July 28, 2016

Attn: Paul Sanders, Engineering Geologist
Central Valley Regional Water Quality Control Board
11020 Sun Center Drive #200
Rancho Cordova, CA 95670-6114

Discharger: County of El Dorado

Name of Facility: Union Mine Landfill

WDRs Order Number: R5-2006-0019

County: El Dorado

I am hereby submitting to the Central Valley Water Board the following information:

Check all that apply:

Monthly Monitoring Report for the month of _____

1st / 2nd / 3rd / 4th **(circle one)** Quarterly Monitoring Report for the year of _____.

(1st) / 2nd **(circle one)** Semi-annual Monitoring Report for the year ___2016_____

Annual Monitoring Report for the year ____**2016**_____

Violation Notification

During the monitoring period, there were / were not **(circle one)** any violations of the WDR's.

1. The violations were: - insufficient water for sampling lysimeters, surface water, drains.

   WMU-1 – sodium exceeded concentration limits in wells MW-7 and UM-3.
   WMU-1 – zinc exceeded concentrations limits in well MW-11.
   WMU-2 – potassium exceeded concentrations limits in well MW-A.
   Surface Water – TSS exceeded concentrations limits in S-7.

2. Have the violations been corrected? Yes / (No) If no, what will be done to correct the violations:

   Continue sampling and monitoring as detailed in permit.

Certification Statement

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

Signature: for G. Stanton Phone # 530-621-6649

Printed Name: Barbara Houghton Date: 7/28/2016

UNION MINE LANDFILL

SPRING 2016
SEMIANNUAL MONITORING REPORT

Prepared By

Robert Lauritzen
PG 7504

July 2016

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References

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1. INTRODUCTION

Union Mine Landfill is located on Union Mine Road in El Dorado County (EDC) approximately 5 miles south of the City of Placerville. The site consists of 36.3 acres permitted as Class III landfill, which operated from 1960's through 1996 when the landfill stopped receiving outside waste. The only operating unit is a six-acre Class II cell (subtitle D liner system) which began receiving onsite waste in late 1996. The Class III /Class II areas of Union Mine landfill are designated as Waste Management Unit 1 (WMU-1). A Class II surface impoundment which receives landfill leachate is designated as Waste Management Unit 2 (WMU-2). A county-operated wastewater treatment plant is also located on Union Mine landfill property and permitted separately (Waste Discharge Requirements Order No. R5-2006-0019). Prior to landfill operations, numerous gold mines were operated beneath and around the landfill from the 1850's to the 1940's with reportedly over 21,000 feet of shafts, crosscuts and tunnels.

There were three closure projects for the Class III portion of the landfill (NJF Engineering, June 2005):

- 1998-An engineered final cover on 4.9 acres consisting of onsite crushed rock vegetative cover over one-foot compacted clay layer.

- 1998-An engineered final cover on 14.6 acres consisting of onsite crushed rock vegetative cover over one-foot compacted clay layer.

- 2007 - An engineered final cover on 13.6 acres consisting of a vegetative layer of off-site reddish brown soil over a drainage layer of double-side geotextile fabric over a 60-mil linear low density polyethylene (LLDPE) geomembrane. In June 2009, subsurface drainage at the base of the west and south slopes were modified with a "French-drain" type drainage system to address recurrent liquefaction issues.

An additional acre was added to the 4.9- and 14.6-acre cover projects to account for the surface slopes. Except for the 13.6 acre closure which received off-site soils for final cover material, all other closures utilized onsite material consisting of highly weathered to freshly weathered slate of the Mariposa formation that resulted in varying amounts of fines and coarser material of differing colors.

The active Class II cell has two different composite liner systems which were constructed from September 1995 to October 1996. The liner system constructed on the base of the waste disposal cell and on landfill slope 3:1 or less includes a two-foot thick compacted clay liner, a 60-mil high density polyethylene (HDPE) double sided textured geomembrane, and a leachate collection system. Side slopes of the Class II cell that are greater than a 3:1 slope include a geosynthetic clay liner (GCL) and a 60 mil HDPE double sided textured geomembrane (NJF Engineering. June 2005).

This report documents landfill monitoring activities during the period of January 1, 2016 to June 30, 2016. It is intended to meet the reporting requirements of Waste Discharge Requirements (WDRs) R5-2006-0020 and the associated Monitoring and Reporting Program (MRP). This report contains a summary of solid and liquid wastes received at the site; discussion of the results

of ground water monitoring, surface water monitoring, unsaturated zone monitoring and groundwater drains and springs; a summary of monitoring data generated during this period; and, compares it with the calculated concentration limits as required in the WDRs. Conclusions and recommendations are summarized in Section 8.

Standard observation reports of waste management unit (WMU) perimeter and receiving waters inspections were prepared by County staff. County geologist, Robert Lauritzen, documented field conditions and collected various samples for laboratory analysis. Laboratory analyses are performed by the County's contract lab, California Lab Services, Inc. (CLS) in Rancho Cordova, California. Field log sheets for this reporting period are presented in Appendix A. Copies of laboratory analytical reports are presented in Appendix B.

2. SOLID WASTE

Union Mine Landfill did not receive any solid waste generated offsite during this reporting period. Union Mine has not received any offsite solid waste since 1996. Solid wastes generated in El Dorado County during this reporting period were transported by permitted waste haulers to disposal sites outside the County.

Standard Observations by EDC staff from January through June indicated compliance with all standard permit requirements and are included in Appendix A.

2.1 TYPES OF MATERIAL DISCHARGED

2.1.1 Solid Waste

The Union Mine Landfill received less than one ton of solid waste during this reporting period. The source of this solid waste was onsite activities at the leachate/septage treatment plant.

2.1.2 Dewatered Sludge

According to records maintained by the treatment facility operators, the Union Mine Landfill received a total of 384.42 tons of sludge from January to June 2016. This sludge consisted of dewatered secondary sludge and grit from the septage & leachate treatment facility located onsite. Onsite laboratory tests indicated all sludge processed at the treatment plant was above the minimum 15% solids requirement for secondary sludge. Approximately 252.76 tons of sludge was disposed of at an off-site facility. Monthly totals and percent solids results are summarized on Table 2-1.

2.1.3 Designated Wastes and Contaminated Soils

The Union Mine Landfill did not receive any designated wastes or contaminated soils during this period.

2. 2 REMAINING CAPACITY OF SITE

Based upon data from closure plan documents, the remaining capacity of the site is estimated to be approximately 147,000 cubic yards based on projected full build-out of the currently lined expansion area as of June 2016. At the current waste receiving rate, the landfill could accept waste until 2029. A new fill plan was previously submitted in the Spring 2015 Semi-annual report.

3. LIQUID WASTE

Union Mine Landfill has a Class II surface impoundment for collection of liquid wastes. The following types of liquids are collected in the Class II impoundment:

- Landfill leachate
- Rainwater falling directly on the Class II surface impoundment, and the immediately surrounding area and the adjacent wastewater treatment facility (WWTF)
- Liquid pumped from the leak detection/collection layer under the Class II surface impoundment (sump)
- Landfill gas condensate

Presently, liquids in the Class II surface impoundment consist primarily of leachate and rainwater; the other two sources together contribute an estimated 24,000 gallons per year. Landfill leachate production has decreased significantly since the 2007 Class III closure.

Leachate is collected at Union Mine Landfill from the three sources listed below:

- Blanket leachate collection and removal system (LCRS) under the Class II cell;
- Class III toe drain along NE side of Class III landfill
- Geonet LCRS and collection sump under the Class II Surface Impoundment.

The landfill leachate collection system and related site features are presented on Figure 3-1. Leachate from the first two listed sources is conveyed to the Class II surface impoundment through a 6-inch diameter PVC pipe. The Class II surface impoundment is also underlain by a Geo-net leak detection and collection layer which drains to a Leachate Collection Recovery Sump (LCRS). The LCRS sump is accessed by a concrete man way. Any liquids in the LCRS Sump are pumped by an active sump pump into the Class II impoundment. A toe drain located along the junction of the Class II and Class III landfills is noted in the Union Mine permit but is not operational and was installed for future expansion.

3.1 LIQUID WASTE MONITORING PROCEDURES

The Monitoring & Reporting Program (MRP) attached to Waste Discharge Requirements Order No. R5-2006-0020 specifies continuous monitoring of the type and quantity of liquid entering the Class II Impoundment; weekly measurement of Class II Impoundment freeboard; and measurements of flow rate (gallons/day) into the Class II Impoundment. In addition, the MRP specifies monthly (field pH and conductivity), annual and 5-year Constituents of Concern (COC) water quality analyses (if applicable that year) at the three sampling stations.

None of the sampling stations are Points of Compliance, and there are no Concentration Limits that apply to any of the liquid waste analyses. Liquid is transferred to the nearby Wastewater Treatment Facility where additional testing and laboratory analyses are performed and reported under a separate permit.

3.1.1 Class II Surface Impoundment

WWTF personnel measure daily freeboard, the depth from ground surface to liquid level, at a designated station next to the surface impoundment. Inflow rate is measured at the LCRS Pipe, as described below. Grab samples are collected from liquids contained in the impoundment monthly for field measurement of temperature, pH and conductivity using long-handled dipper.

3.1.2 Landfill LCRS Pipe

Leachate from the Class II landfill and the toe drain along Class III landfill enters the Class II surface impoundment through a 6-inch diameter PVC pipe near the west end of the Class II Impoundment. Flow rate from the pipe is measured daily by plant operators. Monthly field parameters (temperature, pH, and conductivity) are measured and samples are collected from the pipe discharge.

3.1.3 LCRS Sump

A sump which is connected to drainage pipes beneath the Class II surface impoundment is checked monthly for liquid. An active sump pump is maintained in the LCRS to remove any liquids which accumulate in the sump. A clean bailer or long-handled dipper is used to collect samples for analysis in accordance with Table 1 of the MRP. Monthly field parameters (temperature, pH, and conductivity) are documented and reported from the LCRS Sump.

3.1.4 Class III Toe Drain

The Class III Toe Drain is located along the down gradient NE side of the landfill and connects to the Class II LCRS pipe where the combined flows are discharged into the nearby Class II Surface Impoundment. No readings or samples are collected specifically from the Class III Toe Drain.

3.2 LIQUID WASTE MONITORING RESULTS

Monitoring was conducted in accordance with the MRP requirements during this reporting period. Plant personnel recorded rainfall and Class II Impoundment freeboard measurements in accordance with permit requirements. Weekly freeboard measurements are summarized in Table 3-1. Monthly rainfall, leachate inflows, and transfers from the Class II Impoundment are summarized in Table 3-2.

Samples for the annual and 5-year COC water quality analyses were collected from all three stations in the 2nd quarter of 2016. Field monitoring results for all three sampling locations are summarized in Table 3-3.

3.2.1 Class II Surface Impoundment

Weekly freeboard measurements are presented in Table 3-1. Rainfall from January to June 2016 was average as reflected in the relatively consistent freeboard measurements.

Liquid discharge to the Impoundment in 2016 consisted primarily of landfill leachate and rainwater[1]. Monthly rainfall totals, and a calculated volume of rainfall falling on the Class II Impoundment, are presented in Table 3-2. Total rainfall measured at the treatment plant was

[1] Approx. 22,000 gallons of landfill gas condensate is discharged to the Class II impoundment annually.

21.65 inches for January through June 2016. Based on the reported surface area of the Class II Impoundment (36,614 sq. ft.), an estimated 494,099 gallons of rainwater entered the Impoundment during January to June 2016.

In dry, hot summer months, a significant amount of liquid evaporates off the surface of the impoundment. Evaporation from the Class II Impoundment is estimated and included with the Fall/Annual report. Plant operators recorded 774,220 gallons were transferred from the Class II impoundment to the treatment facility between January and June 2016.

Plant personnel recorded 793,310 gallons of leachate entered the Class II Impoundment from January to June 2016. Monthly field monitoring data are presented in Tables 3-2 and 3-3. Samples for the annual Monitoring Parameters and COC analyses were collected in the 2nd quarter of 2016. Results are summarized in Tables 3-3, 3-4, 3-5, 3-6 and 3-7. Monitoring Parameters and COC were consistent with previous findings and/or below laboratory detection limits.

3.2.2 LCRS Pipe

Flow rate (pipe discharge) measurements are presented in Table 3-2. Monthly field monitoring data were presented in Table 3-3. Samples for the annual Monitoring Parameter and COC analyses were collected in the 2nd quarter of 2016. Results are summarized in Tables 3-3, 3-4, 3-5, 3-6 and 3-7. Monitoring Parameters are consistent with previous findings, and the results of all COC were below laboratory detection limits with the exception of the pesticide Mevinphos (0.044 µg/l) and the semivolatile compound 4-Chloroaniline (3.4 µg/l) which was detected in the LCRS pipe sample

3.2.3. LCRS Sump

The quantities of liquid pumped from the Class II Impoundment LCRS Sump were previously recorded monthly and reported in this subsection; however, the sump is continually dewatered by a submersible pump. Little to no water is observed entering the sump during monthly observations. The reduced flow into the LCRS sump is most likely due to the repair of small holes and leaky pipe penetrations in the Class II Impoundment in the summer of 2008. There is no total recorded quantity of liquid pumped from the sump but it is estimated to be less than 2,000 gallons from January to June 2016. Samples for the annual Monitoring Parameter and COC analyses were collected in the 2nd quarter of 2016. Results are summarized in Tables 3-3, 3-4, 3-5, 3-6 and 3-7. Monitoring Parameters are consistent with previous findings, and the results of all COC were below laboratory detection limits.

3.2.4 Class III Toe Drain

No samples or readings are collected from the Class III Toe Drain pipe. Samples and readings of the combined flow of the Class III Toe Drain and Class II LCRS pipe are collected as per permit requirements at the location where the Class II LCRS pipe enters the Class II Surface Impoundment. As mentioned previously leachate from these two sources was within typical historical ranges for landfill leachate.

3.2.5 Annual LCRS Pipe and Class III Toe Drain Integrity Testing

Testing of the LCRS pipe and the Class III Toe Drain will be performed in October 2016. The results of the testing will be presented in 2016 Fall/Annual Report.

Table 3-1
2016
Weekly Freeboard Measurements
Class II Surface Impoundment
Union Mine Disposal Site

Date	Elevation	Minimum Freeboard	Level
	msl	Feet/Tenths	gallons
1/6/2016	1,131.2	NT	551,564
1/13/2016	1,131.4	NT	590,227
1/20/2016	1,132.0	NT	709,797
1/27/2016	1,132.1	19.7	730,569
2/3/2016	1,132.5	19.8	813,656
2/10/2016	1,132.3	19.6	772,112
2/17/2016	1,132.2	19.3	751,341
2/24/2016	1,132.5	18.8	813,656
3/2/2016	1,132.2	19.3	751,341
3/9/2016	1,133.3	16.1	987,851
3/16/2016	1,133.9	15.4	1,124,185
3/23/2016	1,134.0	15.0	1,147,153
3/30/2016	1,134.5	14.9	1,265,734
4/6/2016	1,133.5	15.9	1,032,312
4/13/2016	1,133.5	15.9	1,032,312
4/20/2016	1,133.5	15.1	1,032,312
4/27/2016	1,133.5	16.4	1,032,312
5/4/2016	1,135.5	16.7	1,032,312
5/11/2016	1,133.6	16.7	1,055,280
5/18/2016	1,133.5	16.1	1,032,312
5/25/2016	1,133.5	16.1	1,032,312
6/1/2016	1,133.0	17.4	921,159
6/8/2016	1,133.0	18.2	921,159
6/15/2016	1,133.0	18.9	921,159
6/22/2016	1,132.0	19.8	709,797
6/29/2016	1,131.5	20.6	609,558

msl = mean sea level

0 = empty

Table 3-2
2016
Monthly Rainfall, Leachate Inflow, and Pond Transfers
Class Surface Impoundment
Union Mine Disposal Site

Month	Rainfall inches	Rain, gallons	Leachate Inflow Total	Gallons per Day	Transfer to WWTP
Jan	8.11	185,087	310,350	10,011	204,960
Feb	1.38	31,495	177,250	6,330	103,640
Mar	9.41	214,756	194,280	6,267	136,170
Apr	2.63	60,022	68,390	2,280	129,000
May	0.12	2,739	33,110	1,068	105,670
Jun	0.00	0	9,930	331	94,780
Totals	**21.65**	**494,099**	**793,310**	---	**774,220**

Note:
Rainfall data collected from rain gauge located outside Union Mine WWTF office.
Leachate data from meter readings on influent pipe to Class II Impoundment (Class II & Class III toe drain)
Transfer data from meter readings on influent pipe to digesters.

Table 3-3
Spring 2016
Monthly Field Parameters
LCRS Sump, LCRS Pipe, Class II Surface Impoundment
Union Mine Disposal Site

Date	Temperature	pH	Conductivity	Flow rate	Dissloved Oxygen
mm/dd/year	°C	ph units	µmhos/cm	gal/day	mg/L
LCRS Sump					
1/12/2016	11.7	6.32	270	---	---
2/11/2016	13.9	7.06	326	---	---
3/23/2016	15.2	7.31	309	---	---
4/6/2016	21.7	7.45	470	---	---
5/13/2016	24.9	7.41	696	---	---
6/20/2016	26.3	8.40	442	---	---
LCRS Pipe					
1/12/2016	14.3	6.11	654	10,011	---
2/11/2016	15.5	6.71	1333	6,330	---
3/23/2016	14.1	6.16	604	6,267	---
4/6/2016	20.0	6.61	1712	2,280	---
5/13/2016	23.2	6.54	1905	1,068	---
6/20/2016	26.6	6.64	1853	331	---
Class II Impoundment					
1/12/2016	11.3	7.12	235	---	14.11
2/11/2016	14.3	7.94	403	---	11.05
3/23/2016	16.5	8.48	336	---	11.64
4/6/2016	21.7	9.44	551	---	16.68
5/13/2016	24.2	10.51	501	---	10.21
6/20/2016	27.0	9.95	485	---	13.42

--- = Not Applicable

Table 3-4
Spring 2016
Leachate Monitoring Results-Laboratory Analytical Data
Annual Monitoring Parameters and 5-year Constituents of Concern
Union Mine Disposal Site

Sample Date: 5/13/2016
Monitoring Parameter

Monitoring Parameter	Units	Class II Impoundment	LCRS Sump	LCRS Pipe
Temperature	°C	24.2	24.9	23.2
pH	ph units	10.51	7.41	6.54
EC	µmhos/cm	501	696	1905
Nitrate as Nitrogen	mg/l	4.8	6.6	49
Bicarbonate	mg/l	24	53	490
Carbonate	mg/l	66	<0.50/5.0	<0.50/5.0
Hydroxide as $CaCO_3$	mg/l	<0.50/5.0	<0.50/5.0	<0.50/5.0
Chloride	mg/l	27	44	140
Sulfate	mg/l	54	130	76
Alkalinity	mg/l	90	53	490
TDS	mg/l	280	410	950
VOCs*	µg/l	ND	ND	ND

* = see Table 3-5 for detailed VOC summary.

Constituents of Concern (5-year)

Analyte	Units	Class II Impoundment	LCRS Sump	LCRS Pipe
Aluminium	µg/l	<27/50	<27/50	<27/50
Antimony	mg/l	<0.00057/0.0060	0.00076	<0.00057/0.0060
Arsenic	mg/l	0.0053	0.004	0.01
Barium	µg/l	37	52	150
Beryllium	µg/l	<0.43/5.0	<0.43/5.0	<0.43/5.0
Cadmium	µg/l	<2.8/10	<2.8/10	<2.8/10
Calcium	mg/l	21	39	110
Chromium	µg/l	<9.9/10	<9.9/10	<9.9/10
Cobalt	µg/l	<7.6/20	<7.6/20	<7.6/20
Copper	µg/l	10	15	15
Iron	µg/l	8.2	<6.8/100	32
Lead	mg/l	<0.00023/0.0050	<0.00023/0.0050	<0.00023/0.0050
Magnesium	mg/l	26	26	75
Manganese	µg/l	12	2.7	710
Mercury	µg/l	0.41	0.54	0.71
Nickel	µg/l	<14/20	19	27
Potassium	mg/l	5.1	6.1	35
Selenium	mg/l	<0.0011/0.0050	<0.0011/0.0050	<0.0011/0.0050
Silver	µg/l	5.4	5.3	5.7
Sodium	mg/l	25	53	120
Thallium	mg/l	<0.00011/0.0010	<0.00011/0.0010	<0.00011/0.0010
Tin	µg/l	<18/100	<18/100	<18/100
Vanadium	mg/l	0.0031	0.0032	0.0036
Zinc	µg/l	<9.3/20	11	17
Total Organic Carbon	mg/l	16	9.7	9.7
Cyanide	mg/l	<0.0012/0.0050	<0.0012/0.0050	<0.0012/0.0050
Sulfide	mg/l	<0.84/1.0	<0.84/1.0	<0.84/1.0

Table 3-5
Summary of Analytical Results and Method Detection Limits/Reporting Limits
Volatile Organic Compounds - EPA Method 8260B
Class II Pond, LCRS Pipe, LCRS Sump
Union Mine Landfill

Location	Date	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromo-3-chloropropane	1,2-Dibromoethane(EDB)	1,2-Dichlorobenzene	1,2-Dichloroethane	1,2-Dichloropropane	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichloro-2butene	1,4-Dichlorobenzene	2,2-Dichloropropane	2-Butanone
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LCRS-Pipe	11/20/2014	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10
	11/10/2015	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10
	5/13/2016	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10
LCRS-Sump	11/20/2014	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10
	11/10/2015	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10
	5/13/2016	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10
Class II Pond	11/20/2014	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10
	11/10/2015	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10
	5/13/2016	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10

[ ] = J value - detected but below Reporting Limit; therefore, result is an estimated concentration.
detected values in **bold**

Table 3-5
Summary of Analytical Results and Method Detection Limits/Reporting Limits
Volatile Organic Compounds - EPA Method 8260B
Class II Pond, LCRS Pipe, LCRS Sump
Union Mine Landfill

Location	Date	2-Hexanone	4-Methyl-2-pentanone	Acetone	Acrylonitrile	Benzene	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform	Bromomethane	Carbon Disulfide	Carbon tetrachloride	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	cis-1,3-Dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluormethane (Freon 112)	Ethylbenzene	Hexachlorobutadiene	Iodomethane
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LCRS-Pipe	11/20/2014	<0.90/10	<1.6/10	<1.0/10	<NA/0.50	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<1.0/1.0
	11/10/2015	<0.90/10	<1.6/10	<1.0/10	<5.0/5.0	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<1.0/1.0
	5/13/2016	<0.90/10	<1.6/10	<1.0/10	<5.0/5.0	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<1.0/1.0
LCRS-Sump	11/20/2014	<0.90/10	<1.6/10	<1.0/10	<NA/0.50	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<1.0/1.0
	11/10/2015	<0.90/10	<1.6/10	<1.0/10	<NA/0.50	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<1.0/1.0
	5/13/2016	<0.90/10	<1.6/10	<1.0/10	<5.0/5.0	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<1.0/1.0
Class II Pond	11/20/2014	<0.90/10	**7.3**	<1.0/10	<NA/0.50	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<1.0/1.0
	11/10/2015	<0.90/10	<1.6/10	<1.0/10	<NA/0.50	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<1.0/1.0
	5/13/2016	<0.90/10	<1.6/10	<1.0/10	<5.0/5.0	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<1.0/1.0

[ ] = J value - detected but below Reporting Limit; therefore, result is an estimated concentration.
detected values in **bold**

Table 3-5
Summary of Analytical Results and Method Detection Limits/Reporting Limits
Volatile Organic Compounds - EPA Method 8260B
Class II Pond, LCRS Pipe, LCRS Sump
Union Mine Landfill

Location	Date	Isopropylbenzene	Methyl tert-butyl ether	Methylene Chloride	Naphthalene	n-Butylbenzene	n-Propylbenzene	o-Chlorotoluene	p-Chlorotoluene	p-Isopropyltoluene	sec-Butylbenzene	Styrene	Tert-Butylbenzene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl acetate	Vinyl chloride	Xylenes (total)
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LCRS-Pipe	11/20/2014	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	11/10/2015	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	5/13/2016	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
LCRS-Sump	11/20/2014	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	11/10/2015	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	5/13/2016	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
Class II Pond	11/20/2014	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	11/10/2015	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	5/13/2016	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0

[ ] = J value - detected but below Reporting Limit; therefore, result is an estimated concentration.
detected values in **bold**

Table 3-6
5-Year: Summary of Analytical Results and Method Detection Limits/Reporting Limits
Organophosphorus Pesticides - EPA Method 8141A
Class II Pond, LCRS Pipe and LCRS Sump
Union Mine Landfill

Location	Date	Bolstar	Chlorpyrifos	Coumaphos	Demeton	Diazinon	Dichlorvos	Disulfoton	Ethoprop	Fensulfothion	Fenthion	Guthion	Malathion	Merphos	Methyl parathion	Mevinphos	Phorate	Prothiofos	Ronnel	Stirophos	Trichloronate
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LCRS Pipe	5/13/2016	<0.018/0.050	<0.018/0.050	<0.017/0.10	<0.026/0.10	<0.033/0.050	<0.023/0.10	<0.031/0.050	<0.016/0.050	<0.036/0.050	<0.018/0.050	<0.027/0.10	<0.014/0.050	<0.021/0.05	<0.014/0.050	**0.044**	<0.015/0.050	<0.0031/0.050	<0.016/0.050	<0.021/0.050	<0.020/0.050
Class II Pond	5/13/2016	<0.018/0.050	<0.018/0.050	<0.017/0.10	<0.026/0.10	<0.033/0.050	<0.023/0.10	<0.031/0.050	<0.016/0.050	<0.036/0.050	<0.018/0.050	<0.027/0.10	<0.014/0.050	<0.021/0.05	<0.014/0.050	<0.033/0.050	<0.015/0.050	<0.0031/0.050	<0.016/0.050	<0.021/0.050	<0.020/0.050
LCRS Sump	5/13/2016	<0.018/0.050	<0.018/0.050	<0.017/0.10	<0.026/0.10	<0.033/0.050	<0.023/0.10	<0.031/0.050	<0.016/0.050	<0.036/0.050	<0.018/0.050	<0.027/0.10	<0.014/0.050	<0.021/0.05	<0.014/0.050	<0.033/0.050	<0.015/0.050	<0.0031/0.050	<0.016/0.050	<0.021/0.050	<0.020/0.050

Note: MDL/RL = Method Detection Limit/Reporting Limit

µg/L = micrograms per liter

[ ] = J value - detected but below Reporting Limit; therefore, result is an estimated concentration.

ND = none detected

Table 3-7
5-Year: Summary of Analytical Results and Method Detection Limits/Reporting Limits
Semivolatile Organic Compounds - EPA Method 8270C
Class II Pond, LCRS Pipe, LCRS Sump
Union Mine Landfill

Location	Date	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene (2,4-DNT)	2,6-Dinitrotoluene (2,6-DNT)	2-Chloronaphthalene	2-Chlorophenol	2-Methylnaphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3 & 4-Methylphenol	3,3-Dichlorobenzidine	3-Nitroaniline	4,6-Dinitro-2-methylphenol	4-Bromo phenyl ether	4-Chloro3-methylphenol	4-Chloroaniline
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LCRS Pipe	5/13/2016	<0.94/10	<1.1/10	<1.2/10	<1.1/10	<0.87/10	<0.96/10	<0.87/10	<4.0/10	<0.62/25	<0.81/10	<0.71/10	<0.70/10	<0.88/10	<0.72/10	<1.6/10	<0.61/25	<0.94/10	<2.6/10	<4.1/10	<0.96/25	<1.2/25	<0.80/10	<0.94/10	**3.4**
Class II Pond	5/13/2016	<0.94/10	<1.1/10	<1.2/10	<1.1/10	<0.87/10	<0.96/10	<0.87/10	<4.0/10	<0.62/25	<0.81/10	<0.71/10	<0.70/10	<0.88/10	<0.72/10	<1.6/10	<0.61/25	<0.94/10	<2.6/10	<4.1/10	<0.96/25	<1.2/25	<0.80/10	<0.94/10	<1.8/10
LCRS Sump	5/13/2016	<0.94/10	<1.1/10	<1.2/10	<1.1/10	<0.87/10	<0.96/10	<0.87/10	<4.0/10	<0.62/25	<0.81/10	<0.71/10	<0.70/10	<0.88/10	<0.72/10	<1.6/10	<0.61/25	<0.94/10	<2.6/10	<4.1/10	<0.96/25	<1.2/25	<0.80/10	<0.94/10	<1.8/10

Note: MDL/RL = Method Detection Limit/Reporting Limit

µg/L = micrograms per liter

[ ] = J value - detected but below Reporting Limit; therefore, result is an estimated concentration.

ND = none detected

Table 3-7
Summary of Analytical Results and Method Detection Limits/Reporting Limits
Semivolatile Organic Compounds -EPA Method 8260B
Class II Pond, LCRS Pipe, LCRS Sump
Union Mine Landfill

Location	Date	4-Chlorophenyl phenyl ether	4-Nitroaniline	4-Nitrophenol	Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (g,h,i) perylene	Benzo (k) fluoranthene	Benzoic Acid	Benzyl alcohol	Bis(2-chloroethoxy) methane	Bis(2-chloroethyl)ether	Bis(2-chloroisopropyl)ether	Bis(2-ethylhexyl)phthalate	Butyl benzyl phthalate	Chrysene	Dibenz (a,h) anthracene	Dibenzofuran	Diethyl phthalate
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LCRS Pipe	5/13/2016	<0.78/10	<0.87/25	<0.95/25	<0.74/10	<0.63/10	<0.65/10	<1.7/10	<2.1/10	<3.3/10	<2.7/10	<1.5/10	<4.2/25	<1.6/10	<0.67/10	<0.66/10	<0.54/10	<1.1/10	<1.1/10	<0.78/10	<2.4/10	<0.67/10	<4.7/10
Class II Pond	5/13/2016	<0.78/10	<0.87/25	<0.95/25	<0.74/10	<0.63/10	<0.65/10	<1.7/10	<2.1/10	<3.3/10	<2.7/10	<1.5/10	<4.2/25	<1.6/10	<0.67/10	<0.66/10	<0.54/10	<1.1/10	<1.1/10	<0.78/10	<2.4/10	<0.67/10	<4.7/10
LCRS Sump	5/13/2016	<0.78/10	<0.87/25	<0.95/25	<0.74/10	<0.63/10	<0.65/10	<1.7/10	<2.1/10	<3.3/10	<2.7/10	<1.5/10	<4.2/25	<1.6/10	<0.67/10	<0.66/10	<0.54/10	<1.1/10	<1.1/10	<0.78/10	<2.4/10	<0.67/10	<4.7/10

Note: MDL/RL = Method Detection Limit/Reporting Limit

µg/L = micrograms per liter

[ ] = J value - detected but below Reporting Limit; therefore, result is an estimated concentration.

ND = none detected

Table 3-7
Summary of Analytical Results and Method Detection Limits/Reporting Limits
Semivolatile Organic Compounds -EPA Method 8260B
Class II Pond, LCRS Pipe, LCRS Sump
Union Mine Landfill

Location	Date	Dimethyl phthalate	Di-n-butyl phthalate	Di-n-octyl phthalate	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno (1,2,3,-cd) pyrene	Isophorone	Naphthalene	Nitrobenzene (NB)	N-Nitrosodi-n-propy lamine	N-Nitrosodipheny lamine	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LCRS Pipe	5/13/2016	<4.2/10	<3.8/10	<3.4/10	<0.66/10	<0.67/10	<0.86/10	<1.9/10	<0.55/10	<1.2/10	<1.7/10	<0.62/10	<0.70/10	<0.64/10	<0.62/10	<0.93/10	<1.8/25	<0.59/10	<1.2/10	<0.73/10
Class II Pond	5/13/2016	<4.2/10	<3.8/10	<3.4/10	<0.66/10	<0.67/10	<0.86/10	<1.9/10	<0.55/10	<1.2/10	<1.7/10	<0.62/10	<0.70/10	<0.64/10	<0.62/10	<0.93/10	<1.8/25	<0.59/10	<1.2/10	<0.73/10
LCRS Sump	5/13/2016	<4.2/10	<3.8/10	<3.4/10	<0.66/10	<0.67/10	<0.86/10	<1.9/10	<0.55/10	<1.2/10	<1.7/10	<0.62/10	<0.70/10	<0.64/10	<0.62/10	<0.93/10	<1.8/25	<0.59/10	<1.2/10	<0.73/10

Note: MDL/RL = Method Detection Limit/Reporting Limit

µg/L = micrograms per liter

[ ] = J value - detected but below Reporting Limit; therefore, result is an estimated concentration.

ND = none detected

Table 3-8
5-Year: Summary of Analytical Results and Method Detection Limits/Reporting Limits
Chlorinated Herbicides - EPA Method 8151A
Class II Pond, LCRS Pipe, and LCRS Sump
Union Mine Landfill

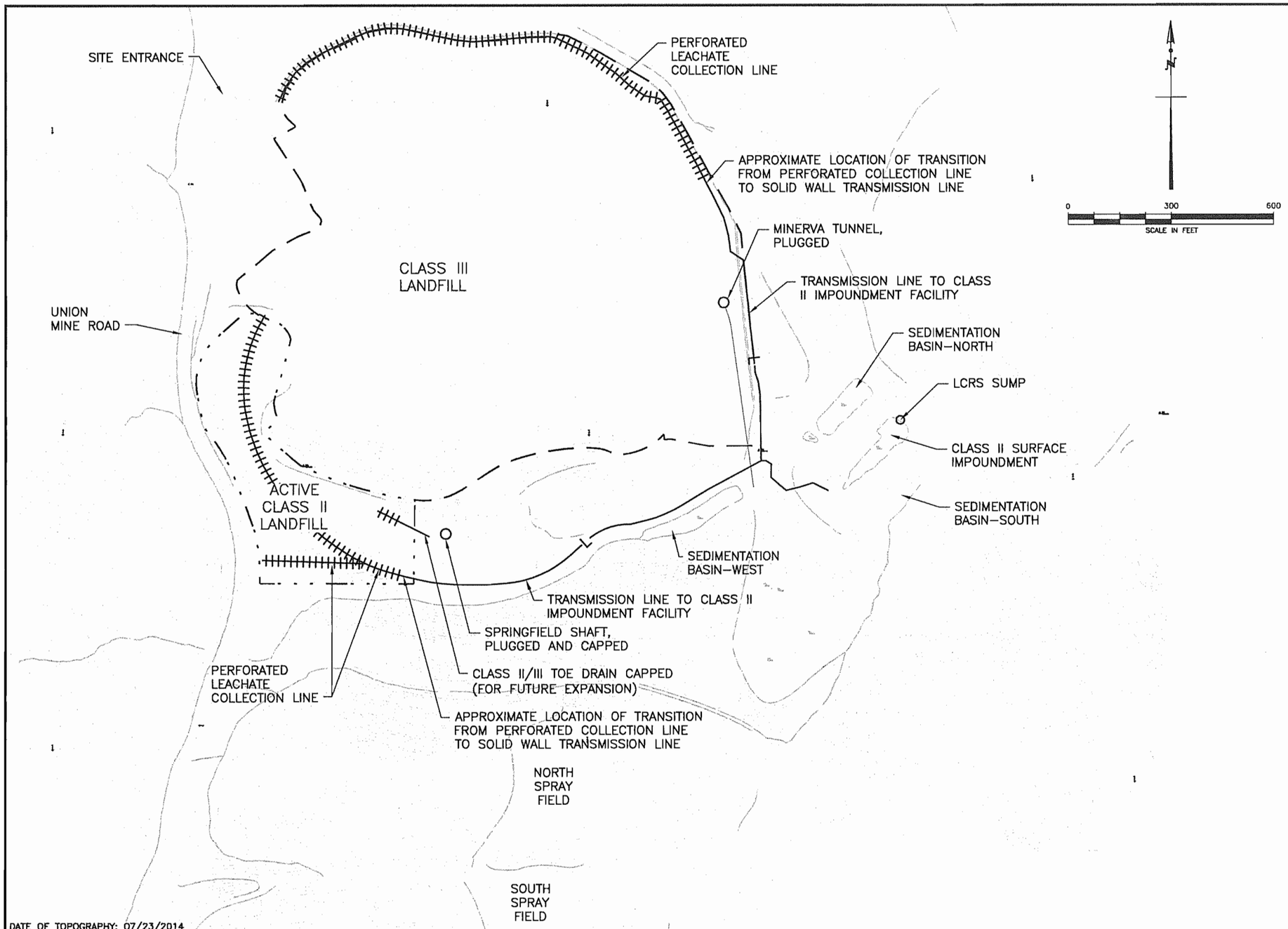
Location	Date	2,4,5-T	2,4,5-TP (Silvex)	2,4-D (2,4-Dichlorophenoxyacetic acid)	2,4-DB	Dalapon	Dicamba	Dichloroprop	Dinosep	MCPA	MCPP	Pentachorophenol
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LCRS Pipe	5/13/2016	<0.040/0.50	<0.0077/0.20	<0.0061/1.0	<0.022/2.0	<0.084/2.0	<0.093/1.0	<0.040/2.0	<0.055/1.0	<0.73/250	<1.6/250	<0.011/0.20
Class II Pond	5/13/2016	<0.046/0.58	<0.0081/0.23	<0.0071/1.2	<0.026/2.3	<0.097/2.3	<0.11/1.2	<0.046/2.3	<0.064/1.2	<0.84/290	<1.8/290	<0.013/0.23
LCRS Sump	5/13/2016	<0.040/0.50	<0.0077/0.20	<0.0061/1.0	<0.022/2.0	<0.084/2.0	<0.093/1.0	<0.040/2.0	<0.055/1.0	<0.73/250	<1.6/250	<0.011/0.20

Note: MDL/RL = Method Detection Limit/Reporting Limit

µg/L = micrograms per liter

[ ] = J value - detected but below Reporting Limit; therefore, result is an estimated concentration.

ND = none detected



DATE OF TOPOGRAPHY: 07/23/2014

UNION MINE LANDFILL
EL DORADO COUNTY, CALIFORNIA

LEACHATE COLLECTION SYSTEM

LEGEND

- ACTIVE CLASS II LANDFILL FOOTPRINT
- EXISTING TOPO MAJOR CONTOUR
- PERFORATED LEACHATE COLLECTION LINE
- SOLID LEACHATE CONVEYANCE LINE

NO.	REVISION DESCRIPTION	BY:

TETRA TECH BAS
1360 Valley Vista Drive, Diamond Bar, CA 91765
TEL 909.860.7777 FAX 909.860.8017

UNION MINE DISPOSAL FACILITY

LEACHATE COLLECTION SYSTEM

DESIGNED BY : N/A	SCALE : PER PLAN	
DRAWN BY : P.V.	DATE : 4/16	FILE NO.: 30-1488FIG.DWG
CHECKED BY : D.L.L.	DATE : 4/16	**FIGURE 3-1**
APPROVED BY : G.E.S.	DATE : 4/16	

G:\DWG\UNION MINE\FIGURES\30-1488FIG

4. GROUNDWATER

4.1 DESCRIPTION OF MONITORING SYSTEM

The groundwater monitoring system at Union Mine Landfill consists of nine groundwater wells which are currently monitored according to the MRP schedule. Approximate locations of the groundwater monitoring wells are shown on Figures 4-1 and 4-2.

4.1.1 WMU 1 – Landfill

- **Points of Compliance:** Wells MW-7, MW-9, MW-11 and UM-3 are the points of compliance for WMU-1, the landfill. Well MW-7 is located approximately 200 yards southeast of the landfill near the treatment plant. Well MW-9 is east and directly down gradient of the landfill, near the base of the fill area. Well MW-11 is northeast of the landfill and is directly downgradient of the northern half of the original unlined Class III disposal area. Well UM-3 is southeast of the landfill near the toe of the filled area and down gradient of the Class II area. Well construction details including screen interval, pump elevation, total depth are presented on Table 4-4. Well construction details of previously abandoned/destroyed wells and landfill gas extraction wells are presented in Appendix D, Site Information.

- **Background Monitoring Points:** Wells MW-5, MW-6 and MW-10 are the current background monitoring points for the landfill. Wells MW-5 and MW-6 are southwest of the old landfill and directly west of the new expansion area. Well MW-10 is located northwest of the old landfill. Well construction details including screen interval, pump elevation, total depth are presented on Table 4-4.

4.1.2. WMU 2 – Class II Impoundment

- **Point of Compliance:** The point of compliance for WMU-2, the Class II surface impoundment, is well MWA. Well MWA is down gradient from the Class II impoundment and is between the impoundment and Martinez Creek.

- **Background Monitoring Point:** Monitoring well MWC is the background monitoring point for WMU 2. Well MWC is located west and upgradient of the impoundment, between the impoundment and the leachate/septage treatment plant. MWC is downgradient of the landfill. Well construction details including screen interval, pump elevation, total depth are presented on Table 4-4.

4.2 SAMPLING PROCEDURES

At each groundwater well, EMD personnel measured the depth to water to the nearest 0.01 foot and recorded this measurement on the field log sheet, along with calculations for the volume of water in the casing. Groundwater sampling was modified to follow EPA methodology for low-flow groundwater sampling procedures as detailed numerous EPA publications (e.g. Puls and Barcelona, 1996 and many others). Water quality indicator parameters such as turbidity, pH, temperature and electrical conductivity are used to determine when formation water is accessed

during purging. These indicator parameters along with a low flow rate (at approximately 1/2 liter/minute or less), water level drawdown, and dedicated sampling equipment provide a more consistent approach and hopefully less variability in groundwater sampling results than the previous approach of removing three well volumes prior to sampling.

All groundwater wells at the Union Mine spray fields are equipped with dedicated Grundfos Redi-Flo2 purging and sampling pumps. Start and end times, flow rates and total gallons pumped during purging are recorded on the field log sheets. Purge rates were approximately ½ liter per minute. At approximately 3 minute intervals groundwater indicator parameters were recorded on the log sheets: time, volume, depth-to-water, temperature, pH, electrical conductivity (EC), turbidity, and color/odor.

Field meters (pH, EC, turbidity) were calibrated on site and the calibration data are recorded on the field log for each well. Review of the field logs indicates that all field parameters were stable at the time samples were collected. Purge water was discharged to the ground surface near each well. Field parameter data are summarized in Tables 4-1 and 4-2. WMU-1 and WMU-2 groundwater monitoring wells are monitored and sampled semiannually for the Monitoring Parameters, and 5-year analysis for the COC, if applicable that year.

After the well is purged, samples are collected directly from the pump discharge into the individual sample containers. No intermediate containers are used for transfer of laboratory samples. Samples are stored in an ice chest and chilled to about 4° C. Ice chests are delivered to the laboratory under chain-of-custody protocols.

4.3 SAMPLE QUALITY ASSURANCE/QUALITY CONTROL

Laboratory QC is routinely performed as part of the analytical protocols for each analytical method. Laboratory QC procedures included method blanks, laboratory control samples, surrogate spikes, matrix spikes, and matrix spike duplicates. Method blanks are used to assess the effect within the laboratory environment on samples. Surrogate spikes are used to determine if the laboratory's analytical equipment is operating within specified control limits. Matrix spike are used to determine if the sample's matrix is interfering with an analysis, and to provide a measure of the accuracy of the analytical data. Matrix spike duplicates are used to determine the reproducibility or precision of the analytical method.

4.3.1 Laboratory QA/QC

Some matrix spikes and laboratory control samples had individual parameters out of control limits relative to acceptable limits set by the laboratory. However, based on the laboratory's evaluation and validity of QA/QC protocols, the laboratory reports for the 2016 Spring Semiannual were evaluated. All sample data were determined to be valid and useable, and considered acceptable for their intended use.

4.3.2 Field Duplicate – Relative Percent Difference

Relative percent difference (RPD) values between MW-7 and DUP-2 were calculated for the June 2016 sampling event. All RPD values for the June 2016 sampling events were under 20% which is acceptable for quality control limit purposes. RPD values are presented on Table 4-5.

4.4 CONCENTRATION LIMITS

Monitoring & Reporting Program (MRP) attached to Waste Discharge Requirements Order No. R5-2006-0020 superseded the previous MRP, including the Concentration Limits. The new MRP specifies that El Dorado County shall determine Concentration Limits of each Monitoring Parameter and COC using data from background wells, and update the Concentration Limits at least annually.

Concentration limits for monitoring parameters and COC have been updated using data from background wells through June of 2016. Procedures followed to develop the new concentration limits are described in Appendix D of this report. In general, concentrations limits were determined for the WMU-1 dataset by calculating the nonparametric 95% Chebyshev UPL for each constituent using EPA's PROUCL 5.0 and Union Mine Landfill historic dataset consisting of data collected from 1990's to 2016. The resulting Concentration Limits are higher than those previously calculated because the Chebyshev test statistic was designed for datasets with greater variability like WMU-1 background data which consists of three different background wells that are either horizontally and/or vertically separated from each other. For instance, background well MW-10 is approximately 1,600 feet NE from background wells MW-5 and MW-6. Background well MW-5 is screened from 20-40 feet below ground surface and nearby well MW-6 is screened from 118 to 138 feet below ground surface. Former mining areas with hydrothermal alteration like Union Mine can have groundwater quality vary significantly based on the depth and/or location of each well screen. A test statistic like Chebyshev's 95% UPL is more appropriate in predicting determining Concentration Limits.

The 95% Chebyshev UPL of each constituent was also used for the WMU-2 dataset. Updated concentration limits are given in Tables 4-1 and 4-2. Please note that concentration limits were calculated using a historic dataset from 1990's to the present sampling event. Additional information on the development of Concentration Limits and statistically analyses for WMU-1 and WMU-2 is presented in Appendix D.

4.5 ANALYSIS RESULTS

Samples were collected from active WMU-1 wells on June 7 and WMU-2 wells on June 8, 2016. Samples were analyzed for the Semiannual Monitoring Parameters specified in Table 2 of the MRP. Field parameter measurements are also summarized in Tables 4-1 and 4-2. Field sampling log sheets are included in Appendix A. Appendix B contains copies of laboratory analytical reports for this reporting period.

4.5.1 WMU-1 Analysis Results Discussion

Table 4-1 summarizes the background and point of compliance Monitoring Parameters for the WMU-1 wells. All Monitoring Parameter results were below concentration limits except:

- Sodium concentrations in wells UM-3 (65 mg/l) and MW-7 (82 mg/l) were above the concentration limit of 59.8 mg/l for June sampling event.

Time-series graphs indicate that the sodium values from compliance wells MW-7 and UM-3 trend higher than the concentration limit. The technical and hydrogeological justification for why groundwater monitoring wells UM-3 and MW-7 exceed the calculated concentration limits for

sodium is difficult to ascertain given the complicated subsurface geology of the former gold mine and adjacent spray fields which receive 2-4 million gallons of effluent treated with sodium hypochlorite. Sodium concentrations in wells MW-7 and UM-3 are below known drinking water thresholds and don't represent an increased risk to human health or the environment. VOC's were below laboratory method detection limits and reporting limits for all wells and are presented on Table 4-3.

Time series graphs of the above mentioned sodium trends as well as all long term detectable concentrations of monitoring parameters are presented in Appendix C. Graphs of carbonate, hydroxide, and VOC's are not presented because of the lack of detectable concentrations. Arsenic and iron graphs are not included as part of monitoring parameters program, but are sampled to provide additional information on groundwater quality at the site. Total Alkalinity is not graphed because all alkalinity is due to bicarbonate ions. Laboratory reported J-values/ estimated concentrations are enclosed in brackets in all tables (when available).

Results for the 5-Year COC are presented in the following tables

- Table 4-6: 5-Year Metals
- Table 4-8: Chlorinated Herbicides – EPA Method 8151A
- Table 4-9: Semivolatile Compounds – EPA Method 8270C
- Table 4-10: Organophosphorus Pesticides – EPA Method 8141A

There were no detectable compounds indicated in the chlorinated herbicides and organophosphorus pesticide analysis. Two detections were initially noted in the semivolatile compounds analyses for bis(2-ethylhexyl)phthalate in background monitoring wells MW-5 and MW-6. Since bis(2-ethylhexyl)phthalate is a common laboratory contaminant associated with plastics, both wells were re-sampled on June 22, 2016 and analyzed for Semivolatile Compounds by EPA Method 8270C. Laboratory results from wells MW-5 and MW-6 indicated bis(2-ethylhexyl)phthalate was below laboratory method detection limits and Table 4-9 was updated to reflect the re-sampling results.

Table 4-6 summarizes the background and point of compliance WMU-1 COC for 5-Year metals. All COC metal results were below Concentration Limits except:

- Well MW-11 contained a zinc concentration of 56 µg/l which was above the Concentration Limit of 51 µg/l for June 2016 sampling event.

Elevated zinc concentrations are most likely associated to hydrothermal deposits in the area around MW-11 and do not represent a release from the landfill. Samples of native, hydrothermally altered bedrock of the Mariposa Formation were collected and analyzed (EPA 6000/7000 Series Methods) from a road cut near monitoring well MW-11 and found significant concentrations of magnesium, potassium, cobalt, and zinc. A zinc concentration of 30 mg/kg was detected in sample UM-slate-4. Laboratory results are presented in Appendix E – Background Metals. Additional sampling and analysis using STLC California WET type analysis could provide additional information on the leachability of these constituents.

