	2.67 - 7.67	0.0077			#	1.7E-06	-
	mg/L	DM1	WL	09/24/2009	N002	2.67 - 7.67	0.0074			#	1.7E-06	-
	mg/L	MAU07	WL	07/14/2009	N001	2.92 - 7.92	0.510		F	#	1.7E-05	-
	mg/L	MAU08	WL	07/14/2009	N001	6.17 - 11.17	0.740		F	#	1.7E-05	-
	mg/L	NAT01-1	WL	07/13/2009	N001	17.00 - 17.50	0.620		F	#	1.7E-05	-
	mg/L	NAT01-1	WL	07/13/2009	N002	17.00 - 17.50	0.620		F	#	1.7E-05	-
	mg/L	NAT02	WL	07/13/2009	N001	6.42 - 11.42	0.160		F	#	8.7E-06	-
	mg/L	NAT08	WL	07/13/2009	N001	6.30 - 11.30	0.390		F	#	1.7E-05	-
	mg/L	NAT26	WL	07/13/2009	N001	10.67 - 15.67	1.400		F	#	8.7E-05	-
Vanadium	mg/L	0715	WL	07/14/2009	N001	5.49 - 10.42	0.0036		FQ	#	0.00005	-
	mg/L	0718	WL	07/14/2009	N001	8.60 - 18.60	0.00035		F	#	0.00005	-
	mg/L	DM1	WL	09/24/2009	N001	2.67 - 7.67	0.00029	B		#	0.00005	-
	mg/L	DM1	WL	09/24/2009	N002	2.67 - 7.67	0.00027	B		#	0.00005	-
	mg/L	MAU07	WL	07/14/2009	N001	2.92 - 7.92	0.00018	B	F	#	0.00005	-
	mg/L	MAU08	WL	07/14/2009	N001	6.17 - 11.17	0.0002	B	F	#	0.00005	-
	mg/L	NAT01-1	WL	07/13/2009	N001	17.00 - 17.50	0.0024		F	#	0.00005	-
	mg/L	NAT01-1	WL	07/13/2009	N002	17.00 - 17.50	0.0024		F	#	0.00005	-
	mg/L	NAT02	WL	07/13/2009	N001	6.42 - 11.42	0.660		F	#	0.0017	-
	mg/L	NAT08	WL	07/13/2009	N001	6.30 - 11.30	2.400		F	#	0.017	-
	mg/L	NAT26	WL	07/13/2009	N001	10.67 - 15.67	0.00052		F	#	0.00005	-

GROUND WATER QUALITY DATA BY PARAMETER WITH DEPTH (USEE200) FOR SITE NAT01, Naturita Processing Site
REPORT DATE: 3/25/2010 1:47 pm

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY

RECORDS: SELECTED FROM USEE200 WHERE site_code='NAT01' AND (data_validation_qualifiers IS NULL OR data_validation_qualifiers NOT LIKE '%R%' AND data_validation_qualifiers NOT LIKE '%X%') AND DATE_SAMPLED >= #1/1/2009#

SAMPLE ID CODES: 000X = Filtered sample. N00X = Unfiltered sample. X = replicate number.

LOCATION TYPES: WL WELL

LAB QUALIFIERS:

*	Replicate analysis not within control limits.
+	Correlation coefficient for MSA < 0.995.
>	Result above upper detection limit.
A	TIC is a suspected aldol-condensation product.
B	Inorganic: Result is between the IDL and CRDL. Organic & Radiochemistry: Analyte also found in method blank.
C	Pesticide result confirmed by GC-MS.
D	Analyte determined in diluted sample.
E	Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
H	Holding time expired, value suspect.
I	Increased detection limit due to required dilution.
J	Estimated
M	GFAA duplicate injection precision not met.
N	Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compund (TIC).
P	> 25% difference in detected pesticide or Arochlor concentrations between 2 columns.
S	Result determined by method of standard addition (MSA).
U	Analytical result below detection limit.
W	Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
X	Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
Y	Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
Z	Laboratory defined (USEPA CLP organic) qualifier, see case narrative.

DATA QUALIFIERS:

F	Low flow sampling method used.	G	Possible grout contamination, pH > 9.	J	Estimated value.
L	Less than 3 bore volumes purged prior to sampling.	N	Presumptive evidence that analyte is present. The analyte is "tentatively identified".	Q	Qualitative result due to sampling technique
R	Unusable result.	U	Parameter analyzed for but was not detected.	X	Location is undefined.

QA QUALIFIER: # = validated according to Quality Assurance guidelines.