Future statistical analyses and resulting Concentration Limits for WMU-1 should consider the use of the 95% upper simultaneous limit (USL) due the significant variability from hydrothermal alteration and the resulting effects on background monitoring parameters/COC concentrations as mentioned above and further detailed in Appendix D.

4.5.2 WMU-2 Analysis Results Discussion

Samples collected on June 8, 2016 from wells MWA and MWC were analyzed for the listed Monitoring Parameters and COC. Results for the Monitoring Parameters are summarized in Table 4-2. All values were below concentration limits with the exception that potassium in well MW-A (7.5 mg/l) was above the Concentration Limit of 5.3 mg/l. VOC's were below detection limits for all samples. Laboratory method detection limits and reporting limits for VOC's are presented on Table 4-3.

Time series graphs of all long term detectable concentrations of monitoring parameters are presented in Appendix C. Graphs of carbonate, hydroxide, and VOC's are not presented because of the lack of detectable concentrations. Arsenic and iron graphs are not included as part of monitoring parameters program, but are sampled to provide additional information on groundwater quality at the site. Total Alkalinity is not graphed because the bicarbonate concentrations are the same concentration. Laboratory reported J-values or estimated concentrations that are below method reporting limits are enclosed in brackets in all tables when available.

Results for the 5-Year COC are presented in the following tables

- Table 4-7: 5-Year Metals
- Table 4-8: Chlorinated Herbicides – EPA Method 8151A
- Table 4-9: Semivolatile Compounds – EPA Method 8270C
- Table 4-10: Organophosphorus Pesticides – EPA Method 8141A

There were no detectable compounds indicated in the chlorinated herbicides, semivolatile compounds and organophosphorus pesticide analyses. Results of the 5-year metals analysis indicated that no metals were above the Concentration Limits listed on Table 4-7.

ELEVATION MONITORING

Water level elevations are monitored semiannually prior to groundwater sampling. Depths to ground water in the active wells were recorded on June 6, 2016; resulting groundwater elevations are presented in Tables 4-1 and 4-2. Elevations and potentiometric contours of ground water for the June 2016 sampling event are shown on Figure 4-1. Water levels range from about 1297.28 feet above mean sea level (MSL) in background well MW-5, located west of the landfill to 1115.62 feet MSL at well MW-A, located east of the landfill and the Class II surface impoundment, near Martinez Creek. Groundwater flow direction is to the southeast and consistent with historic groundwater flow direction beneath the landfill. Bottom of waste elevation for the Class III portion of the landfill was observed in former well boring LW-2 and estimated to be at 1196.81 feet MSL. A previous study (CH_2MHill, 1991) produced a map of the landfill which identifies an area north west of well UM-3 where shallow groundwater levels could potentially intersect with the elevation of the Class III waste/fill material. This area is located within the Class III boundary and subsequently covered in 2007.

Groundwater in monitoring well UM-3 was observed continuously flowing over the top of its casing indicating artesian conditions in this area. Monitoring well MW-6 is also flows under artesian conditions intermittently through the wet season.

Table 4-1
WMU-1 - HIstorical Groundwater Analytical Summary
Field and Monitoring Parameters
Union Mine Landfill
El Dorado County, California

		Monitoring Parameters														Field Parameters				
Well	Date	TDS	Bicarbonate	Hydroxide	Carbonate	Alkalinity	Cl	Nitrate-N	Sulfate	Ca	Mg	K	Na	As	Fe	GW Elevation	Conductivity	pH	Turbidity	Temperature
#	mm/dd/year	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	feet (MSL)	µmhos/cm	ph units	NTU	°C
UM-3	6/1/2006	300	230	<0.5/5.0	<0.5/5.0	230	12	<0.053/0.50	31	30	15	1.3	**66**	7.4	<0.0068/0.10	1161.54	494	7.40	8.69	18.0
Compliance	11/28/2006	290	220	<0.5/5.0	<0.5/5.0	220	5.1	<0.053/0.50	43	27	14	1.1	**68**	6.2	<0.0068/0.10	1160.79	509	7.36	51.1	14.5
Well	6/7/2007	290	230	<0.5/5.0	<0.5/5.0	230	4.3	[0.065]	41	29	14	1.2	**68**	0.0053	<0.0068/0.10	1161.07	503	7.01	10.0	17.1
	11/29/2007	290	220	<0.5/5.0	<0.5/5.0	220	2.8	<0.053/0.50	40	25	14	[0.90]	**67**	[0.0045]	<0.0068/0.10	1161.09	507	7.50	2.52	15.4
	5/28/2008	300	240	<0.5/5.0	<0.5/5.0	240	2.4	<0.053/0.50	36	29	16	[0.96]	**63**	0.0024	[0.028]	1161.47	407	7.97	1.81	18.8
	11/4/2008	300	220	<0.5/5.0	<0.5/5.0	220	1.8	[0.066]	39	32	15	1.0	59	[0.0018]	[0.049]	1161.57	348	7.62	9.38	15.5
	6/10/2009	300	230	<0.5/5.0	<0.5/5.0	230	1.6	[0.076]	39	33	15	[0.72]	**62**	[0.0018]	<0.0068/0.10	1162.70	384	7.32	275	17.9
	11/5/2009	290	220	<0.5/5.0	<0.5/5.0	220	1.7	[0.11]	37	34	17	1.1	**68**	[0.0015]	<0.0068/0.10	1162.70	377	7.54	13.4	17.8
	6/2/2010	300	210	<0.5/5.0	<0.5/5.0	210	2.0	[0.17]	40	33	16	1.4	**63**	0.0021	[0.016]	1162.70	371	7.35	8.29	20.0
	11/9/2010	290	230	<0.5/5.0	<0.5/5.0	230	2.8	[0.34]	40	30	16	1.7	59	0.0025	[0.011]	1162.70	337	7.81	n/a	16.5
	6/8/2011	290	230	<0.5/5.0	<0.5/5.0	230	3.6	[0.16]	39	36	17	2.0	**65**	0.0027	<0.0068/0.10	1162.70	332	7.73	n/a	19.8
	11/2/2011	290	230	<0.5/5.0	<0.5/5.0	230	5.7	[0.17]	40	30	16	1.3	**72**	0.0028	<0.0068/0.10	1162.70	301	7.95	10.6	18.2
	6/6/2012	290	200	<0.5/5.0	<0.5/5.0	200	16.0	[0.14]	33	33	15	1.3	56	0.0048	[0.020]	1162.70	366	7.44	4.57	21.2
	11/7/2012	290	230	<0.5/5.0	<0.5/5.0	230	6.4	[0.21]	31	36	17	1.6	**63**	0.0026	[0.016]	1162.70	473	8.24	n/a	19.0
	6/6/2013	270	180	<0.5/5.0	<0.5/5.0	180	15.0	[0.094]	38	35	18	1.4	**68**	0.0031	<0.0068/0.10	1162.70	468	8.17	4.09	19.3
	11/5/2013	320	220	<0.5/5.0	<0.5/5.0	220	5.6	[0.23]	40	34	16	1.2	59	0.0024	[0.038]	1162.70	1934	7.65	n/a	17.4
	6/3/2014	300	220	<0.5/5.0	<0.5/5.0	220	16.0	[0.23]	33	38	18	1.5	**63**	0.0035	[0.020]	1162.70	453	8.34	3.28	19.5
	11/6/2014	300	210	<0.5/5.0	<0.5/5.0	210	7.9	0.33	42	29	14	1.2	53	0.0035	<0.0068/0.10	1162.70	375	8.20	3.87	17.0
	6/3/2015	290	210	<0.5/5.0	<0.5/5.0	210	16.0	[0.25]	34	32	18	1.1	58	0.0038	<0.0068/0.10	1116.70	NA	7.86	17.5	22.5
	11/3/2015	290	220	<0.5/5.0	<0.5/5.0	220	7.1	1.0	39	30	13	1.2	58	0.0044	<0.0068/0.10	1162.70	356	8.07	6.83	17.1
	6/7/2016	290	210	<0.5/5.0	<0.5/5.0	210	23.0	[0.14]	32	32	15	1.8	**65**	0.0048	[0.069]	1162.70	595	7.71	122	22.7
MW-5*	6/1/2006	340	180	<0.5/5.0	<0.5/5.0	180	2.7	<0.053/0.50	79	77	13	[0.43]	14	[2.0]	<0.0068/0.10	1298.02	492	6.83	3.8	15.4
Backgrnd	11/29/2006	290	200	<0.5/5.0	<0.5/5.0	200	2.4	<0.053/0.50	44	71	12	[0.47]	13	2.6	<0.0068/0.10	1297.32	446	7.20	3.0	11.9
Well	6/7/2007	260	180	<0.5/5.0	<0.5/5.0	180	3.3	[0.064]	41	61	9.8	[0.43]	11	[0.0021]	<0.0068/0.10	1161.07	401.8	6.84	6.0	14.0
	11/28/2007	280	200	<0.5/5.0	<0.5/5.0	200	2.4	<0.053/0.50	36	64	12	[0.28]	13	[0.0028]	<0.0068/0.10	1161.09	449	7.14	3.9	13.4
	5/28/2008	280	190	<0.5/5.0	<0.5/5.0	190	2.4	[0.066]	32	60	11	[0.29]	12	0.0022	<0.0068/0.10	1296.95	368	7.23	0.2	15.7
	11/4/2008	250	160	<0.5/5.0	<0.5/5.0	160	2.3	[0.066]	40	56	10	[0.47]	12	0.0024	<0.0068/0.10	1297.35	271	6.81	0.22	16.5
	6/10/2009	290	220	<0.5/5.0	<0.5/5.0	220	2.4	[0.095]	35	73	11	<0.18/1.0	12	0.0025	<0.0068/0.10	1297.35	336	6.86	0.20	15.5
	11/5/2009	290	210	<0.5/5.0	<0.5/5.0	210	2.2	[0.066]	33	76	12	[0.40]	14	0.0021	<0.0068/0.10	1295.46	333	6.99	1.12	14.8
	6/2/2010	300	200	<0.5/5.0	<0.5/5.0	200	2.5	[0.064]	37	72	11	[0.41]	12	[0.0019]	<0.0068/0.10	1297.89	278	7.21	0.60	15.5
	11/9/2010	280	210	<0.5/5.0	<0.5/5.0	210	2.2	<0.053/0.50	36	66	11	[0.42]	12	0.0022	<0.0068/0.10	1301.08	268	7.18	0.30	13.7
	6/8/2011	300	200	<0.5/5.0	<0.5/5.0	200	2.4	[0.074]	38	83	13	[0.44]	14	0.0025	<0.0068/0.10	1299.94	287	7.24	3.23	16.1
	11/2/2011	300	210	<0.5/5.0	<0.5/5.0	210	2.4	<0.053/0.50	37	77	12	[0.43]	14	2.7000	<0.0068/0.10	1297.70	240	7.42	0.63	13.5
	6/6/2012	290	180	<0.5/5.0	<0.5/5.0	180	2.4	[0.082]	36	74	12	[0.36]	12	0.0021	<0.0068/0.10	1297.67	304	7.22	1.00	15.4
	11/7/2012	300	210	<0.5/5.0	<0.5/5.0	210	2.2	[0.098]	29	76	12	[0.52]	13	0.0020	[0.010]	1297.03	299	7.64	0.81	15.4
	6/6/2013	290	190	<0.5/5.0	<0.5/5.0	190	2.3	<0.053/0.50	37	72	12	[0.43]	15	0.0021	<0.0068/0.10	1295.28	293	7.69	0.23	18.1
	11/5/2013	320	210	<0.5/5.0	<0.5/5.0	210	2.5	<0.053/0.50	36	74	12	[0.40]	13	[0.0015]	<0.0068/0.10	1294.86	260	7.68	0.49	13.7
	6/3/2014	290	210	<0.5/5.0	<0.5/5.0	210	2.5	[0.16]	36	76	13	<0.18/1.0	15	0.0023	<0.0068/0.10	1296.31	260	7.51	0.88	16.1
	11/6/2014	300	200	<0.5/5.0	<0.5/5.0	200	2.6	<0.053/0.50	35	65	11	0.51	12	0.0021	<0.0068/0.10	1295.45	318	7.31	1.90	15.1
	6/3/2015	310	220	<0.5/5.0	<0.5/5.0	220	2.4	<0.053/0.50	33	67	13	[0.34]	13	0.0028	<0.0068/0.10	1295.13	300	7.32	1.93	16.4
	11/3/2015	300	200	<0.5/5.0	<0.5/5.0	200	2.2	<0.053/0.50	39	67	9.9	[0.29]	12	0.0026	<0.0068/0.10	1294.68	235	7.35	0.65	15.1
	6/7/2016	290	220	<0.5/5.0	<0.5/5.0	220	2.4	<0.053/0.50	33	69	11	[0.53]	13	0.0024	<0.0068/0.10	1297.28	428	7.15	2.99	19.7

Table 4-1
WMU-1 - HIstorical Groundwater Analytical Summary
Field and Monitoring Parameters
Union Mine Landfill
El Dorado County, California

		Monitoring Parameters														Field Parameters				
Well	Date	TDS	Bicarbonate	Hydroxide	Carbonate	Alkalinity	Cl	Nitrate-N	Sulfate	Ca	Mg	K	Na	As	Fe	GW Elevation	Conductivity	pH	Turbidity	Temperature
#	mm/dd/year	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	feet (MSL)	µmhos/cm	ph units	NTU	°C
MW-6*	6/1/2006	360	200	<0.5/5.0	<0.5/5.0	200	4.2	<0.053/0.50	96	76	14	[0.54]	27	[3.5]	[110]	1286.37	566	7.17	1.1	16.8
Backgrnd	11/29/2006	380	190	<0.5/5.0	<0.5/5.0	190	4.5	<0.053/0.50	120	82	15	[0.53]	26	4.1	[94]	1280.66	575	7.04	13.3	12.5
Well	6/7/2007	370	200	<0.5/5.0	<0.5/5.0	200	4.6	<0.053/0.50	110	79	14	[0.56]	26	[0.0036]	[0.045]	1283.30	570	7.16	4.4	16.5
	11/28/2007	370	190	<0.5/5.0	<0.5/5.0	190	4.3	[0.28]	110	74	15	[0.39]	27	[0.0041]	[0.066]	1281.20	577	7.13	2.7	14.8
	5/28/2008	370	190	<0.5/5.0	<0.5/5.0	190	3.8	[0.093]	100	32	15	[0.50]	29	0.0029	<0.0068/0.10	1282.60	457	7.57	0.22	15.5
	11/4/2008	370	180	<0.5/5.0	<0.5/5.0	180	3.9	[0.065]	110	72	14	[0.54]	27	0.0037	[0.057]	1283.09	380	7.37	0.5	14.9
	6/10/2009	370	210	<0.5/5.0	<0.5/5.0	210	3.9	[0.094]	110	77	15	[0.36]	29	0.0030	<0.0068/0.10	1285.52	408	7.06	0.22	14.7
	11/5/2009	370	200	<0.5/5.0	<0.5/5.0	200	4.0	<0.053/0.50	100	80	16	[0.64]	32	0.0033	<0.0068/0.10	1283.45	410	7.29	0.52	15.2
	6/2/2010	380	190	<0.5/5.0	<0.5/5.0	190	4.1	[0.072]	110	75	15	[0.61]	29	0.0033	<0.0068/0.10	1285.72	365	7.42	1.11	16.6
	11/9/2010	360	190	<0.5/5.0	<0.5/5.0	190	4.1	<0.053/0.50	100	71	16	[0.63]	29	0.0039	[0.057]	1285.78	328	7.48	0.47	13.9
	6/8/2011	380	190	<0.5/5.0	<0.5/5.0	190	3.9	[0.076]	98	83	17	[0.66]	31	0.0041	[0.014]	1287.56	353	7.47	2.03	17.2
	11/2/2011	370	190	<0.5/5.0	<0.5/5.0	190	4.3	<0.053/0.50	110	76	15	[0.64]	29	0.0035	<0.0068/0.10	1284.11	292	7.74	0.47	14.4
	6/6/2012	360	170	<0.5/5.0	<0.5/5.0	170	4.0	[0.082]	100	71	14	[0.60]	26	0.0034	<0.0068/0.10	1285.39	381	7.46	0.45	16.9
	11/7/2012	370	200	<0.5/5.0	<0.5/5.0	200	4.0	<0.053/0.50	2.6	74	15	[0.92]	30	0.0032	[0.025]	1282.65	344	8.01	0.67	15.5
	6/6/2013	360	180	<0.5/5.0	<0.5/5.0	180	4.3	<0.053/0.50	110	76	16	[0.77]	34	0.0036	<0.0068/0.10	1282.53	344	8.00	0.39	17.9
	11/5/2013	380	190	<0.5/5.0	<0.5/5.0	190	4.3	<0.053/0.50	110	74	15	[0.71]	29	0.0022	<0.0068/0.10	1282.02	328	8.02	0.32	14.6
	6/3/2014	350	190	<0.5/5.0	<0.5/5.0	190	4.0	[0.16]	93	78	16	[0.43]	33	0.0032	<0.0068/0.10	1283.13	325	7.79	1.22	17.5
	11/6/2014	360	190	<0.5/5.0	<0.5/5.0	190	4.3	<0.053/0.50	96	67	14	[0.57]	27	0.0026	0.029	1280.54	392	7.66	1.76	15.6
	6/3/2015	360	**410**	<0.5/5.0	<0.5/5.0	**410**	3.9	<0.053/0.50	91	67	16	[0.52]	29	0.0046	<0.0068/0.10	1282.18	366	7.56	0.76	16.3
	11/3/2015	380	190	<0.5/5.0	<0.5/5.0	190	3.9	<0.053/0.50	98	67	13	[0.53]	28	0.0033	[0.0081]	1279.8	279	7.66	0.26	15.0
	6/7/2016	330	210	<0.5/5.0	<0.5/5.0	210	3.8	[0.12]	97	69	14	[0.67]	29	0.0036	<0.0068/0.10	1283.68	494	7.40	0.85	18.6
MW-7	6/1/2006	290	240	<0.5/5.0	<0.5/5.0	240	2.0	<0.053/0.50	25	40	8.0	**12.8**	**61**	[4.5]	<0.0068/0.10	1154.71	461	7.76	8.53	20.5
Compliance	11/29/2006	320	260	<0.5/5.0	<0.5/5.0	260	2.0	[0.084]	31	41	8.0	1.8	**62**	0.006	<0.0068/0.10	1143.43	508	7.17	21.9	17.2
Well	6/7/2007	280	240	<0.5/5.0	<0.5/5.0	240	2.9	<0.053/0.50	27	42	7.8	1.6	58	0.0053	<0.0068/0.10	1144.34	445	7.09	0.0	15.7
	11/29/2007	270	230	<0.5/5.0	<0.5/5.0	230	1.9	<0.053/0.50	26	36	7.6	1.4	59	0.0055	<0.0068/0.10	1142.29	513	6.36	25.9	16.5
	5/28/2008	320	270	<0.5/5.0	<0.5/5.0	270	2.0	<0.053/0.50	23	32	6.8	1.8	**91**	0.0075	0.13	1143.88	446	7.78	0.2	18.6
	11/4/2008	310	240	<0.5/5.0	<0.5/5.0	240	2.0	[0.068]	28	32	6.1	1.7	**79**	0.0079	0.2	1143.11	389	7.58	0.85	19.5
	6/10/2009	310	280	<0.5/5.0	<0.5/5.0	280	1.9	[0.072]	25	34	6.4	1.4	**85**	0.0070	0.17	1144.69	400	7.53	0.20	18.0
	11/5/2009	300	250	<0.5/5.0	<0.5/5.0	250	1.9	[0.072]	23	34	6.8	1.6	**91**	0.0068	0.1	1142.6	422	7.50	1.48	21.7
	6/2/2010	320	260	<0.5/5.0	<0.5/5.0	260	2.0	<0.053/0.50	25	34	6.5	1.6	**83**	0.0074	<0.0068/0.10	1146.87	357	7.65	2.50	19.3
	11/9/2010	300	250	<0.5/5.0	<0.5/5.0	250	2.1	<0.053/0.50	25	33	6.8	1.5	**81**	0.0076	0.19	1145.91	337	7.71	1.57	19.7
	6/8/2011	310	240	<0.5/5.0	<0.5/5.0	240	2.0	<0.053/0.50	24	38	7.4	1.7	**90**	0.0081	<0.0068/0.10	1147.15	327	7.77	6.57	19.8
	11/2/2011	310	270	<0.5/5.0	<0.5/5.0	270	2.0	<0.053/0.50	26	33	6.1	1.4	**76**	0.0080	0.20	1144.35	321	7.93	3.77	20.5
	6/6/2012	310	210	<0.5/5.0	<0.5/5.0	210	1.9	[0.25]	26	32	5.9	1.3	**71**	0.0070	<0.0068/0.10	1145.26	367	7.64	2.97	20.4
	11/7/2012	320	270	<0.5/5.0	<0.5/5.0	270	1.8	<0.053/0.50	24	34	6.3	1.6	**88**	0.0064	[0.069]	1144.86	299	8.22	12.00	21.1
	6/6/2013	310	240	<0.5/5.0	<0.5/5.0	240	1.8	<0.053/0.50	28	31	6.8	1.6	**92**	0.0064	0.16	1145.13	300	8.21	0.24	22.5
	11/5/2013	320	260	<0.5/5.0	<0.5/5.0	260	2.0	<0.053/0.50	27	34	6.3	1.5	**85**	0.0054	0.15	1142.76	343	8.20	0.26	20.7
	6/3/2014	310	260	<0.5/5.0	<0.5/5.0	260	2.0	<0.053/0.50	16	36	7.1	1.2	**94**	0.0059	0.18	1142.85	322	8.14	0.23	20.2
	11/6/2014	300	240	<0.5/5.0	<0.5/5.0	240	2.1	0.16	25	29	5.7	1.3	**72**	0.0064	0.15	1144.11	317	7.81	0.25	22.2
	6/3/2015	310	270	<0.5/5.0	<0.5/5.0	270	2.0	<0.053/0.50	23	30	6.6	[0.99]	**76**	0.0078	0.15	1145.77	374	7.78	1.57	20.6
	11/3/2015	330	250	<0.5/5.0	<0.5/5.0	250	1.8	<0.053/0.50	25	31	5.3	1.0	**78**	0.0067	0.17	1144.25	287	7.88	0.71	20.0
	6/7/2016	290	260	<0.5/5.0	<0.5/5.0	260	2.0	<0.053/0.50	24	32	6	1.3	**82**	0.0064	0.16	1146.29	287	7.88	0.71	20.0

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Field and Monitoring Parameters
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El Dorado County, California

		Monitoring Parameters														Field Parameters				
Well	Date	TDS	Bicarbonate	Hydroxide	Carbonate	Alkalinity	Cl	Nitrate-N	Sulfate	Ca	Mg	K	Na	As	Fe	GW Elevation	Conductivity	pH	Turbidity	Temperature
#	mm/dd/year	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	feet (MSL)	µmhos/cm	ph units	NTU	°C
MW-9	6/1/2006	310	250	<0.5/5.0	<0.5/5.0	250	2.3	[0.18]	45	34	15	1.4	57	15	110	1154.32	513	7.82	6.88	20.5
Compliance	11/29/2006	320	240	<0.5/5.0	<0.5/5.0	240	2.1	[0.11]	45	38	16	1.5	59	20	[60]	1150.84	512	7.86	9.04	20.4
Well	6/7/2007	280	240	<0.5/5.0	<0.5/5.0	240	3.0	[0.065]	40	39	16	1.4	56	0.0150	[0.049]	1153.14	486	7.80	0.0	18.5
	11/29/2007	NOT	SAMPLED	<0.5/5.0	<0.5/5.0				NOT	SAMPLED						1150.32	526	7.35	6.6	11.4
	5/28/2008	NOT	SAMPLED	<0.5/5.0	<0.5/5.0				NOT	SAMPLED						1152.43	No Sample		pump not operational	
	11/4/2008	310	230	<0.5/5.0	<0.5/5.0	230	1.9	<0.053/0.50	32	45	17	[0.54]	52	0.011	0.34	1148.59	375	7.52	6.78	18.1
	6/10/2009	320	280	<0.5/5.0	<0.5/5.0	280	1.8	[0.071]	15	42	16	1.4	50	0.0076	[0.074]	1153.48	413	7.49	0.27	20.0
	11/5/2009	310	260	<0.5/5.0	<0.5/5.0	260	1.8	[0.065]	3.4	46	19	1.7	58	0.0064	<0.0068/0.10	1149.50	417	7.65	0.61	20.6
	6/2/2010	310	270	<0.5/5.0	<0.5/5.0	270	1.7	<0.053/0.50	1.3	43	17	1.5	50	0.0064	[0.042]	1154.71	349	7.70	0.25	20.0
	11/9/2010	300	270	<0.5/5.0	<0.5/5.0	270	1.9	<0.053/0.50	9.3	40	18	1.4	48	0.0080	0.13	1150.85	325	7.75	0.41	18.6
	6/8/2011	300	270	<0.5/5.0	<0.5/5.0	270	1.9	<0.053/0.50	1.7	48	19	1.7	54	0.0073	[0.0078]]	1154.27	338	7.89	0.31	19.8
	11/2/2011	300	280	<0.5/5.0	<0.5/5.0	280	1.8	<0.053/0.50	5.9	41	16	1.5	52	0.0097	<0.0068/0.10	1151.97	307	8.07	0.31	19.8
	6/6/2012	290	280	<0.5/5.0	<0.5/5.0	280	1.8	<0.053/0.50	2.4	42	16	1.4	46	0.0066	[0.018]	1154.47	363	7.83	0.35	19.4
	11/7/2012	300	270	<0.5/5.0	<0.5/5.0	270	2.1	[0.11]	13	43	17	1.7	53	0.0079	<0.0068/0.10	1150.51	372	8.36	0.36	21.3
	6/6/2013	280	230	<0.5/5.0	<0.5/5.0	230	2.1	<0.053/0.50	22	40	18	1.7	56	0.0079	0.10	1152.80	340	8.31	0.38	20.8
	11/5/2013	310	270	<0.5/5.0	<0.5/5.0	270	2.0	<0.053/0.50	6.6	43	17	1.4	47	0.0066	<0.0068/0.10	1149.78	327	8.31	0.24	19.2
	6/3/2014	370	240	<0.5/5.0	<0.5/5.0	240	2.8	<0.053/0.50	60	45	18	1.3	57	0.0067	[0.046]	1153.52	315	8.10	0.55	20.1
	11/6/2014	280	260	<0.5/5.0	<0.5/5.0	260	2.5	<0.053/0.50	12	35	15	1.2	44	0.0062	<0.0068/0.10	1148.83	411	7.89	0.73	21.7
	6/3/2015	290	280	<0.5/5.0	<0.5/5.0	280	2.0	<0.053/0.50	4.2	38	18	1.1	48	0.0086	0.052	1152.77	371	7.83	0.89	21.0
	11/3/2015	310	240	<0.5/5.0	<0.5/5.0	240	1.9	<0.053/0.50	27	40	15	1.2	48	0.0110	0.11	1148.84	278	7.97	0.48	18.5
	6/7/2016	280	250	<0.5/5.0	<0.5/5.0	250	2	<0.053/0.50	33	40	16	1.4	50	0.0097	0.20	1153.86	278	7.97	0.48	18.5
MW-10*	6/1/2006	410	260	<0.5/5.0	<0.5/5.0	260	3.5	<0.053/0.50	81	96	13	[0.50]	16	0.0056	0.67	1238.33	615	6.79	0.0	18.3
Backgrnd	11/29/2006	380	230	<0.5/5.0	<0.5/5.0	230	3.5	<0.053/0.50	74	98	12	[0.55]	14	0.0057	0.35	1236.66	575	6.91	39.3	16.1
Well	6/7/2007	380	240	<0.5/5.0	<0.5/5.0	240	4.0	<0.053/0.50	82	100	12	[0.51]	14	0.0059	0.31	1238.56	594	6.88	3.2	18.4
	11/29/2007	350	240	<0.5/5.0	<0.5/5.0	240	3.3	<0.053/0.50	73	85	12	[0.32]	14	0.0053	0.28	1238.30	591	6.62	1.8	17.1
	5/28/2008	390	230	<0.5/5.0	<0.5/5.0	230	3.4	<0.053/0.50	71	89	12	[0.44]	14	0.0060	0.43	1238.86	529	7.06	0.12	19.1
	11/4/2008	380	220	<0.5/5.0	<0.5/5.0	220	3.1	[0.066]	80	94	11	<0.18/1.0	14	0.0047	0.42	1238.49	461	6.97	0.64	22.0
	6/10/2009	390	260	<0.5/5.0	<0.5/5.0	260	3.5	[0.072]	79	95	12	[0.32]	15	0.0023	0.10	1239.42	484	6.77	0.25	20.0
	11/5/2009	370	250	<0.5/5.0	<0.5/5.0	250	3.6	<0.053/0.50	54	100	13	[0.62]	15	0.0028	0.62	1239.05	464	7.01	0.27	18.2
	6/2/2010	380	230	<0.5/5.0	<0.5/5.0	230	3.7	<0.053/0.50	77	100	13	[0.64]	16	0.0037	0.71	1239.82	383	7.41	0.32	18.6
	11/9/2010	360	230	<0.5/5.0	<0.5/5.0	230	3.8	<0.053/0.50	35	91	13	[0.62]	14	0.0045	0.70	1239.37	366	7.21	0.37	17.1
	6/8/2011	300	240	<0.5/5.0	<0.5/5.0	240	3.9	<0.053/0.50	73	120	15	[0.78]	20	0.0051	0.89	1239.89	400	7.05	0.51	19.0
	11/2/2011	380	230	<0.5/5.0	<0.5/5.0	230	4.1	<0.053/0.50	79	97	12	[0.70]	22	0.0045	0.71	1239.61	333	7.41	0.23	15.7
	6/6/2012	380	210	<0.5/5.0	<0.5/5.0	210	3.6	[0.082]	71	99	13	[0.63]	19	0.0041	0.89	1239.89	417	7.13	0.33	19.2
	11/7/2012	370	250	<0.5/5.0	<0.5/5.0	250	3.5	[0.098]	31	86	12	[0.78]	18	0.0038	0.67	1239.70	413	7.62	0.61	19.1
	6/6/2013	350	210	<0.5/5.0	<0.5/5.0	210	3.7	<0.053/0.50	68	89	13	[0.76]	20	0.0036	0.83	1239.90	373	7.59	0.30	20.0
	11/5/2013	370	250	<0.5/5.0	<0.5/5.0	250	3.8	<0.053/0.50	88	95	12	[0.63]	16	0.0044	0.81	1239.95	366	7.55	0.48	18.1
	6/3/2014	370	240	<0.5/5.0	<0.5/5.0	240	3.8	<0.053/0.50	60	100	14	[0.42]	18	0.0042	0.96	1240.12	352	7.39	0.40	19.4
	11/6/2014	370	230	<0.5/5.0	<0.5/5.0	230	4.1	0.15	69	87	11	0.67	13	0.0047	0.74	1239.00	447	7.18	0.59	18.7
	6/3/2015	390	270	<0.5/5.0	<0.5/5.0	270	3.9	<0.053/0.50	61	91	13	[0.51]	14	0.0071	0.70	1240.13	413	7.10	0.74	18.3
	11/3/2015	390	240	<0.5/5.0	<0.5/5.0	240	3.4	<0.053/0.50	66	91	11	[0.51]	14	0.0077	0.74	1240.05	316	7.18	0.19	18.8
	6/7/2016	360	250	<0.5/5.0	<0.5/5.0	250	3.4	<0.053/0.50	65	94	12	[0.72]	15	0.0064	0.81	1240.24	316	7.18	0.19	18.8

Table 4-1
WMU-1 - HIstorical Groundwater Analytical Summary
Field and Monitoring Parameters
Union Mine Landfill
El Dorado County, California

		Monitoring Parameters														Field Parameters				
Well	Date	TDS	Bicarbonate	Hydroxide	Carbonate	Alkalinity	Cl	Nitrate-N	Sulfate	Ca	Mg	K	Na	As	Fe	GW Elevation	Conductivity	pH	Turbidity	Temperature
#	mm/dd/year	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	feet (MSL)	µmhos/cm	ph units	NTU	°C
UM-3	6/1/2006	300	230	<0.5/5.0	<0.5/5.0	230	12	<0.053/0.50	31	30	15	1.3	**66**	7.4	<0.0068/0.10	1161.54	494	7.40	8.69	18.0
Compliance	11/28/2006	290	220	<0.5/5.0	<0.5/5.0	220	5.1	<0.053/0.50	43	27	14	1.1	**68**	6.2	<0.0068/0.10	1160.79	509	7.36	51.1	14.5
Well	6/7/2007	290	230	<0.5/5.0	<0.5/5.0	230	4.3	[0.065]	41	29	14	1.2	**68**	0.0053	<0.0068/0.10	1161.07	503	7.01	10.0	17.1
	11/29/2007	290	220	<0.5/5.0	<0.5/5.0	220	2.8	<0.053/0.50	40	25	14	[0.90]	**67**	[0.0045]	<0.0068/0.10	1161.09	507	7.50	2.52	15.4
	5/28/2008	300	240	<0.5/5.0	<0.5/5.0	240	2.4	<0.053/0.50	36	29	16	[0.96]	**63**	0.0024	[0.028]	1161.47	407	7.97	1.81	18.8
	11/4/2008	300	220	<0.5/5.0	<0.5/5.0	220	1.8	[0.066]	39	32	15	1.0	59	[0.0018]	[0.049]	1161.57	348	7.62	9.38	15.5
	6/10/2009	300	230	<0.5/5.0	<0.5/5.0	230	1.6	[0.076]	39	33	15	[0.72]	**62**	[0.0018]	<0.0068/0.10	1162.70	384	7.32	275	17.9
	11/5/2009	290	220	<0.5/5.0	<0.5/5.0	220	1.7	[0.11]	37	34	17	1.1	**68**	[0.0015]	<0.0068/0.10	1162.70	377	7.54	13.4	17.8
	6/2/2010	300	210	<0.5/5.0	<0.5/5.0	210	2.0	[0.17]	40	33	16	1.4	**63**	0.0021	[0.016]	1162.70	371	7.35	8.29	20.0
	11/9/2010	290	230	<0.5/5.0	<0.5/5.0	230	2.8	[0.34]	40	30	16	1.7	59	0.0025	[0.011]	1162.70	337	7.81	n/a	16.5
	6/8/2011	290	230	<0.5/5.0	<0.5/5.0	230	3.6	[0.16]	39	36	17	2.0	**65**	0.0027	<0.0068/0.10	1162.70	332	7.73	n/a	19.8
	11/2/2011	290	230	<0.5/5.0	<0.5/5.0	230	5.7	[0.17]	40	30	16	1.3	**72**	0.0028	<0.0068/0.10	1162.70	301	7.95	10.6	18.2
	6/6/2012	290	200	<0.5/5.0	<0.5/5.0	200	16.0	[0.14]	33	33	15	1.3	56	0.0048	[0.020]	1162.70	366	7.44	4.57	21.2
	11/7/2012	290	230	<0.5/5.0	<0.5/5.0	230	6.4	[0.21]	31	36	17	1.6	**63**	0.0026	[0.016]	1162.70	473	8.24	n/a	19.0
	6/6/2013	270	180	<0.5/5.0	<0.5/5.0	180	15.0	[0.094]	38	35	18	1.4	**68**	0.0031	<0.0068/0.10	1162.70	468	8.17	4.09	19.3
	11/5/2013	320	220	<0.5/5.0	<0.5/5.0	220	5.6	[0.23]	40	34	16	1.2	59	0.0024	[0.038]	1162.70	1934	7.65	n/a	17.4
	6/3/2014	300	220	<0.5/5.0	<0.5/5.0	220	16.0	[0.23]	33	38	18	1.5	**63**	0.0035	[0.020]	1162.70	453	8.34	3.28	19.5
	11/6/2014	300	210	<0.5/5.0	<0.5/5.0	210	7.9	0.33	42	29	14	1.2	53	0.0035	<0.0068/0.10	1162.70	375	8.20	3.87	17.0
	6/3/2015	290	210	<0.5/5.0	<0.5/5.0	210	16.0	[0.25]	34	32	18	1.1	58	0.0038	<0.0068/0.10	1116.70	NA	7.86	17.5	22.5
	11/3/2015	290	220	<0.5/5.0	<0.5/5.0	220	7.1	1.0	39	30	13	1.2	58	0.0044	<0.0068/0.10	1162.70	356	8.07	6.83	17.1
	6/7/2016	290	210	<0.5/5.0	<0.5/5.0	210	23.0	[0.14]	32	32	15	1.8	**65**	0.0048	[0.069]	1162.70	595	7.71	122	22.7
MW-5*	6/1/2006	340	180	<0.5/5.0	<0.5/5.0	180	2.7	<0.053/0.50	79	77	13	[0.43]	14	[2.0]	<0.0068/0.10	1298.02	492	6.83	3.8	15.4
Backgrnd	11/29/2006	290	200	<0.5/5.0	<0.5/5.0	200	2.4	<0.053/0.50	44	71	12	[0.47]	13	2.6	<0.0068/0.10	1297.32	446	7.20	3.0	11.9
Well	6/7/2007	260	180	<0.5/5.0	<0.5/5.0	180	3.3	[0.064]	41	61	9.8	[0.43]	11	[0.0021]	<0.0068/0.10	1161.07	401.8	6.84	6.0	14.0
	11/28/2007	280	200	<0.5/5.0	<0.5/5.0	200	2.4	<0.053/0.50	36	64	12	[0.28]	13	[0.0028]	<0.0068/0.10	1161.09	449	7.14	3.9	13.4
	5/28/2008	280	190	<0.5/5.0	<0.5/5.0	190	2.4	[0.066]	32	60	11	[0.29]	12	0.0022	<0.0068/0.10	1296.95	368	7.23	0.2	15.7
	11/4/2008	250	160	<0.5/5.0	<0.5/5.0	160	2.3	[0.066]	40	56	10	[0.47]	12	0.0024	<0.0068/0.10	1297.35	271	6.81	0.22	16.5
	6/10/2009	290	220	<0.5/5.0	<0.5/5.0	220	2.4	[0.095]	35	73	11	<0.18/1.0	12	0.0025	<0.0068/0.10	1297.35	336	6.86	0.20	15.5
	11/5/2009	290	210	<0.5/5.0	<0.5/5.0	210	2.2	[0.066]	33	76	12	[0.40]	14	0.0021	<0.0068/0.10	1295.46	333	6.99	1.12	14.8
	6/2/2010	300	200	<0.5/5.0	<0.5/5.0	200	2.5	[0.064]	37	72	11	[0.41]	12	[0.0019]	<0.0068/0.10	1297.89	278	7.21	0.60	15.5
	11/9/2010	280	210	<0.5/5.0	<0.5/5.0	210	2.2	<0.053/0.50	36	66	11	[0.42]	12	0.0022	<0.0068/0.10	1301.08	268	7.18	0.30	13.7
	6/8/2011	300	200	<0.5/5.0	<0.5/5.0	200	2.4	[0.074]	38	83	13	[0.44]	14	0.0025	<0.0068/0.10	1299.94	287	7.24	3.23	16.1
	11/2/2011	300	210	<0.5/5.0	<0.5/5.0	210	2.4	<0.053/0.50	37	77	12	[0.43]	14	2.7000	<0.0068/0.10	1297.70	240	7.42	0.63	13.5
	6/6/2012	290	180	<0.5/5.0	<0.5/5.0	180	2.4	[0.082]	36	74	12	[0.36]	12	0.0021	<0.0068/0.10	1297.67	304	7.22	1.00	15.4
	11/7/2012	300	210	<0.5/5.0	<0.5/5.0	210	2.2	[0.098]	29	76	12	[0.52]	13	0.0020	[0.010]	1297.03	299	7.64	0.81	15.4
	6/6/2013	290	190	<0.5/5.0	<0.5/5.0	190	2.3	<0.053/0.50	37	72	12	[0.43]	15	0.0021	<0.0068/0.10	1295.28	293	7.69	0.23	18.1
	11/5/2013	320	210	<0.5/5.0	<0.5/5.0	210	2.5	<0.053/0.50	36	74	12	[0.40]	13	[0.0015]	<0.0068/0.10	1294.86	260	7.68	0.49	13.7
	6/3/2014	290	210	<0.5/5.0	<0.5/5.0	210	2.5	[0.16]	36	76	13	<0.18/1.0	15	0.0023	<0.0068/0.10	1296.31	260	7.51	0.88	16.1
	11/6/2014	300	200	<0.5/5.0	<0.5/5.0	200	2.6	<0.053/0.50	35	65	11	0.51	12	0.0021	<0.0068/0.10	1295.45	318	7.31	1.90	15.1
	6/3/2015	310	220	<0.5/5.0	<0.5/5.0	220	2.4	<0.053/0.50	33	67	13	[0.34]	13	0.0028	<0.0068/0.10	1295.13	300	7.32	1.93	16.4
	11/3/2015	300	200	<0.5/5.0	<0.5/5.0	200	2.2	<0.053/0.50	39	67	9.9	[0.29]	12	0.0026	<0.0068/0.10	1294.68	235	7.35	0.65	15.1
	6/7/2016	290	220	<0.5/5.0	<0.5/5.0	220	2.4	<0.053/0.50	33	69	11	[0.53]	13	0.0024	<0.0068/0.10	1297.28	428	7.15	2.99	19.7

Table 4-1
WMU-1 - HIstorical Groundwater Analytical Summary
Field and Monitoring Parameters
Union Mine Landfill
El Dorado County, California

		Monitoring Parameters														Field Parameters				
Well	Date	TDS	Bicarbonate	Hydroxide	Carbonate	Alkalinity	Cl	Nitrate-N	Sulfate	Ca	Mg	K	Na	As	Fe	GW Elevation	Conductivity	pH	Turbidity	Temperature
#	mm/dd/year	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	feet (MSL)	µmhos/cm	ph units	NTU	°C
MW-6*	6/1/2006	360	200	<0.5/5.0	<0.5/5.0	200	4.2	<0.053/0.50	96	76	14	[0.54]	27	[3.5]	[110]	1286.37	566	7.17	1.1	16.8
Backgrnd	11/29/2006	380	190	<0.5/5.0	<0.5/5.0	190	4.5	<0.053/0.50	120	82	15	[0.53]	26	4.1	[94]	1280.66	575	7.04	13.3	12.5
Well	6/7/2007	370	200	<0.5/5.0	<0.5/5.0	200	4.6	<0.053/0.50	110	79	14	[0.56]	26	[0.0036]	[0.045]	1283.30	570	7.16	4.4	16.5
	11/28/2007	370	190	<0.5/5.0	<0.5/5.0	190	4.3	[0.28]	110	74	15	[0.39]	27	[0.0041]	[0.066]	1281.20	577	7.13	2.7	14.8
	5/28/2008	370	190	<0.5/5.0	<0.5/5.0	190	3.8	[0.093]	100	32	15	[0.50]	29	0.0029	<0.0068/0.10	1282.60	457	7.57	0.22	15.5
	11/4/2008	370	180	<0.5/5.0	<0.5/5.0	180	3.9	[0.065]	110	72	14	[0.54]	27	0.0037	[0.057]	1283.09	380	7.37	0.5	14.9
	6/10/2009	370	210	<0.5/5.0	<0.5/5.0	210	3.9	[0.094]	110	77	15	[0.36]	29	0.0030	<0.0068/0.10	1285.52	408	7.06	0.22	14.7
	11/5/2009	370	200	<0.5/5.0	<0.5/5.0	200	4.0	<0.053/0.50	100	80	16	[0.64]	32	0.0033	<0.0068/0.10	1283.45	410	7.29	0.52	15.2
	6/2/2010	380	190	<0.5/5.0	<0.5/5.0	190	4.1	[0.072]	110	75	15	[0.61]	29	0.0033	<0.0068/0.10	1285.72	365	7.42	1.11	16.6
	11/9/2010	360	190	<0.5/5.0	<0.5/5.0	190	4.1	<0.053/0.50	100	71	16	[0.63]	29	0.0039	[0.057]	1285.78	328	7.48	0.47	13.9
	6/8/2011	380	190	<0.5/5.0	<0.5/5.0	190	3.9	[0.076]	98	83	17	[0.66]	31	0.0041	[0.014]	1287.56	353	7.47	2.03	17.2
	11/2/2011	370	190	<0.5/5.0	<0.5/5.0	190	4.3	<0.053/0.50	110	76	15	[0.64]	29	0.0035	<0.0068/0.10	1284.11	292	7.74	0.47	14.4
	6/6/2012	360	170	<0.5/5.0	<0.5/5.0	170	4.0	[0.082]	100	71	14	[0.60]	26	0.0034	<0.0068/0.10	1285.39	381	7.46	0.45	16.9
	11/7/2012	370	200	<0.5/5.0	<0.5/5.0	200	4.0	<0.053/0.50	2.6	74	15	[0.92]	30	0.0032	[0.025]	1282.65	344	8.01	0.67	15.5
	6/6/2013	360	180	<0.5/5.0	<0.5/5.0	180	4.3	<0.053/0.50	110	76	16	[0.77]	34	0.0036	<0.0068/0.10	1282.53	344	8.00	0.39	17.9
	11/5/2013	380	190	<0.5/5.0	<0.5/5.0	190	4.3	<0.053/0.50	110	74	15	[0.71]	29	0.0022	<0.0068/0.10	1282.02	328	8.02	0.32	14.6
	6/3/2014	350	190	<0.5/5.0	<0.5/5.0	190	4.0	[0.16]	93	78	16	[0.43]	33	0.0032	<0.0068/0.10	1283.13	325	7.79	1.22	17.5
	11/6/2014	360	190	<0.5/5.0	<0.5/5.0	190	4.3	<0.053/0.50	96	67	14	[0.57]	27	0.0026	0.029	1280.54	392	7.66	1.76	15.6
	6/3/2015	360	**410**	<0.5/5.0	<0.5/5.0	**410**	3.9	<0.053/0.50	91	67	16	[0.52]	29	0.0046	<0.0068/0.10	1282.18	366	7.56	0.76	16.3
	11/3/2015	380	190	<0.5/5.0	<0.5/5.0	190	3.9	<0.053/0.50	98	67	13	[0.53]	28	0.0033	[0.0081]	1279.8	279	7.66	0.26	15.0
	6/7/2016	330	210	<0.5/5.0	<0.5/5.0	210	3.8	[0.12]	97	69	14	[0.67]	29	0.0036	<0.0068/0.10	1283.68	494	7.40	0.85	18.6
MW-7	6/1/2006	290	240	<0.5/5.0	<0.5/5.0	240	2.0	<0.053/0.50	25	40	8.0	**12.8**	**61**	[4.5]	<0.0068/0.10	1154.71	461	7.76	8.53	20.5
Compliance	11/29/2006	320	260	<0.5/5.0	<0.5/5.0	260	2.0	[0.084]	31	41	8.0	1.8	**62**	0.006	<0.0068/0.10	1143.43	508	7.17	21.9	17.2
Well	6/7/2007	280	240	<0.5/5.0	<0.5/5.0	240	2.9	<0.053/0.50	27	42	7.8	1.6	58	0.0053	<0.0068/0.10	1144.34	445	7.09	0.0	15.7
	11/29/2007	270	230	<0.5/5.0	<0.5/5.0	230	1.9	<0.053/0.50	26	36	7.6	1.4	59	0.0055	<0.0068/0.10	1142.29	513	6.36	25.9	16.5
	5/28/2008	320	270	<0.5/5.0	<0.5/5.0	270	2.0	<0.053/0.50	23	32	6.8	1.8	**91**	0.0075	0.13	1143.88	446	7.78	0.2	18.6
	11/4/2008	310	240	<0.5/5.0	<0.5/5.0	240	2.0	[0.068]	28	32	6.1	1.7	**79**	0.0079	0.2	1143.11	389	7.58	0.85	19.5
	6/10/2009	310	280	<0.5/5.0	<0.5/5.0	280	1.9	[0.072]	25	34	6.4	1.4	**85**	0.0070	0.17	1144.69	400	7.53	0.20	18.0
	11/5/2009	300	250	<0.5/5.0	<0.5/5.0	250	1.9	[0.072]	23	34	6.8	1.6	**91**	0.0068	0.1	1142.6	422	7.50	1.48	21.7
	6/2/2010	320	260	<0.5/5.0	<0.5/5.0	260	2.0	<0.053/0.50	25	34	6.5	1.6	**83**	0.0074	<0.0068/0.10	1146.87	357	7.65	2.50	19.3
	11/9/2010	300	250	<0.5/5.0	<0.5/5.0	250	2.1	<0.053/0.50	25	33	6.8	1.5	**81**	0.0076	0.19	1145.91	337	7.71	1.57	19.7
	6/8/2011	310	240	<0.5/5.0	<0.5/5.0	240	2.0	<0.053/0.50	24	38	7.4	1.7	**90**	0.0081	<0.0068/0.10	1147.15	327	7.77	6.57	19.8
	11/2/2011	310	270	<0.5/5.0	<0.5/5.0	270	2.0	<0.053/0.50	26	33	6.1	1.4	**76**	0.0080	0.20	1144.35	321	7.93	3.77	20.5
	6/6/2012	310	210	<0.5/5.0	<0.5/5.0	210	1.9	[0.25]	26	32	5.9	1.3	**71**	0.0070	<0.0068/0.10	1145.26	367	7.64	2.97	20.4
	11/7/2012	320	270	<0.5/5.0	<0.5/5.0	270	1.8	<0.053/0.50	24	34	6.3	1.6	**88**	0.0064	[0.069]	1144.86	299	8.22	12.00	21.1
	6/6/2013	310	240	<0.5/5.0	<0.5/5.0	240	1.8	<0.053/0.50	28	31	6.8	1.6	**92**	0.0064	0.16	1145.13	300	8.21	0.24	22.5
	11/5/2013	320	260	<0.5/5.0	<0.5/5.0	260	2.0	<0.053/0.50	27	34	6.3	1.5	**85**	0.0054	0.15	1142.76	343	8.20	0.26	20.7
	6/3/2014	310	260	<0.5/5.0	<0.5/5.0	260	2.0	<0.053/0.50	16	36	7.1	1.2	**94**	0.0059	0.18	1142.85	322	8.14	0.23	20.2
	11/6/2014	300	240	<0.5/5.0	<0.5/5.0	240	2.1	0.16	25	29	5.7	1.3	**72**	0.0064	0.15	1144.11	317	7.81	0.25	22.2
	6/3/2015	310	270	<0.5/5.0	<0.5/5.0	270	2.0	<0.053/0.50	23	30	6.6	[0.99]	**76**	0.0078	0.15	1145.77	374	7.78	1.57	20.6
	11/3/2015	330	250	<0.5/5.0	<0.5/5.0	250	1.8	<0.053/0.50	25	31	5.3	1.0	**78**	0.0067	0.17	1144.25	287	7.88	0.71	20.0
	6/7/2016	290	260	<0.5/5.0	<0.5/5.0	260	2.0	<0.053/0.50	24	32	6	1.3	**82**	0.0064	0.16	1146.29	499	7.78	0.48	22.1

Table 4-1
WMU-1 - HIstorical Groundwater Analytical Summary
Field and Monitoring Parameters
Union Mine Landfill
El Dorado County, California

		Monitoring Parameters														Field Parameters				
Well	Date	TDS	Bicarbonate	Hydroxide	Carbonate	Alkalinity	Cl	Nitrate-N	Sulfate	Ca	Mg	K	Na	As	Fe	GW Elevation	Conductivity	pH	Turbidity	Temperature
#	mm/dd/year	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	feet (MSL)	µmhos/cm	ph units	NTU	°C
MW-9	6/1/2006	310	250	<0.5/5.0	<0.5/5.0	250	2.3	[0.18]	45	34	15	1.4	57	15	110	1154.32	513	7.82	6.88	20.5
Compliance	11/29/2006	320	240	<0.5/5.0	<0.5/5.0	240	2.1	[0.11]	45	38	16	1.5	59	20	[60]	1150.84	512	7.86	9.04	20.4
Well	6/7/2007	280	240	<0.5/5.0	<0.5/5.0	240	3.0	[0.065]	40	39	16	1.4	56	0.0150	[0.049]	1153.14	486	7.80	0.0	18.5
	11/29/2007	NOT	SAMPLED						NOT	SAMPLED						1150.32	526	7.35	6.6	11.4
	5/28/2008	NOT	SAMPLED						NOT	SAMPLED						1152.43	No Sample		pump not operational	
	11/4/2008	310	230	<0.5/5.0	<0.5/5.0	230	1.9	<0.053/0.50	32	45	17	[0.54]	52	0.011	0.34	1148.59	375	7.52	6.78	18.1
	6/10/2009	320	280	<0.5/5.0	<0.5/5.0	280	1.8	[0.071]	15	42	16	1.4	50	0.0076	[0.074]	1153.48	413	7.49	0.27	20.0
	11/5/2009	310	260	<0.5/5.0	<0.5/5.0	260	1.8	[0.065]	3.4	46	19	1.7	58	0.0064	<0.0068/0.10	1149.50	417	7.65	0.61	20.6
	6/2/2010	310	270	<0.5/5.0	<0.5/5.0	270	1.7	<0.053/0.50	1.3	43	17	1.5	50	0.0064	[0.042]	1154.71	349	7.70	0.25	20.0
	11/9/2010	300	270	<0.5/5.0	<0.5/5.0	270	1.9	<0.053/0.50	9.3	40	18	1.4	48	0.0080	0.13	1150.85	325	7.75	0.41	18.6
	6/8/2011	300	270	<0.5/5.0	<0.5/5.0	270	1.9	<0.053/0.50	1.7	48	19	1.7	54	0.0073	[0.0078]]	1154.27	338	7.89	0.31	19.8
	11/2/2011	300	280	<0.5/5.0	<0.5/5.0	280	1.8	<0.053/0.50	5.9	41	16	1.5	52	0.0097	<0.0068/0.10	1151.97	307	8.07	0.31	19.8
	6/6/2012	290	280	<0.5/5.0	<0.5/5.0	280	1.8	<0.053/0.50	2.4	42	16	1.4	46	0.0066	[0.018]	1154.47	363	7.83	0.35	19.4
	11/7/2012	300	270	<0.5/5.0	<0.5/5.0	270	2.1	[0.11]	13	43	17	1.7	53	0.0079	<0.0068/0.10	1150.51	372	8.36	0.36	21.3
	6/6/2013	280	230	<0.5/5.0	<0.5/5.0	230	2.1	<0.053/0.50	22	40	18	1.7	56	0.0079	0.10	1152.80	340	8.31	0.38	20.8
	11/5/2013	310	270	<0.5/5.0	<0.5/5.0	270	2.0	<0.053/0.50	6.6	43	17	1.4	47	0.0066	<0.0068/0.10	1149.78	327	8.31	0.24	19.2
	6/3/2014	370	240	<0.5/5.0	<0.5/5.0	240	2.8	<0.053/0.50	60	45	18	1.3	57	0.0067	[0.046]	1153.52	315	8.10	0.55	20.1
	11/6/2014	280	260	<0.5/5.0	<0.5/5.0	260	2.5	<0.053/0.50	12	35	15	1.2	44	0.0062	<0.0068/0.10	1148.83	411	7.89	0.73	21.7
	6/3/2015	290	280	<0.5/5.0	<0.5/5.0	280	2.0	<0.053/0.50	4.2	38	18	1.1	48	0.0086	0.052	1152.77	371	7.83	0.89	21.0
	11/3/2015	310	240	<0.5/5.0	<0.5/5.0	240	1.9	<0.053/0.50	27	40	15	1.2	48	0.0110	0.11	1148.84	278	7.97	0.48	18.5
	6/7/2016	280	250	<0.5/5.0	<0.5/5.0	250	2	<0.053/0.50	33	40	16	1.4	50	0.0097	0.20	1153.86	491	7.77	4.84	21.8
MW-10*	6/1/2006	410	260	<0.5/5.0	<0.5/5.0	260	3.5	<0.053/0.50	81	96	13	[0.50]	16	0.0056	0.67	1238.33	615	6.79	0.0	18.3
Backgrnd	11/29/2006	380	230	<0.5/5.0	<0.5/5.0	230	3.5	<0.053/0.50	74	98	12	[0.55]	14	0.0057	0.35	1236.66	575	6.91	39.3	16.1
Well	6/7/2007	380	240	<0.5/5.0	<0.5/5.0	240	4.0	<0.053/0.50	82	100	12	[0.51]	14	0.0059	0.31	1238.56	594	6.88	3.2	18.4
	11/29/2007	350	240	<0.5/5.0	<0.5/5.0	240	3.3	<0.053/0.50	73	85	12	[0.32]	14	0.0053	0.28	1238.30	591	6.62	1.8	17.1
	5/28/2008	390	230	<0.5/5.0	<0.5/5.0	230	3.4	<0.053/0.50	71	89	12	[0.44]	14	0.0060	0.43	1238.86	529	7.06	0.12	19.1
	11/4/2008	380	220	<0.5/5.0	<0.5/5.0	220	3.1	[0.066]	80	94	11	<0.18/1.0	14	0.0047	0.42	1238.49	461	6.97	0.64	22.0
	6/10/2009	390	260	<0.5/5.0	<0.5/5.0	260	3.5	[0.072]	79	95	12	[0.32]	15	0.0023	0.10	1239.42	484	6.77	0.25	20.0
	11/5/2009	370	250	<0.5/5.0	<0.5/5.0	250	3.6	<0.053/0.50	54	100	13	[0.62]	15	0.0028	0.62	1239.05	464	7.01	0.27	18.2
	6/2/2010	380	230	<0.5/5.0	<0.5/5.0	230	3.7	<0.053/0.50	77	100	13	[0.64]	16	0.0037	0.71	1239.82	383	7.41	0.32	18.6
	11/9/2010	360	230	<0.5/5.0	<0.5/5.0	230	3.8	<0.053/0.50	35	91	13	[0.62]	14	0.0045	0.70	1239.37	366	7.21	0.37	17.1
	6/8/2011	300	240	<0.5/5.0	<0.5/5.0	240	3.9	<0.053/0.50	73	120	15	[0.78]	20	0.0051	0.89	1239.89	400	7.05	0.51	19.0
	11/2/2011	380	230	<0.5/5.0	<0.5/5.0	230	4.1	<0.053/0.50	79	97	12	[0.70]	22	0.0045	0.71	1239.61	333	7.41	0.23	15.7
	6/6/2012	380	210	<0.5/5.0	<0.5/5.0	210	3.6	[0.082]	71	99	13	[0.63]	19	0.0041	0.89	1239.89	417	7.13	0.33	19.2
	11/7/2012	370	250	<0.5/5.0	<0.5/5.0	250	3.5	[0.098]	31	86	12	[0.78]	18	0.0038	0.67	1239.70	413	7.62	0.61	19.1
	6/6/2013	350	210	<0.5/5.0	<0.5/5.0	210	3.7	<0.053/0.50	68	89	13	[0.76]	20	0.0036	0.83	1239.90	373	7.59	0.30	20.0
	11/5/2013	370	250	<0.5/5.0	<0.5/5.0	250	3.8	<0.053/0.50	88	95	12	[0.63]	16	0.0044	0.81	1239.95	366	7.55	0.48	18.1
	6/3/2014	370	240	<0.5/5.0	<0.5/5.0	240	3.8	<0.053/0.50	60	100	14	[0.42]	18	0.0042	0.96	1240.12	352	7.39	0.40	19.4
	11/6/2014	370	230	<0.5/5.0	<0.5/5.0	230	4.1	0.15	69	87	11	0.67	13	0.0047	0.74	1239.00	447	7.18	0.59	18.7
	6/3/2015	390	270	<0.5/5.0	<0.5/5.0	270	3.9	<0.053/0.50	61	91	13	[0.51]	14	0.0071	0.70	1240.13	413	7.10	0.74	18.3
	11/3/2015	390	240	<0.5/5.0	<0.5/5.0	240	3.4	<0.053/0.50	66	91	11	[0.51]	14	0.0077	0.74	1240.05	316	7.18	0.19	18.8
	6/7/2016	360	250	<0.5/5.0	<0.5/5.0	250	3.4	<0.053/0.50	65	94	12	[0.72]	15	0.0064	0.81	1240.24	536	7.11	0.40	20.1

Table 4-1
WMU-1 - HIstorical Groundwater Analytical Summary
Field and Monitoring Parameters
Union Mine Landfill
El Dorado County, California

		Monitoring Parameters														Field Parameters				
Well	Date	TDS	Bicarbonate	Hydroxide	Carbonate	Alkalinity	Cl	Nitrate-N	Sulfate	Ca	Mg	K	Na	As	Fe	GW Elevation	Conductivity	pH	Turbidity	Temperature
#	mm/dd/year	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	feet (MSL)	µmhos/cm	ph units	NTU	°C
MW-11	6/1/2006	170	58	<0.5/5.0	<0.5/5.0	58	9.6	<0.053/0.50	40	10	12	[0.46]	13	[3.0]	4.2	1234.92	229	6.06	0.73	19.0
Compliance	11/28/2006	140	54	<0.5/5.0	<0.5/5.0	54	11	<0.053/0.50	42	11	13	[0.44]	13	[1.0]	4.3	1223.84	237	5.92	12.3	16.5
Well	6/7/2007	160	55	<0.5/5.0	<0.5/5.0	55	9.8	<0.053/0.50	42	11	13	[0.51]	13	[0.0038]	4.3	1229.69	218	5.95	0.0	17.4
	11/29/2007	150	49	<0.5/5.0	<0.5/5.0	49	9.9	<0.053/0.50	41	10	13	[0.32]	13	[0.0037]	4.1	1222.46	239.1	5.86	1.71	17.5
	5/28/2008	160	67	<0.5/5.0	<0.5/5.0	67	9.4	[0.065]	37	11	14	[0.36]	13	0.0036	4.7	1228.33	227	6.09	0.6	19.6
	11/4/2008	180	62	<0.5/5.0	<0.5/5.0	62	9.9	<0.053/0.50	41	12	14	[0.52]	13	0.0037	4.9	1222.69	199	5.98	0.3	19.8
	6/10/2009	170	74	<0.5/5.0	<0.5/5.0	74	9.8	<0.053/0.50	39	12	14	<0.18/1.0	13	0.0032	4.7	1231.09	209	5.73	0.89	19.2
	11/5/2009	180	71	<0.5/5.0	<0.5/5.0	71	10	[0.065]	38	14	16	[0.44]	15	0.0028	5.2	1224.31	209	6.18	1.30	20.2
	6/2/2010	180	73	<0.5/5.0	<0.5/5.0	73	11	<0.053/0.50	39	13	15	[0.46]	13	0.0033	5.0	1235.39	177	5.91	8.00	20.9
	11/9/2010	170	74	<0.5/5.0	<0.5/5.0	74	11	<0.053/0.50	39	12	15	[0.44]	12	0.0037	5.0	1228.79	163	6.01	0.88	19.4
	6/8/2011	170	71	<0.5/5.0	<0.5/5.0	71	10	<0.053/0.50	37	15	17	[0.53]	14	0.0041	5.6	1235.84	180	5.99	7.98	21.6
	11/2/2011	180	69	<0.5/5.0	<0.5/5.0	69	12	<0.053/0.50	40	13	14	[0.45]	13	0.0036	4.8	1228.72	161	6.14	0.52	19.8
	6/6/2012	180	76	<0.5/5.0	<0.5/5.0	76	10	[0.090]	69	13	15	[0.51]	13	0.0035	4.8	1233.95	184	5.96	1.74	19.9
	11/7/2012	260	77	<0.5/5.0	<0.5/5.0	77	10	<0.053/0.50	30	13	15	[0.66]	13	0.0036	5.2	1226.23	127	6.41	0.55	20.3
	6/6/2013	170	67	<0.5/5.0	<0.5/5.0	67	12	<0.053/0.50	38	12	16	[0.77]	15	0.0035	4.8	1229.56	160	6.37	1.14	21.4
	11/5/2013	190	80	<0.5/5.0	<0.5/5.0	80	12	[0.16]	36	14	15	[0.47]	13	0.0029	4.9	1224.59	165	6.43	1.23	19.9
	6/3/2014	170	77	<0.5/5.0	<0.5/5.0	77	13	<0.053/0.50	67	15	17	[0.19]	15	0.0033	5.7	1232.95	165	6.41	0.86	21.2
	11/6/2014	170	73	<0.5/5.0	<0.5/5.0	73	12	0.15	38	12	15	[0.47]	12	0.0034	4.7	1225.97	206	6.22	1.82	21.2
	6/3/2015	170	89	<0.5/5.0	<0.5/5.0	89	12	<0.053/0.50	33	13	16	[0.34]	13	0.0042	4.9	1230.34	187	6.18	0.68	20.6
	11/3/2015	190	76	<0.5/5.0	<0.5/5.0	76	11	<0.053/0.50	33	13	14	[0.32]	13	0.0039	5.2	1224.84	149	6.16	0.54	19.3
	6/7/2016	160	82	<0.5/5.0	<0.5/5.0	82	11	<0.053/0.50	33	13	15	[0.40]	14	0.0038	5.3	1234.52	165	6.07	0.39	21.2
Concentration Limits		655.4	366.7	5.0	5.0	366.7	56.3	14.42	198.5	190	27.9	5.6	59.8	x	x					

WMU-1 = Waste Management Unit 1 (Landfill)
NS = not sampled
GW = groundwater
Cl = Chloride
TDS = Total Dissolved Solids
VOCs = Volatile Organic Compounds (see VOC table for details)
NA = not available
* = background well
MCL for reference purposes

Ca = Calcium
Mg = Magnesium
K = Potassium
Na = Sodium
As = Arsenic
Fe = Iron
µg/l - micrograms per liter
mg/l = milligrams per liter
% = sodium sensivity on certain crops

x = excluded from concentration limits monitoring.
$ = Secondary MCL
Alkalinity = Total Alkalinity
Carbonate = Carbonate as CaCO3
Bicarbonate = Bicarbonate as CaCO3
Hydroxide = Hydroxide as CaCO3
[ ] = J value - detected but below Reporting Limit; therefore, result is an estimated concentration.

Table 4-2
WMU-2 - Historical Groundwater Analytical Summary
Field and Monitoring Parameters
Union Mine Landfill
El Dorado County, California

		Monitoring Parameters														Field Parameters				
Well #	Date mm/dd/year	TDS mg/l	Bicarbonate mg/l	Hydroxide mg/l	Carbonate mg/l	Alkalinity mg/l	Cl mg/l	Nitrate-N mg/l	Sulfate mg/l	Ca mg/l	Mg mg/l	K mg/l	Na mg/l	As mg/l	Fe mg/l	Elevation feet (MSL)	Conductivity µmhos/cm	pH ph units	Turbidity NTU	Temperature °C
MWA	6/1/2006	210	76	<0.5/5.0	<0.5/5.0	76	11	<0.053/0.50	60	36	9.5	**5.1**	11	<0.27/5.0	0.014	1117.78	303	6.20	36	17.3
Compliance	11/29/2006	210	76	<0.5/5.0	<0.5/5.0	76	12	<0.053/0.50	71	35	9.6	**6.4**	11	[0.00011]	[0.0024]	1114.88	331	6.93	9.4	12.8
Well	6/7/2007	210	99	<0.5/5.0	<0.5/5.0	99	9.8	<0.053/0.50	67	48	8	3.1	12	[0.00097]	[0.017]	1115.68	357	6.74	12.7	15.3
	11/29/2007	90	58	<0.5/5.0	<0.5/5.0	58	11	<0.053/0.50	62	29	9.2	**6.2**	10	[0.00088]	<0.0068/0.10	1114.71	316	6.51	4.64	15.0
	5/28/2008	220	86	<0.5/5.0	<0.5/5.0	86	10	[0.084]	63	41	8.5	4.0	12	[0.00082]	[0.014]	1115.29	286	6.41	1.94	18.2
	11/4/2008	480	56	<0.5/5.0	<0.5/5.0	56	11	[0.088]	73	31	10	7.7	11	[0.0012]	[0.033]	1114.86	248	5.92	0.93	20.2
	6/10/2009	230	100	<0.5/5.0	<0.5/5.0	100	11	[0.12]	70	42	8.4	3.8	11	[0.00088]	<0.0068/0.10	1115.70	289	6.13	2.57	18.8
	11/5/2009	190	64	<0.5/5.0	<0.5/5.0	64	12	[0.11]	74	35	12	**8.6**	12	[0.00099]	<0.0068/0.10	1114.76	265	6.07	6.94	19.9
	6/2/2010	250	95	<0.5/5.0	<0.5/5.0	95	12	<0.053/0.50	71	51	8.7	3.7	12	[0.00076]	[0.0015]	1116.36	249	6.35	2.14	19.3
	11/9/2010	220	74	<0.5/5.0	<0.5/5.0	74	13	[0.17]	78	39	11	**6.5**	11	[0.0011]	[0.011]	1116.30	225	6.09	6.17	17.9
	6/8/2011	240	110	<0.5/5.0	<0.5/5.0	110	11	[0.10]	66	62	10	4.0	14	[0.0015]	[0.011]	1116.10	253	6.44	2.06	19.5
	11/2/2011	250	82	<0.5/5.0	<0.5/5.0	82	13	[0.17]	85	47	11	**6.7**	12	[0.00088]	[0.010]	1115.56	225	6.22	0.35	19.8
	6/6/2012	260	94	<0.5/5.0	<0.5/5.0	94	12	[0.11]	69	55	8.9	3.7	13	[0.00097]	[0.010]	1115.58	276	6.40	0.48	19.2
	11/7/2012	260	67	<0.5/5.0	<0.5/5.0	67	12	[0.22]	8.4	41	13	**8.9**	12	[0.0014]	[0.0019]	1115.70	247	6.32	0.33	20.6
	6/6/2013	250	80	<0.5/5.0	<0.5/5.0	80	14	[0.10]	77	48	11	**6.2**	15	[0.00091]	[0.014]	1115.21	204	6.57	0.61	21.1
	11/5/2013	260	64	<0.5/5.0	<0.5/5.0	64	14	<0.053/0.50	100	35	13	**12.0**	12	[0.00074]	<0.0068/0.10	1114.29	246	6.31	0.64	20.5
	6/3/2014	260	110	<0.5/5.0	<0.5/5.0	110	13	[0.16]	67	59	11	4.5	16	[0.00084]	[0.011]	1114.49	261	6.82	1.2	22.2
	11/7/2014	260	93	<0.5/5.0	<0.5/5.0	93	14	0.18	76	46	9.3	4.8	12	0.0010	<0.0068/0.10	1115.02	299	6.33	23.2	18.4
	6/4/2015	240	88	<0.5/5.0	<0.5/5.0	88	14	[0.20]	71	42	12	4.8	13	[0.0011]	[0.024]	1115.00	NA	6.31	3.42	20.0
	11/4/2015	270	92	<0.5/5.0	<0.5/5.0	92	13	<0.053/0.50	75	49	8.9	4.1	13	[0.00076]	<0.0068/0.10	1114.35	249	6.29	2.47	19.5
	6/8/2016	220	66	<0.5/5.0	<0.5/5.0	66	15	[0.34]	86	37	13	**7.5**	14	[0.00086]	[0.0086]	1115.62	344	6.16	2.02	20.0
MWC*	6/1/2006	400	140	<0.5/5.0	<0.5/5.0	140	36	0.72	110	64	20	2.1	25	[0.00015]	<0.0068/0.10	1133.36	566	7.10	0.11	16.8
Backgrnd	11/28/2006	480	160	<0.5/5.0	<0.5/5.0	160	54	<0.053/0.50	140	76	22	1.8	29	<0.27/2.0	<0.0068/0.10	1129.75	732	6.77	5.05	16.7
Well	6/7/2007	330	130	<0.5/5.0	<0.5/5.0	130	30	[0.11]	110	65	19	2.2	23	[0.0023]	<0.0068/0.10	1131.40	507	6.32	0.0	15.1
	11/29/2007	420	170	<0.5/5.0	<0.5/5.0	170	51	<0.053/0.50	120	73	23	1.9	29	[0.0020]	<0.0068/0.10	1129.47	718	6.48	0.0	16.5
	5/28/2008	370	120	<0.5/5.0	<0.5/5.0	120	31	[0.066]	120	64	20	1.7	23	[0.0016]	<0.0068/0.10	1130.91	472	6.88	0.1	16.6
	11/4/2008	510	170	<0.5/5.0	<0.5/5.0	170	48	[0.066]	130	90	25	2.2	29	0.0024	<0.0068/0.10	1130.16	521	6.61	0.6	18.1
	6/10/2009	370	130	<0.5/5.0	<0.5/5.0	130	27	[0.075]	130	62	18	1.6	20	[0.0015]	<0.0068/0.10	1132.30	439	6.49	0.7	17.7
	11/5/2009	430	190	<0.5/5.0	<0.5/5.0	190	50	<0.053/0.50	120	94	28	2.4	33	0.0021	<0.0068/0.10	1129.14	530	6.70	0.73	18.4
	6/2/2010	380	120	<0.5/5.0	<0.5/5.0	120	24	<0.053/0.50	120	68	19	1.9	20	[0.0015]	<0.0068/0.10	1133.93	351	6.81	0.49	17.6
	11/9/2010	400	160	<0.5/5.0	<0.5/5.0	160	41	<0.053/0.50	120	69	22	2	25	[0.0017]	<0.0068/0.10	1134.04	393	6.77	0.52	18.0
	6/8/2011	360	130	<0.5/5.0	<0.5/5.0	130	29	[0.14]	110	75	23	2.2	23	0.0022	<0.0068/0.10	1133.21	349	6.87	0.3	18.9
	11/2/2011	460	150	<0.5/5.0	<0.5/5.0	150	51	<0.053/0.50	120	80	25	2.7	31	[0.0019]	<0.0068/0.10	1130.72	382	6.94	0.5	19.4
	6/6/2012	350	110	<0.5/5.0	<0.5/5.0	110	27	[0.10]	98	64	19	2.2	21	[0.0017]	<0.0068/0.10	1133.42	353	6.84	0.21	18.3
	11/7/2012	430	180	<0.5/5.0	<0.5/5.0	180	55	[0.098]	9.4	83	26	2.9	33	0.0028	<0.0068/0.10	1129.21	467	7.20	0.34	19.9
	6/6/2013	380	130	<0.5/5.0	<0.5/5.0	130	37	<0.053/0.50	98	66	24	3.2	31	[0.0017]	<0.0068/0.10	1130.87	355	7.27	0.15	18.9
	11/5/2013	460	190	<0.5/5.0	<0.5/5.0	190	58	<0.053/0.50	110	74	26	3.4	37	0.0038	<0.0068/0.10	1127.98	457	7.16	7.48	19.3
	6/3/2014	360	140	<0.5/5.0	<0.5/5.0	140	31	<0.053/0.50	95	65	21	2.4	25	[0.0013]	<0.0068/0.10	1132.57	344	7.16	4.08	19.4
	11/7/2014	440	180	<0.5/5.0	<0.5/5.0	180	61	<0.053/0.50	85	73	24	2.8	30	0.0019	<0.0068/0.10	1130.35	528	6.82	4.45	18.4
	6/4/2015	390	150	<0.5/5.0	<0.5/5.0	150	36	<0.053/0.50	98	61	21	1.9	25	0.0021	<0.0068/0.10	1131.80	337	6.93	26.60	17.3
	11/4/2015	450	190	<0.5/5.0	<0.5/5.0	190	55	<0.053/0.50	96	76	23	2.3	31	0.0021	<0.0068/0.10	1128.99	303	6.91	6.19	17.6
	6/8/2016	360	150	<0.5/5.0	<0.5/5.0	150	36	[0.13]	110	66	22	2.4	26	[0.0016]	<0.0068/0.10	1133.63	548	6.83	2.54	18
Concentration Limits		864.5	266	5.0	5.0	266	109.8	7.20	228.6	131.5	37.8	5.3	55	x	x					

WMU-2 = Waste Management Unit 2 = Class II Surface Impoundment
Cl = Chloride
TDS = Total Dissolved Solids
VOCs = Volatile Organic Compounds (see VOC table for details)
Ca = Calcium
Mg = Magnesium
K = Potassium
Na = Sodium
As = Arsenic
Fe = Iron
Nitrate as Nitrogen

X = excluded from concentration limits monitoring.
BOLD = value that exceeds concentration limits.
NA = not available
µg/l - micrograms per liter
mg/l = milligrams per liter
* = background well
Alkalinity = Total Alkalinity
Carbonate = Carbonate as CaCO3
Bicarbonate = Bicarbonate as CaCO3
Hydroxide = Hydroxide as CaCO3

$ = Secondary MCL
% = sodium sensivity on certain crops
MCL = for reference purposes
[ ] = J value - detected but below Reporting Limit; therefore, result is an estimated concentration.

Table 4-3
Historical Summary of Analytical Results and Method Detection Limits/Reporting Limits
Volatile Organic Compounds - EPA Method 8260B
Monitoring Wells (WMU-1 & WMU-2)
Union Mine Landfill

Location	Date	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromo-3-chloropropane	1,2-Dibromoethane(EDB)	1,2-Dichlorobenzene	1,2-Dichloroethane	1,2-Dichloropropane	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichloro-2butene	1,4-Dichlorobenzene	2,2-Dichloropropane	2-Butanone	2-Hexanone	4-Methyl-2-pentanone	Acetone	Acrylonitrile	Benzene	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform	Bromomethane	Carbon Disulfide	Carbon tetrachloride
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
UM-3	6/7/2016	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	<NA/0.50	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50
	11/3/2015	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	<NA/0.50	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50
	6/3/2015	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	<NA/0.50	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50
	11/6/2014	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	<NA/0.50	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50
	6/3/2014	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA/<0.5	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	<NA/0.50	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50
	11/5/2013	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/6/2013	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/7/2012	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/6/2012	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/2/2011	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/8/2011	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/9/2010	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/2/2010	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/6/2009	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/10/2009	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	[1.9]	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/5/2008	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	5/28/2008	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/29/2007	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/7/2007	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/28/2006	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/1/2006	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
MW-5	6/7/2016	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	<NA/0.50	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50
	11/3/2015	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	<NA/0.50	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50
	6/3/2015	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	<NA/0.50	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50
	11/6/2014	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	<NA/0.50	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50
	6/3/2014	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<NA/0.50	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	<NA/0.50	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50
	11/5/2013	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<0.16/0.50	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/6/2013	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/7/2012	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/6/2012	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/2/2011	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/8/2011	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/9/2010	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/2/2010	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/6/2009	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/10/2009	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/5/2008	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	5/28/2008	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/28/2007	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/7/2007	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/29/2006	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/1/2006	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50

MDL/RL = Method Detection Limit/ Reporting Limit
* = Chloroform detection due to methane /HCL interaction in 40ml VOA

ug/L = micrograms per liter
ND = none detected
[x] = j value, est. concentration

Table 4-3
Historical Summary of Analytical Results and Method Detection Limits/Reporting Limits
Volatile Organic Compounds - EPA Method 8260B
Monitoring Wells (WMU-1 & WMU-2)
Union Mine Landfill

Location	Date	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromo-3-chloropropane	1,2-Dibromoethane(EDB)	1,2-Dichlorobenzene	1,2-Dichloroethane	1,2-Dichloropropane	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichloro-2butene	1,4-Dichlorobenzene	2,2-Dichloropropane	2-Butanone	2-Hexanone	4-Methyl-2-pentanone	Acetone	Acrylonitrile	Benzene	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform	Bromomethane	Carbon Disulfide	Carbon tetrachloride
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
MW-6	6/7/2016	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	<NA/0.50	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50
	11/3/2015	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	<NA/0.50	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50
	6/3/2015	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	<NA/0.50	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50
	11/6/2014	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	<NA/0.50	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50
	6/3/2014	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<NA/0.50	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	<NA/0.50	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50
	11/5/2013	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/6/2013	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/7/2012	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/6/2012	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/2/2011	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/8/2011	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/9/2010	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/2/2010	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/6/2009	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/10/2009	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/5/2008	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	5/28/2008	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/28/2007	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/7/2007	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/29/2006	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/1/2006	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
* MW-7	6/7/2016	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	<NA/0.50	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50
	11/3/2015	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	<NA/0.50	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50
	6/3/2015	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	<NA/0.50	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50
	11/6/2014	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	<NA/0.50	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50
	6/3/2014	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<NA/0.50	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	<NA/0.50	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50
	11/5/2013	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/6/2013	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/7/2012	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/6/2012	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/2/2011	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/8/2011	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/9/2010	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/2/2010	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/6/2009	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/10/2009	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	**[1.5]**	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/5/2008	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	5/28/2008	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/29/2007	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/7/2007	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/29/2006	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/1/2006	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50

MDL/RL = Method Detection Limit/ Reporting Limit
* = Chloroform detection due to methane /HCL interaction in 40ml VOA

ug/L = micrograms per liter
ND = none detected
[x] = j value, est. concentration

Table 4-3
Historical Summary of Analytical Results and Method Detection Limits/Reporting Limits
Volatile Organic Compounds - EPA Method 8260B
Monitoring Wells (WMU-1 & WMU-2)
Union Mine Landfill

Location	Date	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromo-3-chloropropane	1,2-Dibromoethane(EDB)	1,2-Dichlorobenzene	1,2-Dichloroethane	1,2-Dichloropropane	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichloro-2butene	1,4-Dichlorobenzene	2,2-Dichloropropane	2-Butanone	2-Hexanone	4-Methyl-2-pentanone	Acetone	Acrylonitrile	Benzene	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform	Bromomethane	Carbon Disulfide	Carbon tetrachloride
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
MW-9	6/7/2016	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	<NA/0.50	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50
	11/3/2015	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	<NA/0.50	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50
	6/3/2015	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	<NA/0.50	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	0.57	<0.17/0.50
	11/6/2014	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	<NA/0.50	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50
	6/3/2014	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<NA/0.50	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	<NA/0.50	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50
	11/5/2013	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/6/2013	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/7/2012	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/6/2012	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/2/2011	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/8/2011	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/9/2010	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/2/2010	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/6/2009	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/10/2009	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	[2.2]	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/5/2008	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	5/28/2008		NOT	SAMPLED		PUMP		NOT		WORKING																				NOT	SAMPLED		PUMP		NOT	
	11/29/2007		NOT	SAMPLED		PUMP		NOT		WORKING																				NOT	SAMPLED		PUMP		NOT	
	6/7/2007	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/29/2006	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/1/2006	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
MW-10	6/7/2016	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	<NA/0.50	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50
	11/3/2015	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	<NA/0.50	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50
	6/3/2015	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	<NA/0.50	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50
	11/6/2014	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	<NA/0.50	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50
	6/3/2014	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<NA/0.50	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	<NA/0.50	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50
	11/5/2013	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/6/2013	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/7/2012	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/6/2012	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/2/2011	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/8/2011	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/9/2010	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/2/2010	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/6/2009	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/10/2009	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	[1.8]	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/5/2008	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	5/28/2008	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/29/2007	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/7/2007	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/29/2006	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/1/2006	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50

MDL/RL = Method Detection Limit/ Reporting Limit
* = Chloroform detection due to methane /HCL interaction in 40ml VOA

ug/L = micrograms per liter
ND = none detected
[x] = j value, est. concentration

Table 4-3
Historical Summary of Analytical Results and Method Detection Limits/Reporting Limits
Volatile Organic Compounds - EPA Method 8260B
Monitoring Wells (WMU-1 & WMU-2)
Union Mine Landfill

Location	Date	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	1,1,2-Trichloroethane	1,1-Dichloroethene	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromo-3-chloropropane	1,2-Dibromoethane(EDB)	1,2-Dichlorobenzene	1,2-Dichloroethane	1,2-Dichloropropane	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichloro-2butene	1,4-Dichlorobenzene	2,2-Dichloropropane	2-Butanone	2-Hexanone	4-Methyl-2-pentanone	Acetone	Acrylonitrile	Benzene	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform	Bromomethane	Carbon Disulfide	Carbon tetrachloride
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
MW-11	6/7/2016	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	<NA/0.50	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50
	11/3/2015	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	<NA/0.50	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50
	6/3/2015	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	<NA/0.50	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50
	11/6/2014	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	<NA/0.50	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50
	6/3/2014	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<NA/0.50	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	<NA/0.50	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50
	11/5/2013	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/6/2013	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/7/2012	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/6/2012	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/2/2011	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/8/2011	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/9/2010	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/2/2010	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/6/2009	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/10/2009	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	**[1.5]**	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/5/2008	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	**[2.3]**	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	5/28/2008	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/29/2007	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/7/2007	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/28/2006	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/1/2006	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
MW-A	6/8/2016	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	<NA/0.50	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50
	11/4/2015	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	<NA/0.50	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50
	6/4/2015	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	<NA/0.50	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50
	11/7/2014	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	<NA/0.50	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50
	6/3/2014	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<NA/0.50	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	<NA/0.50	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50
	11/5/2013	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/6/2013	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/7/2012	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/6/2012	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/2/2011	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/8/2011	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/9/2010	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/2/2010	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/6/2009	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/10/2009	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	**[1.4]**	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/5/2008	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	**[1.7]**	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	5/28/2008	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/29/2007	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/7/2007	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/29/2006	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/1/2006	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50

MDL/RL = Method Detection Limit/ Reporting Limit
* = Chloroform detection due to methane /HCL interaction in 40ml VOA

ug/L = micrograms per liter
ND = none detected
[x] = j value, est. concentration

Table 4-3
Historical Summary of Analytical Results and Method Detection Limits/Reporting Limits
Volatile Organic Compounds - EPA Method 8260B
Monitoring Wells (WMU-1 & WMU-2)
Union Mine Landfill

Location	Date	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromo-3-chloropropane	1,2-Dibromoethane(EDB)	1,2-Dichlorobenzene	1,2-Dichloroethane	1,2-Dichloropropane	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichloro-2butene	1,4-Dichlorobenzene	2,2-Dichloropropane	2-Butanone	2-Hexanone	4-Methyl-2-pentanone	Acetone	Acrylonitrile	Benzene	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform	Bromomethane	Carbon Disulfide	Carbon tetrachloride
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
MW-C	6/8/2016	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	<NA/0.50	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50
	11/4/2015	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	<NA/0.50	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50
	6/4/2015	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	<NA/0.50	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50
	11/7/2014	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	<NA/0.50	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50
	6/3/2014	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<NA/0.50	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	<NA/0.50	<011/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50
	11/5/2013	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/6/2013	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/7/2012	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/6/2012	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/2/2011	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/8/2011	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/9/2010	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/2/2010	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/6/2009	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/10/2009	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/5/2008	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	[5.4]	NA	<0.11/0.50	<0.13/0.50	15	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	5/28/2008	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/29/2007	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/7/2007	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	11/28/2006	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50
	6/1/2006	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	NA	<0.16/0.50	<0.27/0.50	<1.1/10	<0.90/10	<1.6/10	<1.0/10	NA	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	NA	<0.17/0.50

MDL/RL = Method Detection Limit/ Reporting Limit
* = Chloroform detection due to methane /HCL interaction in 40ml VOA

ug/L = micrograms per liter
ND = none detected
[x] = j value, est. concentration

Table 4-3
Summary of Analytical Results and Method Detection Limits/Reporting Limits
Volatile Organic Compounds -EPA Method 8260B
Monitoring Wells (WMU-1 & WMU-2)
Union Mine Landfill

Location	Date	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	cis-1,3-Dichloropropene	Dibromochloromethene	Dibromomethane	Dichlorodifluormethane (Freon 112)	Ethylbenzene	Hexachlorobutadiene	Iodomethane	Isopropylbenzene	Methyl tert-butyl ether	Methylene Chloride	Naphthalene	n-Butylbenzene	n-Propylbenzene	o-Chlorotoluene	p-Chlorotoluene	p-Isopropyltoluene	sec-Butylbenzene	Styrene	Tert-Butylbenzene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl acetate	Vinyl chloride	Xylenes (total)
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
UM-3	6/7/2016	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<1.0/1.0	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	11/3/2015	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<1.0/1.0	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	6/3/2015	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<1.0/1.0	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	11/6/2014	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<1.0/1.0	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	6/3/2014	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<NA/0.50	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	11/5/2013	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/6/2013	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/7/2012	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/6/2012	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/2/2011	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/8/2011	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/9/2010	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/2/2010	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/6/2009	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/10/2009	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/5/2008	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	5/28/2008	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/29/2007	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/7/2007	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/28/2006	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/1/2006	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
MW-5	6/7/2016	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<1.0/1.0	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	11/3/2015	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<1.0/1.0	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	6/3/2015	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<1.0/1.0	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	11/6/2014	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<1.0/1.0	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	6/3/2014	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<NA/0.50	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	11/5/2013	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/6/2013	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/7/2012	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/6/2012	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/2/2011	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/8/2011	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/9/2010	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/2/2010	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/6/2009	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/10/2009	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/5/2008	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	5/28/2008	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/28/2007	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/7/2007	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/29/2006	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/1/2006	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0

MDL/RL = Method Detection Limit/ Reporting Limit
* = Chloroform detection due to methane /HCL interaction in 40ml VOA

ug/L = micrograms per liter
ND = none detected
[x] = j value, est. concentration

Table 4-3
Summary of Analytical Results and Method Detection Limits/Reporting Limits
Volatile Organic Compounds -EPA Method 8260B
Monitoring Wells (WMU-1 & WMU-2)
Union Mine Landfill

Location	Date	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	cis-1,3-Dichloropropene	Dibromochloromethene	Dibromomethane	Dichlorodifluoromethane (Freon 112)	Ethylbenzene	Hexachlorobutadiene	Iodomethane	Isopropylbenzene	Methyl tert-butyl ether	Methylene Chloride	Naphthalene	n-Butylbenzene	n-Propylbenzene	o-Chlorotoluene	p-Chlorotoluene	p-Isopropyltoluene	sec-Butylbenzene	Styrene	Tert-Butylbenzene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl acetate	Vinyl chloride	Xylenes (total)
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
MW-6	6/7/2016	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<1.0/1.0	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	11/3/2015	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<1.0/1.0	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	6/3/2015	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<1.0/1.0	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	11/6/2014	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<1.0/1.0	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	6/3/2014	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<NA/0.50	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	11/5/2013	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/6/2013	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/7/2012	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/6/2012	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/2/2011	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/8/2011	<0.082/0.50	<0.15/0.50	**0.83***	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/9/2010	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/2/2010	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/6/2009	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/10/2009	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/5/2008	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	5/28/2008	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/28/2007	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/7/2007	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/29/2006	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/1/2006	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
MW-7	6/7/2016	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<1.0/1.0	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	11/3/2015	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<1.0/1.0	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	6/3/2015	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<1.0/1.0	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	11/6/2014	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<1.0/1.0	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	6/3/2014	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<NA/0.50	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	11/5/2013	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/6/2013	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/7/2012	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/6/2012	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/2/2011	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/8/2011	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/9/2010	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/2/2010	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/6/2009	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/10/2009	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/5/2008	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	5/28/2008	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/29/2007	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/7/2007	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/29/2006	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/1/2006	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0

MDL/RL = Method Detection Limit/ Reporting Limit
* = Chloroform detection due to methane /HCL interaction in 40ml VOA

ug/L = micrograms per liter
ND = none detected
[x] = j value, est. concentration

Table 4-3
Summary of Analytical Results and Method Detection Limits/Reporting Limits
Volatile Organic Compounds -EPA Method 8260B
Monitoring Wells (WMU-1 & WMU-2)
Union Mine Landfill

Location	Date	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	cis-1,3-Dichloropropene	Dibromochloromethene	Dibromomethane	Dichlorodifluormethane (Freon 112)	Ethylbenzene	Hexachlorobutadiene	Iodomethane	Isopropylbenzene	Methyl tert-butyl ether	Methylene Chloride	Naphthalene	n-Butylbenzene	n-Propylbenzene	o-Chlorotoluene	p-Chlorotoluene	p-Isopropyltoluene	sec-Butylbenzene	Styrene	Tert-Butylbenzene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl acetate	vinyl chloride	Xylenes (total)
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
MW-9	6/7/2016	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<1.0/1.0	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	11/3/2015	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<1.0/1.0	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	6/3/2015	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<1.0/1.0	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	11/6/2014	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<1.0/1.0	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	6/3/2014	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<NA/0.50	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	11/5/2013	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/6/2013	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/7/2012	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/6/2012	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/2/2011	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/8/2011	<0.082/0.50	<0.15/0.50	**0.68***	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/9/2010	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/2/2010	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/6/2009	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/10/2009	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/5/2008	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	5/28/2008	WORKING																					NOT	SAMPLED		PUMP		NOT		WORKING				
	11/29/2007	WORKING																					NOT	SAMPLED		PUMP		NOT		WORKING				
	6/7/2007	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/29/2006	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/1/2006	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
MW-10	6/7/2016	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<1.0/1.0	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	11/3/2015	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<1.0/1.0	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	6/3/2015	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<1.0/1.0	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	11/6/2014	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<1.0/1.0	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	6/3/2014	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<NA/0.50	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	11/5/2013	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/6/2013	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/7/2012	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/6/2012	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/2/2011	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/8/2011	<0.082/0.50	<0.15/0.50	**7.5***	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/9/2010	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/2/2010	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/6/2009	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/10/2009	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/5/2008	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	5/28/2008	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/29/2007	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/7/2007	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/29/2006	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/1/2006	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0

MDL/RL = Method Detection Limit/ Reporting Limit
* = Chloroform detection due to methane /HCL interaction in 40ml VOA

ug/L = micrograms per liter
ND = none detected
[x] = j value, est. concentration

Table 4-3
Summary of Analytical Results and Method Detection Limits/Reporting Limits
Volatile Organic Compounds -EPA Method 8260B
Monitoring Wells (WMU-1 & WMU-2)
Union Mine Landfill

Location	Date	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	cis-1,3-Dichloropropene	Dibromochloromethene	Dibromomethane	Dichlorodifluoromethane (Freon 112)	Ethylbenzene	Hexachlorobutadiene	Iodomethane	Isopropylbenzene	Methyl tert-butyl ether	Methylene Chloride	Naphthalene	n-Butylbenzene	n-Propylbenzene	o-Chlorotoluene	p-Chlorotoluene	p-Isopropyltoluene	sec-Butylbenzene	Styrene	Tert-Butylbenzene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl acetate	vinyl chloride	Xylenes (total)
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
MW-11	6/7/2016	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<1.0/1.0	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	11/3/2015	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<1.0/1.0	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	6/3/2015	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<1.0/1.0	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	11/6/2014	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<1.0/1.0	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	6/3/2014	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<NA/0.50	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	11/5/2013	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/6/2013	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/7/2012	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/6/2012	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/2/2011	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/8/2011	<0.082/0.50	<0.15/0.50	**1.7***	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/9/2010	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/2/2010	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/6/2009	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/10/2009	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/5/2008	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	5/28/2008	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/29/2007	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/7/2007	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/28/2006	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/1/2006	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
MW-A	6/8/2016	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<1.0/1.0	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	11/4/2015	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<1.0/1.0	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	6/4/2015	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<1.0/1.0	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	11/7/2014	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<1.0/1.0	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	6/3/2014	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<NA/0.50	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	11/5/2013	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/6/2013	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/7/2012	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/6/2012	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/2/2011	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/8/2011	<0.082/0.50	<0.15/0.50	**0.65***	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/9/2010	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/2/2010	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/6/2009	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/10/2009	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/5/2008	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	5/28/2008	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/29/2007	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/7/2007	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/29/2006	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/1/2006	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0

MDL/RL = Method Detection Limit/ Reporting Limit
* = Chloroform detection due to methane /HCL interaction in 40ml VOA

ug/L = micrograms per liter
ND = none detected
[x] = j value, est. concentration

Table 4-3
Summary of Analytical Results and Method Detection Limits/Reporting Limits
Volatile Organic Compounds -EPA Method 8260B
Monitoring Wells (WMU-1 & WMU-2)
Union Mine Landfill

Location	Date	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	cis-1,3-Dichloropropene	Dibromochloromethene	Dibromomethane	Dichlorodifluormethane (Freon 112)	Ethylbenzene	Hexachlorobutadiene	Iodomethane	Isopropylbenzene	Methyl tert-butyl ether	Methylene Chloride	Naphthalene	n-Butylbenzene	n-Propylbenzene	o-Chlorotoluene	p-Chlorotoluene	p-Isopropyltoluene	sec-Butylbenzene	Styrene	Tert-Butylbenzene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl acetate	vinyl chloride	Xylenes (total)
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
MW-C	6/8/2016	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<1.0/1.0	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	11/4/2015	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<1.0/1.0	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	6/4/2015	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<1.0/1.0	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	11/7/2014	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<1.0/1.0	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	6/3/2014	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	<NA/0.50	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	11/5/2013	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/6/2013	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/7/2012	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/6/2012	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/2/2011	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/8/2011	<0.082/0.50	<0.15/0.50	0.78*	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/9/2010	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/2/2010	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/6/2009	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/10/2009	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/5/2008	<0.082/0.50	<0.15/0.50	58	<0.056/1.0	<0.15/0.50	<0.14/0.50	3.0	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	5/28/2008	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/29/2007	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/7/2007	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	11/28/2006	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0
	6/1/2006	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50	<0.23/0.50	NA	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	NA	<0.14/1.0	<0.33/1.0

MDL/RL = Method Detection Limit/ Reporting Limit
* = Chloroform detection due to methane /HCL interaction in 40ml VOA

ug/L = micrograms per liter
ND = none detected
[x] = j value, est. concentration

Table 4-4
Monitoring Well Details (WMU-1 and WMU-2)
Active Groundwater Monitoring Wells
Union Mine Landfill
El Dorado County, CA