This page intentionally left blank

Appendix B

Surface Water Quality Data by Parameter

This page intentionally left blank

SURFACE WATER QUALITY DATA BY PARAMETER (USEE800) FOR SITE NAT01, Naturita Processing Site
REPORT DATE: 3/29/2010 2:38 pm

PARAMETER	UNITS	LOCATION CODE	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity, Total (As CaCO3)	mg/L	0531	07/29/2008	0001	92				# -	-
	mg/L	0531	07/13/2009	N001	74				# -	-
	mg/L	0533	07/30/2008	0001	86				# -	-
	mg/L	0533	07/14/2009	N001	35				# -	-
	mg/L	0538	07/30/2008	0001	218				# -	-
	mg/L	0538	07/14/2009	0001	228				# -	-
	mg/L	SM2	07/29/2008	0001	78				# -	-
	mg/L	SM2	07/13/2009	N001	38				# -	-
	mg/L	SM4	07/29/2008	0001	65				# -	-
	mg/L	SM4	07/13/2009	N001	34				# -	-
Arsenic	mg/L	0531	07/13/2009	N001	0.0007				# 8.4E-06	-
	mg/L	0533	07/14/2009	N001	0.0006				# 8.4E-06	-
	mg/L	0538	07/14/2009	0001	0.0021				# 8.4E-06	-
	mg/L	SM2	07/13/2009	N001	0.0007				# 8.4E-06	-
	mg/L	SM4	07/13/2009	N001	0.0007				# 8.4E-06	-
Oxidation Reduction Potential	mV	0531	07/29/2008	N001	25.0				# -	-
	mV	0531	07/13/2009	N001	211.2				# -	-
	mV	0533	07/30/2008	N001	34.8				# -	-
	mV	0533	07/14/2009	N001	72.8				# -	-
	mV	0538	07/30/2008	N001	-68.0				# -	-
	mV	0538	07/14/2009	N001	-7.6				# -	-
	mV	SM2	07/29/2008	N001	55				# -	-
	mV	SM2	07/13/2009	N001	76.1				# -	-
	mV	SM4	07/29/2008	N001	50				# -	-
	mV	SM4	07/13/2009	N001	99.8				# -	-
pH	s.u.	0531	07/29/2008	N001	8.73				# -	-
	s.u.	0531	07/13/2009	N001	8.08				# -	-
	s.u.	0533	07/30/2008	N001	8.54				# -	-
	s.u.	0533	07/14/2009	N001	8.36				# -	-
	s.u.	0538	07/30/2008	N001	7.45				# -	-
	s.u.	0538	07/14/2009	N001	7.18				# -	-
	s.u.	SM2	07/29/2008	N001	8.64				# -	-
	s.u.	SM2	07/13/2009	N001	8.51				# -	-
	s.u.	SM4	07/29/2008	N001	8.63				# -	-
	s.u.	SM4	07/13/2009	N001	8.53				# -	-
Specific Conductance	umhos/cm	0531	07/29/2008	N001	387				# -	-

SURFACE WATER QUALITY DATA BY PARAMETER (USEE800) FOR SITE NAT01, Naturita Processing Site
REPORT DATE: 3/29/2010 2:38 pm

PARAMETER	UNITS	LOCATION CODE	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT		UN-CERTAINTY
Specific Conductance	umhos/cm	0531	07/13/2009	N001	473				#	-	-
	umhos/cm	0533	07/14/2009	N001	453				#	-	-
	umhos/cm	0538	07/30/2008	N001	1530				#	-	-
	umhos/cm	0538	07/14/2009	N001	1278				#	-	-
	umhos/cm	SM2	07/29/2008	N001	380				#	-	-
	umhos/cm	SM2	07/13/2009	N001	422				#	-	-
	umhos/cm	SM4	07/29/2008	N001	391				#	-	-
	umhos/cm	SM4	07/13/2009	N001	410				#	-	-
Temperature	C	0531	07/29/2008	N001	22.66				#	-	-
	C	0531	07/13/2009	N001	22.68				#	-	-
	C	0533	07/30/2008	N001	21.92				#	-	-
	C	0533	07/14/2009	N001	18.99				#	-	-
	C	0538	07/30/2008	N001	20.49				#	-	-
	C	0538	07/14/2009	N001	22.14				#	-	-
	C	SM2	07/29/2008	N001	21.90				#	-	-
	C	SM2	07/13/2009	N001	23.30				#	-	-
	C	SM4	07/29/2008	N001	22.03				#	-	-
	C	SM4	07/13/2009	N001	23.83				#	-	-
Total Dissolved Solids	mg/L	0531	07/29/2008	0001	240				#	20	-
	mg/L	0531	07/13/2009	N001	280				#	20	-
	mg/L	0533	07/30/2008	0001	260				#	20	-
	mg/L	0533	07/14/2009	N001	300				#	20	-
	mg/L	0538	07/30/2008	0001	1200				#	40	-
	mg/L	0538	07/14/2009	0001	1100				#	40	-
	mg/L	SM2	07/29/2008	0001	240				#	20	-
	mg/L	SM2	07/13/2009	N001	280				#	20	-
	mg/L	SM4	07/29/2008	0001	240				#	20	-
	mg/L	SM4	07/13/2009	N001	280				#	20	-
Turbidity	NTU	0531	07/29/2008	N001	19.9				#	-	-
	NTU	0531	07/13/2009	N001	8.03				#	-	-
	NTU	0533	07/30/2008	N001	13.3				#	-	-
	NTU	0533	07/14/2009	N001	5.03				#	-	-
	NTU	0538	07/14/2009	N001	72.1				#	-	-
	NTU	SM2	07/29/2008	N001	31.0				#	-	-
	NTU	SM2	07/13/2009	N001	6.73				#	-	-
	NTU	SM4	07/29/2008	N001	34.7				#	-	-
	NTU	SM4	07/13/2009	N001	6.74				#	-	-