Well #	Install Date	TOC feet(MSL)	Depth to pump inlet	Pump Inlet Elevation feet (MSL)	Top of Screen Elevation feet (MSL)	Bottom of Screen feet (MSL)	Top of Sandpack feet (MSL)	Total Depth feet	Diameter inches	Screen Interval feet	Pump Type
WMU-1											
MW-5*	6/8/1998	1309.15	37.25	1271.90	1289.15	1269.15	1294.15	43.0	4"	20-40	dedicated Rediflo2
MW-6*	6/9/1993	1295.96	135.50	1160.46	1177.96	1157.96	1182.96	140.0	4"	118-138	dedicated Rediflo2
MW-10*	6/7/1993	1361.30	137.50	1223.80	1241.3	1221.3	1247.3	142.0	4"	120-140	dedicated Rediflo2
MW-11	NA	1273.07	77.50	1195.57	1215.07	1195.07	NA	80.0	4"	58-78	dedicated Rediflo2
MW-9	5/28/1993	1179.12	216.50	962.62	982.12	962.12	985.12	220.0	4"	197-217	dedicated Rediflo2
MW-7	5/26/1993	1169.05	138.00	1031.05	1039.05	1019.05	1046.05	154.0	4"	130-150	dedicated Rediflo2
UM-3	5/8/1987	1161.57	no pump	no pump	1101.57	1071.57	1111.57	123.0	2"	60-90	no pump
WMU - 2											
MWA	NA	1142.68	32.33	1110.35	1123.68	1108.68	NA	35.0	4"	19-34	dedicated Rediflo2
MWC*	10/30/2002	1156.71	47.42	1109.29	1147.71	1106.71	1148.71	50.0	2"	9-50	dedicated Rediflo2

Notes:

1.All measurements relative to top of casing (TOC)

2. Well UM-3 under artesian conditions - no dedicated pump installed.

3. Well UM-3 - steel conductor casing (6.25-inch diameter) from ground surface to 34.5 feet below grade.

NA = not available

* = background well

Table 4-5
Spring 2016
RPD calcs
Monitoring Parameters
Union Mine Landfill
El Dorado County, California

Well #	Date mm/dd/year	TDS mg/l	Bicarbonate mg/l	Hydroxide mg/l	Carbonate mg/l	Alkalinity mg/l	Cl mg/l	Nitrate-N mg/l	Sulfate mg/l	VOCs µg/l	Ca mg/l	Mg mg/l	K mg/l	Na mg/l	As mg/l	Fe mg/l
MW7	6/7/2016	290	260	<5.0	<5.0	260	2.0	<0.053/0.5	24	ND	32	6	1.3	82	0.0064	0.16
DUP-2	6/7/2016	290	260	<5.0	<5.0	260	2.0	<0.5	24	ND	31	6	1.3	83	0.0057	0.15
Relative Percent Difference		0.0	0.0	NA	NA	0.0	0.0	NA	0.0	NA	3.2	0.0	0.0	1.2	11.6	6.5

Cl = Chloride
TDS = Total Dissolved Solids
VOCs = Volatile Organic Compounds
As = Arsenic
Ca = Calcium
Mg = Magnesium
K = Potassium
Na = Sodium
NA = not calculated
Fe = Iron
Bold = RPD greater than 20%

Table 4-6
WMU-1: Historic Groundwater Analytical Summary
Constituents of Concern - 5-Year Metals
Union Mine Landfill
El Dorado County, California

Sample Location	Date mm/dd/year	Mercury µg/l	Aluminium µg/l	Barium µg/l	Beryllium µg/l	Cadmium µg/l	Chromium µg/l	Cobalt µg/l	Copper µg/l	Manganese µg/l	Nickel µg/l	Silver µg/l	Tin µg/l	Zinc µg/l	Antimony µg/l	Lead µg/l	Selenium µg/l	Thallium µg/l	Vanadium µg/l	Cyanide mg/l	Sulfide mg/l	TOC mg/l
UM-3	6/1/2006	<0.15/0.20	[47]	59	[0.71]	<2.8/10	<9.9/10	<7.6/20	[4.7]	120	2.5	<2.9/10	[21]	<9.3/20	<41/50	<0.23/5.0	<1.1/5.0	<0.11/1.0	<3.0/20	<0.002/0.005	3.2	2.3
	11/2/2011	<0.15/0.20	<27/50	46	<0.43/5.0	<2.8/10	<9.9/10	<7.6/20	<3.2/10	70	<14/20	<2.9/10	<18/100	<9.3/20	<0.57/6.0	[0.8]	<1.1/5.0	<0.11/1.0	<0.44/3.0	<0.002/0.005	<0.84/1.0	<0.54/1.0
	6/7/2016	<1.0/1.0	<27/50	65	<0.43/5.0	<2.8/10	<9.9/10	<7.6/20	<3.2/10	120	<14/20	<2.9/10	<18/100	<9.3/20	<0.57/6.0	<0.23/5.0	<1.1/5.0	[0.40]	<0.44/3.0	<0.0012/0.005	<0.84/1.0	3.9
MW-5	6/1/2006	<0.15/0.20	[49]	36	[0.61]	<2.8/10	<9.9/10	<7.6/20	[4.7]	440	2.5	<2.9/10	34	<9.3/20	<41/50	<0.23/5.0	<1.1/5.0	<0.11/1.0	<0.44/3.0	[0.002]	2.4	2.4
	11/2/2011	<0.15/0.20	<27/50	21	<0.43/5.0	<2.8/10	<9.9/10	<7.6/20	<3.2/10	43	<14/20	<2.9/10	<18/100	<9.3/20	<0.57/6.0	<0.23/5.0	<1.1/5.0	<0.11/1.0	<0.44/3.0	<0.002/0.005	<0.84/1.0	<0.54/1.0
	6/7/2016	<1.0/1.0	<27/50	23	<0.43/5.0	<2.8/10	<9.9/10	<7.6/20	<3.2/10	1.7	<14/20	<2.9/10	<18/100	<9.3/20	[0.95]	<0.23/5.0	<1.1/5.0	<0.11/1.0	<0.44/3.0	<0.0012/0.005	<0.84/1.0	3.2
MW-6	6/1/2006	<0.15/0.20	<27/50	31	[0.71]	<2.8/10	<9.9/10	<7.6/20	[6.9]	510	1.9	<2.9/10	[30]	<9.3/20	<41/50	<0.23/5.0	<1.1/5.0	<0.11/1.0	<0.44/3.0	<0.002/0.005	3.6	2.7
	11/2/2011	<0.15/0.20	<27/50	23	<0.43/5.0	<2.8/10	<9.9/10	<7.6/20	<3.2/10	330	<14/20	<2.9/10	<18/100	<9.3/20	<0.57/6.0	0.8	<1.1/5.0	<0.11/1.0	<0.44/3.0	<0.002/0.005	<0.84/1.0	<0.54/1.0
	6/7/2016	<1.0/1.0	<27/50	20	<0.43/5.0	<2.8/10	<9.9/10	<7.6/20	<3.2/10	<0.92/20	<14/20	<2.9/10	<18/100	<9.3/20	[0.74]	<0.23/5.0	<1.1/5.0	<0.11/1.0	<0.44/3.0	<0.0012/0.005	<0.84/1.0	4.4
MW-7	6/1/2006	<0.15/0.20	[41]	28	[0.71]	<2.8/10	<9.9/10	<7.6/20	<3.2/10	200	2.1	<2.9/10	<18/100	<9.3/20	<41/50	<0.23/5.0	<1.1/5.0	<0.11/1.0	<0.44/3.0	[0.002]	2	2.2
	11/2/2011	<0.15/0.20	<27/50	32	<0.43/5.0	<2.8/10	<9.9/10	<7.6/20	<3.2/10	210	<14/20	<2.9/10	<18/100	<9.3/20	<0.57/6.0	0.8	<1.1/5.0	<0.11/1.0	<0.44/3.0	<0.002/0.005	<0.84/1.0	<0.54/1.0
	6/7/2016	<1.0/1.0	<27/50	39	<0.43/5.0	<2.8/10	<9.9/10	<7.6/20	<3.2/10	210	<14/20	<2.9/10	<18/100	<9.3/20	<0.57/6.0	<0.23/5.0	<1.1/5.0	<0.11/1.0	<0.44/3.0	<0.0012/0.005	<0.84/1.0	3.8
MW-9	6/1/2006	<0.15/0.20	[49]	23	[0.71]	<2.8/10	<9.9/10	<7.6/20	<3.2/10	61	3.2	<2.9/10	[19]	<9.3/20	<41/50	<0.23/5.0	<1.1/5.0	<0.11/1.0	[3.7]	<0.002/0.005	2.8	2.6
	11/2/2011	<0.15/0.20	<27/50	27	<0.43/5.0	<2.8/10	<9.9/10	<7.6/20	<3.2/10	100	<14/20	<2.9/10	[23]	<9.3/20	<0.57/6.0	0.8	<1.1/5.0	<0.11/1.0	<0.44/3.0	<0.002/0.005	<0.84/1.0	1.0
	6/7/2016	<1.0/1.0	<27/50	29	<0.43/5.0	<2.8/10	<9.9/10	<7.6/20	<3.2/10	100	<14/20	<2.9/10	<18/100	<9.3/20	<0.57/6.0	<0.23/5.0	<1.1/5.0	<0.11/1.0	<0.44/3.0	<0.0012/0.005	<0.84/1.0	5.4
MW-10	6/1/2006	<0.15/0.20	<27/50	44	[0.81]	<2.8/10	<9.9/10	<7.6/20	[3.3]	1800	7.9	<2.9/10	[30]	<9.3/20	<41/50	<0.23/5.0	<1.1/5.0	<0.11/1.0	<0.44/3.0	<0.002/0.005	2.0	2.8
	11/2/2011	<0.15/0.20	<27/50	34	<0.43/5.0	<2.8/10	<9.9/10	<7.6/20	<3.2/10	1300	<14/20	<2.9/10	[20]	<9.3/20	<0.57/6.0	0.8	<1.1/5.0	<0.11/1.0	<0.44/3.0	<0.002/0.005	<0.84/1.0	<0.54/1.0
	6/7/2016	<1.0/1.0	<27/50	36	<0.43/5.0	<2.8/10	<9.9/10	<7.6/20	<3.2/10	1400	<14/20	<2.9/10	<18/100	<9.3/20	<0.57/6.0	<0.23/5.0	<1.1/5.0	<0.11/1.0	<0.44/3.0	<0.0012/0.005	<0.84/1.0	3.4
MW-11	6/1/2006	<0.15/0.20	<27/50	[6.3]	[0.76]	<2.8/10	<9.9/10	**55**	[3.3]	470	11	<2.9/10	[30]	**53**	<41/50	<0.23/5.0	<1.1/5.0	<0.11/1.0	<0.44/3.0	<0.002/0.005	2.0	1.9
	11/2/2011	<0.15/0.20	<27/50	[8.9]	<0.43/5.0	[3.5]	<9.9/10	**77**	<3.2/10	610	<14/20	<2.9/10	[26]	47	<0.57/6.0	0.8	<1.1/5.0	<0.11/1.0	<0.44/3.0	<0.002/0.005	<0.84/1.0	1.7
	6/7/2016	<1.0/1.0	<27/50	[11]	<0.43/5.0	<2.8/10	<9.9/10	32	<3.2/10	700	<14/20	<2.9/10	<18/100	**56**	<0.57/6.0	<0.23/5.0	<1.1/5.0	<0.11/1.0	<0.44/3.0	<0.0012/0.005	<0.84/1.0	5.2
Concentration Limits	---	1.0	50	108	5	10	10	50	10	2925	20	10	100	51	6	5	5	1	3	0.005	4.6	7.4

NA = not applicable
µg/l = micrograms per liter
NS = not sampled - no discharge
[ ] = J value - detected but below Reporting Limit; therefore, result is an estimated concentration.

TOC = Total Organic Carbon
mg/l = milligrams per liter

Table 4-7
WMU-2: Historic Groundwater Analytical Summary
Constituents of Concern - 5-Year Metals
Union Mine Landfill
El Dorado County, California

Sample Location	Date mm/dd/year	Mercury µg/l	Aluminium µg/l	Barium µg/l	Beryllium µg/l	Cadmium µg/l	Chromium µg/l	Cobalt µg/l	Copper µg/l	Manganese µg/l	Nickel µg/l	Silver µg/l	Tin µg/l	Zinc µg/l	Antimony µg/l	Lead µg/l	Selenium µg/l	Thallium µg/l	Vanadium µg/l	Cyanide mg/l	Sulfide mg/l	TOC mg/l
MW-A	6/1/2006	<0.15/0.20	<27/50	22	[0.96]	<2.8/10	<9.9/10	<7.6/20	[6.3]	330	26	<2.9/10	31	<9.3/20	<41/50	<0.23/5.0	<1.1/5.0	<0.11/1.0	<0.44/3.0	<0.002/0.005	2.0	1.9
	11/2/2011	<0.15/0.20	<27/50	21	<0.43/5.0	<2.8/10	<9.9/10	<7.6/20	<3.2/10	[7.8]	<14/20	<2.9/10	[21]	<9.3/20	<0.57/6.0	0.8	<1.1/5.0	<0.11/1.0	<0.44/3.0	<0.002/0.005	<0.84/1.0	1.6
	6/8/2016	<1.0/1.0	[35]	26	<0.43/5.0	<2.8/10	<9.9/10	<7.6/20	[5.7]	[6.1]	<14/20	<2.9/10	<18/100	<9.3/20	<0.57/6.0	<0.23/5.0	<1.1/5.0	<0.11/1.0	<0.44/3.0	<0.0012/0.005	<0.84/1.0	3.9
MW-C	6/1/2006	<0.15/0.20	<27/50	[12]	[0.91]	<2.8/10	<9.9/10	<7.6/20	[9.6]	670	15	<2.9/10	[42]	33	[1.5]	<0.23/5.0	[4.0]	<0.11/1.0	<0.44/3.0	<0.002/0.005	2.4	1.6
	11/2/2011	<0.15/0.20	<27/50	[19]	<0.43/5.0	<2.8/10	<9.9/10	[15]	[3.4]	1400	23	<2.9/10	[35]	42	<0.57/6.0	<0.23/5.0	[2.4]	<0.11/1.0	<0.44/3.0	<0.002/0.005	<0.84/1.0	2.4
	6/8/2016	<1.0/1.0	<27/50	[19]	<0.43/5.0	<2.8/10	<9.9/10	[15]	[6.8]	1300	<14/20	<2.9/10	<18/100	37	[0.73]	<0.23/5.0	[3.0]	<0.11/1.0	<0.44/3.0	<0.0012/0.005	<0.84/1.0	4.7
Concentration limits	---	1.0	50	33.4	5	10	10	20	10	2,532	51.5	10	100	42	6	5	5	1	3	0.005	2.4	4.7

NA = not applicable
µg/l = micrograms per liter
NS = not sampled - no discharge
[ ] = J value - detected but below Reporting Limit; therefore, result is an estimated concentration.

TOC = Total Organic Carbon
mg/l = milligrams per liter

Table 4-8
5 Year: Summary of Analytical Results and Method Detection Limits/Reporting Limits
Chlorinated Herbicides - EPA Method 8151A
Monitoring Wells (WMU-1 & WMU-2)
Union Mine Landfill

Location	Date	2,4,5-T	2,4,5-TP (Silvex)	2,4-D (2,4-Dichloro-phenoxyacetic acid)	2,4-DB	Dalapon	Dicamba	Dichloroprop	Dinosep	MCPA	MCPP	Pentachorophenol
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
UM-3	6/1/2006	<0.018/0.50	<0.0077/0.20	<0.0070/1.0	<0.012/2.0	<0.000030/2.0	<0.0074/1.0	<0.017/2.0	<0.0030/1.0	<0.73/250	<1.6/250	NA
	11/2/2011	<0.076/0.50	<0.035/0.20	<0.073/1.0	<0.10/2.0	<0.00050/2.0	<0.040/1.0	<0.11/2.0	<0.027/1.0	<0.73/250	<1.6/250	<0.033/0.20
	6/7/2016	<0.040/0.50	<0.0070/0.20	<0.061/1.0	<0.22/2.0	<0.084/2.0	<0.093/1.0	<0.040/2.0	<0.055/1.0	<0.73/250	<1.6/250	<0.011/0.20
MW-5	6/1/2006	<0.018/0.50	<0.0077/0.20	<0.0070/1.0	<0.012/2.0	<0.000030/2.0	<0.0074/1.0	<0.017/2.0	<0.0030/1.0	<0.73/250	<1.6/250	NA
	11/2/2011	<0.019/0.050	<0.017/0.050	<0.045/0.10	<0.022/0.10	<0.010/0.050	<0.013/0.10	<0.0090/0.050	<0.0074/0.050	<0.0080/0.050	<0.0082/0.050	<0.015/0.10
	6/7/2016	<0.040/0.50	<0.0070/0.20	<0.061/1.0	<0.22/2.0	<0.084/2.0	<0.093/1.0	<0.040/2.0	<0.055/1.0	<0.73/250	<1.6/250	<0.011/0.20
MW-6	6/1/2006	<0.018/0.50	<0.0077/0.20	<0.0070/1.0	<0.012/2.0	<0.000030/2.0	<0.0074/1.0	<0.017/2.0	<0.0030/1.0	<0.73/250	<1.6/250	NA
	11/2/2011	<0.019/0.050	<0.017/0.050	<0.045/0.10	<0.022/0.10	<0.010/0.050	<0.013/0.10	<0.0090/0.050	<0.0074/0.050	<0.0080/0.050	<0.0082/0.050	<0.015/0.10
	6/7/2016	<0.040/0.50	<0.0070/0.20	<0.061/1.0	<0.22/2.0	<0.084/2.0	<0.093/1.0	<0.040/2.0	<0.055/1.0	<0.73/250	<1.6/250	<0.011/0.20
MW-7	6/1/2006	<0.018/0.50	<0.0077/0.20	<0.0070/1.0	<0.012/2.0	<0.000030/2.0	<0.0074/1.0	**2.1**	<0.0030/1.0	<0.73/250	<1.6/250	NA
	11/2/2011	<0.019/0.050	<0.017/0.050	<0.045/0.10	<0.022/0.10	<0.010/0.050	<0.013/0.10	<0.0090/0.050	<0.0074/0.050	<0.0080/0.050	<0.0082/0.050	<0.015/0.10
	6/7/2016	<0.040/0.50	<0.0070/0.20	<0.061/1.0	<0.22/2.0	<0.084/2.0	<0.093/1.0	<0.040/2.0	<0.055/1.0	<0.73/250	<1.6/250	<0.011/0.20
MW-9	6/1/2006	<0.018/0.50	<0.0077/0.20	<0.0070/1.0	<0.012/2.0	<0.000030/2.0	<0.0074/1.0	<0.017/2.0	<0.0030/1.0	<0.73/250	<1.6/250	NA
	11/2/2011	<0.019/0.050	<0.017/0.050	<0.045/0.10	<0.022/0.10	<0.010/0.050	<0.013/0.10	<0.0090/0.050	<0.0074/0.050	<0.0080/0.050	<0.0082/0.050	<0.015/0.10
	6/7/2016	<0.040/0.50	<0.0070/0.20	<0.061/1.0	<0.22/2.0	<0.084/2.0	<0.093/1.0	<0.040/2.0	<0.055/1.0	<0.73/250	<1.6/250	<0.011/0.20
MW-10	6/1/2006	<0.018/0.50	<0.0077/0.20	<0.0070/1.0	<0.012/2.0	<0.000030/2.0	<0.0074/1.0	**1.5**	<0.0030/1.0	<0.73/250	<1.6/250	NA
	11/2/2011	<0.019/0.050	<0.017/0.050	<0.045/0.10	<0.022/0.10	<0.010/0.050	<0.013/0.10	<0.0090/0.050	<0.0074/0.050	<0.0080/0.050	<0.0082/0.050	<0.015/0.10
	6/7/2016	<0.040/0.50	<0.0070/0.20	<0.061/1.0	<0.22/2.0	<0.084/2.0	<0.093/1.0	<0.040/2.0	<0.055/1.0	<0.73/250	<1.6/250	<0.011/0.20
MW-11	6/1/2006	<0.018/0.50	<0.0077/0.20	<0.0070/1.0	<0.012/2.0	<0.000030/2.0	<0.0074/1.0	<0.017/2.0	<0.0030/1.0	<0.73/250	<1.6/250	NA
	11/2/2011	<0.019/0.050	<0.017/0.050	<0.045/0.10	<0.022/0.10	<0.010/0.050	<0.013/0.10	<0.0090/0.050	<0.0074/0.050	<0.0080/0.050	<0.0082/0.050	<0.015/0.10
	6/7/2016	<0.040/0.50	<0.0070/0.20	<0.061/1.0	<0.22/2.0	<0.084/2.0	<0.093/1.0	<0.040/2.0	<0.055/1.0	<0.73/250	<1.6/250	<0.011/0.20
MW-A	6/1/2006	<0.018/0.50	<0.0077/0.20	<0.0070/1.0	<0.012/2.0	<0.000030/2.0	<0.0074/1.0	**1.3**	<0.0030/1.0	<0.73/250	<1.6/250	NA
	11/2/2011	<0.019/0.050	<0.017/0.050	<0.045/0.10	<0.022/0.10	<0.010/0.050	<0.013/0.10	<0.0090/0.050	<0.0074/0.050	<0.0080/0.050	<0.0082/0.050	<0.015/0.10
	6/8/2016	<0.040/0.50	<0.0070/0.20	<0.061/1.0	<0.22/2.0	<0.084/2.0	<0.093/1.0	<0.040/2.0	<0.055/1.0	<0.73/250	<1.6/250	<0.011/0.20
MW-C	6/1/2006	<0.018/0.50	<0.0077/0.20	<0.0070/1.0	<0.012/2.0	<0.000030/2.0	<0.0074/1.0	<0.017/2.0	<0.0030/1.0	<0.73/250	<1.6/250	NA
	11/2/2011	<0.019/0.050	<0.017/0.050	<0.045/0.10	<0.022/0.10	<0.010/0.050	<0.013/0.10	<0.0090/0.050	<0.0074/0.050	<0.0080/0.050	<0.0082/0.050	<0.015/0.10
	6/8/2016	<0.040/0.50	<0.0070/0.20	<0.061/1.0	<0.22/2.0	<0.084/2.0	<0.093/1.0	<0.040/2.0	<0.055/1.0	<0.73/250	<1.6/250	<0.011/0.20

Note: MDL/RL = Method Detection Limit/Reporting Limit

µg/L = micrograms per liter

[ ] = J value - detected but below Reporting Limit; therefore, result is an estimated concentration.

ND = none detected

Table 4-9
Summary of Analytical Results and Method Detection Limits/Reporting Limits
Semivolatile Organic Compounds - EPA Method 8270C
Monitoring Wells (WMU-1 & WMU-2)
Union Mine Landfill

Location	Date	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene (2,4-DNT)	2,6-Dinitrotoluene (2,6-DNT)	2-Chloronaphthalene	2-Chlorophenol	2-Methylnaphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3 & 4-Methylphenol	3,3-Dichlorobenzidine	3-Nitroaniline	4,6-Dinitro-2-methylphenol	4-Bromo phenyl ether	4-Chloro3-methylphenol	4-Chloroaniline
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
UM-3	11/2/2011	<1.6/10	<1.3/10	<1.2/10	<1.2/10	<1.3/10	<1.1/10	<1.6/10	<1.4/10	<1.3/25	<1.5/10	<1.3/10	<1.4/10	<1.5/10	<1.4/10	<1.4/10	<1.1/25	<1.6/10	<0.99/10	<1.9/10	<1.3/25	<1.5/25	<1.4/10	<1.2/10	<0.99/10
	6/7/2016	<0.94/10	<1.1/10	<1.2/10	<1.1/10	<0.87/10	<0.96/10	<0.87/10	<4.0/10	<0.62/25	<0.81/10	<0.71/10	<0.70/10	<0.88/10	<0.72/10	<1.6/10	<0.61/25	<0.94/10	<2.6/10	<4.1/10	<0.96/25	<1.2/25	<0.80/10	<0.94/10	<1.8/10
MW-5	11/2/2011	<1.6/10	<1.3/10	<1.2/10	<1.2/10	<1.3/10	<1.1/10	<1.6/10	<1.4/10	<1.3/25	<1.5/10	<1.3/10	<1.4/10	<1.5/10	<1.4/10	<1.4/10	<1.1/25	<1.6/10	<0.99/10	<1.9/10	<1.3/25	<1.5/25	<1.4/10	<1.2/10	<0.99/10
	6/7/2016	<0.94/10	<1.1/10	<1.2/10	<1.1/10	<0.87/10	<0.96/10	<0.87/10	<4.0/10	<0.62/25	<0.81/10	<0.71/10	<0.70/10	<0.88/10	<0.72/10	<1.6/10	<0.61/25	<0.94/10	<2.6/10	<4.1/10	<0.96/25	<1.2/25	<0.80/10	<0.94/10	<1.8/10
MW-6	11/2/2011	<1.6/10	<1.3/10	<1.2/10	<1.2/10	<1.3/10	<1.1/10	<1.6/10	<1.4/10	<1.3/25	<1.5/10	<1.3/10	<1.4/10	<1.5/10	<1.4/10	<1.4/10	<1.1/25	<1.6/10	<0.99/10	<1.9/10	<1.3/25	<1.5/25	<1.4/10	<1.2/10	<0.99/10
	6/7/2016	<0.94/10	<1.1/10	<1.2/10	<1.1/10	<0.87/10	<0.96/10	<0.87/10	<4.0/10	<0.62/25	<0.81/10	<0.71/10	<0.70/10	<0.88/10	<0.72/10	<1.6/10	<0.61/25	<0.94/10	<2.6/10	<4.1/10	<0.96/25	<1.2/25	<0.80/10	<0.94/10	<1.8/10
MW-7	11/2/2011	<1.6/10	<1.3/10	<1.2/10	<1.2/10	<1.3/10	<1.1/10	<1.6/10	<1.4/10	<1.3/25	<1.5/10	<1.3/10	<1.4/10	<1.5/10	<1.4/10	<1.4/10	<1.1/25	<1.6/10	**1.6**	<1.9/10	<1.3/25	<1.5/25	<1.4/10	<1.2/10	<0.99/10
	6/7/2016	<0.94/10	<1.1/10	<1.2/10	<1.1/10	<0.87/10	<0.96/10	<0.87/10	<4.0/10	<0.62/25	<0.81/10	<0.71/10	<0.70/10	<0.88/10	<0.72/10	<1.6/10	<0.61/25	<0.94/10	<2.6/10	<4.1/10	<0.96/25	<1.2/25	<0.80/10	<0.94/10	<1.8/10
MW-9	11/2/2011	<1.6/10	<1.3/10	<1.2/10	<1.2/10	<1.3/10	<1.1/10	<1.6/10	<1.4/10	<1.3/25	<1.5/10	<1.3/10	<1.4/10	<1.5/10	<1.4/10	<1.4/10	<1.1/25	<1.6/10	<0.99/10	<1.9/10	<1.3/25	<1.5/25	<1.4/10	<1.2/10	<0.99/10
	6/7/2016	<0.94/10	<1.1/10	<1.2/10	<1.1/10	<0.87/10	<0.96/10	<0.87/10	<4.0/10	<0.62/25	<0.81/10	<0.71/10	<0.70/10	<0.88/10	<0.72/10	<1.6/10	<0.61/25	<0.94/10	<2.6/10	<4.1/10	<0.96/25	<1.2/25	<0.80/10	<0.94/10	<1.8/10
MW-10	11/2/2011	<1.6/10	<1.3/10	<1.2/10	<1.2/10	<1.3/10	<1.1/10	<1.6/10	<1.4/10	<1.3/25	<1.5/10	<1.3/10	<1.4/10	<1.5/10	<1.4/10	<1.4/10	<1.1/25	<1.6/10	<0.99/10	<1.9/10	<1.3/25	<1.5/25	<1.4/10	<1.2/10	<0.99/10
	6/7/2016	<0.94/10	<1.1/10	<1.2/10	<1.1/10	<0.87/10	<0.96/10	<0.87/10	<4.0/10	<0.62/25	<0.81/10	<0.71/10	<0.70/10	<0.88/10	<0.72/10	<1.6/10	<0.61/25	<0.94/10	<2.6/10	<4.1/10	<0.96/25	<1.2/25	<0.80/10	<0.94/10	<1.8/10
MW-11	11/2/2011	<1.6/10	<1.3/10	<1.2/10	<1.2/10	<1.3/10	<1.1/10	<1.6/10	<1.4/10	<1.3/25	<1.5/10	<1.3/10	<1.4/10	<1.5/10	<1.4/10	<1.4/10	<1.1/25	<1.6/10	<0.99/10	<1.9/10	<1.3/25	<1.5/25	<1.4/10	<1.2/10	<0.99/10
	6/7/2016	<0.94/10	<1.1/10	<1.2/10	<1.1/10	<0.87/10	<0.96/10	<0.87/10	<4.0/10	<0.62/25	<0.81/10	<0.71/10	<0.70/10	<0.88/10	<0.72/10	<1.6/10	<0.61/25	<0.94/10	<2.6/10	<4.1/10	<0.96/25	<1.2/25	<0.80/10	<0.94/10	<1.8/10
MW-A	11/2/2011	<1.6/10	<1.3/10	<1.2/10	<1.2/10	<1.3/10	<1.1/10	<1.6/10	<1.4/10	<1.3/25	<1.5/10	<1.3/10	<1.4/10	<1.5/10	<1.4/10	<1.4/10	<1.1/25	<1.6/10	<0.99/10	<1.9/10	<1.3/25	<1.5/25	<1.4/10	<1.2/10	<0.99/10
	6/8/2016	<0.94/10	<1.1/10	<1.2/10	<1.1/10	<0.87/10	<0.96/10	<0.87/10	<4.0/10	<0.62/25	<0.81/10	<0.71/10	<0.70/10	<0.88/10	<0.72/10	<1.6/10	<0.61/25	<0.94/10	<2.6/10	<4.1/10	<0.96/25	<1.2/25	<0.80/10	<0.94/10	<1.8/10
MW-C	11/2/2011	<1.6/10	<1.3/10	<1.2/10	<1.2/10	<1.3/10	<1.1/10	<1.6/10	<1.4/10	<1.3/25	<1.5/10	<1.3/10	<1.4/10	<1.5/10	<1.4/10	<1.4/10	<1.1/25	<1.6/10	<0.99/10	<1.9/10	<1.3/25	<1.5/25	<1.4/10	<1.2/10	<0.99/10
	6/8/2016	<0.94/10	<1.1/10	<1.2/10	<1.1/10	<0.87/10	<0.96/10	<0.87/10	<4.0/10	<0.62/25	<0.81/10	<0.71/10	<0.70/10	<0.88/10	<0.72/10	<1.6/10	<0.61/25	<0.94/10	<2.6/10	<4.1/10	<0.96/25	<1.2/25	<0.80/10	<0.94/10	<1.8/10

Note: MDL/RL = Method Detection Limit/Reporting Limit

µg/L = micrograms per liter

[ ] = J value - detected but below Reporting Limit; therefore, result is an estimated concentration.

ND = none detected

* = Bis(2-ethylhexyl)phthalate results after resampling MW-5 and MW-6 on 6/22/2016 by EPA Method 8270C.

Table 4-9.
Summary of Analytical Results and Method Detection Limits/Reporting Limits
Semivolatile Organic Compounds -EPA Method 8260B
Monitoring Wells (WMU-1 & WMU-2)
Union Mine Landfill

Location	Date	4-Chlorophenyl ether	4-Nitroaniline	4-Nitrophenol	Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (g,h,i) perylene	Benzo (k) fluoranthene	Benzoic Acid	Benzyl alcohol	Bis(2-chloroethoxy) methane	Bis(2-chloroethyl)ether	Bis(2-chloroisopropyl)ether	Bis(2-ethylhexyl)phthalate	Butyl benzyl phthalate	Chrysene	Dibenz (a,h) anthracene	Dibenzofuran	Diethyl phthalate	Dimethyl phthalate
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
UM-3	11/2/2011	<1.6/10	<1.5/25	<1.1/25	<1.5/10	<1.6/10	<1.5/10	<1.4/10	<1.5/10	<1.3/10	<1.3/10	<1.7/10	<1.8/25	<1.7/10	<1.5/10	<1.6/10	<1.6/10	<1.4/10	<1.3/10	<1.5/10	<1.3/10	<1.6/10	<1.5/10	<1.5/10
	6/7/2016	<0.78/10	<0.87/25	<0.95/25	<0.74/10	<0.63/10	<0.65/10	<1.7/10	<2.1/10	<3.3/10	<2.7/10	<1.5/10	<4.2/25	<1.6/10	<0.67/10	<0.66/10	<0.54/10	<1.1/10	<4.4/10	<0.78/10	<2.4/10	<0.067/10	<4.7/10	<4.2/10
MW-5	11/2/2011	<1.6/10	<1.5/25	<1.1/25	<1.5/10	<1.6/10	<1.5/10	<1.4/10	<1.5/10	<1.3/10	<1.3/10	<1.7/10	<1.8/25	<1.7/10	<1.5/10	<1.6/10	<1.6/10	<1.4/10	<1.3/10	<1.5/10	<1.3/10	<1.6/10	<1.5/10	<1.5/10
	6/7/2016	<0.78/10	<0.87/25	<0.95/25	<0.74/10	<0.63/10	<0.65/10	<1.7/10	<2.1/10	<3.3/10	<2.7/10	<1.5/10	<4.2/25	<1.6/10	<0.67/10	<0.66/10	<0.54/10	<1.1/10*	<4.4/10	<0.78/10	<2.4/10	<0.067/10	<4.7/10	<4.2/10
MW-6	11/2/2011	<1.6/10	<1.5/25	<1.1/25	<1.5/10	<1.6/10	<1.5/10	<1.4/10	<1.5/10	<1.3/10	<1.3/10	<1.7/10	<1.8/25	<1.7/10	<1.5/10	<1.6/10	<1.6/10	<1.4/10	<1.3/10	<1.5/10	<1.3/10	<1.6/10	<1.5/10	<1.5/10
	6/7/2016	<0.78/10	<0.87/25	<0.95/25	<0.74/10	<0.63/10	<0.65/10	<1.7/10	<2.1/10	<3.3/10	<2.7/10	<1.5/10	<4.2/25	<1.6/10	<0.67/10	<0.66/10	<0.54/10	<1.1/10*	<4.4/10	<0.78/10	<2.4/10	<0.067/10	<4.7/10	<4.2/10
MW-7	11/2/2011	<1.6/10	<1.5/25	<1.1/25	<1.5/10	<1.6/10	<1.5/10	<1.4/10	<1.5/10	<1.3/10	<1.3/10	<1.7/10	<1.8/25	<1.7/10	<1.5/10	<1.6/10	<1.6/10	<1.4/10	<1.3/10	<1.5/10	<1.3/10	<1.6/10	<1.5/10	<1.5/10
	6/7/2016	<0.78/10	<0.87/25	<0.95/25	<0.74/10	<0.63/10	<0.65/10	<1.7/10	<2.1/10	<3.3/10	<2.7/10	<1.5/10	<4.2/25	<1.6/10	<0.67/10	<0.66/10	<0.54/10	<1.1/10	<4.4/10	<0.78/10	<2.4/10	<0.067/10	<4.7/10	<4.2/10
MW-9	11/2/2011	<1.6/10	<1.5/25	<1.1/25	<1.5/10	<1.6/10	<1.5/10	<1.4/10	<1.5/10	<1.3/10	<1.3/10	<1.7/10	<1.8/25	<1.7/10	<1.5/10	<1.6/10	<1.6/10	<1.4/10	<1.3/10	<1.5/10	<1.3/10	<1.6/10	<1.5/10	<1.5/10
	6/7/2016	<0.78/10	<0.87/25	<0.95/25	<0.74/10	<0.63/10	<0.65/10	<1.7/10	<2.1/10	<3.3/10	<2.7/10	<1.5/10	<4.2/25	<1.6/10	<0.67/10	<0.66/10	<0.54/10	<1.1/10	<4.4/10	<0.78/10	<2.4/10	<0.067/10	<4.7/10	<4.2/10
MW-10	11/2/2011	<1.6/10	<1.5/25	<1.1/25	<1.5/10	<1.6/10	<1.5/10	<1.4/10	<1.5/10	<1.3/10	<1.3/10	<1.7/10	<1.8/25	<1.7/10	<1.5/10	<1.6/10	<1.6/10	<1.4/10	<1.3/10	<1.5/10	<1.3/10	<1.6/10	<1.5/10	<1.5/10
	6/7/2016	<0.78/10	<0.87/25	<0.95/25	<0.74/10	<0.63/10	<0.65/10	<1.7/10	<2.1/10	<3.3/10	<2.7/10	<1.5/10	<4.2/25	<1.6/10	<0.67/10	<0.66/10	<0.54/10	<1.1/10	<4.4/10	<0.78/10	<2.4/10	<0.067/10	<4.7/10	<4.2/10
MW-11	11/2/2011	<1.6/10	<1.5/25	<1.1/25	<1.5/10	<1.6/10	<1.5/10	<1.4/10	<1.5/10	<1.3/10	<1.3/10	<1.7/10	<1.8/25	<1.7/10	<1.5/10	<1.6/10	<1.6/10	<1.4/10	<1.3/10	<1.5/10	<1.3/10	<1.6/10	<1.5/10	<1.5/10
	6/7/2016	<0.78/10	<0.87/25	<0.95/25	<0.74/10	<0.63/10	<0.65/10	<1.7/10	<2.1/10	<3.3/10	<2.7/10	<1.5/10	<4.2/25	<1.6/10	<0.67/10	<0.66/10	<0.54/10	<1.1/10	<4.4/10	<0.78/10	<2.4/10	<0.067/10	<4.7/10	<4.2/10
MW-A	11/2/2011	<1.6/10	<1.5/25	<1.1/25	<1.5/10	<1.6/10	<1.5/10	<1.4/10	<1.5/10	<1.3/10	<1.3/10	<1.7/10	<1.8/25	<1.7/10	<1.5/10	<1.6/10	<1.6/10	<1.4/10	<1.3/10	<1.5/10	<1.3/10	<1.6/10	<1.5/10	<1.5/10
	6/8/2016	<0.78/10	<0.87/25	<0.95/25	<0.74/10	<0.63/10	<0.65/10	<1.7/10	<2.1/10	<3.3/10	<2.7/10	<1.5/10	<4.2/25	<1.6/10	<0.67/10	<0.66/10	<0.54/10	<1.1/10	<4.4/10	<0.78/10	<2.4/10	<0.067/10	<4.7/10	<4.2/10
MW-C	11/2/2011	<1.6/10	<1.5/25	<1.1/25	<1.5/10	<1.6/10	<1.5/10	<1.4/10	<1.5/10	<1.3/10	<1.3/10	<1.7/10	<1.8/25	<1.7/10	<1.5/10	<1.6/10	<1.6/10	**9.3**	<1.3/10	<1.5/10	<1.3/10	<1.6/10	<1.5/10	<1.5/10
	6/8/2016	<0.78/10	<0.87/25	<0.95/25	<0.74/10	<0.63/10	<0.65/10	<1.7/10	<2.1/10	<3.3/10	<2.7/10	<1.5/10	<4.2/25	<1.6/10	<0.67/10	<0.66/10	<0.54/10	<1.1/10	<4.4/10	<0.78/10	<2.4/10	<0.067/10	<4.7/10	<4.2/10

Note: MDL/RL = Method Detection Limit/Reporting Limit

µg/L = micrograms per liter

[ ] = J value - detected but below Reporting Limit; therefore, result is an estimated concentration.

ND = none detected

* = Bis(2-ethylhexyl)phthalate results after resampling MW-5 and MW-6 on 6/22/2016 by EPA Method 8270C.

Table 4-9.
Summary of Analytical Results and Method Detection Limits/Reporting Limits
Semivolatile Organic Compounds -EPA Method 8260B
Monitoring Wells (WMU-1 & WMU-2)
Union Mine Landfill

Location	Date	Di-n-butyl phthalate	Di-n-octyl phthalate	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutdiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno (1,2,3,-cd) pyrene	Isophorone	Naphthalene	Nitrobenzene (NB)	N-Nitrosodi-n-propy lamine	N-Nitrosodipheny lamine	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
UM-3	11/2/2011	<1.4/10	<1.3/10	<1.3/10	<1.5/10	<1.4/10	<1.3/10	<0.82/10	<0.97/10	<0.52/10	<1.5/10	<1.4/10	<1.5/10	<1.6/10	<1.4/10	<1.0/25	<1.3/10	<0.87/10	<1.4/10
	6/7/2016	<3.8/10	<3.4/10	<0.66/10	<0.67/10	<0.86/10	<1.9/10	<0.55/10	<1.2/10	<1.7/10	<0.62/10	<0.70/10	<0.64/10	<0.62/10	<0.93/10	<1.8/25	<0.59/10	<1.2/10	<0.73/10
MW-5	11/2/2011	<1.4/10	<1.3/10	<1.3/10	<1.5/10	<1.4/10	<1.3/10	<0.82/10	<0.97/10	<0.52/10	<1.5/10	<1.4/10	<1.5/10	<1.6/10	<1.4/10	<1.0/25	<1.3/10	<0.87/10	<1.4/10
	6/7/2016	<3.8/10	<3.4/10	<0.66/10	<0.67/10	<0.86/10	<1.9/10	<0.55/10	<1.2/10	<1.7/10	<0.62/10	<0.70/10	<0.64/10	<0.62/10	<0.93/10	<1.8/25	<0.59/10	<1.2/10	<0.73/10
MW-6	11/2/2011	<1.4/10	<1.3/10	<1.3/10	<1.5/10	<1.4/10	<1.3/10	<0.82/10	<0.97/10	<0.52/10	<1.5/10	<1.4/10	<1.5/10	<1.6/10	<1.4/10	<1.0/25	<1.3/10	<0.87/10	<1.4/10
	6/7/2016	<3.8/10	<3.4/10	<0.66/10	<0.67/10	<0.86/10	<1.9/10	<0.55/10	<1.2/10	<1.7/10	<0.62/10	<0.70/10	<0.64/10	<0.62/10	<0.93/10	<1.8/25	<0.59/10	<1.2/10	<0.73/10
MW-7	11/2/2011	<1.4/10	<1.3/10	<1.3/10	<1.5/10	<1.4/10	<1.3/10	<0.82/10	<0.97/10	<0.52/10	<1.5/10	<1.4/10	<1.5/10	<1.6/10	<1.4/10	<1.0/25	<1.3/10	<0.87/10	<1.4/10
	6/7/2016	<3.8/10	<3.4/10	<0.66/10	<0.67/10	<0.86/10	<1.9/10	<0.55/10	<1.2/10	<1.7/10	<0.62/10	<0.70/10	<0.64/10	<0.62/10	<0.93/10	<1.8/25	<0.59/10	<1.2/10	<0.73/10
MW-9	11/2/2011	<1.4/10	<1.3/10	<1.3/10	<1.5/10	<1.4/10	<1.3/10	<0.82/10	<0.97/10	<0.52/10	<1.5/10	<1.4/10	<1.5/10	<1.6/10	<1.4/10	<1.0/25	<1.3/10	<0.87/10	<1.4/10
	6/7/2016	<3.8/10	<3.4/10	<0.66/10	<0.67/10	<0.86/10	<1.9/10	<0.55/10	<1.2/10	<1.7/10	<0.62/10	<0.70/10	<0.64/10	<0.62/10	<0.93/10	<1.8/25	<0.59/10	<1.2/10	<0.73/10
MW-10	11/2/2011	<1.4/10	<1.3/10	<1.3/10	<1.5/10	<1.4/10	<1.3/10	<0.82/10	<0.97/10	<0.52/10	<1.5/10	<1.4/10	<1.5/10	<1.6/10	<1.4/10	<1.0/25	<1.3/10	<0.87/10	<1.4/10
	6/7/2016	<3.8/10	<3.4/10	<0.66/10	<0.67/10	<0.86/10	<1.9/10	<0.55/10	<1.2/10	<1.7/10	<0.62/10	<0.70/10	<0.64/10	<0.62/10	<0.93/10	<1.8/25	<0.59/10	<1.2/10	<0.73/10
MW-11	11/2/2011	<1.4/10	<1.3/10	<1.3/10	<1.5/10	<1.4/10	<1.3/10	<0.82/10	<0.97/10	<0.52/10	<1.5/10	<1.4/10	<1.5/10	<1.6/10	<1.4/10	<1.0/25	<1.3/10	<0.87/10	<1.4/10
	6/7/2016	<3.8/10	<3.4/10	<0.66/10	<0.67/10	<0.86/10	<1.9/10	<0.55/10	<1.2/10	<1.7/10	<0.62/10	<0.70/10	<0.64/10	<0.62/10	<0.93/10	<1.8/25	<0.59/10	<1.2/10	<0.73/10
MW-A	11/2/2011	<1.4/10	<1.3/10	<1.3/10	<1.5/10	<1.4/10	<1.3/10	<0.82/10	<0.97/10	<0.52/10	<1.5/10	<1.4/10	<1.5/10	<1.6/10	<1.4/10	<1.0/25	<1.3/10	<0.87/10	<1.4/10
	6/8/2016	<3.8/10	<3.4/10	<0.66/10	<0.67/10	<0.86/10	<1.9/10	<0.55/10	<1.2/10	<1.7/10	<0.62/10	<0.70/10	<0.64/10	<0.62/10	<0.93/10	<1.8/25	<0.59/10	<1.2/10	<0.73/10
MW-C	11/2/2011	<1.4/10	<1.3/10	<1.3/10	<1.5/10	<1.4/10	<1.3/10	<0.82/10	<0.97/10	<0.52/10	<1.5/10	<1.4/10	<1.5/10	<1.6/10	<1.4/10	<1.0/25	<1.3/10	<0.87/10	<1.4/10
	6/8/2016	<3.8/10	<3.4/10	<0.66/10	<0.67/10	<0.86/10	<1.9/10	<0.55/10	<1.2/10	<1.7/10	<0.62/10	<0.70/10	<0.64/10	<0.62/10	<0.93/10	<1.8/25	<0.59/10	<1.2/10	<0.73/10

Note: MDL/RL = Method Detection Limit/Reporting Limit

µg/L = micrograms per liter

[ ] = J value - detected but below Reporting Limit; therefore, result is an estimated concentration.

ND = none detected

* = Bis(2-ethylhexyl)phthalate results after resampling MW-5 and MW-6 on 6/22/2016 by EPA Method 8270C.

Table 4-10
5-Year: Summary of Analytical Results and Method Detection Limits/Reporting Limits
Organophosphorus Pesticides - EPA Method 8141A
Monitoring Wells (WMU-1 & WMU-2)
Union Mine Landfill

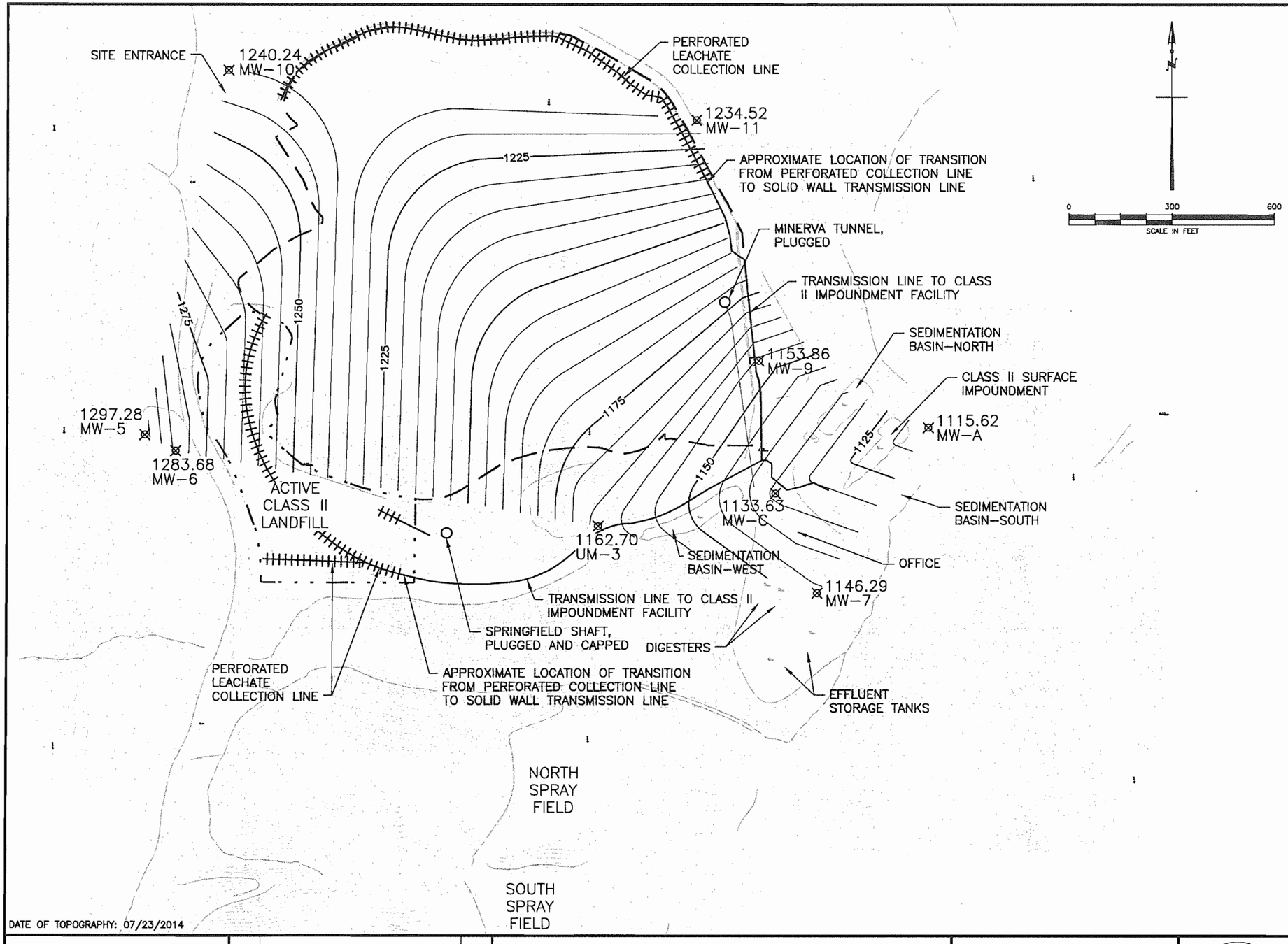
Location	Date	Bolstar	Chlorpyrifos	Coumaphos	Demeton	Diazinon	Dichlorvos	Disulfoton	Ethoprop	Fensulfothion	Fenthion	Guthion	Malathion	Merphos	Methyl parathion	Mevinphos	Phorate	Prothiofos	Ronnel	Stirophos	Trichloronate
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
UM-3	6/1/2006	<0.023/0.050	<0.017/0.050	<0.045/0.10	<0.022/0.10	<0.010/0.050	<0.013/0.10	<0.0090/0.050	<0.0074/0.050	<0.0080/0.050	<0.0082/0.050	<0.015/0.10	<0.014/0.050	<0.0066/0.050	<0.025/0.050	<0.028/0.050	<0.015/0.050	<0.0031/0.050	<0.0087/0.050	<0.0080/0.050	<0.030/0.050
	11/2/2011	<0.019/0.050	<0.017/0.050	<0.045/0.10	<0.022/0.10	<0.010/0.050	<0.013/0.10	<0.0090/0.050	<0.0074/0.050	<0.0080/0.050	<0.0082/0.050	<0.015/0.10	<0.014/0.050	<0.0066/0.050	<0.025/0.050	<0.028/0.050	<0.015/0.050	<0.0031/0.050	<0.0087/0.050	<0.0080/0.050	<0.030/0.050
	6/7/2016	<0.018/0.050	<0.018/0.050	<0.017/0.10	<0.026/0.10	<0.033/0.050	<0.023/0.10	<0.031/0.050	<0.016/0.050	<0.036/0.050	<0.018/0.050	<0.027/0.10	<0.014/0.050	<0.021/0.050	<0.014/0.050	<0.033/0.050	<0.015/0.050	<0.0031/0.050	<0.016/0.050	<0.021/0.050	<0.020/0.050
MW-5	6/1/2006	<0.023/0.050	<0.017/0.050	<0.045/0.10	<0.022/0.10	<0.010/0.050	<0.013/0.10	<0.0090/0.050	<0.0074/0.050	<0.0080/0.050	<0.0082/0.050	<0.015/0.10	<0.014/0.050	<0.0066/0.050	<0.025/0.050	<0.028/0.050	<0.015/0.050	<0.0031/0.050	<0.0087/0.050	<0.0080/0.050	<0.030/0.050
	11/2/2011	<0.019/0.050	<0.017/0.050	<0.045/0.10	<0.022/0.10	<0.010/0.050	<0.013/0.10	<0.0090/0.050	<0.0074/0.050	<0.0080/0.050	<0.0082/0.050	<0.015/0.10	<0.014/0.050	<0.0066/0.050	<0.025/0.050	<0.028/0.050	<0.015/0.050	<0.0031/0.050	<0.0087/0.050	<0.0080/0.050	<0.030/0.050
	6/7/2016	<0.018/0.050	<0.018/0.050	<0.017/0.10	<0.026/0.10	<0.033/0.050	<0.023/0.10	<0.031/0.050	<0.016/0.050	<0.036/0.050	<0.018/0.050	<0.027/0.10	<0.014/0.050	<0.021/0.050	<0.014/0.050	<0.033/0.050	<0.015/0.050	<0.0031/0.050	<0.016/0.050	<0.021/0.050	<0.020/0.050
MW-6	6/1/2006	<0.023/0.050	<0.017/0.050	<0.045/0.10	<0.022/0.10	<0.010/0.050	<0.013/0.10	<0.0090/0.050	<0.0074/0.050	<0.0080/0.050	<0.0082/0.050	<0.015/0.10	<0.014/0.050	<0.0066/0.050	<0.025/0.050	<0.028/0.050	<0.015/0.050	<0.0031/0.050	<0.0087/0.050	<0.0080/0.050	<0.030/0.050
	11/2/2011	<0.019/0.050	<0.017/0.050	<0.045/0.10	<0.022/0.10	<0.010/0.050	<0.013/0.10	<0.0090/0.050	<0.0074/0.050	<0.0080/0.050	<0.0082/0.050	<0.015/0.10	<0.014/0.050	<0.0066/0.050	<0.025/0.050	<0.028/0.050	<0.015/0.050	<0.0031/0.050	<0.0087/0.050	<0.0080/0.050	<0.030/0.050
	6/7/2016	<0.018/0.050	<0.018/0.050	<0.017/0.10	<0.026/0.10	<0.033/0.050	<0.023/0.10	<0.031/0.050	<0.016/0.050	<0.036/0.050	<0.018/0.050	<0.027/0.10	<0.014/0.050	<0.021/0.050	<0.014/0.050	<0.033/0.050	<0.015/0.050	<0.0031/0.050	<0.016/0.050	<0.021/0.050	<0.020/0.050
MW-7	6/1/2006	<0.023/0.050	<0.017/0.050	<0.045/0.10	<0.022/0.10	<0.010/0.050	<0.013/0.10	<0.0090/0.050	<0.0074/0.050	<0.0080/0.050	<0.0082/0.050	<0.015/0.10	<0.014/0.050	<0.0066/0.050	<0.025/0.050	<0.028/0.050	<0.015/0.050	<0.0031/0.050	<0.0087/0.050	<0.0080/0.050	<0.030/0.050
	11/2/2011	<0.019/0.050	<0.017/0.050	<0.045/0.10	<0.022/0.10	<0.010/0.050	<0.013/0.10	<0.0090/0.050	<0.0074/0.050	<0.0080/0.050	<0.0082/0.050	<0.015/0.10	<0.014/0.050	<0.0066/0.050	<0.025/0.050	<0.028/0.050	<0.015/0.050	<0.0031/0.050	<0.0087/0.050	<0.0080/0.050	<0.030/0.050
	6/7/2016	<0.018/0.050	<0.018/0.050	<0.017/0.10	<0.026/0.10	<0.033/0.050	<0.023/0.10	<0.031/0.050	<0.016/0.050	<0.036/0.050	<0.018/0.050	<0.027/0.10	<0.014/0.050	<0.021/0.050	<0.014/0.050	<0.033/0.050	<0.015/0.050	<0.0031/0.050	<0.016/0.050	<0.021/0.050	<0.020/0.050
MW-9	6/1/2006	<0.023/0.050	<0.017/0.050	<0.045/0.10	<0.022/0.10	<0.010/0.050	<0.013/0.10	<0.0090/0.050	<0.0074/0.050	<0.0080/0.050	<0.0082/0.050	<0.015/0.10	<0.014/0.050	<0.0066/0.050	<0.025/0.050	<0.028/0.050	<0.015/0.050	<0.0031/0.050	<0.0087/0.050	<0.0080/0.050	<0.030/0.050
	11/2/2011	<0.019/0.050	<0.017/0.050	<0.045/0.10	<0.022/0.10	<0.010/0.050	<0.013/0.10	<0.0090/0.050	<0.0074/0.050	<0.0080/0.050	<0.0082/0.050	<0.015/0.10	<0.014/0.050	<0.0066/0.050	<0.025/0.050	<0.028/0.050	<0.015/0.050	<0.0031/0.050	<0.0087/0.050	<0.0080/0.050	<0.030/0.050
	6/7/2016	<0.018/0.050	<0.018/0.050	<0.017/0.10	<0.026/0.10	<0.033/0.050	<0.023/0.10	<0.031/0.050	<0.016/0.050	<0.036/0.050	<0.018/0.050	<0.027/0.10	<0.014/0.050	<0.021/0.050	<0.014/0.050	<0.033/0.050	<0.015/0.050	<0.0031/0.050	<0.016/0.050	<0.021/0.050	<0.020/0.050
MW-10	6/1/2006	<0.023/0.050	<0.017/0.050	<0.045/0.10	<0.022/0.10	<0.010/0.050	<0.013/0.10	<0.0090/0.050	<0.0074/0.050	<0.0080/0.050	<0.0082/0.050	<0.015/0.10	<0.014/0.050	<0.0066/0.050	<0.025/0.050	<0.028/0.050	<0.015/0.050	<0.0031/0.050	<0.0087/0.050	<0.0080/0.050	<0.030/0.050
	11/2/2011	<0.019/0.050	<0.017/0.050	<0.045/0.10	<0.022/0.10	<0.010/0.050	<0.013/0.10	<0.0090/0.050	<0.0074/0.050	<0.0080/0.050	<0.0082/0.050	<0.015/0.10	<0.014/0.050	<0.0066/0.050	<0.025/0.050	<0.028/0.050	<0.015/0.050	<0.0031/0.050	<0.0087/0.050	<0.0080/0.050	<0.030/0.050
	6/7/2016	<0.018/0.050	<0.018/0.050	<0.017/0.10	<0.026/0.10	<0.033/0.050	<0.023/0.10	<0.031/0.050	<0.016/0.050	<0.036/0.050	<0.018/0.050	<0.027/0.10	<0.014/0.050	<0.021/0.050	<0.014/0.050	<0.033/0.050	<0.015/0.050	<0.0031/0.050	<0.016/0.050	<0.021/0.050	<0.020/0.050
MW-11	6/1/2006	<0.023/0.050	<0.017/0.050	<0.045/0.10	<0.022/0.10	<0.010/0.050	<0.013/0.10	<0.0090/0.050	<0.0074/0.050	<0.0080/0.050	<0.0082/0.050	<0.015/0.10	<0.014/0.050	<0.0066/0.050	<0.025/0.050	<0.028/0.050	<0.015/0.050	<0.0031/0.050	<0.0087/0.050	<0.0080/0.050	<0.030/0.050
	11/2/2011	<0.019/0.050	<0.017/0.050	<0.045/0.10	<0.022/0.10	<0.010/0.050	<0.013/0.10	<0.0090/0.050	<0.0074/0.050	<0.0080/0.050	<0.0082/0.050	<0.015/0.10	<0.014/0.050	<0.0066/0.050	<0.025/0.050	<0.028/0.050	<0.015/0.050	<0.0031/0.050	<0.0087/0.050	<0.0080/0.050	<0.030/0.050
	6/7/2016	<0.018/0.050	<0.018/0.050	<0.017/0.10	<0.026/0.10	<0.033/0.050	<0.023/0.10	<0.031/0.050	<0.016/0.050	<0.036/0.050	<0.018/0.050	<0.027/0.10	<0.014/0.050	<0.021/0.050	<0.014/0.050	<0.033/0.050	<0.015/0.050	<0.0031/0.050	<0.016/0.050	<0.021/0.050	<0.020/0.050
MW-A	6/1/2006	<0.023/0.050	<0.017/0.050	<0.045/0.10	<0.022/0.10	<0.010/0.050	<0.013/0.10	<0.0090/0.050	<0.0074/0.050	<0.0080/0.050	<0.0082/0.050	<0.015/0.10	<0.014/0.050	<0.0066/0.050	<0.025/0.050	<0.028/0.050	<0.015/0.050	<0.0031/0.050	<0.0087/0.050	<0.0080/0.050	<0.030/0.050
	11/2/2011	<0.019/0.050	<0.017/0.050	<0.045/0.10	<0.022/0.10	<0.010/0.050	<0.013/0.10	<0.0090/0.050	<0.0074/0.050	<0.0080/0.050	<0.0082/0.050	<0.015/0.10	<0.014/0.050	<0.0066/0.050	<0.025/0.050	<0.028/0.050	<0.015/0.050	<0.0031/0.050	<0.0087/0.050	<0.0080/0.050	<0.030/0.050
	6/8/2016	<0.018/0.050	<0.018/0.050	<0.017/0.10	<0.026/0.10	<0.033/0.050	<0.023/0.10	<0.031/0.050	<0.016/0.050	<0.036/0.050	<0.018/0.050	<0.027/0.10	<0.014/0.050	<0.021/0.050	<0.014/0.050	<0.033/0.050	<0.015/0.050	<0.0031/0.050	<0.016/0.050	<0.021/0.050	<0.020/0.050
MW-C	6/1/2006	<0.023/0.050	<0.017/0.050	<0.045/0.10	<0.022/0.10	<0.010/0.050	<0.013/0.10	<0.0090/0.050	<0.0074/0.050	<0.0080/0.050	<0.0082/0.050	<0.015/0.10	<0.014/0.050	<0.0066/0.050	<0.025/0.050	<0.028/0.050	<0.015/0.050	<0.0031/0.050	<0.0087/0.050	<0.0080/0.050	<0.030/0.050
	11/2/2011	<0.019/0.050	<0.017/0.050	<0.045/0.10	<0.022/0.10	<0.010/0.050	<0.013/0.10	<0.0090/0.050	<0.0074/0.050	<0.0080/0.050	<0.0082/0.050	<0.015/0.10	<0.014/0.050	<0.0066/0.050	<0.025/0.050	<0.028/0.050	<0.015/0.050	<0.0031/0.050	<0.0087/0.050	<0.0080/0.050	<0.030/0.050
	6/8/2016	<0.018/0.050	<0.018/0.050	<0.017/0.10	<0.026/0.10	<0.033/0.050	<0.023/0.10	<0.031/0.050	<0.016/0.050	<0.036/0.050	<0.018/0.050	<0.027/0.10	<0.014/0.050	<0.021/0.050	<0.014/0.050	<0.033/0.050	<0.015/0.050	<0.0031/0.050	<0.016/0.050	<0.021/0.050	<0.020/0.050

Note: MDL/RL = Method Detection Limit/Reporting Limit

µg/L = micrograms per liter

[ ] = J value - detected but below Reporting Limit; therefore, result is an estimated concentration.

ND = none detected



DATE OF TOPOGRAPHY: 07/23/2014

UNION MINE LANDFILL
EL DORADO COUNTY, CALIFORNIA

GROUNDWATER ELEVATION MAP OF MONITORING WELLS SPRING 2016

MONITORING WELL TABLE	
WELL NAME	GROUNDWATER ELEVATION (MSL)
MW-5	1297.28
MW-6	1283.68
MW-7	1146.29
MW-9	1153.86
MW-10	1240.24
MW-11	1234.52
MW-A	1115.62
MW-C	1133.63
UM-3	1162.70

LEGEND

- ACTIVE CLASS II LANDFILL FOOTPRINT
- EXISTING TOPO MAJOR CONTOUR
- 1200 GROUNDWATER MAJOR CONTOUR
- PERFORATED LEACHATE COLLECTION LINE
- SOLID LEACHATE CONVEYANCE LINE
- MONITORING WELL
- ABANDONED/DESTROYED MONITORING WELL

NOTES:
1. ALL ELEVATIONS ARE GROUNDWATER ELEVATIONS IN FEET (MSL).
2. GROUNDWATER ELEVATIONS ON THIS MAP HAVE BEEN MEASURED BY THE PROFESSIONAL GEOLOGIST OF RECORD AND REFERENCED TO THAT OF THE SURVEY DATA COLLECTED BY EL DORADO COUNTY TRANSPORTATION DIVISION, SURVEYING SERVICES.

NO.	REVISION DESCRIPTION	BY:

TETRA TECH BAS
1360 Valley Vista Drive, Diamond Bar, CA 91765
TEL 909.860.7777 FAX 909.860.8017

UNION MINE DISPOSAL FACILITY

MONITORING WELLS SURVEY DATA

DESIGNED BY : N/A	SCALE : PER PLAN	
DRAWN BY : N.M.G.	DATE : 06/16	FILE NO.: 34-0042GWF.DWG
CHECKED BY : D.L.L.	DATE : 06/16	**FIGURE 4-1**
APPROVED BY : G.E.S.	DATE : 06/16	

G:\DWG\UNION MINE\FIGURE\34-0042GWF

5. SURFACE WATER

5.1 DESCRIPTION OF MONITORING POINTS

The following four surface water locations are monitored and sampled at Union Mine Landfill as specified in the MRP:

- S-1 - the Unnamed Creek drain to Martinez Creek, above the entrance to the West Pond.
- S-2 - the outfall from the northern sedimentation pond prior to where the discharge enters Martinez Creek.
- S-6 - Martinez Creek, approximately 600 feet upstream from S-2 pond discharge. This is the background surface water monitoring point.
- S-7 - Martinez Creek, approximately 450 feet downstream from S-2 pond discharge. This is the point of compliance for the surface water monitoring program.

The MRP also requires monitoring of a seep, designated as MS-1, which is located between Church Mine Road and the slope below the Class II surface impoundment. Seep MS-1 typically flows during the wet season but goes dry in summer and fall. Surface water sampling locations are shown on Figure 5-1.

5.2 SAMPLING PROCEDURES

Surface water sampling is performed quarterly for Monitoring Parameters, and 5-year analysis for the COC, if applicable that year. Sample containers are filled directly and sample containers that have preservative (e.g. for metals analysis) are field filtered with an appropriate preservative. Seep MS-1 is sampled by collecting water from or near a 2-inch diameter PVC pipe placed in the hillside where the seeps occur.

El Dorado County personnel completed all surface water sampling activities during this reporting period. Samples were collected from S-1, S-2, S-6, and S-7 on March 8, May 18, 2016. Samples were also collected from seep MS-1 on the previously mentioned dates if sufficient water was available for sampling.

5.3 CONCENTRATION LIMITS

Table 5-1 presents the surface water concentration limits for all monitoring parameters and COC. These limits only apply to the point of compliance location S-7. Procedures followed to develop new concentration limits are described in Appendix D of this report. In general, concentrations limits were determined by calculating nonparametric 95% UTL with 95% coverage of each constituent using EPA's PROUCL 5.0 and using an updated dataset consisting all historic Union Mine data collected from 1990's to 2016.

5.4 ANALYSIS RESULTS

Analytical results for Monitoring Parameters and COC are summarized in Table 5-1, 5-2 and 5-3. Results that exceed concentration limits are highlighted in bold. All constituents in the March and May samples for S-7 were below concentration limits with the exception of TSS in March 2016. The elevated TSS concentration was more likely the results of increase runoff from a stormy period in March and not likely the result of a release from the landfill. In general, concentrations of TDS, the major cations (sodium, calcium, and magnesium) and anions (chloride, bicarbonate) were higher for S-7 as compared to upstream background location S-6 which is consistent with historic data.

Evaluation of the major ion results for S-1 and S-2 indicates that samples from these two points typically contain significantly higher concentrations of TDS and the major ions than found in Martinez Creek. The Unnamed Creek drainage is monitored by sampling point S-1 which receives discharges from several sources, including mine drainages, seeps, springs and groundwater drains that most likely contribute to the higher sulfate, bicarbonate, nitrate, TDS and other water quality concentrations. S-2 is farther downstream from S-1 and represents the outfall from the north pond into Martinez Creek. This data does not indicate a release from the landfill. There are no concentration limits or background comparison points for S-1 and S-2. Laboratory reported J-values or estimated concentrations that are below a reporting limit are shown on Table 5-2 and estimated concentrations are displayed in brackets.

Time series graphs of the all long term detectable concentrations of monitoring parameters are presented in Appendix C. Graphs of TSS, hydroxide and carbonate are not presented because of the lack of detectable concentrations.

All 5-year COC for sample S-7 were below concentration limits. The concentration limit for manganese was calculated using the nonparametric 95% Chebyshev UPL by EPA's PROUCL 5.0 resulting in a value of 90 µg/l and detailed in Appendix D.

Results from seep MS-1 are summarized in Table 5-3. Seep MS-1 was sampled during the March event but dry during the second quarter of 2016. There are no concentration limits or background comparison points for MS-1. A series of seeps including MS-1 occur during the wet season along Church Mine Road. When water is present, MS-1 water quality appears to be comparable to groundwater from nearby monitoring well MW-A.

Table 5-1
Surface Water - Summary of Field and Laboratory Analytical data
Monitoring Parameters
Union Mine Landfill
El Dorado County, California

		Monitoring Parameters																	Field Parameters			
Sample Location	Date mm/dd/year	TSS mg/l	TDS mg/l	Na mg/l	Ca mg/l	Mg mg/l	K mg/l	Cl mg/l	Sulfate mg/l	Bicarbonate mg/l	Hydroxide mg/l	Carbonate mg/l	Alkalinity mg/l	Nitrate-N[&] mg/l	As mg/l	Cu mg/l	Fe mg/l	Zinc mg/l	pH ph units	Conductivity µmhos/cm	Temperature °C	Turbidity NTU
S-1 above west pond	3/30/2006	<5.0	290	19	50	21	4.1	26	93	120	<5.0	<5.0	120	0.61	0.019	<0.010	0.15	<0.020	7.09	469	15.2	15
	6/1/2006	<2.0/5.0	460	34	71	28	7.2	47	98	200	<0.50/5.0	<0.50/5.0	200	1.3	0.015	<0.0032/0.010	0.1	<0.0093/0.020	7.05	721	19.6	6.3
	9/7/2006	18	730	38	130	42	4.5	92	190	280	<0.50/5.0	<0.50/5.0	280	[0.35]	0.053	[0.0061]	0.66	[0.011]	7.43	1,054	16.1	0
	11/28/2006	12	700	45	120	45	3.7	90	270	190	<0.50/5.0	<0.50/5.0	190	<0.053/0.50	0.034	<0.0032/0.010	0.79	<0.0093/0.020	6.63	1,111	11.1	14
	3/21/2007	<2.0/5.0	300	50	20	17	3	22	100	110	<0.50/5.0	<0.50/5.0	110	0.89	[0.0044]	<0.0032/0.010	<0.0068/0.10	<0.0093/0.020	7.28	500	14.6	11
	6/6/2007	<2.0/5.0	500	83	32	36	6	53	110	220	<0.50/5.0	<0.50/5.0	220	1.1	0.0091	[0.0052]	0.16	<0.0093/0.020	7.02	784	15.5	1.5
	8/29/2007	DRY				NO		SAMPLE												DRY	DRY	
	12/21/2007	6.6	310	17	51	21	2.5	28	100	94	<0.50/5.0	<0.50/5.0	94	7.9	0.007	[0.0034]	[0.025]	[0.015]	7.37	428	9.22	0.1
	3/4/2008	<2.0/5.0	260	13	39	17	2.1	17	80	92	<0.50/5.0	<0.50/5.0	92	0.52	0.0035	<0.0032/0.010	[0.021]	0.092	6.92	1171	11.2	1.41
	5/7/2008	[3.6]	480	28	75	27	18	49	110	200	<0.50/5.0	<0.50/5.0	200	1.2	0.0068	<0.0032/0.010	[0.090]	0.035	7.16	581	14.9	na
	8/13/2008	DRY				NO		SAMPLE												DRY	DRY	
	11/6/2008	8.5	910	52	140	53	5.2	110	380	190	<0.50/5.0	<0.50/5.0	190	[0.19]	0.015	[0.0052]	[0.037]	0.078	6.27	892	12.4	na
	1/16/2009	<2.0/5.0	500	25	78	27	2.4	47	180	160	<0.50/5.0	<0.50/5.0	160	[0.079]	0.0074	[0.0043]	[0.071]	0.003	7.00	521	8.6	na
	4/16/2009	<2.0/5.0	360	19	59	23	3.5	30	110	140	<0.50/5.0	<0.50/5.0	140	2.3	0.0051	<0.0032/0.010	[0.0081]	[0.016]	6.96	454	11.8	na
	8/25/2009	DRY				NO		SAMPLE												DRY	DRY	
	10/27/2009	DRY				NO		SAMPLE												DRY	DRY	
	12/22/2009	<2.0/5.0	270	21	59	21	2.9	29	81	120	<0.50/5.0	<0.50/5.0	120	[0.18]	0.009	[0.0049]	[0.026]	0.049	7.37	473	9.3	na
	2/11/2010	<2.0/5.0	260	13	35	15	1.7	15	73	91	<0.50/5.0	<0.50/5.0	91	2.7	0.0052	<0.0032/0.010	<0.0068/0.10	<0.0093/0.020	7.45	467	11.7	na
	4/26/2010	<2.0/5.0	230	13	38	16	2.0	15	63	97	<0.50/5.0	<0.50/5.0	97	[0.27]	0.0067	[0.0034]	[0.017]	<0.0093/0.020	6.89	330	14.9	na
	9/22/2010	[4.0]	610	54	120	45	12.0	84	50	370	<0.50/5.0	<0.50/5.0	370	[0.12]	0.22	<0.0032/0.010	3.5	<0.0093/0.020	6.73	1353	19.7	na
	10/28/2010	[2.4]	540	31	74	31	15.0	56	130	190	<0.50/5.0	<0.50/5.0	190	[0.44]	0.055	<0.0032/0.010	0.73	<0.0093/0.020	6.97	755	13.6	na
	2/2/2011	[2.8]	290	18	44	20	3.7	25	70	120	<0.50/5.0	<0.50/5.0	120	1.1	0.019	0.019	0.19	<0.0093/0.020	7.09	407	11.6	na
	5/5/2011	[2.6]	430	27	61	25	8.4	43	85	190	<0.50/5.0	<0.50/5.0	190	1.4	0.023	<0.0032/0.010	0.26	<0.0093/0.020	7.22	510	16.6	na
	9/12/2011	DRY				NO		SAMPLE												DRY	DRY	
	10/11/2011	[3.3]	440	22	79	26	5.5	40	130	130	<0.50/5.0	<0.50/5.0	130	4.3	0.0031	[0.0082]	0.37	<0.0093/0.020	7.16	385	16.3	na
	3/19/2012	7.6	180	7.5	24	10	1.5	7.3	50	64	<0.50/5.0	<0.50/5.0	64	1.2	0.0073	0.0073	[0.034]	<0.0093/0.020	7.56	244	11.3	na
	5/7/2012	<2.0/5.0	310	18	51	20	3.6	26	69	150	<0.50/5.0	<0.50/5.0	150	0.78	0.017	<0.0032/0.010	0.13	<0.0093/0.020	7.98	394	14.7	na
	9/10/2012	DRY				NO		SAMPLE												DRY	DRY	
	12/4/2012	[3.5]	230	12	36	15	9	12	56	77	<0.50/5.0	<0.50/5.0	77	2.6	0.0091	<0.0032/0.010	[65]	<0.0093/0.020	7.13	309	15.3	na
	3/26/2013	<2.0/5.0	360	29	55	23	5.4	35	74	170	<0.50/5.0	<0.50/5.0	170	0.89	0.0021	0.0021	0.23	<0.0093/0.020	8.22	348	13.6	na
	5/24/2013	9.5	500	46	84	33	8.9	79	44	310	<0.50/5.0	<0.50/5.0	310	1.2	0.096	<0.0032/0.010	1.2	<0.0093/0.020	7.35	655	19.1	na
	8/13/2013	DRY				NO		SAMPLE												DRY	DRY	
	12/20/2013	DRY				NO		SAMPLE												DRY	DRY	
	2/12/2014	<2.0/5.0	220	11	34	15	2.0	12	69	63	<0.50/5.0	<0.50/5.0	63	[4.6]	0.0055	<0.0032/0.010	[0.096]	<0.0093/0.020	6.57	303	14.8	22.3
	4/30/2014	<2.0/5.0	360	24	62	24	5.6	31	62	190	<0.50/5.0	<0.50/5.0	190	[0.68]	0.017	<0.0032/0.010	[0.066]	<0.0093/0.020	7.53	503	16.0	1.42
	8/14/2014	DRY				NO		SAMPLE												DRY	DRY	
	12/15/2014	[4.6]	290	13	44	18	3.4	15	94	91	<0.50/5.0	<0.50/5.0	91	4.4	0.0093	<0.0032/0.010	[0.044]	0.0490	7.2	407	13.3	6.78
	3/17/2015	<2.0/5.0	430	35	74	25	5.2	51	40	260	<0.50/5.0	<0.50/5.0	260	1.4	0.033	<0.0032/0.010	0.19	<0.0093/0.020	6.52	611	13.7	1.7
	5/11/2015	DRY				NO		SAMPLE												DRY	DRY	
	8/19/2015	DRY				NO		SAMPLE												DRY	DRY	
	12/22/2015	8.3	170	6	24	9.9	1.9	5	55	36	<0.50/5.0	<0.50/5.0	36	5.8	0.0054	[0.0042]	[0.025]	<0.0093/0.020	7.27	222	12.9	11.8
	3/8/2016	[2.4]	240	13	39	15	2.7	11	61	84	<0.50/5.0	<0.50/5.0	84	0.91	0.014	<0.0032/0.010	[0.042]	<0.0093/0.020	7.36	283	11.5	3.88
	5/18/2016	<2.0/5.0	440	38	77	30	8.4	56	60	240	<0.50/5.0	<0.50/5.0	240	1.3	0.033	[0.0033]	0.15	<0.0093/0.020	7.25	843	19.2	1.78

Table 5-1
Surface Water - Summary of Field and Laboratory Analytical data
Monitoring Parameters
Union Mine Landfill
El Dorado County, California

		Monitoring Parameters																	Field Parameters			
Sample Location	Date mm/dd/year	TSS mg/l	TDS mg/l	Na mg/l	Ca mg/l	Mg mg/l	K mg/l	Cl mg/l	Sulfate mg/l	Bicarbonate mg/l	Hydroxide mg/l	Carbonate mg/l	Alkalinity mg/l	Nitrate-N[&] mg/l	As mg/l	Cu mg/l	Fe mg/l	Zinc mg/l	pH ph units	Conductivity µmhos/cm	Temperature °C	Turbidity NTU
S-2	3/30/2006	10	250	16	39	17	3	24	69	96	<5.0	<5.0	96	0.88	<0.01	<0.010	<0.10	0.013	6.92	508	13.2	1.3
creek entry	6/1/2006	8	480	45	74	32	5.4	63	97	20	<0.50/5.0	<0.50/5.0	20	1.3	0.014	<0.0032/0.010	[0.062]	[0.0098]	7.41	755	26.1	7.3
	9/7/2006	40	560	49	84	36	4	100	79	260	<0.50/5.0	<0.50/5.0	260	[0.18]	0.024	[0.0069]	[0.011]	0.022	7.51	870	18.6	37
	11/28/2006	58	610	45	100	41	4	89	240	170	<0.50/5.0	<0.50/5.0	170	[0.13]	0.034	<0.0032/0.010	[0.016]	0.17	6.49	935	11.9	25.8
	3/21/2007	55	270	46	20	22	3.4	29	78	120	<0.50/5.0	<0.50/5.0	120	0.64	0.013	<0.0032/0.010	[0.065]	0.11	6.84	460	16.8	36
	6/6/2007	12	370	59	26	32	3.3	42	87	170	<0.50/5.0	<0.50/5.0	170	[0.16]	0.028	<0.0032/0.010	[0.075]	0.11	6.79	619	16.4	12.5
	8/29/2007	DRY				NO		SAMPLE												DRY	DRY	
	12/21/2007	84	280	20	40	18	3.7	35	65	89	<0.50/5.0	<0.50/5.0	89	5.4	0.008	[0.0037]	0.024	0.054	7.96	390.7	8.72	240
	3/4/2008	<5.0	260	16	39	17	2.5	22	72	96	<0.50/5.0	<0.50/5.0	96	0.62	0.005	<0.0032/0.010	<0.0068/0.10	0.086	7.75	528	14.9	5.16
	5/7/2008	<5.0	360	27	54	25	2.2	40	98	150	<0.50/5.0	<0.50/5.0	150	[0.091]	0.0068	<0.0032/0.010	[0.035]	0.024	8.11	529	19.4	na
	8/13/2008	DRY				NO		SAMPLE												DRY	DRY	
	11/6/2008	DRY				NO		SAMPLE												DRY	DRY	
	1/16/2009	[2.0]	400	24	55	23	4.1	45	120	150	<0.50/5.0	<0.50/5.0	150	[0.22]	0.0062	[0.0043]	<0.0068/0.10	0.057	7.68	390	12.4	na
	4/16/2009	[2.0]	350	20	54	22	3.2	34	110	130	<0.50/5.0	<0.50/5.0	130	<0.053/0.50	0.0064	<0.0032/0.010	[0.027]	0.0029	7.44	391	15.5	na
	8/25/2009	DRY				NO		SAMPLE												DRY	DRY	
	10/27/2009	DRY				NO		SAMPLE												DRY	DRY	
	12/22/2009	<2.0/5.0	330	25	58	24	3.9	39	89	130	<0.50/5.0	<0.50/5.0	130	0.63	0.0072	[0.0049]	[0.026]	0.062	7.58	367	10.5	na
	2/11/2010	<2.0/5.0	270	24	55	23	4.1	18	76	89	<0.50/5.0	<0.50/5.0	89	[0.48]	0.0071	0.0071	[0.032]	[0.012]	6.72	262	11.2	na
	4/26/2010	[3.0]	250	14	36	16	2.0	19	65	100	<0.50/5.0	<0.50/5.0	100	[0.18]	0.0091	<0.0032/0.010	[0.027]	[0.010]	7.38	313	17.9	na
	9/22/2010	DRY				NO		SAMPLE												DRY	DRY	
	10/28/2010	27	290	20	33	17	6.2	41	42	110	<0.50/5.0	<0.50/5.0	110	1.2	0.015	<0.0032/0.010	[0.032]	[0.018]	7.39	273	14.2	na
	2/2/2011	<2.0/5.0	300	21	48	22	3.7	30	72	120	<0.50/5.0	<0.50/5.0	120	1.2	0.0086	0.0086	[0.016]	[0.0096]	7.42	398	12.2	na
	5/5/2011	<2.0/5.0	400	27	59	25	3.8	44	82	160	<0.50/5.0	<0.50/5.0	160	0.66	0.0095	<0.0032/0.010	<0.0068/0.10	<0.0093/0.020	7.6	414	18.9	na
	9/12/2011	DRY				NO		SAMPLE												DRY	DRY	
	10/11/2011	<2.0/5.0	260	15	33	13	4.0	29	47	65	<0.50/5.0	<0.50/5.0	65	6.2	0.019	[0.0033]	0.12	[0.016]	7.64	222	17.6	na
	3/19/2012	[3.8]	140	8.2	19	8.7	1.7	9.2	40	55	<0.50/5.0	<0.50/5.0	55	0.96	0.0074	0.0074	[0.051]	[0.012]	na	na	na	na
	5/7/2012	[2.8]	260	17	43	17	2.5	25	63	130	<0.50/5.0	<0.50/5.0	130	[0.063]	0.013	<0.01	[0.0078]	<0.0093/0.020	8.47	321	16.9	na
	9/10/2012	DRY				NO		SAMPLE												DRY	DRY	
	12/4/2012	10	190	11	26	11	2.7	5.8	41	53	<0.50/5.0	<0.50/5.0	53	2.7	0.0086	[0.00038]	[0.044]	<0.0093/0.020	7.32	178	14.7	na
	3/26/2013	<2.0/5.0	340	32	53	25	4.3	41	69	170	<0.50/5.0	<0.50/5.0	170	[0.060]	0.0011	0.0011	<0.0068/0.10	<0.0093/0.020	8.82	355	14.1	na
	5/24/2013	17	350	30	50	24	2.6	46	64	170	<0.50/5.0	<0.50/5.0	170	[0.13]	0.028	<0.0032/0.010	<0.0068/0.10	<0.0093/0.020	8.15	413	19.5	na
	8/13/2013	DRY				NO		SAMPLE												DRY	DRY	
	12/20/2013	DRY				NO		SAMPLE												DRY	DRY	
	2/12/2014	[4.0]	200	[11]	32	13	2.7	16	59	50	<0.50/5.0	<0.50/5.0	50	[6.0]	0.0068	[0.0048]	[0.036]	[0.019]	7.48	179	14.6	6.14
	4/30/2014	<2.0/5.0	280	30	45	19	3.4	23	62	120	<0.50/5.0	<0.50/5.0	120	[0.30]	0.00076	<0.0032/0.010	[0.037]	<0.0093/0.020	8.28	271	17.8	1.57
	8/14/2014	DRY				NO		SAMPLE												DRY	DRY	
	12/15/2014	[3.0]	220	13	33	14	2.9	19	64	82	<0.50/5.0	<0.50/5.0	82	3.0	0.00084	<0.0032/0.010	[0.053]	<0.0093/0.020	7.5	249	10.5	7.34
	3/17/2015	2.8	330	24	53	21	2.1	33	70	160	<0.50/5.0	<0.50/5.0	160	[0.17]	0.0083	<0.0032/0.010	[0.017]	<0.0093/0.020	7.03	354	13.7	1.1
	5/11/2015	7.7	340	28	51	12	2.2	39	53	180	<0.50/5.0	<0.50/5.0	180	[0.17]	0.024	<0.0032/0.010	[0.024]	<0.0093/0.020	8.09	460	20.4	6.61
	8/19/2015	DRY				NO		SAMPLE												DRY	DRY	
	12/22/2015	8.8	110	5.6	13	6.0	1.6	5.3	33	22	<0.50/5.0	<0.50/5.0	22	2.9	0.0052	[0.006]	[0.090]	0.01	6.94	92	12.6	16.6
	3/8/2016	9	140	9.3	23	9.5	2.1	7.7	39	51	<0.50/5.0	<0.50/5.0	51	0.59	0.0063	[0.0046]	0.11	[0.018]	7.42	130	13.3	20.9
	5/18/2016	<2.0/5.0	360	30	65	27	2.4	42	73	190	<0.50/5.0	<0.50/5.0	190	[0.14]	0.017	<0.0032/0.010	[0.014]	<0.0093/0.020	7.82	610	21.7	1.02

Table 5-1
Surface Water - Summary of Field and Laboratory Analytical data
Monitoring Parameters
Union Mine Landfill
El Dorado County, California

		Monitoring Parameters																	Field Parameters			
Sample Location	Date mm/dd/year	TSS mg/l	TDS mg/l	Na mg/l	Ca mg/l	Mg mg/l	K mg/l	Cl mg/l	Sulfate mg/l	Bicarbonate mg/l	Hydroxide mg/l	Carbonate mg/l	Alkalinity mg/l	Nitrate-N[&] mg/l	As mg/l	Cu mg/l	Fe mg/l	Zinc mg/l	pH ph units	Conductivity µmhos/cm	Temperature ^{U}C	Turbidity NTU
S-6 background	3/30/2006	<5.0	87	6.1	13	5.1	<1.0	4.4	14	45	<5.0	<5.0	45	0.35	[0.00072]	<0.010	0.18	<0.020	6.40	3675	12.1	13.2
	6/1/2006	<2.0/5.0	140	9.1	24	8.5	1.1	7.2	35	77	<0.50/5.0	<0.50/5.0	77	<0.053/0.50	<0.27/5.0	[0.0051]	[0.011]	<0.0093/0.020	7.06	232	20.3	13
	9/7/2006	13	230	11	36	12	1.5	8.6	79	350	<0.50/5.0	<0.50/5.0	350	<0.053/0.50	[0.0018]	[0.0047]	<0.0068/0.10	<0.0093/0.020	7.19	371	18.3	13
	11/28/2006	72	220	13	35	14	1.0	16	78	74	<0.50/5.0	<0.50/5.0	74	[0.27]	<0.27/5.0	<0.0032/0.010	[0.036]	<0.0093/0.020	7.50	344	10.1	52
	3/21/2007	<2.0/5.0	110	9	21	8	1.2	8	30	63	<0.50/5.0	<0.50/5.0	63	[0.067]	<0.27/5.0	<0.0032/0.010	<0.0068/0.10	<0.0093/0.020	6.48	200	15.6	12.8
	6/6/2007	<2.0/5.0	140	9.9	23	8.7	[0.85]	7.5	32	72	<0.50/5.0	<0.50/5.0	72	[0.069]	[0.00072]	<0.0032/0.010	<0.0068/0.10	0.036	6.80	237	14.6	1.7
	8/29/2007	DRY				NO		SAMPLE												DRY	DRY	
	11/28/2007	<2.0/5.0	100	7.7	17	6.8	[0.55]	5.1	21	55	<0.50/5.0	<0.50/5.0	55	<0.053/0.50	[0.0011]	<0.0032/0.010	<0.0068/0.10	<0.0093/0.020	8.27	208	8.27	na
	3/4/2008	<2.0/5.0	120	8.4	19	7.4	1.1	7.5	22	63	<0.50/5.0	<0.50/5.0	63	[0.090]	[0.00082]	<0.0032/0.010	[0.014]	0.052	7.51	322	11.4	0.56
	5/7/2008	<2.0/5.0	130	8.7	20	7.9	[0.95]	8.3	25	67	<0.50/5.0	<0.50/5.0	67	[0.069]	[0.00093]	<0.0032/0.010	[0.012]	[0.0096]	7.63	170	15.3	na
	8/13/2008	DRY				NO		SAMPLE												DRY	DRY	
	11/6/2008	<2.0/5.0	160	9.7	25	9.6	2.6	8.5	60	54	<0.50/5.0	<0.50/5.0	54	[0.14]	[0.0012]	<0.0032/0.010	<0.1	<0.0093/0.020	7.21	210	13.5	na
	1/16/2009	<2.0/5.0	120	7.7	19	7.2	[0.74]	8.0	38	54	<0.50/5.0	<0.50/5.0	54	[0.10]	[0.00064]	<0.0032/0.010	[0.053]	0.027	7.3	190	11.9	na
	4/16/2009	<2.0/5.0	130	8.4	21	7.6	1.0	7.6	26	65	<0.50/5.0	<0.50/5.0	65	[0.062]	[0.00065]	<0.0032/0.010	<0.0068/0.10	[0.019]	7.66	137	13.3	na
	8/25/2009	DRY				NO		SAMPLE												DRY	DRY	
	10/27/2009	<2.0/5.0	160	10	24	9.2	1.4	7.8	40	69	<0.50/5.0	<0.50/5.0	69	[0.080]	[0.0015]	<0.0032/0.010	<0.0068/0.10	[0.012]	7.05	623	15.8	na
	12/22/2009	<2.0/5.0	140	9.7	24	9.0	[1.0]	9.6	34	60	<0.50/5.0	<0.50/5.0	60	[0.13]	[0.00056]	[0.043]	<0.0068/0.10	[0.017]	7.64	173	10.7	na
	2/11/2010	<2.0/5.0	130	9.1	18	7.4	1.0	7.6	21	63	<0.50/5.0	<0.50/5.0	63	[0.20]	[0.00082]	<0.0032/0.010	<0.0068/0.10	<0.0093/0.020	6.96	137	10.1	na
	4/26/2010	<2.0/5.0	120	8.7	21	7.5	1.1	7.0	23	65	<0.50/5.0	<0.50/5.0	65	[0.13]	0.0023	<0.0032/0.010	[0.021]	<0.0093/0.020	7.43	235	16.30	na
	9/22/2010	DRY				NO		SAMPLE												DRY	DRY	
	10/28/2010	<2.0/5.0	190	10	25	10	3.4	12	44	60	<0.50/5.0	<0.50/5.0	60	[0.43]	[0.0011]	[0.035]	<0.0068/0.10	<0.0093/0.020	7.40	168	13.2	na
	2/2/2011	9.6	130	8.8	19	8.2	1.2	8.1	27	56	<0.50/5.0	<0.50/5.0	56	[0.30]	[0.00086]	<0.002	[0.0078]	<0.0093/0.020	6.97	153	9.60	na
	5/5/2011	<2.0/5.0	140	7.7	22	8.5	1.1	8.2	36	66	<0.50/5.0	<0.50/5.0	66	<0.053/0.50	[0.00097]	<0.0032/0.010	<0.0068/0.10	0.027	7.20	166	17.6	na
	9/12/2011	DRY				NO		SAMPLE												DRY	DRY	
	10/11/2011	<2.0/5.0	150	8.7	27	8.2	1.3	12	31	69	<0.50/5.0	<0.50/5.0	69	[0.25]	[0.0014]	[0.0035]	<0.0068/0.10	<0.0093/0.020	7.69	152	16.50	na
	3/19/2012	[4.0]	94	5.5	12	4.6	1.2	4.1	12	46	<0.50/5.0	<0.50/5.0	46	[0.45]	[0.00081]	<0.0032/0.010	[0.036]	<0.0093/0.020	7.85	92	9.90	na
	5/7/2012	<2.0/5.0	120	8.1	21	7.9	1.2	7.3	28	69	<0.50/5.0	<0.50/5.0	69	[0.074]	[0.00086]	<0.0032/0.010	<0.0068/0.10	<0.0093/0.020	8.2	148	14.50	na
	9/10/2012	DRY				NO		SAMPLE												DRY	DRY	
	12/4/2012	<2.0/5.0	130	8.0	20	7.1	1.7	6.9	24	53	<0.50/5.0	<0.50/5.0	53	1.5	[0.00092]	<0.0032/0.010	[0.016]	<0.0093/0.020	7.40	132	14.0	na
	3/26/2013	<2.0/5.0	130	11	18	7.8	1.3	8.6	24	65	<0.50/5.0	<0.50/5.0	65	[0.067]	[0.0011]	<0.0032/0.010	<0.0068/0.10	<0.0093/0.020	8.27	124	13.2	na
	5/24/2013	<2.0/5.0	110	8.6	18	7.2	1.0	7.1	20	67	<0.50/5.0	<0.50/5.0	67	[0.053]	[0.0014]	<0.0032/0.010	<0.0068/0.10	0.027	7.90	143	18.7	na
	8/13/2013	DRY				NO		SAMPLE												DRY	DRY	
	12/20/2013	<2.0/5.0	76	6.0	14	5.2	[0.71]	4.1	15	52	<0.50/5.0	<0.50/5.0	52	<0.053/0.50	[0.00087]	<0.0032/0.010	<0.0068/0.10	<0.0093/0.020	7.56	119	4.4	0.7
	2/12/2014	<2.0/5.0	110	6.6	18	6.4	1.2	7.0	25	49	<0.50/5.0	<0.50/5.0	49	[0.94]	[0.00093]	<0.0032/0.010	[0.015]	<0.0093/0.020	7.42	99	13.7	2.62
	4/30/2014	<2.0/5.0	130	8.8	18	8	1.8	6.6	19	67	<0.50/5.0	<0.50/5.0	67	[0.17]	[0.00093]	<0.0032/0.010	[0.012]	<0.0093/0.020	8.20	125	14.9	2.51
	8/14/2014	DRY				NO		SAMPLE												DRY	DRY	
	12/15/2014	<2.0/5.0	120	8.4	20	7.8	1.3	8.4	32	81	<0.50/5.0	<0.50/5.0	81	0.71	[0.00082]	<0.0032/0.010	[0.053]	<0.0093/0.020	7.36	150	10.2	1.04
	3/17/2015	<2.0/5.0	140	10	24	9.0	[0.79]	8.8	30	78	<0.50/5.0	<0.50/5.0	78	[1.6]	[0.0012]	<0.0032/0.010	<0.0068/0.10	<0.0093/0.020	6.65	175	12.6	0.74
	5/11/2015	<2.0/5.0	130	10	21	4.7	[0.66]	7.8	28	72	<0.50/5.0	<0.50/5.0	72	<0.053/0.50	[0.082]	<0.0032/0.010	<0.0068/0.10	<0.0093/0.020	7.42	266	18.7	0.83
	8/19/2015	DRY				NO		SAMPLE												DRY	DRY	
	12/22/2015	15	87	4.3	9.6	3.1	1.6	3.7	8.0	28	<0.50/5.0	<0.50/5.0	28	1.5	[0.0011]	[0.004]	[0.074]	<0.0093/0.020	7.13	64	12	22.8
	3/8/2016	6.0	82	6.0	13.0	5.0	1.5	3.7	11	40	<0.50/5.0	<0.50/5.0	40	0.54	[0.0005]	<0.0032/0.010	[0.012]	<0.0093/0.020	7.81	79	12.4	10.4
	5/18/2016	<2.0/5.0	130	8.9	24.0	9.5	<0.18/1.0	7.9	31	84	<0.50/5.0	<0.50/5.0	84	[0.13]	[0.00057]	<0.0032/0.010	<0.0068/0.10	<0.0093/0.020	7.66	238	18.5	0.75

Table 5-1
Surface Water - Summary of Field and Laboratory Analytical data
Monitoring Parameters
Union Mine Landfill
El Dorado County, California