SURFACE WATER QUALITY DATA BY PARAMETER (USEE800) FOR SITE NAT01, Naturita Processing Site
REPORT DATE: 3/29/2010 2:38 pm

PARAMETER	UNITS	LOCATION CODE	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT		UN-CERTAINTY
Uranium	mg/L	0531	07/29/2008	0001	0.0008				#	4.5E-06	-
	mg/L	0531	07/13/2009	N001	0.0009				#	1.7E-06	-
	mg/L	0533	07/30/2008	0001	0.0008				#	4.5E-06	-
	mg/L	0533	07/14/2009	N001	0.0011				#	1.7E-06	-
	mg/L	0538	07/30/2008	0001	0.130				#	9E-06	-
	mg/L	0538	07/14/2009	0001	0.180				#	8.7E-06	-
	mg/L	SM2	07/29/2008	0001	0.0008				#	4.5E-06	-
	mg/L	SM2	07/13/2009	N001	0.0009				#	1.7E-06	-
	mg/L	SM4	07/29/2008	0001	0.0008				#	4.5E-06	-
	mg/L	SM4	07/13/2009	N001	0.0009				#	1.7E-06	-
Vanadium	mg/L	0531	07/29/2008	0001	0.0005				#	0.0001	-
	mg/L	0531	07/13/2009	N001	0.0005				#	0.00005	-
	mg/L	0533	07/30/2008	0001	0.0005				#	0.0001	-
	mg/L	0533	07/14/2009	N001	0.0005				#	0.00005	-
	mg/L	0538	07/30/2008	0001	0.0007				#	0.0001	-
	mg/L	0538	07/14/2009	0001	0.0002	B			#	0.00005	-
	mg/L	SM2	07/29/2008	0001	0.0006				#	0.0001	-
	mg/L	SM2	07/13/2009	N001	0.0005				#	0.00005	-
	mg/L	SM4	07/29/2008	0001	0.0005				#	0.0001	-
	mg/L	SM4	07/13/2009	N001	0.0005				#	0.00005	-

SURFACE WATER QUALITY DATA BY PARAMETER (USEE800) FOR SITE NAT01, Naturita Processing Site
REPORT DATE: 3/29/2010 2:38 pm

PARAMETER	UNITS	LOCATION CODE	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY

RECORDS: SELECTED FROM USEE800 WHERE site_code='NAT01' AND (data_validation_qualifiers IS NULL OR data_validation_qualifiers NOT LIKE '%R%' AND data_validation_qualifiers NOT LIKE '%X%') AND DATE_SAMPLED >= #1/1/2008#

SAMPLE ID CODES: 000X = Filtered sample. N00X = Unfiltered sample. X = replicate number.

LAB QUALIFIERS:

*	Replicate analysis not within control limits.
+	Correlation coefficient for MSA < 0.995.
>	Result above upper detection limit.
A	TIC is a suspected aldol-condensation product.
B	Inorganic: Result is between the IDL and CRDL. Organic & Radiochemistry: Analyte also found in method blank.
C	Pesticide result confirmed by GC-MS.
D	Analyte determined in diluted sample.
E	Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
H	Holding time expired, value suspect.
I	Increased detection limit due to required dilution.
J	Estimated
M	GFAA duplicate injection precision not met.
N	Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compund (TIC).
P	> 25% difference in detected pesticide or Arochlor concentrations between 2 columns.
S	Result determined by method of standard addition (MSA).
U	Analytical result below detection limit.
W	Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
X	Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
Y	Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
Z	Laboratory defined (USEPA CLP organic) qualifier, see case narrative.