		Monitoring Parameters																	Field Parameters			
Sample Location	Date mm/dd/year	TSS mg/l	TDS mg/l	Na mg/l	Ca mg/l	Mg mg/l	K mg/l	Cl mg/l	Sulfate mg/l	Bicarbonate mg/l	Hydroxide mg/l	Carbonate mg/l	Alkalinity mg/l	Nitrate-N[&] mg/l	As mg/l	Cu mg/l	Fe mg/l	Zinc mg/l	pH ph units	Conductivity µmhos/cm	Temperature °C	Turbidity NTU
S-7*	3/30/2006	<5.0	89	6.3	15	5.8	1.0	4.3	20	44	<5.0	<5.0	44	0.26	[0.0015]	[0.0037]	[0.020]	<0.020	7.36	1140	11.6	1.8
compliance	6/1/2006	<2.0/5.0	180	13	29	11	1.5	13	40	88	<0.50/5.0	<0.50/5.0	88	[0.092]	[0.0015]	<0.0032/0.010	[0.014]	<0.0093/0.020	7.24	288	19.6	14
	9/7/2006	40	**410**	30	**61**	**23**	2.5	49	**91**	170	<0.50/5.0	<0.50/5.0	170	<0.053/0.50	0.0072	[0.0091]	<0.0068/0.10	<0.0093/0.020	8.00	618	17.6	5.64
	11/28/2006	<2.0/5.0	250	17	40	16	1.2	25	**96**	75	<0.50/5.0	<0.50/5.0	75	[0.23]	<0.27/5.0	<0.0032/0.010	[0.063]	<0.0093/0.020	7.25	417	9.1	20.1
	3/21/2007	<2.0/5.0	130	9.6	23	8.6	1.2	9.9	35	64	<0.50/5.0	<0.50/5.0	64	[0.077]	<0.005	<0.0032/0.010	<0.0068/0.10	<0.0093/0.020	7.24	225	15.4	0.3
	6/6/2007	<2.0/5.0	190	16	33	13	1.3	1.8	42	97	<0.50/5.0	<0.50/5.0	97	<0.053/0.50	0.033	<0.0032/0.010	[0.028]	[0.0097]	6.80	237	14.6	1.7
	8/29/2007	DRY				NO		SAMPLE												DRY	DRY	
	11/28/2007	[3.8]	94	9.5	20	8.1	[0.61]	8.9	26	64	<0.50/5.0	<0.50/5.0	64	[0.057]	[0.0022]	<0.0032/0.010	[0.039]	<0.0093/0.020	8.28	212	9.4	na
	3/4/2008	<2.0/5.0	130	8.9	21	8.1	1.1	8.9	28	61	<0.50/5.0	<0.50/5.0	61	[0.12]	[0.0015]	<0.0032/0.010	[0.023]	0.071	8.01	286	13.2	0.97
	5/7/2008	<2.0/5.0	150	11	23	9.6	1.1	12	33	77	<0.50/5.0	<0.50/5.0	77	[0.073]	0.0024	<0.0032/0.010	[0.048]	[0.015]	7.72	189	15.6	na
	8/13/2008	DRY				NO		SAMPLE												DRY	DRY	
	11/6/2008	<2.0/5.0	230	15	32	13	1.5	20	**81**	72	<0.50/5.0	<0.50/5.0	72	[0.12]	0.0032	[0.0052]	[0.042]	[0.011]	7.11	254	13.7	na
	1/16/2009	<2.0/5.0	140	9.4	23	8.7	[0.87]	12	43	59	<0.50/5.0	<0.50/5.0	59	[0.096]	[0.0017]	<0.0032/0.010	[0.053]	0.025	7.79	212	10.7	na
	4/16/2009	<2.0/5.0	150	9.2	23	8.6	1.1	9.6	32	66	<0.50/5.0	<0.50/5.0	66	[0.058]	[0.0013]	<0.0032/0.010	[0.025]	[0.0096]	7.23	184	14.4	na
	8/25/2009	DRY				NO		SAMPLE												DRY	DRY	
	10/27/2009	<2.0/5.0	240	17	36	15	1.6	**20**	61	96	<0.50/5.0	<0.50/5.0	**96**	[0.061]	0.0036	<0.0032/0.010	[0.023]	0.036	7.24	376	15	na
	12/22/2009	<2.0/5.0	150	12	30	12	1.2	14	40	68	<0.50/5.0	<0.50/5.0	68	[0.15]	0.0021	[0.0037]	[0.022]	0.048	7.43	189	9.6	na
	2/11/2010	<2.0/5.0	140	9.2	19	7.9	1.0	9.0	27	63	<0.50/5.0	<0.50/5.0	63	[0.20]	[0.0014]	<0.0032/0.010	<0.0068/0.10	0.025	6.86	146	10.7	na
	4/26/2010	<2.0/5.0	130	9.1	22	8.1	1.1	8.0	27	66	<0.50/5.0	<0.50/5.0	66	[0.12]	0.0079	<0.0032/0.010	[0.026]	<0.0093/0.020	7.29	147	16.7	na
	9/22/2010	DRY				NO		SAMPLE												DRY	DRY	
	10/28/2010	<2.0/5.0	**250**	14	30	13	2.0	**22**	50	80	<0.50/5.0	<0.50/5.0	**80**	[0.40]	0.0048	<0.0032/0.010	[0.037]	<0.0093/0.020	7.30	202	13.3	na
	2/2/2011	<2.0/5.0	140	10.0	22	9.5	1.4	10.0	32	61	<0.50/5.0	<0.50/5.0	61	[0.33]	[0.0014]	<0.0032/0.010	[0.021]	<0.0093/0.020	7.30	171	9.6	na
	5/5/2011	<2.0/5.0	160	9.3	25	9.9	1.7	12.0	40	74	<0.50/5.0	<0.50/5.0	74	[0.14]	0.0024	<0.0032/0.010	[0.018]	<0.0093/0.020	7.31	251	20.5	na
	9/12/2011	DRY				NO		SAMPLE												DRY	DRY	
	10/11/2011	<2.0/5.0	180	10.0	29	9.1	1.3	16.0	35	70	<0.50/5.0	<0.50/5.0	70	[0.36]	0.0032	<0.0032/0.010	[0.019]	<0.0093/0.020	7.79	156	16.7	na
	3/19/2012	[4.6]	99	5.6	12	4.8	1.0	4.4	15	43	<0.50/5.0	<0.50/5.0	43	[0.46]	[0.001]	<0.0032/0.010	[0.036]	<0.0093/0.020	7.87	95	10.9	na
	5/7/2012	<2.0/5.0	140	9.0	24	8.9	1.2	9.4	33	79	<0.50/5.0	<0.50/5.0	79	[0.074]	0.0023	<0.0032/0.010	[0.0086]	<0.0093/0.020	8.45	164	13.9	na
	9/10/2012	DRY				NO		SAMPLE												DRY	DRY	
	12/4/2012	<2.0/5.0	130	8.8	21	8.0	2.0	3.3	27	49	<0.50/5.0	<0.50/5.0	49	1.1	[0.0019]	<0.0032/0.010	[0.022]	<0.0093/0.020	7.42	136	14.3	na
	3/26/2013	<2.0/5.0	140	12.0	21	9.0	1.4	11.0	28	68	<0.50/5.0	<0.50/5.0	68	[0.060]	[0.0020]	<0.0032/0.010	<0.0068/0.10	<0.0093/0.020	8.65	137	14.5	na
	5/24/2013	<2.0/5.0	120	10.0	21	8.5	[0.93]	9.7	24	74	<0.50/5.0	<0.50/5.0	74	<0.053/0.50	0.0029	<0.0032/0.010	[0.014]	<0.0093/0.020	7.92	139	16.5	na
	8/13/2013	DRY				NO		SAMPLE												DRY	DRY	
	12/20/2013	<2.0/5.0	96	6.7	16	6.1	[0.68]	6.2	19	54	<0.50/5.0	<0.50/5.0	54	<0.053/0.50	[0.0015]	<0.0032/0.010	<0.0068/0.10	<0.0093/0.020	7.63	98	3.5	0.53
	2/12/2014	<2.0/5.0	110	7.4	19	7.0	1.3	7.8	26	49	<0.50/5.0	<0.50/5.0	49	[1.4]	[0.0014]	<0.0032/0.010	[0.027]	<0.0093/0.020	7.79	102	13.3	2.77
	4/30/2014	<2.0/5.0	140	10.0	23	9.5	2.0	8.1	24	69	<0.50/5.0	<0.50/5.0	69	[0.17]	0.0021	<0.0032/0.010	[0.027]	<0.0093/0.020	8.43	127	16.9	0.76
	8/14/2014	DRY				NO		SAMPLE												DRY	DRY	
	12/15/2014	<2.0/5.0	150	9.3	22	8.7	1.3	10.0	40	64	<0.50/5.0	<0.50/5.0	64	0.87	0.0021	<0.0032/0.010	[0.019]	<0.0093/0.020	7.74	154	10.1	258
	3/17/2015	<2.0/5.0	160	11	27	10	[0.54]	12.0	37	82	<0.50/5.0	<0.50/5.0	82	[0.16]	0.0027	<0.0032/0.010	[0.028]	<0.0093/0.020	6.99	176	12.3	0.37
	5/11/2015	<2.0/5.0	180	13	26	5.8	[0.75]	13.0	36	90	<0.50/5.0	<0.50/5.0	90	[0.15]	0.0039	<0.0032/0.010	[0.015]	<0.0093/0.020	7.96	213	19.0	0.64
	8/19/2015	DRY				NO		SAMPLE												DRY	DRY	
	12/22/2015	14	91	4.5	10	3.4	1.5	3.8	10	30	<0.50/5.0	<0.50/5.0	30	1.4	[0.0011]	[0.0042]	[0.019]	<0.0093/0.020	7.24	59	10.4	16.7
	3/8/2016	**51**	79	6.1	14	5.2	1.8	3.8	12	42	<0.50/5.0	<0.50/5.0	42	0.53	[0.0011]	<0.0032/0.010	[0.017]	<0.0093/0.020	7.73	75	12.0	17.5
	5/18/2016	<2.0/5.0	170	11	29	12	<0.18/1.0	12	38	88	<0.50/5.0	<0.50/5.0	88	0.12	0.003	<0.0032/0.010	[0.070]	<0.0093/0.020	7.55	246	18.7	0.00
Concentration limits		44.8	240	33.3	42.9	17.2	13.8	52.3	76.9	298.7	5.0	5.0	298.7	2.5	0.052	0.45	0.22	1.5				

BOLD = values that exceed concentration limits for S-7.
Cl = Chloride
TSS = Total Suspended Solids
TDS = Total Dissolved Solids
Na = Sodium
Ca = Calcium

*** =downstream point of compliance location.**
Cu = Copper
Fe = Iron
K =Potassium
Cl = Chloride
As = Arsenic

Mg = Magnesium
NA = not available
# = regulatory action level
mg/l = milligrams per liter

@ = sodium sensitivity on certain crops
$ = secondary MCL
[ ] = J value - detected but below Reporting Limit; therefore, result is an estimated concentration.
& = Nitrate as N = 0.2259 x Nitrate as NO_3 (when applicable)

Table 5-2
Seep MS-1
Summary of Field and Laboratory Analytical data
Monitoring Parameters
Union Mine Landfill
El Dorado County, California

		Field Parameters							
Sample	**Date**	**pH**	**Conductivity**	**Temperature**	**Cl**	**Fe**	**As**	**pH-lab**	**TDS**
Location	mm/dd/year	ph units	umhos/cm	^0C	mg/l	mg/l	mg/l	ph units	mg/l
MS-1	3/30/2006	6.7	575	14.3	13	<0.05	<0.01	6.42	190
(Church Mine Rd seep)	6/1/2006	6.54	311	17.7	15	<0.1	<0.005	6.31	200
	9/7/2006	DRY			DRY				DRY
	11/28/2006	DRY			DRY				DRY
	3/22/2007	5.61	340	12.5	17	<0.1	<0.005	6.05	200
	6/6/2007	5.96	512	17.1	31	<0.1	0.0026	6.25	320
	8/29/2007	DRY			DRY				DRY
	12/21/2007	7.04	477	10	32	<0.10	0.0023	6.28	330
	3/4/2008	6.51	279	15.6	15	<0.1	[0.0011]	6.1	220
	5/7/2008	6.62	431	18.3	33	<0.1	0.0039	6.19	350
	8/13/2008	DRY			DRY				DRY
	11/6/2008	DRY			DRY				DRY
	1/16/2009	6.51	279	15.6	31	0.21	0.0031	6.73	390
	4/16/2009	6.62	431	18.3	22	0.15	0.0024	6.48	370
	8/19/2009	DRY			DRY				DRY
	10/27/2009	DRY			DRY				DRY
	12/22/2009	6.91	415	13.5	27	<0.1	0.0022	6.98	370
	2/11/2010	5.96	297	14.2	19	<0.10	[0.0010]	na	390
	4/26/2010	6.62	431	18.3	22	<0.10	0.0037	na	370
	9/22/2010	DRY			DRY				DRY
	10/28/2010	6.15	354	19.4	32	<0.1	0.0028	6.32	380
	2/2/2011	6.22	326	11.4	16	[0.065]	0.0031	6.48	310
	5/5/2011	6.14	337	19.6	20	0.2	0.0038	6.33	320
	9/12/2011	DRY			DRY				DRY
	10/11/2011	6.75	410	20.4	49	0.31	0.0066	6.66	430
	3/19/2012	6.54	223	14.0	14	[0.025]	0.0031	6.4	190
	5/7/2012	6.91	319	18.3	16	[0.012]	0.0026	6.48	280
	9/10/2012	DRY			DRY				DRY
	12/4/2012	6.54	246	15.9	14	<0.1	<0.002	5.99	220
	3/26/2013	DRY			DRY				DRY
	5/24/2013	DRY			DRY				DRY
	8/13/2013	DRY			DRY				DRY
	12/20/2013	DRY			DRY				DRY
	2/12/2014	6.53	204	16.1	14	<0.10	[0.0017]	6.39	230
	4/30/2014	DRY			DRY				DRY
	8/14/2014	DRY			DRY				DRY
	12/15/2014	6.49	296	15.7	17	<0.10	[0.0017]	6.31	250
	3/17/2015	DRY			DRY				DRY
	5/11/2015	DRY			DRY				DRY
	8/19/2015	DRY			DRY				DRY
	12/22/2015	6.54	182	13.2	14	<0.0068/0.10	0.0034	6.48	200
	3/8/2016	6.29	211	16.0	12	<0.0068/0.10	[0.00062]	6.18	200
	5/18/2016	DRY			DRY				DRY
Concentration Limits		NA	NA	NA	18	0.18	0.1	NA	190

Table 5-3
Historic Surface Water Analytical Results
Five-Year Constituents of Concern
Union Mine Landfill
El Dorado County, California

Sample Location	Date mm/dd/year	Cyanide mg/l	Sulfide mg/l	TOC mg/l	Mercury µg/l	Aluminium µg/l	Barium µg/l	Beryllium µg/l	Cadmium µg/l	Chromium µg/l	Cobalt µg/l	Copper µg/l	Manganese µg/l	Nickel µg/l	Silver µg/l	Tin µg/l	Antimony µg/l	Lead µg/l	Selenium µg/l	Thallium µg/l	Vanadium µg/l
S-1	6/1/2006	[0.00820]	2.0	4.9	<0.15/0.20	[34]	59	[0.64]	<2.8/10	<9.9/10	<7.6/20	<3.2/10	2300	9.9	<2.9/10	[32]	<0.57/6.0	<0.23/5.0	<1.1/5.0	<0.11/1.0	<3.0/20
west pond	10/11/2011	<0.0020/0.0050	<0.84/1.0	5.6	<0.15/0.20	[41]	40	<0.43/5.0	[4.1]	<9.9/10	<7.6/20	<3.2/10	540	<14/20	<2.9/10	[26]	<0.57/6.0	[0.26]	[3.0]	<0.11/1.0	[0.65]
	5/18/2016	<0.0012/0.0050	<0.84/1.0	5.6	[1.7]	<27/50	79	<0.43/5.0	<2.8/10	<9.9/10	<7.6/20	[3.3]	1600	[18]	<2.9/10	<18/100	<0.57/6.0	<1.2/25	<1.1/5.0	[1.7]	[2.9
S-2	6/1/2006	[0.00290]	<0.84/1.0	6.6	<0.15/0.20	[42]	50	[0.68]	<2.8/10	<9.9/10	<7.6/20	<3.2/10	430	7.4	<2.9/10	[32]	<0.57/6.0	<0.23/5.0	<1.1/5.0	<0.11/1.0	<3.0/20
creek entry	10/11/2011	<0.0020/0.0050	<0.84/1.0	14	<0.15/0.20	[38]	29	[0.51]	[3.0]	<9.9/10	<7.6/20	<3.2/10	420	<14/20	<2.9/10	[24]	<0.57/6.0	<0.23/5.0	[1.2]	<0.11/1.0	[0.88]
	5/18/2016	<0.0012/0.0050	<0.84/1.0	8.6	0.94	[0.0032]	32	<0.43/5.0	<2.8/10	<9.9/10	<7.6/20	<3.2/10	260	<14/20	<2.9/10	<18/100	[3.2]	0.41	<1.1/5.0	<0.11/1.0	[1.3]
S-6	6/1/2006	<0.0020/0.0050	2.0	1.8	<0.15/0.20	[33]	25	[0.85]	<2.8/10	<9.9/10	<7.6/20	[5.1]	22	[1.3]	<2.9/10	[27]	<0.57/6.0	<0.23/5.0	<1.1/5.0	<0.11/1.0	[3.5]
background	10/11/2011	<0.0020/0.0050	<0.84/1.0	5.0	<0.15/0.20	<27/50	23	<0.43/5.0	<2.8/10	<9.9/10	<7.6/20	<3.2/10	[1.1]	<14/20	<2.9/10	[20]	<0.57/6.0	<0.23/5.0	<1.1/5.0	<0.11/1.0	[0.69]
	5/18/2016	<0.0012/0.0050	<0.84/1.0	5.8	0.5	<27/50	27	<0.43/5.0	<2.8/10	<9.9/10	<7.6/20	<3.2/10	[2.4]	<14/20	<2.9/10	<18/100	[1.7]	<0.23/5.0	<1.1/5.0	<0.11/1.0	[1.3]
S-7*	6/1/2006	<0.0020/0.0050	**4.4**	1.5	<0.15/0.20	[34]	**29**	[0.68]	<2.8/10	<9.9/10	<7.6/20	<3.2/10	**91**	2.1	<2.9/10	[21]	<0.57/6.0	<0.23/5.0	<1.1/5.0	<0.11/1.0	<3.0/20
compliance	10/11/2011	<0.0020/0.0050	<0.84/1.0	5.3	<0.15/0.20	<27/50	23	<0.43/5.0	<2.8/10	<9.9/10	<7.6/20	<3.2/10	37	<14/20	<2.9/10	<18/100	<0.57/6.0	<0.23/5.0	<1.1/5.0	<0.11/1.0	[0.71]
	5/18/2016	<0.0012/0.0050	<0.84/1.0	5.1	0.22	<27/50	27	<0.43/5.0	<2.8/10	<9.9/10	<7.6/20	<3.2/10	59	<14/20	<2.9/10	<18/100	[1.4]	<0.23/5.0	<1.1/5.0	<0.11/1.0	[0.73]
Concentration limits	---	0.005	2.0	5.8	0.5	50	27	5.0	10	10	20	10	90	20	10	100	6.0	5.0	5.0	1.0	3.5

NS = not sampled
BOLD = values that exceed concentration limit for S-7.
µg/l = micrograms per liter

TOC = Total Organic Carbon
* =downstream point of compliance location.
mg/l = milligrams per liter
[x] = j value

LEGEND

- SURFACE WATER SAMPLING POINT
- SEEP SAMPLING POINT
- GROUNDWATER DRAIN

N

0 500 1000

SCALE IN FEET

SOURCE: ROBERT A. LAURITZEN, PG
COUNTY OF EL DORADO, ENVIRONMENTAL MANAGEMENT DEPTARTMENT (2008)
AERIAL: DIGITALGLOBE © 2008

FIGURE 5-1

	UNION MINE LANDFILL	JOB NO. 2008.0160
	SAMPLING LOCATIONS FOR SURFACE WATER AND GROUNDWATER DRAINS	DATE 12-2008
		DRAWN BY BRA
		FILE NAME GEOLOGY FIG

6. UNSATURATED ZONE

The Class II surface impoundment in WMU-2 contains two lysimeters that monitor subsurface conditions in the unsaturated zone above groundwater. Each lysimeter is currently monitored according to the MRP schedule.

6.1 DESCRIPTION OF MONITORING POINTS

Unsaturated zone monitoring beneath the Class II surface impoundment consists of two pressure/vacuum lysimeters installed beneath the clay liner in crush rock fill material used to create an elevated basin for the Class II surface impoundment. One of the lysimeters is located at the north end (L2N) and one is at the south end (L2S) of the impoundment. Each lysimeter consists of a buried subsurface lysimeter which collects soil-pore water from the surrounding unsaturated zone. Water is pulled into the lysimeter by applying vacuum via polyethylene tubing to the surface. Water sample collection is performed by applying air pressure to the lysimeter so that water flows up the parallel set of tubing to ground surface.

6.2 SAMPLING PROCEDURES

Class II surface impoundment lysimeters are checked for the presence of liquid and monitored quarterly for measurement of pH and specific conductivity, sampled semiannually for the Monitoring Parameters, and 5-year analysis for the COC, if applicable that year. Liquids collection in both lysimeters is performed by applying a vacuum to the lysimeter for a minimum of one hour. If sufficient liquids are recovered they are monitored for field parameters and/or laboratory analysis.

6.3 ANALYSIS RESULTS

No samples or liquid were collected from lysimeters L2S L2N for January to June 2016. Field measurements and laboratory results (if available) are summarized in Tables 6-1 and 6-2. Laboratory method detection limits and reporting limits are presented on Table 6-2. In general, the ceramic cup lysimeters don't collect sufficient liquid for sampling because a significant capillary zone doesn't develop in the crushed rock fill beneath the Class II Impoundment. Laboratory reported J-values or estimated concentrations that are below a reporting limit are shown on Table 6-1 and each estimated concentration is displayed in brackets.

Table 6-1
Spring 2016
Field and Monitoring Parameters
Lysimeters - Class II Surface Impoundment (WMU-2)
Union Mine Landfill

Lysimeter	Date	pH (field)	Conductivity (field)	Total Alkalinity	Bicarbonate as $CaCO_3$	Carbonate as $CaCO_3$	Hydroxide as $CaCO_3$	Chloride	Nitrate as N	Sulfate	TDS	VOCs*
	mm/dd/yy	pH units	µmhos/cm	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	µg/l
L2N	2/29/2016	NS	NS									
	4/28/2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
L2S	2/29/2016	NS	NS									
	4/28/2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Lab analysis = semiannually
Field parameters = quarterly
NS = insufficient liquid for sample
* = see Table 6-2 for MDL/RL information
[ ] = J value - detected but below Reporting Limit; therefore, result is an estimated concentration.
= laboratory analysis not required

Table 6-2
Summary of Analytical Results and Method Detection Limits/Reporting Limits
Volatile Organic Compounds - EPA Method 8260B
Class II Surface Impoundment - Lysimeters
Union Mine Landfill

Location	Date	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromo-3-chloropropane	1,2-Dibromoethane(EDB)	1,2-Dichlorobenzene	1,2-Dichloroethane	1,2-Dichloropropane	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichloro-2butene	1,4-Dichlorobenzene	2,2-Dichloropropane	2-Butanone
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
L2N	6/9/2014	0.17/0.50	0.095/0.50	0.19/0.50	0.23/0.50	0.15/0.50	0.11/0.50	0.14/0.50	0.15/0.50	0.15/0.50	0.23/0.50	0.11/0.50	0.15/0.50	0.39/1.0	0.15/0.50	0.097/0.50	0.16/0.50	0.14/0.50	0.12/0.50	0.12/0.50	0.16/0.50	NA/0.50	0.16/0.50	0.27/0.50	1.1/10
	11/19/2014	0.17/0.50	0.095/0.50	0.19/0.50	0.23/0.50	0.15/0.50	0.11/0.50	0.14/0.50	0.15/0.50	0.15/0.50	0.23/0.50	0.11/0.50	0.15/0.50	0.39/1.0	0.15/0.50	0.097/0.50	0.16/0.50	0.14/0.50	0.12/0.50	0.12/0.50	0.16/0.50	NA/0.50	0.16/0.50	0.27/0.50	1.1/10
	6/16/2015	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	8/17/2015	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	10/28/2015	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	2/29/2016	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	4/28/2016	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
L2S	6/9/2014	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	11/19/2014	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	6/16/2015	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	8/17/2015	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	10/28/2015	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	2/29/2016	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	4/28/2016	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Note: MDL/RL = Method Detection Limit/Reporting Limit

--- = insufficient liquid for sample

[ ] = J value - detected but below Reporting Limit; therefore, result is an estimated concentration.

VOC's sampled semiannually in Class II Impoundment lysimeters.

Table 6-2
Summary of Analytical Results and Method Detection Limits/Reporting Limits
Volatile Organic Compounds - EPA Method 8260B
Class II Surface Impoundment - Lysimeters
Union Mine Landfill

Location	Date	2-Hexanone	4-Methyl-2-pentanone	Acetone	Acrylonitrile	Benzene	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform	Bromomethane	Carbon Disulfide	Carbon tetrachloride	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	cis-1,3-Dichloropropene	Dibromochloromethene	Dibromomethane	Dichlorodifluormethane (Freon 112)	Ethylbenzene
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
L2N	6/9/2014	0.90/10	1.6/10	1.0/10	NA/0.50	011/0.50	0.13/0.50	0.13/0.50	0.12/0.50	0.15/0.50	0.39/1.0	0.13/0.50	0.17/0.50	0.082/0.50	0.15/0.50	0.19/0.50	0.056/1.0	0.15/0.50	0.14/0.50	0.14/0.50	0.25/0.50	0.14/1.0	0.10/0.50
	11/19/2014	0.90/10	1.6/10	1.0/10	NA/0.50	011/0.50	0.13/0.50	0.13/0.50	0.12/0.50	0.15/0.50	0.39/1.0	0.13/0.50	0.17/0.50	0.082/0.50	0.15/0.50	0.19/0.50	0.056/1.0	0.15/0.50	0.14/0.50	0.14/0.50	0.25/0.50	0.14/1.0	0.10/0.50
	6/16/2015	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	8/17/2015	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	10/28/2015	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	2/29/2016	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	4/28/2016	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
L2S	6/9/2014	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	11/19/2014	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	6/16/2015	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	8/17/2015	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	10/28/2015	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	2/29/2016	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	4/28/2016	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Note: MDL/RL = Method Detection Limit/Reporting Limit

--- = insufficient liquid for sample

[ ] = J value - detected but below Reporting Limit; therefore, result is an estimated concentration.

ND = none detected

Table 6-2
Summary of Analytical Results and Method Detection Limits/Reporting Limits
Volatile Organic Compounds - EPA Method 8260B
Class II Surface Impoundment - Lysimeters
Union Mine Landfill

Location	Date	Hexachlorobutadiene	Iodomethane	Isopropylbenzene	Methyl tert-butyl ether	Methylene Chloride	Naphthalene	n-Butylbenzene	n-Propylbenzene	o-Chlorotoluene	p-Chlorotoluene	p-Isopropyltoluene	sec-Butylbenzene	Styrene	Tert-Butylbenzene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl acetate	vinyl chloride	Xylenes (total)
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
L2N	6/9/2014	0.23/0.50	NA/0.50	0.11/0.50	0.095/0.50	0.24/0.50	0.21/0.50	0.10/0.50	0.13/0.50	0.092/0.50	0.11/0.50	0.14/0.50	0.088/0.50	0.10/0.50	0.082/0.50	0.13/0.50	0.11/0.50	0.15/0.50	0.18/0.50	0.063/0.50	0.14/0.50	0.20/1.0	0.14/1.0	0.33/1.0
	11/19/2014	0.23/0.50	NA/0.50	0.11/0.50	0.095/0.50	0.24/0.50	0.21/0.50	0.10/0.50	0.13/0.50	0.092/0.50	0.11/0.50	0.14/0.50	0.088/0.50	0.10/0.50	0.082/0.50	0.13/0.50	0.11/0.50	0.15/0.50	0.18/0.50	0.063/0.50	0.14/0.50	0.20/1.0	0.14/1.0	0.33/1.0
	6/16/2015	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	8/17/2015	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	10/28/2015	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	2/29/2016	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	4/28/2016	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
L2S	6/9/2014	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	11/19/2014	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	6/16/2015	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	8/17/2015	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	10/28/2015	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	2/29/2016	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	4/28/2016	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Note: MDL/RL = Method Detection Limit/Reporting Limit

--- = insufficient liquid for sample

[ ] = J value - detected but below Reporting Limit; therefore, result is an estimated concentration.

ND = none detected

7. GROUNDWATER DRAINS AND PENDAR TUNNEL

The following four locations are surface drains or tunnels at Union Mine Landfill and are currently monitored according to the MRP schedule:

- GWD-1 - discharge (intermittent) from the Union Mine Road underdrain. This underdrain channels water to a point in the Martinez Creek drainage, near the south west corner of the landfill, approximately 50 ft. north east of the Pendar tunnel. (Incorrectly identified in MRP)

- GWD-2 – discharge (intermittent) from the Class II landfill underdrain. A pipe carries groundwater to a discharge point near the unnamed drainage to Martinez Creek, approximately 500 feet east of Union Mine road. (Incorrectly identified in MRP).

- GWD-3 - discharge from an intermittent spring or drainage located below the upper (North) spray field.

- Pendar Tunnel - entrance to this tunnel is located near the south west corner of the landfill expansion area, about 50 feet south and above the Unnamed Creek drainage.

- Springfield Shaft Spring – the plugged Springfield Shaft is adjacent to the east side of the Class II landfill. A spring discharges water into a constructed basin around the Springfield Shaft area.

7.1 SAMPLING AND ANALYSIS RESULTS

These locations are not Points of Compliance but are monitored to provide additional information on potential impact to water quality in Martinez Creek. These specified monitoring locations reflect subsurface water quality from the source areas they drain from. Sampling locations are shown on Figure 5-1. The location of the Springfield Shaft is shown on Figure 4-1. Laboratory results for drain locations are summarized in Table 7-1.

All samples were collected when sufficient water was present on the dates reported in Table 7-1, usually a day or two after a significant storm event. All drain locations were sampled in March 2016, however only location GWD-1 contained sufficient water for sampling during the second quarter of 2016. Water samples collected from the drains typically have relatively low pH and conductivity.

7.2 SPRINGFIELD SHAFT SPRING

The Springfield Shaft spring is located approximately 35 feet northwest of the plugged Springfield Shaft. This spring is hydraulically connected to the Springfield Shaft and runs year round at flow rates from 5 gpm in the dry season to more than 50 gpm in the wet season. Springfield Shaft plug is under constant hydraulic pressure; however this pressure is much higher during the wet season which results in higher flow rates at the spring and lower hydraulic pressure during the dry season which results in low flow rates. Springfield Shaft spring sampling is now done according to the groundwater parameters outlined in the MRP and on the same June

and November schedule. Water samples were not collected from locations SS-2 (plug) or from the Springfield shaft area (SS-3 discharge) because of insufficient water for sampling. Laboratory results for the Springfield Shaft spring are presented on Tables 7-2a and 7-2b. VOC's were below detection limits for the Springfield shaft spring water sample. Laboratory results for 5-year COC are discussed below.

Results for the 5-YeaR COC are presented in the following tables

- Table 7-4: Chlorinated Herbicides – EPA Method 8151A
- Table 7-5: Semivolatile Compounds – EPA Method 8270C
- Table 7-6: Organophosphorus Pesticides – EPA Method 8141A

There were no detectable compounds indicated in the chlorinated herbicides, semivolatile compounds and organophosphorus pesticide analyses.

The Springfield Shaft spring like the other seeps, springs and drains at Union Mine is not a point of compliance, however present and historical results when compared to the present WMU-1 Concentration Limits show very few monitoring parameter exceedances with the exception of bicarbonate in September 2015 and magnesium in August 2015. Numerous metal detections as shown on Table 7-2a are consistent with groundwater that has been affected by hydrothermal mineralization and alteration from the former gold mine area since the spring is hydraulically connected to the deep and extensive Springfield Shaft mining system.

Please note: On July 18, 2016, both the Springfield Shaft and the nearby Springfield Shaft spring (SS-1-trench) were sampled and analyzed for WMU-1 monitoring parameters listed. Laboratory results indicate the two samples have similar water quality especially for (chloride was 56 mg/l spring vs 52 mg/l for the mine shaft). Preliminary laboratory results are presented in Appendix E.

Table 7-1
Groundwater Drains
Monitoring Parameters
Historic Laboratory Analytical Results
Union Mine Landfill

		Field Parameters					
Location	**Date**	**pH**	**Conductivity**	**TDS**	**Arsenic**	**Iron**	**Sulfate**
	mm/dd/yy	pH units	µmhos/cm	mg/l	mg/l	mg/l	mg/l
GWD-1 (road underdrain)	3/30/2006	6.42	458	160	<0.01	<0.05	63
	6/1/2006	6.14	298	200	<0.005	0.56	53
	9/7/2006	DRY					
	11/28/2006	DRY					
	3/21/2007	6.07	331	210	[0.0011]	0.25	75
	6/6/2007	---	---	---	---	---	---
	12/21/2007	6.40	349	250	<0.002	<0.10	78
	3/4/2008	6.67	238	180	[0.0012]	0.19	50
	5/7/2008	DRY					
	11/6/2008	6.74	372	240	<0.002	<0.10	120
	1/28/2009	6.42	271	240	0.0021	0.14	89
	4/16/2009	6.45	266	220	<0.002	0.31	81
	7/21/2009	DRY					
	10/27/2009	DRY					
	12/22/2009	6.75	313	230	<0.002	<0.1	94
	2/11/2010	6.73	177	180	[0.0011]	[0.071]	55
	4/26/2010	6.28	326	170	0.0051	0.26	51
	9/22/2010	DRY					
	10/28/2010	6.37	259	250	[0.0016]	0.14	66
	2/2/2011	6.42	230	170	[0.0016]	0.28	47
	5/5/2011	6.09	265	190	0.0033	0.58	65
	8/31/2011	DRY					
	10/11/2011	6.32	210	250	<0.002	<0.1	64
	3/19/2012	6.74	144	120	[0.0013]	0.21	41
	5/7/2012	6.72	209	170	[0.0014]	0.19	62
	9/10/2012	DRY					
	12/4/2012	6.83	183	140	<0.002	<0.1	17
	3/26/2013	7.34	204	200	[0.0017]	0.25	64
	5/24/2013	DRY					
	8/13/2013	DRY					
	12/20/2013	DRY					
	2/12/2014	7.31	131	150	[0.0008]	<0.10	47
	4/30/2014	6.65	238	210	[0.001]	0.19	71
	8/14/2014	DRY					
	12/15/2014	6.48	235	200	[0.001]	[0.082]	79
	3/17/2015	5.85	241	220	[0.0011]	0.12	74
	5/11/2015	DRY					
	8/19/2015	DRY					
	12/22/2015	6.32	154	160	[0.0013]	[0.075]	63
	3/8/2016	6.53	116	120	0.16	[0.0015]	44
	5/18/2016	6.17	302	180	[0.00043]	0.11	64

Table 7-1
Groundwater Drains
Monitoring Parameters
Historic Laboratory Analytical Results
Union Mine Landfill

		Field Parameters					
Location	**Date**	**pH**	**Conductivity**	**TDS**	**Arsenic**	**Iron**	**Sulfate**
	mm/dd/yy	pH units	µmhos/cm	mg/l	mg/l	mg/l	mg/l
GWD-2 (landfill underdrain)	3/30/2006	6.68	190	120	<0.01	0.29	47
	6/1/2006	5.83	402	290	<0.005	<0.1	110
	9/7/2006	DRY					
	11/28/2006	DRY					
	3/21/2007	5.64	421	290	[0.00046]	0.1	24
	6/7/2007	---	---	---	---	---	---
	12/21/2007	6.66	394	270	<0.002	<0.10	62
	3/4/2008	6.46	310	260	[0.00084]	<0.10	93
	5/7/2008	DRY					
	11/6/2008	6.73	525	410	0.0035	<0.10	100
	1/28/2009	6.90	317	280	<0.002	<0.1	110
	4/16/2009	6.38	350	280	<0.002	<0.1	140
	7/21/2009	DRY					
	10/27/2009	DRY					
	12/22/2009	6.70	414	190	<0.002	<0.1	120
	2/11/2010	6.63	323	260	[0.0010]	<0.1	93
	4/26/2010	6.09	259	240	[0.0016]	<0.1	91
	9/22/2010	DRY					
	10/28/2010	DRY					
	11/30/2010	6.19	283	250	<0.002	<0.1	92
	2/2/2011	6.20	679	250	[0.00097]	<0.1	99
	5/5/2011	6.08	290	260	[0.0016]	[0.0078]	120
	8/31/2011	DRY					
	10/11/2011	6.42	326	350	<0.002	<0.1	68
	3/19/2012	6.60	285	220	[0.0013]	[0.0076]	67
	5/7/2012	6.54	278	220	[0.0011]	<0.1	92
	9/10/2012	DRY					
	12/4/2012	6.51	331	280	<0.002	<0.1	73
	3/26/2013	DRY					
	5/24/2013	DRY					
	8/13/2013	DRY					
	12/20/2013	DRY					
	2/12/2014	6.64	195	200	[0.0012]	<0.10	59
	4/30/2014	DRY					
	8/14/2014	DRY					
	12/15/2014	6.57	429	290	[0.0017]	[0.0087]	98
	3/17/2015	DRY					
	5/11/2015	DRY					
	8/19/2015	DRY					
	12/22/2015	6.51	286	300	[0.0024]	[0.0084]	72
	3/8/2016	6.42	240	210	<0.0068/0.10	[0.00099]	74
	5/18/2016	DRY					

Table 7-1
Groundwater Drains
Monitoring Parameters
Historic Laboratory Analytical Results
Union Mine Landfill

		Field Parameters					
Location	**Date**	**pH**	**Conductivity**	**TDS**	**Arsenic**	**Iron**	**Sulfate**
	mm/dd/yy	pH units	µmhos/cm	mg/l	mg/l	mg/l	mg/l
GWD-3*	3/30/2006	7.27	174	100	<0.01	<0.05	47
(sprayfield spring)	6/1/2006	6.73	319	220	<0.005	<0.1	79
	9/7/2006	DRY					
	11/28/2006	DRY					
	3/21/2007	DRY					
	6/7/2007	DRY					
	12/21/2007	DRY					
	3/4/2008	DRY					
	5/7/2008	DRY					
	11/6/2008	DRY					
	3/5/2009	5.41	227	210	0.002	1.5	84
	5/5/2009	5.36	769	120	0.035	<0.1	28
	7/21/2009	DRY					
	10/27/2009	DRY					
	12/22/2009	DRY					
	2/11/2010	DRY					
	4/26/2010	5.42	293	270	0.0027	6.7	100
	9/22/2010	DRY					
	10/28/2010	DRY					
	11/30/2010	5.49	429	420	<0.002	1.9	110
	2/2/2011	DRY					
	5/5/2011	DRY					
	8/31/2011	DRY					
	12/16/2011	DRY					
	3/19/2012	5.64	226	180	[0.0013]	1.7	51
	5/7/2012	DRY					
	9/10/2012	DRY					
	12/4/2012	5.63	270	240	<0.002	1	60
	3/26/2013	DRY					
	5/24/2013	DRY					
	8/13/2013	DRY					
	12/20/2013	DRY					
	2/12/2014	5.72	214	220	[0.0013]	1.0	57
	4/30/2014	DRY					
	8/14/2014	DRY					
	12/15/2014	5.49	419	280	[0.00087]	0.62	77
	3/17/2015	DRY					
	5/11/2015	DRY					
	8/19/2015	DRY					
	12/22/2015	5.43	279	330	[0.0012]	1.1	75
	3/8/2016	5.58	202	210	0.93	[0.00094]	66
	5/18/2016	DRY					

Table 7-1
Groundwater Drains
Monitoring Parameters
Historic Laboratory Analytical Results
Union Mine Landfill

		Field Parameters					
Location	**Date**	**pH**	**Conductivity**	**TDS**	**Arsenic**	**Iron**	**Sulfate**
	mm/dd/yy	pH units	µmhos/cm	mg/l	mg/l	mg/l	mg/l
Pendar Tunnel	3/30/2006	7.71	136	72	0	<0.05	18
	6/1/2006	DRY					
	9/7/2006	DRY					
	11/28/2006	DRY					
	3/21/2007	DRY					
	6/7/2007	DRY					
	12/21/2007	DRY					
	3/4/2008	DRY					
	5/7/2008	DRY					
	11/6/2008	DRY					
	3/5/2009	6.76	217	80	0.038	<0.1	18
	5/5/2009	6.79	361	430	<0.002	0.29	120
	7/21/2009	DRY					
	10/27/2009	DRY					
	12/22/2009	DRY					
	2/11/2010	NA	NA	110	0.034	<0.1	21
	4/26/2010	7.06	305	120	0.041	[0.0081]	22
	9/22/2010	DRY					
	10/28/2010	DRY					
	11/30/2010	DRY					
	12/16/2010	7.11	430	110	0.037	<0.1	18
	2/2/2011	6.80	136	120	0.037	<0.1	25
	5/5/2011	DRY					
	8/31/2011	DRY					
	12/16/2011	DRY					
	3/19/2012	7.21	85	73	0.034	[0.019]	12
	5/7/2012	DRY					
	9/10/2012	DRY					
	12/4/2012	7.08	128	110	34	<0.1	17
	3/26/2013	DRY					
	5/24/2013	DRY					
	8/13/2013	DRY					
	12/20/2013	DRY					
	3/6/2014	7.06	536	110	0.037	[0.030]	20
	4/30/2014	DRY					
	8/14/2014	DRY					
	12/15/2014	DRY					
	3/17/2015	DRY					
	5/11/2015	DRY					
	8/19/2015	DRY					
	12/22/2015	6.89	69	74	0.039	[0.011]	23
	3/8/2016	7.04	78	79	<0.0068/0.10	0.035	17
	5/18/2016	DRY					
Concentration Limits (surface water)		NA	NA	240	0.052	0.22	76.9

Notes:

--- = dry, no water available for sampling. NA = Not Available

Concentration Limits = from surface water location S-7 concentration limits for comparative purposes.

mg/l = milligrams per liter

Table 7-2a
Springfield Shaft Area
Summary of Laboratory Analytical Results
Constituents of Concern: Metals
Union Mine Landfill

Sample Location	Date mm/dd/year	Cyanide mg/l	Sulfide mg/l	Mercury µg/l	Aluminium µg/l	Barium µg/l	Beryllium µg/l	Cadmium µg/l	Chromium µg/l	Cobalt µg/l	Copper µg/l	Manganese µg/l	Nickel µg/l	Silver µg/l	Tin µg/l	Antimony µg/l	Lead µg/l	Selenium µg/l	Thallium µg/l	Vanadium µg/l	TOC mg/l
SS-1 (trench)	4/30/2014	<0.0050	<1.0	<0.20	<50	89	<5.0	<10	<10	[9.4]	<3.2/10	930	32	0.5	<100	[0.75]	[0.34]	6.7	[0.39]	[2.6]	NS
spring	9/22/2014	<0.0050	<1.0	<0.20	45	140	0.77	49	<9.9	<7.6	<3.2/10	1500	<20	<10	<100	0.74	<5.0	3.3	1.0	0.57	NS
	12/23/2014	<0.0050	<1.0	<0.20	42	37	<5.0	<10	<10	<7.6/20	<3.2/10	300	26	<10	<100	0.92	<5.0	3.3	0.17	<3.0	NS
	3/31/2015	<0.00120.0050	<0.84/1.01.0	<0.20	<50	150	[0.67]	<10	<10	<7.6/20	<3.2/10	1200	22	<10	<100	[0.57]	<5.0	[1.3]	<1.0	[0.99]	NS
	6/12/2015	<0.0012/0050	<0.84/1.01.0	<0.15/0.20	<27/50	160	[0.59]	<0.17/0.50	14	3.9	[1.1]	1400	11	<0.15/0.50	<18/100	<0.57/6.0	<0.23/5.0	<1.1/5.0	[0.74]	<0.44/3.0	NS
	9/29/2015	<0.0012/0050	<0.84/1.01.0	<0.15/0.20	<27/50	160	[0.59]	<0.17/0.50	<9.9/10	<7.6/20	11	1500	23	<0.15/0.50	<18/100	<0.57/6.0	<0.23/5.0	<1.1/5.0	[0.74]	[0.75]	NS
	12/14/2015	<0.0012/0050	<0.84/1.01.0	<0.15/0.20	130	140	<0.43/5.0	<2.8/10	<9.9/10	<7.6/20	[8.6]	1400	22	[4.2]	<18/100	<0.57/6.0	<36/50	[1.1]	<0.11/1.0	<3.0/20	NS
	6/8/2016	<0.0012/0050	<0.84/1.01.0	<1.0/1.0	<27/50	240	<0.43/5.0	<2.8/10	<9.9/10	9.6	[6.4]	1400	[17]	<0.15/0.50	<18/100	<0.57/6.0	<36/50	<1.1/5.0	<0.11/1.0	<3.0/20	48
SS-2 (shaft)	4/30/2014	[0.0033]	<1.0	<0.20	<50	86	<5.0	<10	<10	[9.9]	<10	920	33	<0.50	<100	<6.0	[0.48]	6.6	[0.41]	[1.4]	NS
above shaft	9/22/2014	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	12/23/2014	<0.0050	<1.0	<0.20	46	45	<5.0	<10	<10	<20	<10	350	22	<0.50	<100	0.87	<5.0	2.4	0.14	<3.0	NS
	3/31/2015	<0.0050	<1.0	<0.20	<50	120	[0.65]	<10	<10	<20	<10	1300	22	<10	<100	[0.69]	<5.0	<5.0	<1.0	[0.54]	NS
	6/12/2015	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	9/29/2015	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	12/14/2015	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	6/8/2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
SS-3 (far end)	4/30/2014	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
discharge	9/22/2014	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	12/23/2014	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	3/31/2015	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	6/12/2015	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	9/29/2015	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	12/14/2015	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	6/8/2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Concentration limits*	---	0.005	4.6	1.0	50	108	5.0	10	10	20	10	2,925	20	10	100	6.0	5.0	5.0	1.0	3.0	7.4

NA = not applicable
µg/l = micrograms per liter
NS = not sampled - no discharge
* = WMU-1 GW Concentration Limits

TOC = Total Organic Carbon
mg/l = milligrams per liter
[ ] = J value - detected but below Reporting Limit; therefore, result is an estimated concentration.
Concentration Limits for comparative purposes only

Table 7-2b
Springfield Shaft Area
Summary of Laboratory Analytical Results
Monitoring Parameters
Union Mine Landfill

																			Field Parameters		
Sample Location	Date mm/dd/year	TSS mg/l	TDS mg/l	Na mg/l	Ca mg/l	Mg mg/l	K mg/l	Cl mg/l	Sulfate mg/l	Bicarbonate mg/l	Alkalinity mg/l	Carbonate mg/l	Hydroxide mg/l	Nitrate-N mg/l	As mg/l	Cu mg/l	Fe mg/l	Zinc mg/l	EC µmhos/cm	pH units	Turbidity NTU
SS-1 (trench) spring	4/30/2014	5.5	380	27	75	25	4.7	38	46	250	250	<5.0	<5.0	0.78	0.27	<0.010	5.6	0.029	720	6.38	30
	9/22/2014	36	510	29	94	27	4.8	50	47	340	340	<5.0	<5.0	0.16	1.3	<0.010	17	<0.020	940	6.62	120
	12/23/2014	2.3	240	14	42	17	1.5	16	66	110	110	<5.0	<5.0	1.3	0.01	<0.010	0.013	0.036	440	6.24	11
	3/31/2015	7.6	470	31	86	24	3.9	47	44	310	310	<5.0	<5.0	[0.13]	0.65	<0.010	9.5	0.021	820	6.47	64
	6/12/2015	11	480	29	91	30	3.4	47	44	320	320	<0.5/5.0	<0.5/5.0	<0.053/0.50	0.99	0.0011	15	0.035	890	6.56	8.7
	9/29/2015	43	480	31	93	27	3.1	47	47	370	370	<0.5/5.0	<0.5/5.0	<0.053/0.50	1.3	0.0011	17	0.047	850	6.81	220
	12/14/2015	5	690	28	88	27	3.0	46	52	310	310	<0.5/5.0	<0.5/5.0	1.1	1.5	[0.0086]	16	<0.020	810	6.6	49
	6/8/2016	NA	480	41	92	31	7.5	57	53	150	150	<0.5/5.0	<0.5/5.0	<0.053/0.50	0.8	[0.0064]	14	[0.016]	914	6.55	12.1
SS-2 (shaft) above shaft	4/30/2014	10	410	28	78	26	4.8	38	47	250	250	<5.0	<5.0	0.82	0.039	<0.01	1.0	[18]	720	6.71	31
	9/22/2014	DRY	Not Sampled																		
	12/23/2014	2.7	270	15	48	18	2	18	67	120	120	<5.0	<5.0	1.1	0.073	<0.01	0.28	0.019	460	7.16	8.4
	3/31/2015	14	470	31	86	24	3.8	47	43	330	330	<5.0	<5.0	0.15	0.26	<0.01	3.7	[0.015]	810	6.94	59
	6/12/2015	DRY	Not Sampled																		
	9/29/2015	DRY	Not Sampled																		
	12/14/2015	DRY	Not Sampled																		
	6/8/2016	DRY	Not Sampled																		
SS-3 (far end) discharge	4/30/2014	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	9/22/2014	DRY	Not Sampled																		
	12/23/2014	DRY	Not Sampled																		
	3/31/2015	DRY	Not Sampled																		
	6/12/2015	DRY	Not Sampled																		
	9/29/2015	DRY	Not Sampled																		
	12/14/2015	DRY	Not Sampled																		
	6/8/2016	DRY	Not Sampled																		
Concentration	Limits(GW)	x	655.4	59.8	190	27.9	5.6	56.3	198.5	366.7	366.7	5.0	5.0	14.42	x	0.01	x	0.051	NA	NA	NA

Cl = Chloride
TSS = Total Suspended Solids
TDS = Total Dissolved Solids
Na = Sodium
Ca = Calcium
Mg = Magnesium
NS = not sampled - no discharge
GW = groundwater

NS = not sampled
Cu = Copper
Fe = Iron
K =Potassium
Cl = Chloride
As = Arsenic

NA = not applicable
NTU = nephelometric turbidity units
units = ph units
[ ] = J value - detected but below Reporting Limit; therefore, result is an estimated concentration.
EC = Specific Conductance
Concentration Limits for comparative purposes only

Table 7-3.
Summary of Analytical Results and Method Detection Limits/Reporting Limits
Volatile Organic Compounds - EPA Method 8260B
Springfield Shaft Spring Area
Union Mine Landfill

Location	Date	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromo-3-chloropropane	1,2-Dibromoethane(EDB)	1,2-Dichlorobenzene	1,2-Dichloroethane	1,2-Dichloropropane	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichloro-2butene	1,4-Dichlorobenzene	2,2-Dichloropropane	2-Butanone
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
SS-1 (trench)	4/30/2014	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<NA/0.50	<0.16/0.50	<0.27/0.50	<1.1/10
	9/22/2014	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10
	12/23/2014	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10
	3/31/2015	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10
	6/12/2015	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10
	9/29/2015	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10
	12/14/2015	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10
	6/8/2016	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10
SS-2 (shaft)	4/30/2014	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<NA/0.50	<0.16/0.50	<0.27/0.50	<1.1/10
	9/22/2014	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	12/23/2014	<0.17/0.50	<0.095/0.50	<0.19/0.50	<0.23/0.50	<0.15/0.50	<0.11/0.50	<0.14/0.50	<0.15/0.50	<0.15/0.50	<0.23/0.50	<0.11/0.50	<0.15/0.50	<0.39/1.0	<0.15/0.50	<0.097/0.50	<0.16/0.50	<0.14/0.50	<0.12/0.50	<0.12/0.50	<0.16/0.50	<1.0/1.0	<0.16/0.50	<0.27/0.50	<1.1/10
	3/31/2015	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	6/12/2015	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	9/29/2015	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	12/14/2015	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	6/8/2016	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
SS-3 (discharge)	4/30/2014	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	9/22/2014	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	12/23/2014	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	3/31/2015	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	6/12/2015	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	9/29/2015	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	12/14/2015	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	6/8/2016	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Note: MDL/RL = Method Detection Limit/Reporting Limit
--- = insufficient water for sample
µg/L = micrograms per liter
[ ] = J value - detected but below Reporting Limit; therefore, result is an estimated concentration.

Table 7-3.
Summary of Analytical Results and Method Detection Limits/Reporting Limits
Volatile Organic Compounds - EPA Method 8260B
Springfield Shaft Spring Area
Union Mine Landfill

Location	Date	2-Hexanone	4-Methyl-2-pentanone	Acetone	Acrylonitrile	Benzene	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform	Bromomethane	Carbon Disulfide	Carbon tetrachloride	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	cis-1,3-Dichloropropene	Dibromochloromethene	Dibromomethane	Dichlorodifluormethane (Freon 112)	Ethylbenzene
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
SS-1 (trench)	4/30/2014	<0.90/10	<1.6/10	<1.0/10	<NA/0.50	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50
	9/22/2014	<0.90/10	<1.6/10	<1.0/10	<5.0/5.0	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50
	12/23/2014	<0.90/10	<1.6/10	<1.0/10	<5.0/5.0	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50
	3/31/2015	<0.90/10	<1.6/10	<1.0/10	<5.0/5.0	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50
	6/12/2015	<0.90/10	<1.6/10	<1.0/10	<5.0/5.0	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50
	9/29/2015	<0.90/10	<1.6/10	<1.0/10	<5.0/5.0	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50
	12/14/2015	<0.90/10	<1.6/10	<1.0/10	<5.0/5.0	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50
	6/8/2016	<0.90/10	<1.6/10	<1.0/10	<5.0/5.0	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50
SS-2 (shaft)	4/30/2014	<0.90/10	<1.6/10	[5.4*]	<NA/0.50	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50
	9/22/2014	---	---	[6.5*]	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	12/23/2014	<0.90/10	<1.6/10	<1.0/10	<5.0/5.0	<0.11/0.50	<0.13/0.50	<0.13/0.50	<0.12/0.50	<0.15/0.50	<0.39/1.0	<0.13/0.50	<0.17/0.50	<0.082/0.50	<0.15/0.50	<0.19/0.50	<0.056/1.0	<0.15/0.50	<0.14/0.50	<0.14/0.50	<0.25/0.50	<0.14/1.0	<0.10/0.50
	3/31/2015	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	6/12/2015	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	9/29/2015	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	12/14/2015	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	6/8/2016	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
SS-3 (discharge)	4/30/2014	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	9/22/2014	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	12/23/2014	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	3/31/2015	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	6/12/2015	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	9/29/2015	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	12/14/2015	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	6/8/2016	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Note: MDL/RL = Method Detection Limit/Reporting Limit
--- = insufficient water for sample
µg/L = micrograms per liter
[ ] = J value - detected but below Reporting Limit; therefore, result is an estimated concentration.
* = lab contaminatation

Table 7-3.
Summary of Analytical Results and Method Detection Limits/Reporting Limits
Volatile Organic Compounds - EPA Method 8260B
Springfield Shaft Spring Area
Union Mine Landfill

Location	Date	Hexachlorobutadiene	Iodomethane	Isopropylbenzene	Methyl tert-butyl ether	Methylene Chloride	Naphthalene	n-Butylbenzene	n-Propylbenzene	o-Chlorotoluene	p-Chlorotoluene	p-Isopropyltoluene	sec-Butylbenzene	Styrene	Tert-Butylbenzene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl acetate	vinyl chloride	Xylenes (total)
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
SS-1 (trench)	4/30/2014	<0.23/0.50	<NA/0.50	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	9/22/2014	<0.23/0.50	<1.0/1.0	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	12/23/2014	<0.23/0.50	<1.0/1.0	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	3/31/2015	<0.23/0.50	<1.0/1.0	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	6/12/2015	<0.23/0.50	<1.0/1.0	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	9/29/2015	<0.23/0.50	<1.0/1.0	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	12/14/2015	<0.23/0.50	<1.0/1.0	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	6/8/2016	<0.23/0.50	<1.0/1.0	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
SS-2 (shaft)	4/30/2014	<0.23/0.50	<NA/0.50	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	9/22/2014	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	12/23/2014	<0.23/0.50	<1.0/1.0	<0.11/0.50	<0.095/0.50	<0.24/0.50	<0.21/0.50	<0.10/0.50	<0.13/0.50	<0.092/0.50	<0.11/0.50	<0.14/0.50	<0.088/0.50	<0.10/0.50	<0.082/0.50	<0.13/0.50	<0.11/0.50	<0.15/0.50	<0.18/0.50	<0.063/0.50	<0.14/0.50	<0.20/1.0	<0.14/1.0	<0.33/1.0
	3/31/2015	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	6/12/2015	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	9/29/2015	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	12/14/2015	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	6/8/2016	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
SS-3 (discharge)	4/30/2014	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	9/22/2014	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	12/23/2014	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	3/31/2015	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	6/12/2015	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	9/29/2015	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	12/14/2015	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	6/8/2016	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Note: MDL/RL = Method Detection Limit/Reporting Limit
--- = insufficient water for sample
µg/L = micrograms per liter
[ ] = J value - detected but below Reporting Limit; therefore, result is an estimated concentration.

Table 7-4
Springfield Shaft Spring
Summary of Analytical Results
Chlorinated Herbicides - EPA Method 8151A
Union Mine Landfill

Location	Date	2,4,5-T	2,4,5-TP (Silvex)	2,4-D (2,4-Dichlorophenoxyacetic acid)	2,4-DB	Dalapon	Dicamba	Dichloroprop	Dinosep	MCPA	MCPP	Pentachorophenol
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
SS-1 (trench)	6/8/2016	<0.040/0.50	<0.0070/0.20	<0.0061/1.0	<0.022/2.0	<0.084/2.0	<0.093/1.0	<0.040/2.0	<0.055/1.0	<0.73/250	<1.6/250	<0.011/0.20
SS-2 (shaft)	6/8/2016	---	---	---	---	---	---	---	---	---	---	---
SS-3 (discharge)	6/8/2016	---	---	---	---	---	---	---	---	---	---	---

Note: MDL/RL = Method Detection Limit/Reporting Limit

µg/L = micrograms per liter

[ ] = J value - detected but below Reporting Limit; therefore, result is an estimated concentration.

ND = none detected

Table 7-5
Springfield Shaft Spring
Summary of Analytical Results
Semivolatile Organic Compounds - EPA Method 8270C
Union Mine Landfill

Location	Date	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene (2,4-DNT)	2,6-Dinitrotoluene (2,6-DNT)	2-Chloronaphthalene	2-Chlorophenol	2-Methylnaphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3 & 4-Methylphenol	3,3-Dichlorobenzidine	3-Nitroaniline	4,6-Dinitro-2-methylphenol	4-Bromo phenyl ether	4-Chloro3-methylphenol	4-Chloroaniline
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
SS-1 (trench)	6/8/2016	<0.94/10	<1.1/10	<1.2/10	<1.1/10	<0.87/10	<0.96/10	<0.87/10	<4.0/10	<0.62/25	<0.81/10	<0.71/10	<0.70/10	<0.88/10	<0.72/10	<1.6/10	<0.61/25	<0.94/10	<2.6/10	<4.1/10	<0.96/25	<1.2/25	<0.80/10	<0.94/10	**3.4**
SS-2 (shaft)	6/8/2016	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
SS-3 (discharge)	6/8/2016	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Note: MDL/RL = Method Detection Limit/Reporting Limit

µg/L = micrograms per liter

[ ] = J value - detected but below Reporting Limit; therefore, result is an estimated concentration.

ND = none detected

Table 7-5
Springfield Shaft Spring
Summary of Analytical Results
Semivolatile Organic Compounds - EPA Method 8270C
Union Mine Landfill

4-Chlorophenyl phenyl ether	4-Nitroaniline	4-Nitrophenol	Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (g,h,i) perylene	Benzo (k) fluoranthene	Benzoic Acid	Benzyl alcohol	Bis(2-chloroethoxy) methane	Bis(2-chloroethyl)ether	Bis(2-chloroisopropyl)ether	Bis(2-ethylhexyl)phthalate	Butyl benzyl phthalate	Chrysene	Dibenz (a,h) anthracene	Dibenzofuran	Diethyl phthalate	Dimethyl phthalate	Di-n-butyl phthalate	Di-n-octyl phthalate
µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
<0.78/10	<0.87/25	<0.95/25	<0.74/10	<0.63/10	<0.65/10	<1.7/10	<2.1/10	<3.3/10	<2.7/10	<1.5/10	<4.2/25	<1.6/10	<0.67/10	<0.66/10	<0.54/10	<1.1/10	<1.1/10	<0.78/10	<2.4/10	<0.67/10	<4.7/10	<4.2/10	<3.8/10	<3.4/10
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Note: MDL/RL = Method Detection Limit/Reporting Limit

µg/L = micrograms per liter

[ ] = J value - detected but below Reporting Limit; therefore, result is an estimated concentration.

ND = none detected

Table 7-5
Springfield Shaft Spring
Summary of Analytical Results
Semivolatile Organic Compounds - EPA Method 8270C
Union Mine Landfill

Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno (1,2,3,-cd) pyrene	Isophorone	Naphthalene	Nitrobenzene (NB)	N-Nitrosodi-n-propy lamine	N-Nitrosodipheny lamine	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
<0.66/10	<0.67/10	<0.86/10	<1.9/10	<0.55/10	<1.2/10	<1.7/10	<0.62/10	<0.70/10	<0.64/10	<0.62/10	<0.93/10	<1.8/25	<0.59/10	<1.2/10	<0.73/10
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Note: MDL/RL = Method Detection Limit/Reporting Limit

µg/L = micrograms per liter

[ ] = J value - detected but below Reporting Limit; therefore, result is an estimated concentration.

ND = none detected

Table 7-6
Springfield Shaft Spring
Summary of Analytical Results
Organophosphorus Pesticides - EPA Method 8141A
Union Mine Landfill

Location	Date	Bolstar	Chlorpyrifos	Coumaphos	Demeton	Diazinon	Dichlorvos	Disulfoton	Ethoprop	Fensulfothion	Fenthion	Guthion	Malathion	Merphos	Methyl parathion	Mevinphos	Phorate	Prothiofos	Ronnel	Stirophos	Trichloronate
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
SS-1 (trench)	6/8/2016	<0.018/0.050	<0.018/0.050	<0.017/0.10	<0.026/0.10	<0.033/0.050	<0.023/0.10	<0.031/0.050	<0.016/0.050	<0.036/0.050	<0.018/0.050	<0.027/0.10	<0.014/0.050	<0.021/0.05	<0.014/0.050	<0.033/0.050	<0.015/0.050	<0.0031/0.050	<0.016/0.050	<0.021/0.050	<0.020/0.050
SS-2 (shaft)	6/8/2016	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
SS-3 (discharge)	6/8/2016	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Note: MDL/RL = Method Detection Limit/Reporting Limit

µg/L = micrograms per liter

[ ] = J value - detected but below Reporting Limit; therefore, result is an estimated concentration.

ND = none detected

8. SUMMARY OF FINDINGS

8.1 COMPLIANCE SUMMARY

Based on the information received from El Dorado County staff, operators, and contractors, all of the required monitoring data was collected for the first semiannual monitoring period of 2016.

All required groundwater, surface water, unsaturated zone, leachate, and drain monitoring was completed in compliance with the MRP R5-2006-0020, Tables 1 through 4, and related text except for the following:

- Insufficient water for sampling lysimeters L2S and L2N in 1st and 2nd quarters of 2016.
- Insufficient water for sampling location GWD-2, GWD-3 and the Pendar Tunnel in the second quarter of 2016.
- Insufficient water for sampling location MS-1 in the second quarter of 2016.

8.1.1 Solid Waste

- Dewatered sludge disposed in the Class II Landfill met disposal criteria for percent solids.
- Standard Observations of the landfill perimeter and receiving waters indicated general compliance with permit conditions.
- Approximately 168 tons of sludge was diverted to an offsite disposal facility.
- The current landfill capacity has been estimated to last until 2029.

8.1.2 Leachate

- Class II Impoundment operated normally throughout the year.
- Approximately 793,310 gallons of leachate and 494,099 gallons of rainwater collected in the Class II surface impoundment. Approximately 774,220 gallons of liquid was transferred from the Class II Impoundment to the leachate/septage treatment facility.
- Adequate freeboard was maintained in the Class II Impoundment.

8.1.3 Groundwater

- WMU-1 (landfill) groundwater results indicate that sodium concentrations in MW-7 and UM-3 were above concentration limit of 59.8 mg/l; however, this data does not appear to indicate a release from the landfill to groundwater. Time-series analysis indicates these results are generally consistent with previous data.

- WMU-1 COC did not exceed COC Concentration Limits with the exception of zinc concentrations in MW-11 (56 µg/l) which were slightly above the concentration limit of 51 µg/l.

- WMU-2 monitoring parameters did not exceed Concentration Limits with the exception of potassium concentrations in MW-A (7.5 mg/l) which were slightly above the concentration limit of 5.3 mg/l.

- All monitoring parameters and COC were below concentration limits for WMU-2 with the exception of the above mentioned potassium. Time-series analysis indicates these results are generally consistent with previous data and does not indicate a release from the Class II surface impoundment.

8.1.4 Surface Water

- Surface water sample results from the downstream point of compliance (S-7) indicated that all monitoring parameters were below concentration limits except for TSS in the March 2016 event.

- Data from S-1 and S-2 indicate that the Unnamed Creek drainage crossing Union Mine property generally contains higher concentrations of anions/cations compared to Martinez Creek water.

- Surface Water COC did not exceed Concentration Limits for the June 2016 sampling event.

8.1.5 Unsaturated Zone

- Lysimeters L2S and L2N were dry during the first two quarters of 2016. No field measurements or laboratory samples were collected for analysis.

8.1.6 Groundwater Drains and Pendar Tunnel

- Springfield shaft spring monitoring parameters and COC results indicate the water quality is more likely affected by contact with hydrothermally altered bedrock within the former gold mine than the Class III landfill.

RECOMMENDATIONS

- Consider using nonparametric 95% upper simultaneous limit (USL) for future statistical analysis determination of Concentration Limits for landfill dataset.

- The Springfield Shaft spring is hydraulically connected to the Springfield Shaft and should be analyzed for same monitoring parameters as other drains, seeps and springs as listed in the MRP.

Appendix A

Field Monitoring and Sampling Sheets

2016

Union Mine

LANDFILL
Groundwater Sample Field Data
Semiannual

Union Mine Landfill
El Dorado County

Well ID: MW-6
Sample ID: MW-6
Date Sampled: 6/22/16

Well Info:
Casing diameter (in): 4 Depth to water (feet): 11.96 Total Depth(feet): _____

Prepurge/Tubing Volume: 3 Liters (volume purged prior to low flow sampling)

Low Flow Well Purging:
Start Time: 0843 End Time: 0852
Dedicated Grundfos pump
Vol. Purged: 4.5 Pump rate: 1/2 L/min
Purge water disposal: Ground Converter: ~~1/5~~ Hz N/A

Time (24 hr)	Volume (liters)	DTW (ft)	Temp °C	ph std. Units	EC (uSat25°C)	DO mg/l	Turbidity NTU	Comments (color, odor)
0843	0	12.68	18.5	7.25	374	0.7	2.54	clear
0846	1.5	13.06	17.4	7.33	378	6.7	0.57	"
0849	3.0	13.46	17.0	7.40	376	1.0	1.15	"
0852	4.5		17.0	7.44	378	1.2	0.86	"

Well Sampling:
Time: 0900

Sampler type: low flow sampling w/dedicated Grundfos pump and flow cell
QC Samples: _____ **Metals** -use 45 um disposable filter: ~~yes~~ N/A
Remarks: Re-Sample **Sampler**: R. Lauritzen

Meter Calibration: Date: _____ Time: _____ Meter # **Hanna 991300**
pH (4): ____ @ _____ °C pH (7): ____ @ _____ °C _____
Location: office
EC (1413) ok yes no

	1-500 Poly w/HNO_3	Dissolved metals: Ca, K, Mg, Na, As, Fe
	3-VOAs w/HCl	VOC 8260
	1-Liter Poly NP	Bicarb/Carb Alk, Chloride, Nitrate, Sulfate, TDS
5-Year COC	w/metals above	inorganic-Al, Sb, Ba, Be, Cd, Cr, Co, Cu, Pb, Mn, Hg, Ni, Se, Ag, Tl, Sn, Va, Zn
		cyanide
		sulfide
	2-40ml VOA w/HCL	TOC
	w/voc above	VOC - attachment D
	1-liter amber	SVOC EPA 8270C - Attachment D
		Chlorinated Herbicides EPA 8150A - Attachment D
	1-liter amber	Organophosphorus Compounds EPA 8141 - Attachment D

LANDFILL
Groundwater Sample Field Data
Semiannual

Union Mine Landfill
El Dorado County

Well ID: MW-5
Sample ID: MW-5
Date Sampled: 6/22/16

Well Info:
Casing diameter (in): 4 Depth to water (feet): 13.57 Total Depth(feet): _____

Prepurge/Tubing Volume: 3 Liters (volume purged prior to low flow sampling)

Low Flow Well Purging:

Start Time: 0821 End Time: 0830
Dedicated Grundfos pump
Vol. Purged: 4.5 Pump rate: 1/2 L/min
Purge water disposal: Ground Converter: NA Hz

Time (24 hr)	Volume (liters)	DTW (ft)	Temp °C	ph std. Units	EC (uSat25°C)	DO mg/l	Turbidity NTU	Comments (color, odor)
0821	-	14.75	17.1	7.07	317	0.8	0.33	clear
0824	1.5	14.90	16.7	7.15	317	0.7	0.25	"
0827	3.0	15.01	16.9	7.16	320	0.7	0.75	"
0830	4.5	15.08	17.1	7.18	320	0.7	0.36	

Well Sampling:

Time: 0840

Sampler type: low flow sampling w/dedicated Grundfos pump and flow cell

QC Samples: _____ **Metals** -use 45 um disposable filter: ~~yes~~ N/A

Remarks: resample for 8270C **Sampler**: R. Lauritzen

Meter Calibration: Date: _____ Time: _____ Meter # **Hanna 991300**

pH (4): ____ @ _____ °C pH (7): ____ @ _____ °C

_____
Location: office

EC (1413) ok yes no

1-500 Poly w/HNO_3	Dissolved metals: Ca, K, Mg, Na, As, Fe
3-VOAs w/HCl	VOC 8260
1-Liter Poly NP	Bicarb/Carb Alk, Chloride, Nitrate, Sulfate, TDS

5-Year COC

w/metals above	inorganic-Al, Sb, Ba, ~~Be, Cd, Cr, Co, Cu~~, Pb, Mn, Hg, Ni, Se, Ag, Tl, Sn, Va, Zn
	~~cyanide~~
	~~sulfide~~
2-40ml VOA w/HCL	~~TOC~~
w/voc above	~~VOC - attachment D~~
1-liter amber	SVOC EPA 8270C - Attachment D
	~~Chlorinated Herbicides EPA 8150A - Attachment D~~
1-liter amber	~~Organophosphorus Compounds~~ EPA 8141 - Attachment D

CLS Laboratories

3249 Fitzgerald Road, Rancho Cordova, CA
Phone: (916) 638-7301

CHAIN OF CUSTODY/ANALYSIS REQUEST FORM

Lab Login# Date 6/22/16 Page 1 of 1

Union Mine Disposal Facility

Report to: Robert Lauritzen
El Dorado County Environmental Management
2850 Fairlaine Court, Bldg C
Placerville, CA 95667
Office: (530)-621-5130
Fax: (530) 626-7130

Analysis Requested

Sample ID	Date	Time	Lab ID	Sample Matrix	# of Containers	SVOC 8270C NP	Comments
MW-5	6/22/16	0840		water	1	X	
MW-6	6/22/16	0900		water	1	X	

Relinquished by:
Signature: Robert [signature]
Printed Name: Robert Lauritzen
El Dorado County
Date/Time 6/22/16

Recieved by:
Signature: [signature]
Printed Name: GABRIELLE GANAN
Date/Time 6·22·16· 1003· (5.1)

TAT Requirements
X Standard (5 days)
X txt file needed

Report Requirements
__I. Routine Report
__II. Report(includes DUP,MS MSD, as required.
__III. Data Validation Report
X RWQCB (MDLs/PQLs/Trace#)

Additional Info:
~~Metals/Cyanide/Sulfide- Field Filtered: yes~~
~~Dissolved Metals-As, Fe, Ca, Mg, K, Na~~
~~Nitrate as Nitrogen~~
dissolved inorganics-~~Al, Sb, Ba, Be,~~ Cd, Cr, Co, Cu, ~~Pb,~~ Mn, Hg, Ni, Se, Ag, Tl, ~~Sn, Va,~~ Zn
RL.

Invoice:Greg Stanton, EDCEM
Address: 2850 Fairlane Ct., Bldg C, Placerville, CA, 95667
Contract # 037-C-0607-BOS

Landfill
LCRS - Class II Pond/Sump/Pipe
Leachate Sample Field Data
Monthly

Union Mine Landfill
El Dorado County

Date: 11/12/16
Field Parameter Testing-Leachate
Weather: cloudy
Air Temp: 50's

Field Personnel: Robert Lauritzen

14.3
16.11

Field Parameter Testing						
Location	Time	Volume	Temp	ph	EC	Comments
		(gal)	°C	std. Units	(uS)	(color, odor)
Leachate Pipe	1340	–	~~13.6~~	~~6.86~~	654	mod. flow, clear
Class II Impoundment	1345	–	11.3	7.12	235	2 1131 ekv.
Leachate Sump	1503	–	11.7	6.32	270	

Comments:

Dedicated sump pump active? (yes) no

Sum de-watered? Yes (no)

Meter Calibration:	Date: 11/12/15 Time: 1315		Meter # **Hanna 991300**
pH (4): 3.99	@ 14.3 °C	pH (7): 7.01	@ 14.2 °C
EC (1413 - ok) (yes) no			Location: office

Landfill
LCRS - Class II Pond/Sump/Pipe
Leachate Sample Field Data
Monthly

Union Mine Landfill

El Dorado County

Date: 2/11/16

Field Parameter Testing-Leachate

Weather: clear

Field Personnel: Robert Lauritzen

Air Temp: 70's

Field Parameter Testing						
Location	Time	Volume	Temp	ph	EC	Comments
		(gal)	°C	std. Units	(uS)	(color, odor)
Leachate Pipe	1105	~	15.5	6.71	1333	mod. flow, clear
Class II Impoundment	1107	-	14.3	7.94	403	~ 1132' elevation
Leachate Sump	1114	-	13.9	7.06	326	

Comments:

Dedicated sump pump active? (yes) no

Sum de-watered? (Yes) no

Meter Calibration:	Date: 2/11/16 Time: 1102			Meter # **Hanna 991300**
pH (4): 3.99	@ 21.0 °C	pH (7): 7.01	@ 21.0 °C	
EC (1413 - ok) (yes) no				Location: office

Landfill
LCRS - Class II Pond/Sump/Pipe
Leachate Sample Field Data
Monthly

Union Mine Landfill
El Dorado County

Date: 3/23/16
Field Parameter Testing-Leachate
Weather: clear
Air Temp: 40's

Field Personnel: Robert Lauritzen

Field Parameter Testing						
Location	Time	Volume	Temp	ph	EC	Comments
		(gal)	°C	std. Units	(uS)	(color, odor)
Leachate Pipe		—	14.1	6.16	604	mod. Flow
Class II Impoundment		—	16.5	8.48	~~356~~ 336	1132 ekv.
Leachate Sump			15.2	7.31	309	

Comments:

Dedicated sump pump active? (yes) no

Sum de-watered? (Yes) no

Meter Calibration:	Date: 3/23/16 Time: 0845			Meter # **Hanna 991300** —
pH (4): 4.00	@ 18.2 °C	pH (7): 7.00	@ 18.3 °C	
EC (1413 - ok) (yes) no				Location: office —

Landfill
LCRS - Class II Pond/Sump/Pipe
Leachate Sample Field Data
Monthly

Union Mine Landfill
El Dorado County

Date: 4/6/16

Field Parameter Testing-Leachate

Weather: clear

Field Personnel: Robert Lauritzen

Air Temp: 70's

Field Parameter Testing						
Location	Time	Volume	Temp	ph	EC	Comments
		(gal)	°C	std. Units	(uS)	(color, odor)
Leachate Pipe		-	20.0	6.61	1712	mod. flow, clear
Class II Impoundment			21.7	9.44	551	clear,
Leachate Sump			21.6	7.45	470	

Comments:

Dedicated sump pump active? (yes) no

Sum de-watered? (Yes) no

Meter Calibration:	Date: 4/6/16 Time: 1018		Meter # **Hanna 991300** ✓
pH (4): 4.01	@ 17.9 °C	pH (7): 7.07	@ 17.9 °C
EC (1413 - ok) (yes) no			Location: office ✓

Landfill
LCRS - Class II Pond/Sump/Pipe
Leachate Sample Field Data
Monthly

Union Mine Landfill
El Dorado County

Date: 5/13/16 RL.

Field Parameter Testing-Leachate

Weather: clear

Field Personnel: Robert Lauritzen

Air Temp: 60's

Field Parameter Testing

Location	Time	Volume	Temp	ph	EC	Comments
		(gal)	°C	std. Units	(uS)	(color, odor)
Leachate Pipe	0901	-	23.2	6.54	1905	clear, mod. flow
Class II Impoundment	0951	-	24.2	10.51	501	algae
Leachate Sump	1031	-	24.9	7.41	~~6.96~~ 690	feathers?

Comments:

Dedicated sump pump active? (yes) no

Sum de-watered? (Yes) no

Meter Calibration: Date: 5/12/16 Time: 0850 Meter # **Hanna 991300**

pH (4): 3.99 @ 18.9 °C pH (7): 7.02 @ 18.9 °C

EC (1413 - ok) yes no Location: office

LANDFILL
LCRS Pond, Sump, Pipe Sample Field Data
Annual

Union Mine Landfill
El Dorado County

Location ID: LCRS-Pipe
Sample ID: LCRS-Pipe
Date Sampled: 5/12/16
13 RL

Time	Volume	Temp	ph	EC	Comments
(24 hr)	(gal)	°C	std. Units	(uSat25°C)	(color, odor)
0901	—	23.2	6.54	1905	clear, mod. flow

Sampling: Time: 0900
Sample type: grab
QC Samples: 0
Remarks: mod. flow Sampler: Robert Lauritzen

Meter Calibration:	Date:	Time:	Meter # **Hanna 991300**
pH (4): ____ @ ____ °C	pH (7): ____ @ ____ °C		Location: Office ✓
EC (1413) ok yes or no			

	3-VOAs w/HCl	VOC 8260
	1-Liter Poly NP	Bicarb/Carb Alk, Chloride, Nitrate, Sulfate, TDS
	metals	inorganic-Al, Sb, Ba, Be, Cd, Cr, Co, Cu, Pb, Mn, Hg, Ni, Se, Ag, Tl, Sn, Va, Zn
		cyanide
5-Year		sulfide
COC	2-40ml VOA w/HCL	TOC
	w/voc above	VOC - attachment D
	1-liter amber	SVOC EPA 8270C - Attachment D
	1-liter amber	Chlorinated Herbicides EPA 8150A - Attachment D
	1-liter amber	Organophosphorus Compounds EPA 8141 - Attachment D

LANDFILL
LCRS Pond, Sump, Pipe Sample Field Data
Annual

- COC's

Union Mine Landfill
El Dorado County

Location ID: Class II - Pond
Sample ID: Class II Pond
Date Sampled: 5/18/18
13 D.L.

Time	Volume	Temp	ph	EC	Comments
(24 hr)	(gal)	°C	std. Units	(uSat25°C)	(color, odor)
0951	-	24.2	10.15	501	algae

Sampling: Time: 0950

Sample type:

QC Samples: 0

Remarks: Sampler: Robert Lauritzen

Meter Calibration: Date: Time: Meter # **Hanna 991300**

pH (4): @ °C pH (7): @ °C

Location: Office

EC (1413) ok yes or no

	3-VOAs w/HCl	VOC 8260
	1-Liter Poly NP	Bicarb/Carb Alk, Chloride, Nitrate, Sulfate, TDS
	metals	inorganic-Al, Sb, Ba, Be, Cd, Cr, Co, Cu, Pb, Mn, Hg, Ni, Se, Ag, Tl, Sn, Va, Zn
		cyanide
5-Year		sulfide
COC	2-40ml VOA w/HCL	TOC
	w/voc above	VOC - attachment D
	1-liter amber	SVOC EPA 8270C - Attachment D
	1-liter amber	Chlorinated Herbicides EPA 8150A - Attachment D
	1-liter amber	Organophosphorus Compounds EPA 8141 - Attachment D

LANDFILL
LCRS Pond, Sump, Pipe Sample Field Data
Annual

Union Mine Landfill
El Dorado County

Location ID: LCRS- Sump
Sample ID: LCRS- Sump
Date Sampled: 5/10/16
13 EC.

Time	Volume	Temp	ph	EC	Comments
(24 hr)	(gal)	°C	std. Units	(uSat25°C)	(color, odor)
1030	-	24.9	7.41	6.96	clear

Sampling: Time: 1030
Sample type: grab

QC Samples: ~~0~~

Remarks: _____ Sampler: Robert Lauritzen

Meter Calibration:	Date: _____	Time: _____	Meter # **Hanna 991300**
pH (4): ____ @ _____ °C	pH (7): ____ @ _____ °C		Location: Office
EC (1413) ok yes or no			

	3-VOAs w/HCl	VOC 8260
	1-Liter Poly NP	Bicarb/Carb Alk, Chloride, Nitrate, Sulfate, TDS
	metals - HNO_3	inorganic-Al, Sb, Ba, Be, Cd, Cr, Co, Cu, Pb, Mn, Hg, Ni, Se, Ag, Tl, Sn, Va, Zn
		cyanide
5-Year		sulfide
COC	2-40ml VOA w/HCL	TOC
	w/voc above	VOC - attachment D
	1-liter amber	SVOC EPA 8270C - Attachment D
	1-liter amber	Chlorinated Herbicides EPA 8150A - Attachment D
	1-liter amber	Organophosphorus Compounds EPA 8141 - Attachment D

Landfill
LCRS - Class II Pond/Sump/Pipe
Leachate Sample Field Data
Monthly

Union Mine Landfill
El Dorado County

Date: 6/20/16

Field Parameter Testing-Leachate

Weather: clear

Field Personnel: Robert Lauritzen

Air Temp: 70's

Field Parameter Testing						
Location	Time	Volume	Temp	ph	EC	Comments
		(gal)	°C	std. Units	(uS)	(color, odor)
Leachate Pipe	1010	–	26.6	6.64	1853	low flow
Class II Impoundment	1013		27.0	9.95	485	algae, low
Leachate Sump	1018		26.3	8.40	442	–

Comments:

Dedicated sump pump active? (yes) no

Sum de-watered? (Yes) no

Meter Calibration: Date: 6/20/16 Time: 1003 Meter # Hanna 991300

pH (4): 3.99 @ 20.8 °C pH (7): 7.01 @ 20.7 °C

EC (1413 - ok) (yes) no Location: office

Landfill
Lysimeter Sample Field Data
Semiannual/Quarterly

Union Mine Landfill
El Dorado County

Lysimeter ID: L2N
Sample ID: ~~0~~
Date Sampled: 2/24/16

Sampler: Robert Lauritzen

Preparation - Vacuum Application

Time	Initial Vacuum (Hg)	Time	Residual Vacuum (Hg)	Liquid (ml)	Comments (color,odor)
1340	20	1443	0	~~0~~	

Discharge - Field Parameters ~~0~~

Time	Volume (ml)	Temp (^{0}C)	pH	Specific Conductance uS	Liquid (ml)	Comments

Quarterly: Field parameters -pH, Specific Conductance

Semiannual	1-Liter Poly NP	Bicarb/Carb Alk, Chloride, Nitrate, Sulfate, TDS
Semiannual	3-VOAs w/HCl	VOC 8260

purge 200 ml before applying vacuum

DRY - NO SAMPLE

Landfill
Lysimeter Sample Field Data
Semiannual/Quarterly

Union Mine Landfill
El Dorado County

Lysimeter ID: L25
Sample ID: ~~0~~
Date Sampled: 2/29/16

Sampler: Robert Lauritzen

Preparation - Vacuum Application

Time	Initial Vacuum (Hg)	Time	Residual Vacuum (Hg)	Liquid (ml)	Comments (color,odor)
1349	20	1460	0	~~0~~	

Discharge - Field Parameters ~~0~~

Time	Volume (ml)	Temp (^{0}C)	pH	Specific Conductance uS	Liquid (ml)	Comments

Quarterly: Field parameters -pH, Specific Conductance

Semiannual	1-Liter Poly NP	Bicarb/Carb Alk, Chloride, Nitrate, Sulfate, TDS
Semiannual	3-VOAs w/HCl	VOC 8260

purged 400 ml before applying Vac

DRY - NO SAMPLE

Landfill
Lysimeter Sample Field Data
Semiannual/Quarterly

Union Mine Landfill
El Dorado County

Lysimeter ID: LZN
Sample ID: 0
Date Sampled: 4/20/16

Sampler: Robert Lauritzen

Preparation - Vacuum Application

Time PST	Initial Vacuum (Hg)	Time	Residual Vacuum (Hg)	Liquid (ml)	Comments (color,odor)
~~1015~~ 0915	24	1015	0	~~0~~	

Discharge - Field Parameters

Time	Volume (ml)	Temp (^{0}C)	pH	Specific Conductance uS	Liquid (ml)	Comments

Quarterly: Field parameters -pH, Specific Conductance

Semiannual	1-Liter Poly NP	Bicarb/Carb Alk, Chloride, Nitrate, Sulfate, TDS
Semiannual	3-VOAs w/HCl	VOC 8260

DRY - NO SAMPLE

Landfill
Lysimeter Sample Field Data
Semiannual/Quarterly

Union Mine Landfill
El Dorado County

Lysimeter ID: L25
Sample ID: 0
Date Sampled: 4/28/16

Sampler: Robert Lauritzen

Preparation - Vacuum Application

Time AL	Initial Vacuum (Hg)	Time	Residual Vacuum (Hg)	Liquid (ml)	Comments (color,odor)
1820	23	1020	0	0	
0920					

Discharge - Field Parameters

Time	Volume (ml)	Temp (^{0}C)	pH	Specific Conductance uS	Liquid (ml)	Comments

Quarterly: Field parameters -pH, Specific Conductance

Semiannual	1-Liter Poly NP	Bicarb/Carb Alk, Chloride, Nitrate, Sulfate, TDS
Semiannual	3-VOAs w/HCl	VOC 8260

DRY - NO SAMPLE

Surfacewater Sample Field Data

Quarterly

Union Mine Landfill

El Dorado County

Location ID: S-1

Sample ID: S-1

Date Sampled: 3/8/16

Time	Temp	ph	EC	Turbidity	Comments
(24 hr)	°C	std. Units	(uSat25°C)	ntu	(color, odor)
0901	11.5	7.36	283	3.88	clear, hi flow

Sampling: Time: 0900

Sample type: grab

QC Samples: _____ Metals -use 45 um disposable filter: (yes)

Remarks: _____ Sampler: Robert Lauritzen

Meter Calibration: Date: 3/8/16 Time: 0834 Meter # **Hanna 991300**

pH (4): 3.99 @ 17.3 °C pH (7) 7.02 @ 17.3 °C

Location: Office

EC (1413): (ok) yes no

1-Liter Poly NP	Bicarb/Carb Alk, Chloride, Nitrate, Sulfate, TDS
1-Liter Poly NP	TSS
1- 500ml Poly w/HNO3	Dissolved metals: Ca,K,Mg,Na,As,Cu,Fe,Zn

Surfacewater Sample Field Data

Quarterly

Union Mine Landfill

El Dorado County

Location ID: S-2

Sample ID: S-2

Date Sampled: 3/8/16

Time	Temp	ph	EC	Turbidity	Comments
(24 hr)	°C	std. Units	(uSat25°C)	ntu	(color, odor)
1026	~~14.1~~	~~7.73~~	130	20.9	clear, hi flow
	13.3	7.42			

Sampling: Time: 1025

Sample type: grab

QC Samples: _____ Metals -use 45 um disposable filter: (yes)

Remarks: _____ Sampler: Robert Lauritzen

Meter Calibration:	Date: _____	Time: _____	Meter # **Hanna 991300**
pH (4): ____ @ _____ °C		pH (7): ____ @ _____ °C	_____ Location: Office
EC (1413): ok yes no			

1-Liter Poly NP	Bicarb/Carb Alk, Chloride, Nitrate, Sulfate, TDS
1-Liter Poly NP	TSS
1- 500ml Poly w/HNO3	Dissolved metals: Ca,K,Mg,Na,As,Cu,Fe,Zn

Surfacewater Sample Field Data

Quarterly

Union Mine Landfill

El Dorado County

Location ID: S-6

Sample ID: S-6

Date Sampled: 3/8/16

Time	Temp	ph	EC	Turbidity	Comments
(24 hr)	°C	std. Units	(uSat25°C)	ntu	(color, odor)
1001	12.4	7.81	79	10.4	clear, hi flow

Sampling: Time: 1000

Sample type: grab

QC Samples: _____ Metals -use 45 um disposable filter: (yes)

Remarks: _____ Sampler: Robert Lauritzen

Meter Calibration: Date: _____ Time: _____ Meter # **Hanna 991300**

pH (4): ____ @ _____ °C pH (7): ____ @ _____ °C

_____
Location: Office

EC (1413): ok yes no

1-Liter Poly NP — Bicarb/Carb Alk, Chloride, Nitrate, Sulfate, TDS

1-Liter Poly NP — TSS

1- 500ml Poly w/HNO3 — Dissolved metals: Ca,K,Mg,Na,As,Cu,Fe,Zn

Surfacewater Sample Field Data

Quarterly

Union Mine Landfill

El Dorado County

Location ID: S-7

Sample ID: S-7

Date Sampled: 3/8/16

Time	Temp	ph	EC	Turbidity	Comments
(24 hr)	°C	std. Units	(uSat25°C)	ntu	(color, odor)
1041	12.0	7.73	75	17.5	slight-/ cloudy, hi flow

Sampling: Time: 1040

Sample type: grab

QC Samples: _____ Metals -use 45 um disposable filter: (yes)

Remarks: _____ Sampler: Robert Lauritzen

Meter Calibration: Date: _____ Time: _____ Meter # **Hanna 991300**

pH (4): ____ @ _____ °C pH (7): ____ @ _____ °C

_____
Location: Office

EC (1413): ok yes no

1-Liter Poly NP — Bicarb/Carb Alk, Chloride, Nitrate, Sulfate, TDS

1-Liter Poly NP — TSS

1- 500ml Poly w/HNO3 — Dissolved metals: Ca,K,Mg,Na,As,Cu,Fe,Zn

MS-1 Seep Sample Field Data

Quarterly

Union Mine Landfill
El Dorado County

Location ID: MS-1
Sample ID: MS-1
Date Sampled: 3/8/16

Time	Temp	ph	EC	Comments
(24 hr)	^{0}C	std. Units	(uSat25^{0}C)	(color, odor)
1011	16.0	6.29	211	clear, mod. flow

Sampling:

Time: 1010

Sample type: _____

QC Samples: _____ Metals -use 45 um disposable filter: yes

Remarks: _____ Sampler: Robert Lauritzen

Meter Calibration: Date: _____ Time: _____ Meter # **Hanna 991300**

pH 4: ____ @ _____ ^{0}C pH 7: _____ @ _____ ^{0}C

_____
Location: office

EC (1413): ok yes no

1-500 Poly NP
1-500 Poly w/HNO3

TDS, pH, chloride
Dissolved As and Fe

Groundwater Drain Sample Field Data

Quarterly

Union Mine Landfill
El Dorado County

Location ID: GWD-1
Sample ID: GWD-1
Date Sampled: 3/8/16

Time	Temp	ph	EC	Comments
(24 hr)	°C	std. Units	(uSat25°C)	(color, odor)
0931	13.8	6.53	116	clear, hi flow

Sampling: Time: 0930

Sampler type: grab

QC Samples: _____ Metals -use 45 um disposable filter: (yes)

Remarks: _____ Sampler: Robert Lauritzen

Meter Calibration: Date: _____ Time: _____ Meter: HI991300

pH (4): ____ @ _____ °C pH (7): ____ @ _____ °C

_____
Location: Office

EC (1413): ok yes no

1-500 Poly w/HNO_3
1-Liter Poly NP

Dissolved metals: As and Fe
Sulfate, TDS

Groundwater Drain Sample Field Data

Quarterly

Union Mine Landfill
El Dorado County

Location ID: GWD-2
Sample ID: GWD-2
Date Sampled: 3/8/16

Time	Temp	ph	EC	Comments
(24 hr)	°C	std. Units	(uSat25°C)	(color, odor)
0911	16.2	6.42	240	clear, mod. flow

Sampling: Time: 0910

Sampler type: grab

QC Samples:_____ Metals -use 45 um disposable filter: yes (6)

Remarks:_____ Sampler: Robert Lauritzen

Meter Calibration: Date:_____ Time:_____ Meter: HI991300

pH (4):____ @ _____°C pH (7):____ @ _____°C

_____
Location: Office

EC (1413): ok yes no

1-500 Poly w/HNO_3
1-Liter Poly NP

Dissolved metals: As and Fe
Sulfate, TDS

Groundwater Drain Sample Field Data

Quarterly

Union Mine Landfill
El Dorado County

Location ID: GWD-3
Sample ID: GWD-3
Date Sampled: 3/8/16

Time	Temp	ph	EC	Comments
(24 hr)	^{0}C	std. Units	(uSat25^{0}C)	(color, odor)
1101	16.5	5.58	202	clear, mod. flow

Sampling: Time: 1100

Sampler type: grab

QC Samples: _____ Metals -use 45 um disposable filter: yes

Remarks: _____ Sampler: Robert Lauritzen

Meter Calibration: Date: _____ Time: _____ Meter: HI991300

pH (4): ____ @ _____ ^{0}C pH (7): ____ @ _____ ^{0}C

_____
Location: Office

EC (1413): ok yes no

1-500 Poly w/HNO_3
1-Liter Poly NP

Dissolved metals: As and Fe
Sulfate, TDS

Groundwater Drain Sample Field Data

Quarterly

Union Mine Landfill
El Dorado County

Location ID: Pendar Tunnel
Sample ID: Pendar Tunnel
Date Sampled: 3/8/16

Time	Temp	ph	EC	Comments
(24 hr)	°C	std. Units	(uSat25°C)	(color, odor)
0936	14.3	7.04	78	clear, mod. flow

Sampling: Time: 0935

Sampler type: grab

QC Samples: _____ Metals -use 45 um disposable filter: yes

Remarks: _____ Sampler: Robert Lauritzen

Meter Calibration: Date: _____ Time: _____ Meter: HI991300

pH (4): ____ @ _____ °C pH (7): ____ @ _____ °C

_____
Location: Office

EC (1413): ok yes no

1-500 Poly w/HNO_3
1-Liter Poly NP

Dissolved metals: As and Fe
Sulfate, TDS

Surfacewater Sample Field Data

Quarterly

Union Mine Landfill

El Dorado County

Location ID: S-1

Sample ID: S-1

Date Sampled: 5/18/16

Time	Temp	ph	EC	Turbidity	Comments
(24 hr)	°C	std. Units	(uSat25°C)	ntu	(color, odor)
0841	~~18.0~~	7.25	~~0843~~	1.78	clear, mod. flow
	19.2				

Sampling: Time: 0840

Sample type: grab

QC Samples: _____ Metals -use 45 um disposable filter: (yes)

Remarks: 5 yr COC Sampler: Robert Lauritzen

Meter Calibration: Date: 5/18/16 Time: 0824 Meter # **Hanna 991300**

pH (4): 3.99 @ 18.3 °C pH (7): 7.00 @ 18.2 °C

Location: Office

EC (1413): ok yes no

	1-Liter Poly NP	Bicarb/Carb Alk, Chloride, Nitrate, Sulfate, TDS
	1-Liter Poly NP	TSS
	1- 500ml Poly w/HNO3	Dissolved metals: Ca,K,Mg,Na,As,Cu,Fe,Zn
	with above metals	inorganics-Al, Sb, Ba, Be, Cd, Cr, Co, Pb, Mn, Hg, Ni, Se, Ag, Tl, Sn, Va.
5-year COC	2 - 40ml VOA w/HCL	Total Organic Carbon (TOC)
	1-250ml poly w/NAOH	Cyanide
	1-250ml w/NaOH/zn-acetate	Sulfide

Groundwater Drain Sample Field Data

Quarterly

Union Mine Landfill
El Dorado County

Location ID: GWD-1
Sample ID: GWD-1
Date Sampled: 5/18/16

Time	Temp	ph	EC	Comments
(24 hr)	^{0}C	std. Units	(uSat25^{0}C)	(color, odor)
0916	19.0	6.17	302	clear, seeds
				lots of

Sampling: Time: 0915

Sampler type: grab

QC Samples: _____ Metals -use 45 um disposable filter: yes

Remarks: _____ Sampler: Robert Lauritzen

Meter Calibration: Date: _____ Time: _____ Meter: HI991300

pH (4): ____ @ _____ ^{0}C pH (7): ____ @ _____ ^{0}C

_____
Location: Office

EC (1413): ok yes no See S-1

1-500 Poly w/HNO_3
1-Liter Poly NP

Dissolved metals: As and Fe
Sulfate, TDS

Surfacewater Sample Field Data

Quarterly

Union Mine Landfill

El Dorado County

Location ID: S-6

Sample ID: S-6

Date Sampled: 5/18/16

Time	Temp	ph	EC	Turbidity	Comments
(24 hr)	°C	std. Units	(uSat25°C)	ntu	(color, odor)
0941	18.5	7.66	238	0.75	clear, low flow

Sampling: Time: 0940

Sample type: grab

QC Samples: _____ Metals -use 45 um disposable filter (yes)