DATA QUALIFIERS:

F	Low flow sampling method used.	G	Possible grout contamination, pH > 9.
J	Estimated value.	L	Less than 3 bore volumes purged prior to sampling.
N	Presumptive evidence that analyte is present. The analyte is "tentatively identified".	Q	Qualitative result due to sampling technique
R	Unusable result.	U	Parameter analyzed for but was not detected.
X	Location is undefined.		

QA QUALIFIER: # = validated according to Quality Assurance guidelines.

SURFACE WATER QUALITY DATA BY PARAMETER (USEE800) FOR SITE NAT01, Naturita Processing Site
REPORT DATE: 3/25/2010 1:49 pm

PARAMETER	UNITS	LOCATION CODE	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT		UN-CERTAINTY
Alkalinity, Total (As CaCO3)	mg/L	0531	07/13/2009	N001	74				#	-	-
	mg/L	0533	07/14/2009	N001	35				#	-	-
	mg/L	0538	07/14/2009	0001	228				#	-	-
	mg/L	SM2	07/13/2009	N001	38				#	-	-
	mg/L	SM4	07/13/2009	N001	34				#	-	-
Arsenic	mg/L	0531	07/13/2009	N001	0.0007				#	8.4E-06	-
	mg/L	0533	07/14/2009	N001	0.0006				#	8.4E-06	-
	mg/L	0538	07/14/2009	0001	0.0021				#	8.4E-06	-
	mg/L	SM2	07/13/2009	N001	0.0007				#	8.4E-06	-
	mg/L	SM4	07/13/2009	N001	0.0007				#	8.4E-06	-
Oxidation Reduction Potential	mV	0531	07/13/2009	N001	211.2				#	-	-
	mV	0533	07/14/2009	N001	72.8				#	-	-
	mV	0538	07/14/2009	N001	-7.6				#	-	-
	mV	SM2	07/13/2009	N001	76.1				#	-	-
	mV	SM4	07/13/2009	N001	99.8				#	-	-
pH	s.u.	0531	07/13/2009	N001	8.08				#	-	-
	s.u.	0533	07/14/2009	N001	8.36				#	-	-
	s.u.	0538	07/14/2009	N001	7.18				#	-	-
	s.u.	SM2	07/13/2009	N001	8.51				#	-	-
	s.u.	SM4	07/13/2009	N001	8.53				#	-	-
Specific Conductance	umhos/cm	0531	07/13/2009	N001	473				#	-	-
	umhos/cm	0533	07/14/2009	N001	453				#	-	-
	umhos/cm	0538	07/14/2009	N001	1278				#	-	-
	umhos/cm	SM2	07/13/2009	N001	422				#	-	-
	umhos/cm	SM4	07/13/2009	N001	410				#	-	-
Temperature	C	0531	07/13/2009	N001	22.68				#	-	-
	C	0533	07/14/2009	N001	18.99				#	-	-
	C	0538	07/14/2009	N001	22.14				#	-	-
	C	SM2	07/13/2009	N001	23.30				#	-	-
	C	SM4	07/13/2009	N001	23.83				#	-	-
Total Dissolved Solids	mg/L	0531	07/13/2009	N001	280				#	20	-
	mg/L	0533	07/14/2009	N001	300				#	20	-
	mg/L	0538	07/14/2009	0001	1100				#	40	-
	mg/L	SM2	07/13/2009	N001	280				#	20	-
	mg/L	SM4	07/13/2009	N001	280				#	20	-

SURFACE WATER QUALITY DATA BY PARAMETER (USEE800) FOR SITE NAT01, Naturita Processing Site
REPORT DATE: 3/25/2010 1:49 pm

PARAMETER	UNITS	LOCATION CODE	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Turbidity	NTU	0531	07/13/2009	N001	8.03			#	-	-
	NTU	0533	07/14/2009	N001	5.03			#	-	-
	NTU	0538	07/14/2009	N001	72.1			#	-	-
	NTU	SM2	07/13/2009	N001	6.73			#	-	-
	NTU	SM4	07/13/2009	N001	6.74			#	-	-
Uranium	mg/L	0531	07/13/2009	N001	0.0009			#	1.7E-06	-
	mg/L	0533	07/14/2009	N001	0.0011			#	1.7E-06	-
	mg/L	0538	07/14/2009	0001	0.180			#	8.7E-06	-
	mg/L	SM2	07/13/2009	N001	0.0009			#	1.7E-06	-
	mg/L	SM4	07/13/2009	N001	0.0009			#	1.7E-06	-
Vanadium	mg/L	0531	07/13/2009	N001	0.0005			#	0.00005	-
	mg/L	0533	07/14/2009	N001	0.0005			#	0.00005	-
	mg/L	0538	07/14/2009	0001	0.0002	B		#	0.00005	-
	mg/L	SM2	07/13/2009	N001	0.0005			#	0.00005	-
	mg/L	SM4	07/13/2009	N001	0.0005			#	0.00005	-

RECORDS: SELECTED FROM USEE800 WHERE site_code='NAT01' AND (data_validation_qualifiers IS NULL OR data_validation_qualifiers NOT LIKE '%R%' AND data_validation_qualifiers NOT LIKE '%X%') AND DATE_SAMPLED >= #1/1/2009#

SAMPLE ID CODES: 000X = Filtered sample. N00X = Unfiltered sample. X = replicate number.

LAB QUALIFIERS:

- * Replicate analysis not within control limits.
- \+ Correlation coefficient for MSA < 0.995.
- \> Result above upper detection limit.
- A TIC is a suspected aldol-condensation product.
- B Inorganic: Result is between the IDL and CRDL. Organic & Radiochemistry: Analyte also found in method blank.
- C Pesticide result confirmed by GC-MS.
- D Analyte determined in diluted sample.
- E Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
- H Holding time expired, value suspect.
- I Increased detection limit due to required dilution.
- J Estimated
- M GFAA duplicate injection precision not met.
- N Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compund (TIC).
- P > 25% difference in detected pesticide or Arochlor concentrations between 2 columns.
- S Result determined by method of standard addition (MSA).
- U Analytical result below detection limit.
- W Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
- X Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
- Y Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
- Z Laboratory defined (USEPA CLP organic) qualifier, see case narrative.

DATA QUALIFIERS:

- F Low flow sampling method used.
- G Possible grout contamination, pH > 9.
- J Estimated value.
- L Less than 3 bore volumes purged prior to sampling.
- N Presumptive evidence that analyte is present. The analyte is "tentatively identified".
- Q Qualitative result due to sampling technique
- R Unusable result.
- U Parameter analyzed for but was not detected.
- X Location is undefined.

QA QUALIFIER: # = validated according to Quality Assurance guidelines.

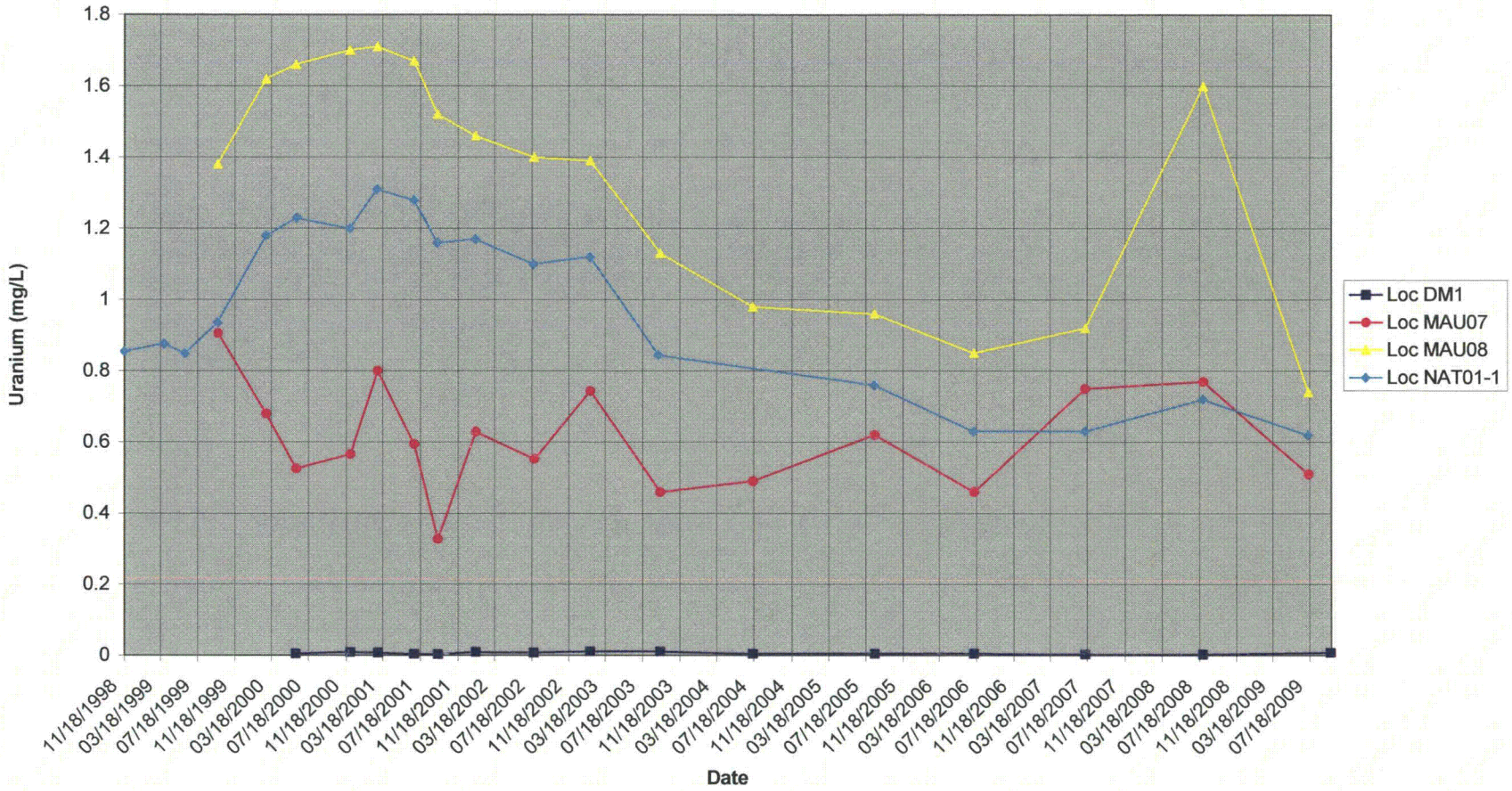
Appendix C

Time-Concentration Plots for Uranium and Vanadium

This page intentionally left blank

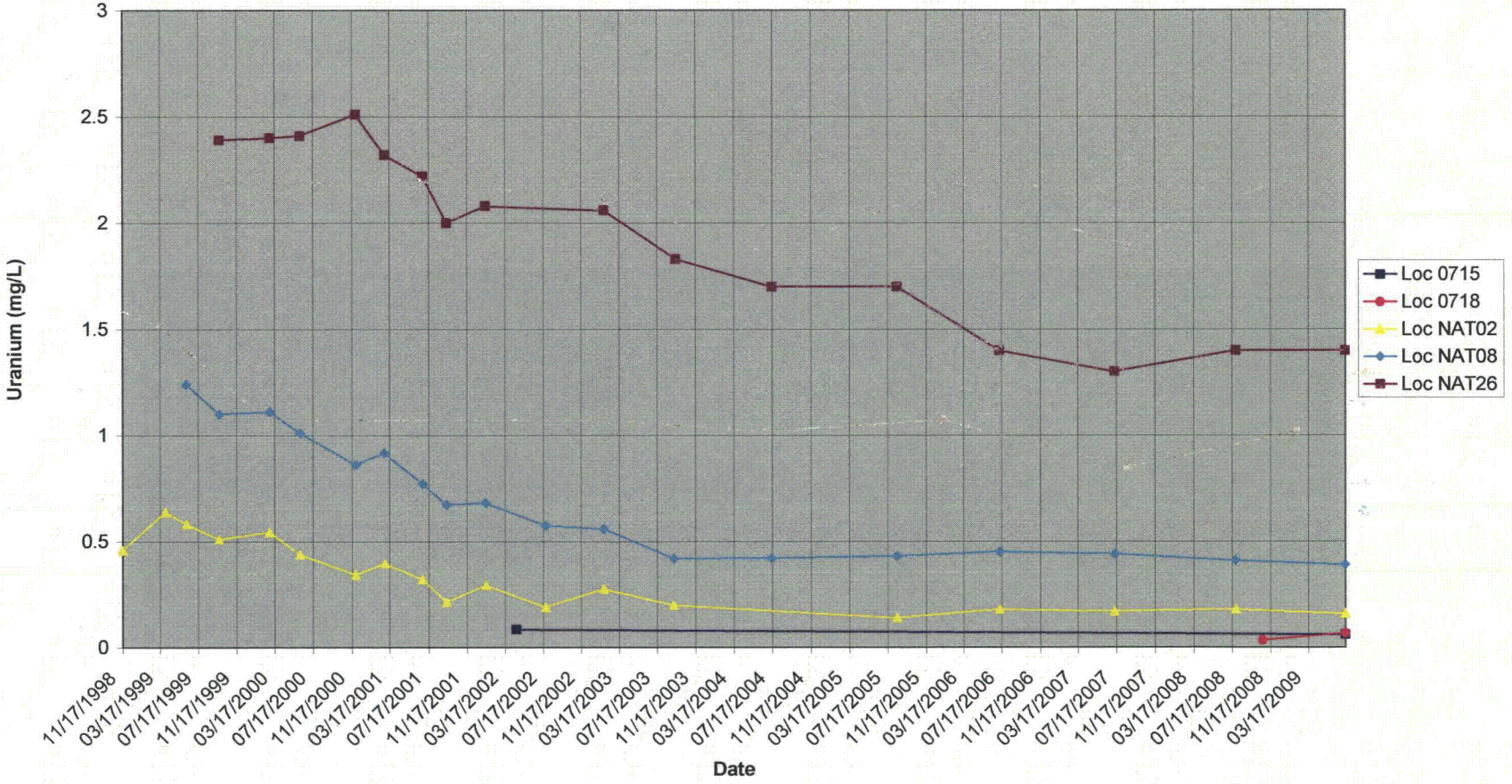
Naturita Processing Site (NAT01)

Uranium Concentration



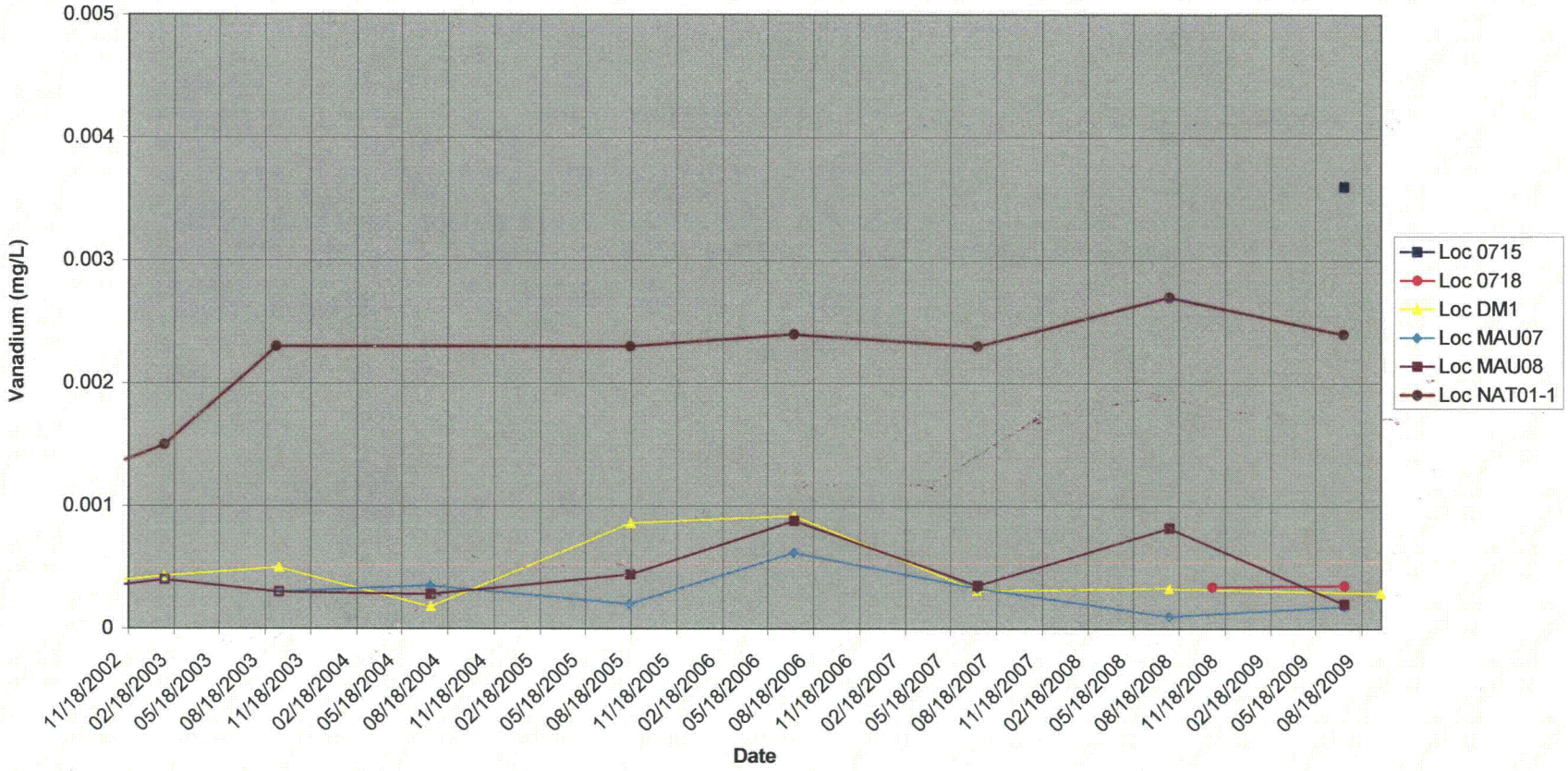
Naturita Processing Site (NAT01)

Uranium Concentration



Naturita Processing Site (NAT01)

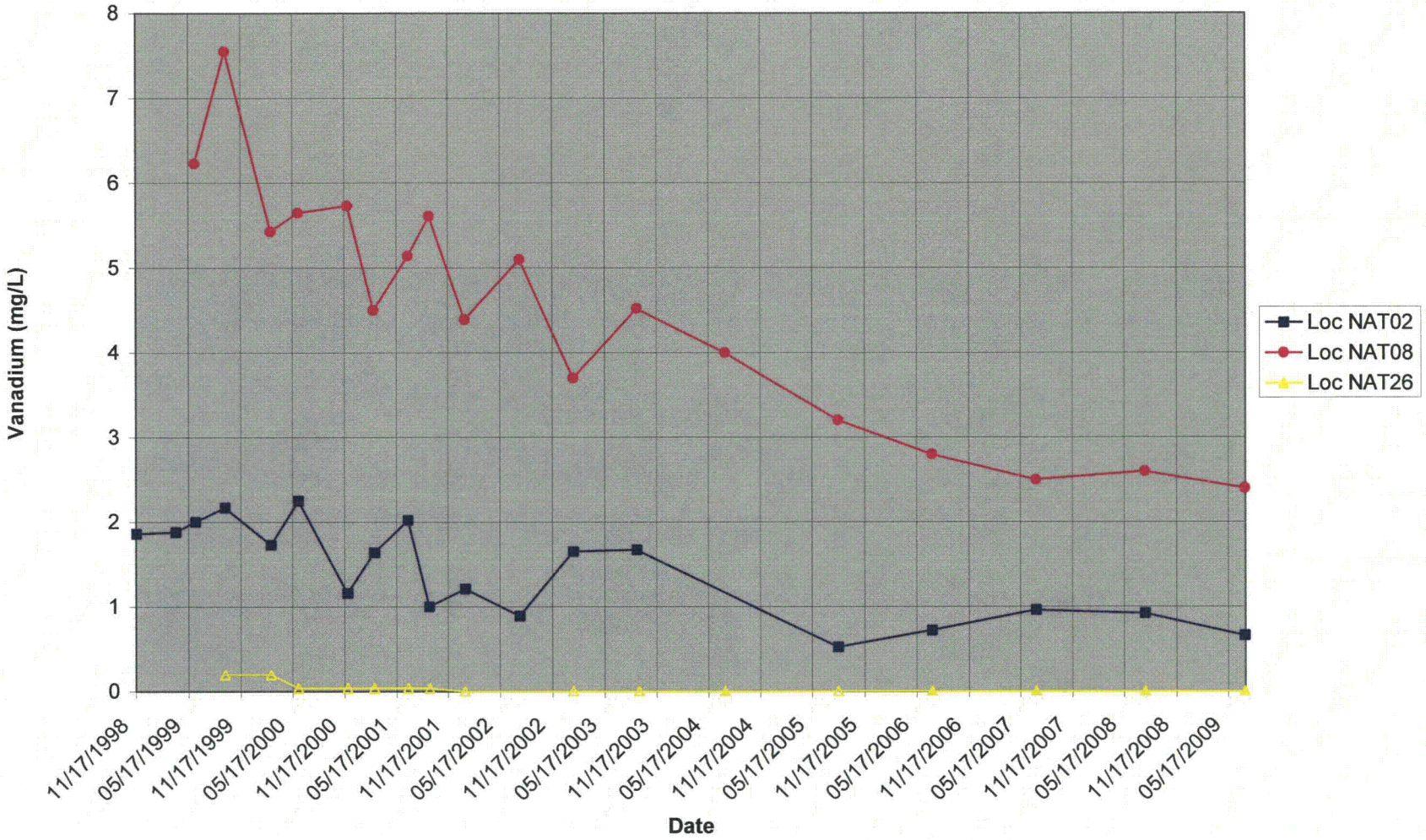
Vanadium Concentration



Note: A hollow symbol denotes an analytical result below the detection limit.

Naturita Processing Site (NAT01)

Vanadium Concentration



Note: A hollow symbol denotes an analytical result below the detection limit.