Remarks: 5 yr COC Sampler: Robert Lauritzen

Meter Calibration: Date: _____ Time: _____ Meter # **Hanna 991300**

pH (4): ____ @ _____ °C pH (7): ____ @ _____ °C

Location: Office

EC (1413): ok yes no See S-1

	1-Liter Poly NP	Bicarb/Carb Alk, Chloride, Nitrate, Sulfate, TDS
	1-Liter Poly NP	TSS
	1- 500ml Poly w/HNO3	Dissolved metals: Ca,K,Mg,Na,As,Cu,Fe,Zn
5-year COC	with above metals	inorganics-Al, Sb, Ba, Be, Cd, Cr, Co, Pb, Mn, Hg, Ni, Se, Ag, Tl, Sn, Va.
	2 - 40ml VOA w/HCL	Total Organic Carbon (TOC)
	1-250ml poly w/NAOH	Cyanide
	1-250ml w/NaOH/zn-acetate	Sulfide

Surfacewater Sample Field Data

Quarterly

Union Mine Landfill

El Dorado County

Location ID: S-2

Sample ID: S-2

Date Sampled: 5/18/16

Time	Temp	ph	EC	Turbidity	Comments
(24 hr)	°C	std. Units	(uSat25°C)	ntu	(color, odor)
1006	21.7	7.82	610	1.02	clear, med. flow

Sampling: Time: 1005

Sample type: grab

QC Samples: _____ Metals -use 45 um disposable filter: (yes)

Remarks: 5 YR COC Sampler: Robert Lauritzen

Meter Calibration: Date: _____ Time: _____ Meter # **Hanna 991300**

pH (4): ____ @ _____ °C pH (7): ____ @ _____ °C

Location: Office

EC (1413): ok yes no See S-1

	1-Liter Poly NP	Bicarb/Carb Alk, Chloride, Nitrate, Sulfate, TDS
	1-Liter Poly NP	TSS
	1- 500ml Poly w/HNO3	Dissolved metals: Ca,K,Mg,Na,As,Cu,Fe,Zn
	with above metals	inorganics-Al, Sb, Ba, Be, Cd, Cr, Co, Pb, Mn, Hg, Ni, Se, Ag, Tl, Sn, Va.
5-year	2 - 40ml VOA w/HCL	Total Organic Carbon (TOC)
COC	1-250ml poly w/NAOH	Cyanide
	1-250ml w/NaOH/zn-acetate	Sulfide

Surfacewater Sample Field Data

Quarterly

Union Mine Landfill

El Dorado County

Location ID: S-7

Sample ID: S-7

Date Sampled: 5/18/16

Time	Temp	ph	EC	Turbidity	Comments
(24 hr)	°C	std. Units	(uSat25°C)	ntu	(color, odor)
1031	19.7	7.55	246	0.00	

Sampling: Time: 1030

Sample type: grab

QC Samples: _____ Metals -use 45 um disposable filter: yes

Remarks: 5 YR COC Sampler: Robert Lauritzen

Meter Calibration: Date: _____ Time: _____ Meter # **Hanna 991300**

pH (4): ____ @ _____ °C pH (7): ____ @ _____ °C

Location: Office

EC (1413): ok yes no See S-1

	1-Liter Poly NP	Bicarb/Carb Alk, Chloride, Nitrate, Sulfate, TDS
	1-Liter Poly NP	TSS
	1- 500ml Poly w/HNO3	Dissolved metals: Ca,K,Mg,Na,As,Cu,Fe,Zn
	with above metals	inorganics-Al, Sb, Ba, Be, Cd, Cr, Co, Pb, Mn, Hg, Ni, Se, Ag, Tl, Sn, Va.
5-year	2 - 40ml VOA w/HCL	Total Organic Carbon (TOC)
COC	1-250ml poly w/NAOH	Cyanide
	1-250ml w/NaOH/zn-acetate	Sulfide

Groundwater Drain Sample Field Data

Quarterly

Union Mine Landfill
El Dorado County

Location ID: ~~S-1a~~ GWD-2
Sample ID: ~~S-1a~~
Date Sampled: 5/18/16

Time	Temp	ph	EC	Comments
(24 hr)	^{0}C	std. Units	(uSat25^{0}C)	(color, odor)
~~0440~~				

Sampling: Time: ~~0440~~ p.l. DRY - NO SAMPLE
Sampler type: gMb

QC Samples:_____ Metals -use 45 um disposable filter: yes

Remarks:_____ Sampler: Robert Lauritzen

Meter Calibration: Date:_____ Time:_____ Meter: HI991300

pH (4):____ @ _____^{0}C pH (7):____ @ _____^{0}C _____
Location: Office

EC (1413): ok yes no see S-1

1-500 Poly w/HNO_3
1-Liter Poly NP

Dissolved metals: As and Fe
Sulfate, TDS

DRY - NO SAMPLE

MS-1 Seep Sample Field Data

Quarterly

Union Mine Landfill
El Dorado County

Location ID: MS-1
Sample ID: _____
Date Sampled: 5/10/16

Time	Temp	ph	EC	Comments
(24 hr)	^{0}C	std. Units	(uSat25^{0}C)	(color, odor)

Sampling:

DRY - NO SAMPLE

Time: _____

Sample type: _____

QC Samples: _____ Metals -use 45 um disposable filter: yes

Remarks: _____ Sampler: Robert Lauritzen

Meter Calibration: Date: _____ Time: _____ Meter # **Hanna 991300**

pH 4: ____ @ _____ ^{0}C pH 7: ____ @ _____ ^{0}C

Location: office

EC (1413): ok yes no

1-500 Poly NP
1-500 Poly w/HNO3

TDS, pH, chloride
Dissolved As and Fe

DRY - NO SAMPLE

Groundwater Drain Sample Field Data

Quarterly

Union Mine Landfill
El Dorado County

Location ID: Pondar Tunnel
Sample ID: D
Date Sampled: 5/18/16

Time	Temp	ph	EC	Comments
(24 hr)	^{0}C	std. Units	(uSat25^{0}C)	(color, odor)

Sampling: Time:_____

Sampler type:_____ DRY - NO SAMPLE

QC Samples:_____ Metals -use 45 um disposable filter: yes

Remarks:_____ Sampler: Robert Lauritzen

Meter Calibration: Date:_____ Time:_____ Meter: HI991300

pH (4):____ @ _____^{0}C pH (7):____ @ _____^{0}C _____ Location: Office

EC (1413): ok yes no

1-500 Poly w/HNO_3
1-Liter Poly NP

Dissolved metals: As and Fe
Sulfate, TDS

DRY - NO SAMPLE

Groundwater Drain Sample Field Data

Quarterly

Union Mine Landfill
El Dorado County

Location ID: GWD-3
Sample ID: _____
Date Sampled: 5/18/16

Time	Temp	ph	EC	Comments
(24 hr)	^{0}C	std. Units	(uSat25^{0}C)	(color, odor)

Sampling: Time: _____ DRY - NO SAMPLE
Sampler type: _____

QC Samples: _____ Metals -use 45 um disposable filter: yes

Remarks: _____ Sampler: Robert Lauritzen

Meter Calibration: Date: _____ Time: _____ Meter: HI991300

pH (4): ____ @ _____ ^{0}C pH (7): ____ @ _____ ^{0}C

_____
Location: Office

EC (1413): ok yes no

1-500 Poly w/HNO_3
1-Liter Poly NP

Dissolved metals: As and Fe
Sulfate, TDS

DRY - NO SAMPLE

CLS Laboratories

3249 Fitzgerald Road, Rancho Cordova, CA
Phone: (916) 638-7301

CHAIN OF CUSTODY/ANALYSIS REQUEST FORM

Lab Login# Date 5/18/16 Page 1 of 1

Union Mine Disposal Facility

Report to: Robert Lauritzen
El Dorado County Environmental Management
2850 Fairlaine Court, Bldg C
Placerville, CA 95667
Office: (530)-621-5130
Fax: (530) 626-7130

Analysis Requested

Sample ID	Date	Time	Lab ID	Sample Matrix	# of Containers	Diss. Ca, Mg ,K, Na	Diss. As, Cu, Fe, Zn	Chloride, TDS, SO4	BiCarb, Carb, Nitrate	TSS	TOC	Sulfide	Inorganics	Cyanide				Comments
						HNO3	HNO3	NP	NP	NP	HCL	zn-acetate	HNO3	NaOH				
S-1	5/18/16	0840		liquid	7	x	x	x	x	x	x	x	x	x				
S-2	↓	~~0945~~ 1005		liquid	7	x	x	x	x	x	x	x	x	x				
S-6		0940		liquid	7	x	x	x	x	x	x	x	x	x				
S-7		1030		liquid	7	x	x	x	x	x	x	x	x	x				

Relinquished by:
Signature: [signature]
Printed Name: Robert Lauritzen
El Dorado County
Date/Time 5/18/16 1145

Recieved by:
Signature: [signature]
Printed Name: Dave Pommell
Date/Time 5/18/16 1145 (6.4)

TAT Requirements

_x_ Standard (5 days)

X txt file needed

Report Requirements

___I. Routine Report
~~X~~ II. Report(includes DUP,MS MSD, as required.
___III. Data Validation Report
X RWQCB (MDLs/PQLs/Trace#)

Additional Info:
Metals Field Filtered: yes ← cyanide + sulfide
Dissolved metals= Ca,K,Mg,Na,As,Cu,Fe, Zn
inorganics-Al, Sb, Ba, Be, Cd, Cr, Co, Pb, Mn, Hg, Ni, Se, Ag, Tl, Sn, Va.

Invoice:Greg Stanton, EDCEM
Address: 2850 Fairlane Ct., Bldg C, Placerville, CA, 95667
Contract # 037-C-0607-BOS

CLS Laboratories

3249 Fitzgerald Road, Rancho Cordova, CA
Phone: (916) 638-7301

CHAIN OF CUSTODY/ANALYSIS REQUEST FORM

Lab Login# Date 5/18/16 Page 1 of 1

Union Mine Disposal Facility

Report to: Robert Lauritzen
El Dorado County Environmental Management
2850 Fairlaine Court, Bldg C
Placerville, CA 95667
Office: (530)-621-5130
Fax: (530) 626-7130

Sample ID	Date	Time	Lab ID	Sample Matrix	# of Containers	Dissolved As & Fe / HNO3	Sulfate, TDS / NP										Comments
		RL.															
GWD-1	5/18/16	0915		liquid	2	X	X										
RL.																	

Analysis Requested

Relinquished by: Signature: Robert Lauritzen
Printed Name: Robert Lauritzen
El Dorado County
Date/Time 5/18/16 1145

Recieved by: Signature:
Printed Name:
Date/Time 5/18/16 1145 (.4)

TAT Requirements

X Standard (5 days)

X txt file needed

Report Requirements

___I. Routine Report
___II. Report(includes DUP,MS MSD, as required.
___III. Data Validation Report
X RWQCB (MDLs/PQLs/Trace#)

Additional Info:
Metals Field Filtered: yes
RL.

Invoice:Greg Stanton, EDCEM
Address: 2850 Fairlane Ct., Bldg C, Placerville, CA, 95667
Contract # 037-C-0607-BOS

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CHAIN OF CUSTODY/ANALYSIS REQUEST FORM

Lab Login# Date _____ Page _____ of _____

Union Mine Disposal Facility

Report to: Robert Lauritzen
El Dorado County Environmental Management
2850 Fairlaine Court, Bldg C
Placerville, CA 95667
Office: (530)-621-5130
Fax: (530) 626-7130

Sample ID	Date	Time	Lab ID	Sample Matrix	# of Containers	HNO3	NP	Dissolved As & Fe	Chloride, TDS, pH										Comments
								Analysis Requested											
MS-1				liquid	2	X	X												

Relinquished by: Signature:	Recieved by: Signature:
Printed Name:	Printed Name:
El Dorado County Date/Time	Date/Time

TAT Requirements

___ Standard (5 days)

____ txt file needed

Report Requirements

___I. Routine Report
___II. Report(includes DUP,MS MSD, as required.
___III. Data Validation Report
___ RWQCB (MDLs/PQLs/Trace#)

Additional Info:
Metals Field Filtered: yes

Invoice:Greg Stanton, EDCEM
Address: 2850 Fairlane Ct., Bldg C, Placerville, CA, 95667
Contract # 037-C-0607-BOS

Water Level Survey Form

Union Mine - Landfill Wells

Well #	Date	Depth to Water feet	Total Depth feet	Diameter inches	Screen feet	Comments
MW-5	6/16/2016 1017	11.96	40.0	4"	20-40	
MW-6	1021	11.44	138.0	4"	118-138	
MW-10	1012	121.07	140.0	4"	120-140	
MW-11	1028	39.18	80.0	4"	58-78	
MW-9	1032	25.21	217.0	4"	197-217	
MW-7	1039	12.99	150.0	4"	130-150	
UM-3	1100	0.0	87.0	2"	60-90	artesian
MWA	1044	26.89	35.0	4"	19-34	
MWC	1035	23.14	50.0	2"	9-50	

LANDFILL
Groundwater Sample Field Data
Semiannual

Union Mine Landfill
El Dorado County

Well ID: MW-16
Sample ID: MW-10
Date Sampled: 6/7/16

Well Info:
Casing diameter (in): 4 Depth to water (feet): 121.09 Total Depth(feet): 140

Prepurge/Tubing Volume: 3+ Liters (volume purged prior to low flow sampling)

Low Flow Well Purging:
Start Time: 0831 End Time: 0843
Dedicated Grundfos pump
Vol. Purged: 6.0 e Pump rate: 0.5 L/min
Purge water disposal: Ground Converter: N/A Hz

Time (24 hr)	Volume (liters)	DTW (ft)	Temp °C	ph std. Units	EC (uSat25°C)	DO mg/l	Turbidity NTU	Comments (color, odor)
0831	0	121.15	19.7	7.82	470	7.8	0.73	clear
0834	1.5	121.15	19.7	7.27	500	4.5	0.24	"
0837	3.0	121.16	19.6	7.14	522	2.7	0.07	"
0840	4.5	121.16	19.7	7.11	531	2.0	0.11	"
0843	6.0	121.16	20.1	7.11	536	1.8	0.40	

Well Sampling:
Time: 0840

Sampler type: low flow sampling w/dedicated Grundfos pump and flow cell
QC Samples: _____ **Metals** -use 45 um disposable filter: yes
Remarks: _____ **Sampler**: R. Lauritzen

Meter Calibration: Date: 6/4/16 Time: 1530 Meter # **Hanna 991300** ✓
pH (4): 3.99 @ 21.0 °C pH (7): 7.01 @ 21.0 °C
Location: office ✓
EC (1413) ok / yes no

	1-500 Poly w/HNO_3	Dissolved metals: Ca, K, Mg, Na, As, Fe
	3-VOAs w/HCl	VOC 8260
	1-Liter Poly NP	Bicarb/Carb Alk, Chloride, Nitrate, Sulfate, TDS
5-Year COC	w/metals above	inorganic-Al, Sb, Ba, Be, Cd, Cr, Co, Cu, Pb, Mn, Hg, Ni, Se, Ag, Tl, Sn, Va, Zn
		cyanide
		sulfide
	2-40ml VOA w/HCL	TOC
	w/voc above	VOC - attachment D
	1-liter amber	SVOC EPA 8270C - Attachment D
		Chlorinated Herbicides EPA 8150A - Attachment D
	1-liter amber	Organophosphorus Compounds EPA 8141 - Attachment D

LANDFILL
Groundwater Sample Field Data
Semiannual

Union Mine Landfill
El Dorado County

Well ID: MW-5
Sample ID: MW-5
Date Sampled: 6/7/16

Well Info:
Casing diameter (in): 4 Depth to water (feet): 12.14 Total Depth(feet): 40

Prepurge/Tubing Volume: 3 Liters (volume purged prior to low flow sampling)

Low Flow Well Purging:
Start Time: 0929 End Time: 0935
Dedicated Grundfos pump
Vol. Purged: 3.0 L Pump rate: 1/2 L/min
Purge water disposal: Ground Converter: NA Hz

Time (24 hr)	Volume (liters)	DTW (ft)	Temp °C	ph std. Units	EC (uSat25°C)	DO mg/l	Turbidity NTU	Comments (color, odor)
0929	0	12.66	19.2	7.14	418	1.3	3.76	clear
0932	1.5	12.69	19.4	7.15	421	1.4	3.12	clear
0935	3.0	12.72	19.7	7.15	428	1.4	2.99	"

Well Sampling:
Time: 0940

Sampler type: low flow sampling w/dedicated Grundfos pump and flow cell
QC Samples: _____ **Metals** -use 45 um disposable filter: yes
Remarks: _____ **Sampler**: R. Lauritzen

Meter Calibration: Date: _____ Time: _____ Meter # **Hanna 991300**
pH (4): ____ @ _____ °C pH (7): ____ @ _____ °C _____
Location: office
EC (1413) ok yes no see mw-10

	1-500 Poly w/HNO_3	Dissolved metals: Ca, K, Mg, Na, As, Fe
	3-VOAs w/HCl	VOC 8260
	1-Liter Poly NP	Bicarb/Carb Alk, Chloride, Nitrate, Sulfate, TDS
5-Year COC	w/metals above	inorganic-Al, Sb, Ba, Be, Cd, Cr, Co, Cu, Pb, Mn, Hg, Ni, Se, Ag, Tl, Sn, Va, Zn
		cyanide
		sulfide
	2-40ml VOA w/HCL	TOC
	w/voc above	VOC - attachment D
	1-liter amber	SVOC EPA 8270C - Attachment D
		Chlorinated Herbicides EPA 8150A - Attachment D
	1-liter amber	Organophosphorus Compounds EPA 8141 - Attachment D

LANDFILL
Groundwater Sample Field Data
Semiannual

Union Mine Landfill
El Dorado County

Well ID: mw-6
Sample ID: mw-6
Date Sampled: 6/7/16

Well Info:
Casing diameter (in): 4 Depth to water (feet): 11.48 Total Depth(feet): 138

Prepurge/Tubing Volume: _____ Liters (volume purged prior to low flow sampling)

Low Flow Well Purging:

Start Time: 1015 End Time: 1021
Dedicated Grundfos pump
Vol. Purged: 3.0 L Pump rate: 1/2 L/min
Purge water disposal: Ground Converter: NA Hz

Time (24 hr)	Volume (liters)	DTW (ft)	Temp °C	ph std. Units	EC (uSat25°C)	DO mg/l	Turbidity NTU	Comments (color, odor)
1015	0	12.32	18.5	7.36	491	1.7	1.66	clear
1018	1.5	12.55	18.2	7.38	494	1.6	0.69	"
1021	3.0	12.71	18.6	7.40	494	1.6	0.85	"

Well Sampling:

Time: 1030

Sampler type: low flow sampling w/dedicated Grundfos pump and flow cell

QC Samples: _____ **Metals** -use 45 um disposable filter: (yes)

Remarks: _____ **Sampler**: R. Lauritzen

Meter Calibration: Date: _____ Time: _____ Meter # **Hanna 991300**
pH (4): ____ @ _____ °C pH (7): ____ @ _____ °C
_____
Location: office
EC (1413) ok yes no see mw-10

	1-500 Poly w/HNO_3	Dissolved metals: Ca, K, Mg, Na, As, Fe
	3-VOAs w/HCl	VOC 8260
	1-Liter Poly NP	Bicarb/Carb Alk, Chloride, Nitrate, Sulfate, TDS
5-Year COC	w/metals above	inorganic-Al, Sb, Ba, Be, Cd, Cr, Co, Cu, Pb, Mn, Hg, Ni, Se, Ag, Tl, Sn, Va, Zn
		cyanide
		sulfide
	2-40ml VOA w/HCL	TOC
	w/voc above	VOC - attachment D
	1-liter amber	SVOC EPA 8270C - Attachment D
		Chlorinated Herbicides EPA 8150A - Attachment D
	1-liter amber	Organophosphorus Compounds EPA 8141 - Attachment D

LANDFILL
Groundwater Sample Field Data
Semiannual

Union Mine Landfill
El Dorado County

Well ID: MW-11
Sample ID: MW-11
Date Sampled: 6/7/16

Well Info:
Casing diameter (in): 4 Depth to water (feet): 39.35 Total Depth(feet): 80

Prepurge/Tubing Volume: 3 Liters (volume purged prior to low flow sampling)

Low Flow Well Purging:

Start Time: 1111 End Time: 1120
Dedicated Grundfos pump
Vol. Purged: 4.5 Pump rate: 4/2 L/min
Purge water disposal: Ground Converter: NA Hz

Time (24 hr)	Volume (liters)	DTW (ft)	Temp °C	ph std. Units	EC (uSat25°C)	DO mg/l	Turbidity NTU	Comments (color, odor)
1111	0	39.38	~	~	~	~	~	Adjustments to flow
1114	1.5	39.36	22.2	6.00	185	2.1	1.60	clear
1117	3.0	39.38	21.3	6.03	161	2.0	2.44	"
1120	4.5	39.38	21.2	6.07	165	2.0	0.39	"
~~1123~~	~~6.0~~	RL.						

Well Sampling:

Time: ~~1025~~ 1120

Sampler type: low flow sampling w/dedicated Grundfos pump and flow cell
QC Samples: _____ **Metals** -use 45 um disposable filter: (yes)

Remarks: _____ **Sampler**: R. Lauritzen

Meter Calibration: Date: _____ Time: _____ Meter # **Hanna 991300**
pH (4): ____ @ _____ °C pH (7): ____ @ _____ °C
Location: office
EC (1413) ok yes no see MW-10

	1-500 Poly w/HNO_3	Dissolved metals: Ca, K, Mg, Na, As, Fe
	3-VOAs w/HCl	VOC 8260
	1-Liter Poly NP	Bicarb/Carb Alk, Chloride, Nitrate, Sulfate, TDS
5-Year COC	w/metals above	inorganic-Al, Sb, Ba, Be, Cd, Cr, Co, Cu, Pb, Mn, Hg, Ni, Se, Ag, Tl, Sn, Va, Zn
		cyanide
		sulfide
	2-40ml VOA w/HCL	TOC
	w/voc above	VOC - attachment D
	1-liter amber	SVOC EPA 8270C - Attachment D
		Chlorinated Herbicides EPA 8150A - Attachment D
	1-liter amber	Organophosphorus Compounds EPA 8141 - Attachment D

LANDFILL
Groundwater Sample Field Data
Semiannual

Union Mine Landfill
El Dorado County

Well ID: MW-9
Sample ID: mw-9
Date Sampled: 6/7/16

Well Info:
Casing diameter (in): 4 Depth to water (feet): 25.24 Total Depth(feet): 217

Prepurge/Tubing Volume: 3 Liters (volume purged prior to low flow sampling)

Low Flow Well Purging:

Start Time: 1150 End Time: 1159
Dedicated Grundfos pump
Vol. Purged: 3.0+ Pump rate: 1/2 L/min
Purge water disposal: Ground Converter: n/a Hz

Time (24 hr)	Volume (liters)	DTW (ft)	Temp °C	ph std. Units	EC (uSat25°C)	DO mg/l	Turbidity NTU	Comments (color, odor)
1150				6.27				
1153	0	27.96	21.8	7.80	478	1.7	1.41	clear
1156	1.5	28.27	21.5	7.79	481	1.7	1.62	"
1159	3.0	28.60	21.8	7.77	491	1.8	4.84	"

Well Sampling:

Time: 1280

Sampler type: low flow sampling w/dedicated Grundfos pump and flow cell
QC Samples: _____ **Metals** -use 45 um disposable filter: yes
Remarks: _____ **Sampler**: R. Lauritzen

Meter Calibration: Date: _____ Time: _____ Meter # **Hanna 991300**
pH (4): ____ @ _____ °C pH (7): ____ @ _____ °C _____
Location: office
EC (1413) ok yes no See mw-10

	1-500 Poly w/HNO_3	Dissolved metals: Ca, K, Mg, Na, As, Fe
	3-VOAs w/HCl	VOC 8260
	1-Liter Poly NP	Bicarb/Carb Alk, Chloride, Nitrate, Sulfate, TDS
5-Year COC	w/metals above	inorganic-Al, Sb, Ba, Be, Cd, Cr, Co, Cu, Pb, Mn, Hg, Ni, Se, Ag, Tl, Sn, Va, Zn
		cyanide
		sulfide
	2-40ml VOA w/HCL	TOC
	w/voc above	VOC - attachment D
	1-liter amber	SVOC EPA 8270C - Attachment D
		Chlorinated Herbicides EPA 8150A - Attachment D
	1-liter amber	Organophosphorus Compounds EPA 8141 - Attachment D

LANDFILL
Groundwater Sample Field Data
Semiannual

Union Mine Landfill
El Dorado County

Well ID: MW-7
Sample ID: MW-7
Date Sampled: 6/7/16

Well Info:
Casing diameter (in): 4 Depth to water (feet): 12.99 Total Depth(feet): 150

Prepurge/Tubing Volume: 3 Liters (volume purged prior to low flow sampling)

Low Flow Well Purging:

Start Time: 1246 End Time: 1252
Dedicated Grundfos pump
Vol. Purged: 3.0 Pump rate: 1/2 L/min
Purge water disposal: Ground Converter: MA Hz

Time (24 hr)	Volume (liters)	DTW (ft)	Temp °C	ph std. Units	EC (uSat25°C)	DO mg/l	Turbidity NTU	Comments (color, odor)
1246	0.0	15.00	21.3	7.77	486	5.5	0.96	clear
1249	1.5	15.29	21.6	7.78	484	4.9	2.70	"
1252	3.0	15.41	22.1	7.78	499	~~4.5~~ 4.7	0.48	"

Well Sampling:

Time: 1300

Sampler type: low flow sampling w/dedicated Grundfos pump and flow cell
QC Samples: DUP-2 (1305) **Metals** -use 45 um disposable filter: yes

Remarks: _____ **Sampler**: R. Lauritzen

Meter Calibration: Date: _____ Time: _____ Meter # **Hanna 991300**
pH (4): ____ @ _____ °C pH (7): ____ @ _____ °C _____
Location: office
EC (1413) ok yes no See MW-10

	1-500 Poly w/HNO_3	Dissolved metals: Ca, K, Mg, Na, As, Fe
	3-VOAs w/HCl	VOC 8260
	1-Liter Poly NP	Bicarb/Carb Alk, Chloride, Nitrate, Sulfate, TDS
5-Year COC	w/metals above	inorganic-Al, Sb, Ba, Be, Cd, Cr, Co, Cu, Pb, Mn, Hg, Ni, Se, Ag, Tl, Sn, Va, Zn
		cyanide
		sulfide
	2-40ml VOA w/HCL	TOC
	w/voc above	VOC - attachment D
	1-liter amber	SVOC EPA 8270C - Attachment D
		Chlorinated Herbicides EPA 8150A - Attachment D
	1-liter amber	Organophosphorus Compounds EPA 8141 - Attachment D

LANDFILL
Groundwater Sample Field Data
Semiannual

Union Mine Landfill
El Dorado County

Well ID: UM-3
Sample ID: UM-3
Date Sampled: 6/7/16

Well Info:
Casing diameter (in): 2 Depth to water (feet): 0.0 Total Depth(feet): 87

Prepurge/Tubing Volume: 0 Liters (volume purged prior to low flow sampling) - artesian

Low Flow Well Purging:
Start Time: 0 End Time: 0
Dedicated Grundfos pump
Vol. Purged: 0 Pump rate: 0 L/min
Purge water disposal: Ground Converter: 0 Hz

Time (24 hr)	Volume (liters)	DTW (ft)	Temp °C	ph std. Units	EC (uSat25°C)	DO mg/l	Turbidity NTU	Comments (color, odor)
1501	-	0.0	22.7	7.71	595	2.3	122*	iron - flocking

Well Sampling:
Time: 1500

Sampler type: low flow sampling w/dedicated Grundfos pump and flow cell
QC Samples: _____ **Metals** -use 45 um disposable filter: yes
Remarks: artesian **Sampler**: R. Lauritzen

Meter Calibration: Date: _____ Time: _____ Meter # **Hanna 991300**
pH (4): ____ @ _____ °C pH (7): ____ @ _____ °C _____
Location: office
EC (1413) ok yes no See MW-10

1-500 Poly w/HNO_3	Dissolved metals: Ca, K, Mg, Na, As, Fe
3-VOAs w/HCl	VOC 8260
1-Liter Poly NP	Bicarb/Carb Alk, Chloride, Nitrate, Sulfate, TDS

5-Year COC

w/metals above	inorganic-Al, Sb, Ba, Be, Cd, Cr, Co, Cu, Pb, Mn, Hg, Ni, Se, Ag, Tl, Sn, Va, Zn
	cyanide
	sulfide
2-40ml VOA w/HCL	TOC
w/voc above	VOC - attachment D
1-liter amber	SVOC EPA 8270C - Attachment D
	Chlorinated Herbicides EPA 8150A - Attachment D
1-liter amber	Organophosphorus Compounds EPA 8141 - Attachment D

LANDFILL
Groundwater Sample Field Data
Semiannual

Union Mine Landfill
El Dorado County

Well ID: MW-C
Sample ID: MW-C
Date Sampled: 6/8/16

Well Info:
Casing diameter (in): 2 Depth to water (feet): 23.26 Total Depth(feet): 50

Prepurge/Tubing Volume: 3+ Liters (volume purged prior to low flow sampling)

Low Flow Well Purging:
Start Time: 0825 End Time: 0834
Dedicated Grundfos pump
Vol. Purged: 4.5L Pump rate: ½ L/min
Purge water disposal: Ground Converter: NA Hz

Time (24 hr)	Volume (liters)	DTW (ft)	Temp °C	ph std. Units	EC (uSat25°C)	DO mg/l	Turbidity NTU	Comments (color, odor)
0825	—	23.33	17.3	5.58	541	0.2	5.38	clear
828	1.5	23.33	17.4	6.73	539	0.3	3.68	"
831	3.0	23.33	17.8	6.82	544	0.5	2.38	"
834	4.5	23.33	18.0	6.83	548	0.5	2.54	"

Well Sampling:
Time: 0850

Sampler type: low flow sampling w/dedicated Grundfos pump and flow cell
QC Samples: _____ **Metals** -use 45 um disposable filter: yes

Remarks: _____ **Sampler**: R. Lauritzen

Meter Calibration: Date: _____ Time: _____ Meter # **Hanna 991300**
pH (4): ____ @ _____ °C pH (7): ____ @ _____ °C
_____
Location: office
EC (1413) ok yes no See MW-1B

1-500 Poly w/HNO_3	Dissolved metals: Ca, K, Mg, Na, As, Fe
3-VOAs w/HCl	VOC 8260
1-Liter Poly NP	Bicarb/Carb Alk, Chloride, Nitrate, Sulfate, TDS

5-Year COC

w/metals above	inorganic-Al, Sb, Ba, Be, Cd, Cr, Co, Cu, Pb, Mn, Hg, Ni, Se, Ag, Tl, Sn, Va, Zn
	cyanide
	sulfide
2-40ml VOA w/HCL	TOC
w/voc above	VOC - attachment D
1-liter amber	SVOC EPA 8270C - Attachment D
	Chlorinated Herbicides EPA 8150A - Attachment D
1-liter amber	Organophosphorus Compounds EPA 8141 - Attachment D

LANDFILL
Groundwater Sample Field Data
Semiannual

Union Mine Landfill
El Dorado County

Well ID: MW-A
Sample ID: MW-A
Date Sampled: 6/8/16

Well Info:
Casing diameter (in): 4 Depth to water (feet): 26.97 Total Depth(feet): 35

Prepurge/Tubing Volume: _____ Liters (volume purged prior to low flow sampling)

Low Flow Well Purging:

Start Time: 0910 End Time: 0916
Dedicated Grundfos pump
Vol. Purged: 3.0 L Pump rate: ½ L/min
Purge water disposal: Ground Converter: NA Hz

Time (24 hr)	Volume (liters)	DTW (ft)	Temp °C	ph std. Units	EC (uSat25°C)	DO mg/l	Turbidity NTU	Comments (color, odor)
0910	—	27.40	19.2	6.13	339	2.4	2.52	clear
0913	1.5	27.48	19.8	6.14	344	2.2	1.78	"
0916	3.0	27.55	20.0	6.16	344	2.1	2.02	"

Well Sampling:

Time: 0930

Sampler type: low flow sampling w/dedicated Grundfos pump and flow cell
QC Samples: _____ **Metals** -use 45 um disposable filter: yes
Remarks: generator exhaust in VOC collection **Sampler**: R. Lauritzen

Meter Calibration: Date: _____ Time: _____ Meter # **Hanna 991300**
pH (4): ____ @ _____ °C pH (7): ____ @ _____ °C
Location: office
EC (1413) ok yes no GCC MW-10

	1-500 Poly w/HNO_3	Dissolved metals: Ca, K, Mg, Na, As, Fe
	3-VOAs w/HCl	VOC 8260
	1-Liter Poly NP	Bicarb/Carb Alk, Chloride, Nitrate, Sulfate, TDS
5-Year COC	w/metals above	inorganic-Al, Sb, Ba, Be, Cd, Cr, Co, Cu, Pb, Mn, Hg, Ni, Se, Ag, Tl, Sn, Va, Zn
		cyanide
		sulfide
	2-40ml VOA w/HCL	TOC
	w/voc above	VOC - attachment D
	1-liter amber	SVOC EPA 8270C - Attachment D
		Chlorinated Herbicides EPA 8150A - Attachment D
	1-liter amber	Organophosphorus Compounds EPA 8141 - Attachment D

CLS Laboratories
3249 Fitzgerald Road, Rancho Cordova, CA
Phone: (916) 638-7301

CHAIN OF CUSTODY/ANALYSIS REQUEST FORM

Lab Login# Date 6/8/16 Page 1 of 1

Union Mine Disposal Facility

Report to: Robert Lauritzen
El Dorado County Environmental Management
2850 Fairlaine Court, Bldg C
Placerville, CA 95667
Office: (530)-621-5130
Fax: (530) 626-7130

Analysis Requested

Sample ID	Date	Time	Lab ID	Sample Matrix	# of Containers	Dis-As,Fe,Ca,Mg,K,Na	VOC & TOC	Bicarb/Carb Alkalinity	Nitrate-N\ SO4\Cl\TDS	Dissolved Inorganics	Sulfide	SVOC 8270C	Chlorinated Herbicides	Organophosphorus Pesticides	Cyanide			Comments
						HNO3	HCL	NP	NP	HNO3	Zn-Acetate	NP	NP	NP	NaOH			
UM-3	6/7/16	1500		water	12	X	X	X	X	X	X	X	X	X	X			
MW-5		0940		water	12	X	X	X	X	X	X	X	X	X	X			
MW-6		1030		water	12	X	X	X	X	X	X	X	X	X	X			
MW-7		1300		water	12	X	X	X	X	X	X	X	X	X	X			
MW-9		1200		water	12	X	X	X	X	X	X	X	X	X	X			
MW-10		0840		water	12	X	X	X	X	X	X	X	X	X	X			
MW-11		1120		water	12	X	X	X	X	X	X	X	X	X	X			
MW-A	6/8/16	~~0805~~ 0930		water	12	X	X	X	X	X	X	X	X	X	X			
MW-C	6/8/16	0805		water	12	X	X	X	X	X	X	X	X	X	X			
DUP2	6/7/16	1305		water	12	x	x	x	x	X	X	X	X	X	X			

Relinquished by: Signature:	[signature]	Recieved by: Signature:	[signature]
Printed Name:	Robert Lauritzen	Printed Name:	GABRIELLE COHAN.
El Dorado County Date/Time	6/8/16 1153	Date/Time	6-8-16 1153. (0.3)

TAT Requirements

X Standard (5 days)

X txt file needed

Report Requirements

___ I. Routine Report
___ II. Report(includes DUP,MS MSD, as required.
___ III. Data Validation Report
X RWQCB (MDLs/PQLs/Trace#)

Additional Info:

Metals Field Filtered: yes ✓
Dissolved Metals-As, Fe, Ca, Mg, K, Na
Nitrate as Nitrogen
dissolved inorganics-Al, Sb, Ba, Be, Cd, Cr, Co, Cu, Pb, Mn, Hg, Ni, Se, Ag, Tl, Sn, Va, Zn

Invoice:Greg Stanton, EDCEM
Address: 2850 Fairlane Ct., Bldg C, Placerville, CA, 95667
Contract # 037-C-0607-BOS

MW-A Time = 0930

Springfield Shaft Sample Field Data

Quarterly

Union Mine Landfill

El Dorado County

Location ID: SS-1

Sample ID: SS-1

Date Sampled: 6/8/16

Time	Temp	ph	EC	Turbidity	Comments
	°C	std. Units	(uSat25°C)	ntu	(color, odor)
1027	22.7	6.55	914	12.1	clear ~ 5 gpm

Sampling: Time: 1020

Sample type: grab

QC Samples: _____ Metals -use 45 um disposable filter: (yes)

Remarks: _____ Sampler: Robert Lauritzen

Meter Calibration: Date: _____ Time: _____ Meter # Hanna 991300

pH (4): ____ @ _____ °C pH (7): ____ @ _____ °C

Location: Office

EC (1413): ok yes no See mw-10

1-500 Poly w/HNO_3 Dissolved metals: Ca, K, Mg, Na, As, Fe

3-VOAs w/HCl VOC 8260

1-Liter Poly NP Bicarb/Carb Alk, Chloride, Nitrate, Sulfate, TDS

Sedimentation Ponds & Class II Impoundment
Weekly Dissolved Oxygen Readings

1/4/2016 Roy Pike

		North Pond	South Pond	West Pond	Class II Pond
Time	Temp	mg/L	mg/L	mg/L	mg/L
			To Low		
11:29	45.7				15.8
11:34	46.2	5.12			
11:40	45.1			7.94	

Sedimentation Ponds & Class II Impoundment
Weekly Dissolved Oxygen Readings

Date: 1/14/2016 Operator: Chad Casner

		North Pond	South Pond	West Pond	Class II Pond
Time	Temp	mg/L	mg/L	mg/L	mg/L
9:04	46.7			10.54	
9:34	47.6				14.11
9:30	48.9	9.17			
			To low		

Sedimentation Ponds & Class II Impoundment
Weekly Dissolved Oxygen Readings

Date: 1/22/2016 Operator: Chad Casner

		North Pond	South Pond	West Pond	Class II Pond
Time	Temp	mg/L	mg/L	mg/L	mg/L
			To low		
13:30	53.4				13.43
13:34	52.2	11.41			
13:37	52.8			11.23	

Sedimentation Ponds & Class II Impoundment
Weekly Dissolved Oxygen Readings

Date: 1/29/2016 Operator: Chad Casner

		North Pond	South Pond	West Pond	Class II Pond
Time	Temp	mg/L	mg/L	mg/L	mg/L
11:46	53.1	11.22			
11:40	55.6				13.64
11:29	52.1			10.06	
11:22	51		12.12		

Sedimentation Ponds & Class II Impoundment
Weekly Dissolved Oxygen Readings

Date: 2/2/2016 Roy C. Pike

		North Pond	South Pond	West Pond	Class II Pond
Time	Temp	mg/L	mg/L	mg/L	mg/L
15:40	54.8		9.82		
15:48	52.2				12.98
15:57	50.9	9.27			
16:02	49.2			8.49	

Sedimentation Ponds & Class II Impoundment
Weekly Dissolved Oxygen Readings

Date: 2/9/2016 Operator: Roy C. Pike

		North Pond	South Pond	West Pond	Class II Pond
Time	Temp	mg/L	mg/L	mg/L	mg/L
13:32	60.4		10.86		
13:48	57.9				11.05
13:53	58.6	13.03			
13:59	55.2			9.36	

Sedimentation Ponds & Class II Impoundment
Weekly Dissolved Oxygen Readings

Date: 2/15/2016 Operator: Roy C. Pike

		North Pond	South Pond	West Pond	Class II Pond
Time	Temp	mg/L	mg/L	mg/L	mg/L
15:41	59.7		17.32		
15:49	62.3				12.24
15:55	61.7	14.61			
16:00	56.4			9.71	

Sedimentation Ponds & Class II Impoundment
Weekly Dissolved Oxygen Readings

Date: 2/23/2016 Operator: Roy C. Pike

		North Pond	South Pond	West Pond	Class II Pond
Time	Temp	mg/L	mg/L	mg/L	mg/L
13:58	56.5		14.52		
14:03	56			10.37	
14:15	61.1				9.94
14:20	56.1	15.24			

Sedimentation Ponds & Class II Impoundment
Weekly Dissolved Oxygen Readings

Date: 3/4/2016 Operator: Casner Chad

		North Pond	South Pond	West Pond	Class II Pond
Time	Temp	mg/L	mg/L	mg/L	mg/L
13.55	62				9.51
13:57	58	9.38			
14:01	54			8.8	
			to low		

Sedimentation Ponds & Class II Impoundment
Weekly Dissolved Oxygen Readings

Date: 3/11/2016 Operator: Chad Casner

		North Pond	South Pond	West Pond	Class II Pond
Time	Temp	mg/L	mg/L	mg/L	mg/L
13:10	53.1		10.55		
13:15	54.2				10.57
13:12	53			10.46	
13:20	52.1	10.62			

Sedimentation Ponds & Class II Impoundment
Weekly Dissolved Oxygen Readings

Date: 3/18/2016 grab samples Operator: Casner Chad

		North Pond	South Pond	West Pond	Class II Pond
Time	Temp	mg/L	mg/L	mg/L	mg/L
13:14	66.7	10			
13:15	64.5		9.39		
13:17	63.5			9.51	
13:13	67.5				9.97

Sedimentation Ponds & Class II Impoundment
Weekly Dissolved Oxygen Readings

Date: 3/25/2016 Operator: Casner Chad

		North Pond	South Pond	West Pond	Class II Pond
Time	Temp	mg/L	mg/L	mg/L	mg/L
			To low		
13:28	65.2	8.67			
13:33	68.5				11.64
13:40	63.1			8.53	

Sedimentation Ponds & Class II Impoundment
Weekly Dissolved Oxygen Readings

Date: 3/31/2016 "Grab Samples" Operator: Chad Casner

		North Pond	South Pond	West Pond	Class II Pond
Time	Temp	mg/L	mg/L	mg/L	mg/L
			To low		
15:51	59.6			8.28	
15:50	59.5				8.43
15:40	62.5	8.98			

Sedimentation Ponds & Class II Impoundment
Weekly Dissolved Oxygen Readings

Date: 4/7/2016 Roy C. Pike

		North Pond	South Pond	West Pond	Class II Pond
Time	Temp	mg/L	mg/L	mg/L	mg/L
14:10	67		11.15		
14:17	72.3				16.68
14:21	67.7	11.99			
14:51	69.2			12.15	

Sedimentation Ponds & Class II Impoundment
Weekly Dissolved Oxygen Readings

Date: 4/14/2016 Operator: Roy C. Pike

		North Pond	South Pond	West Pond	Class II Pond
Time	Temp	mg/L	mg/L	mg/L	mg/L
			To Low		
11:29	63.1	12.69			
11:31	61.5				12.69
11:41	62.2			10.47	

Sedimentation Ponds & Class II Impoundment
Weekly Dissolved Oxygen Readings

Date: 4/21/2016 Operator: Roy C. Pike

		North Pond	South Pond	West Pond	Class II Pond
Time	Temp	mg/L	mg/L	mg/L	mg/L
			To Low		
15:42	74.5				16.47
15:57	68.8	13.88			
16:03	70.3			11.24	

Sedimentation Ponds & Class II Impoundment
Weekly Dissolved Oxygen Readings

Date: 4/27/2016 Operator: Roy C. Pike

		North Pond	South Pond	West Pond	Class II Pond
Time	Temp	mg/L	mg/L	mg/L	mg/L
			To Low		
15:08	67.6				16.44
15:13	62.9	8.6			
15:20	63.2			10.27	

Sedimentation Ponds & Class II Impoundment
Weekly Dissolved Oxygen Readings

Date: 5/5/2016 Operator: Chad Casner

		North Pond	South Pond	West Pond	Class II Pond
Time	Temp	mg/L	mg/L	mg/L	mg/L
			To low		
10:42	66			9.26	
10:47	63	8.38			
10:50	63			8.55	

Sedimentation Ponds & Class II Impoundment
Weekly Dissolved Oxygen Readings

Date: 5/13/2016 Operator: Casner

		North Pond	South Pond	West Pond	Class II Pond
Time	Temp	mg/L	mg/L	mg/L	mg/L
			to low		
13:51	69.1	8.41			
13:58	70.3				10.21
14:06	67.8			6.14	

Sedimentation Ponds & Class II Impoundment
Weekly Dissolved Oxygen Readings

Date: 5/20/2016 Operator: Chad casner

		North Pond	South Pond	West Pond	Class II Pond
Time	Temp	mg/L	mg/L	mg/L	mg/L
13:13	70.8	8.94			
13:08	70.3			8.56	
13:11	72.2				8.36
			To low		

Sedimentation Ponds & Class II Impoundment
Weekly Dissolved Oxygen Readings

Date: 5/27/2016 Operator: Chad Casner

		North Pond	South Pond	West Pond	Class II Pond
Time	Temp	mg/L	mg/L	mg/L	mg/L
			To low		
15:20	72.8	4.58			
15:15	70.1			3.79	
15:01	80.4				8.54

Sedimentation Ponds & Class II Impoundment
Weekly Dissolved Oxygen Readings

Date: 6/2/2016 Roy C. Pike

		North Pond	South Pond	West Pond	Class II Pond
Time	Temp	mg/L	mg/L	mg/L	mg/L
10:47			To Low		
10:50	80.1				16.15
10:56	77	8.61			
11:07	75.5			9.94	

Sedimentation Ponds & Class II Impoundment
Weekly Dissolved Oxygen Readings

Date: 6/8/2016 Operator: Roy C. Pike

		North Pond	South Pond	West Pond	Class II Pond
Time	Temp	mg/L	mg/L	mg/L	mg/L
13:45	85.4				13.33
13:49	82.4	7.92			
14:03	82.6			12.87	

Sedimentation Ponds & Class II Impoundment
Weekly Dissolved Oxygen Readings

Date: 6/14/2016 Operator: Roy C. Pike

		North Pond	South Pond	West Pond	Class II Pond
Time	Temp	mg/L	mg/L	mg/L	mg/L
11:10			Dry		
11:14	77.2				12.93
11:21	73.9	5.98			
11:25	72.6			7.37	

Sedimentation Ponds & Class II Impoundment
Weekly Dissolved Oxygen Readings

Date: 6/20/2016 Operator: Roy C. Pike

		North Pond	South Pond	West Pond	Class II Pond
Time	Temp	mg/L	mg/L	mg/L	mg/L
13:30			Dry		
13:33	81.9				13.42
13:38	81.1	6.16			
13:44	83.4			8.44	

Sedimentation Ponds & Class II Impoundment
Weekly Dissolved Oxygen Readings

Date: 6/30/2016 Operator: Casner Chad

		North Pond	South Pond	West Pond	Class II Pond
Time	Temp	mg/L	mg/L	mg/L	mg/L
10:26	83.1	5.14	DRY		
10:31	82.4			6.32	
10:19	86.7				13.25

UNION MINE LANDFILL
WEEKLY FACILITY INSPECTION CHECKLIST

Inspected by: Roy C. Pike Time: 14:08 Date: 1/7/2016

Weather Conditions: light rain

GENERAL CONDITIONS	FOCUS OF INSPECTION				
Liquids:	Check for entering or leaving property	No	X	Yes	
Litter:	General appearance & illegal dumping	Ok	X	Not Ok	
Roads:	Check maintenance & condition	Ok	X	Not Ok	
Gates & Fences:	Check integrity & security	Ok	X	Not Ok	
Drainage Paths:	Check integrity of drainage paths	Ok	X	Not Ok	
Storm Water Ponds:	Check intergity of ponds	Ok	X	Not Ok	
Perimeter Gas Wells:	Check integrity of locks & monuments	Ok	X	Not Ok	
CLASS II UNIT	Check for leachate seeps, odors, ponding, erosion, exposed waste, etc.	Ok	X	Not Ok	
CLASS III UNIT	Check for leachate seeps, odors, ponding, erosion, exposed waste, non-vegetative areas,	Ok	X	Not Ok	
CLASS II SURFACE IMPOUNDMENT					
	Check that freeboard is greater than 2'	Ok	X	Not Ok	
	Check that no odors are present	Ok	X	Not Ok	
	Check for liquids in the LCRS sump	No		Yes	X

COMMENTS: Note any repairs or improvements needed.

about 1 1/4" of water in the LCRS sump.

CERTIFICATION:

I completed the facility inspection checklist and certify that the information contained on this record is true and correct to the best of my knowledge:

Signed by: Roy C. Pike Date: 1/7/2016

Reviewed by: Robert Brillisour Date: 2/2/2016

UNION MINE LANDFILL
WEEKLY FACILITY INSPECTION CHECKLIST

Inspected by: Roy C. Pike Time: 13:32 Date: 1/14/2016

Weather Conditions: overcast

GENERAL CONDITIONS	FOCUS OF INSPECTION				
Liquids:	Check for entering or leaving property	No	X	Yes	
Litter:	General appearance & illegal dumping	Ok	X	Not Ok	
Roads:	Check maintenance & condition	Ok	X	Not Ok	
Gates & Fences:	Check integrity & security	Ok	X	Not Ok	
Drainage Paths:	Check integrity of drainage paths	Ok	X	Not Ok	
Storm Water Ponds:	Check intergity of ponds	Ok	X	Not Ok	
Perimeter Gas Wells:	Check integrity of locks & monuments	Ok	X	Not Ok	
CLASS II UNIT	Check for leachate seeps, odors, ponding, erosion, exposed waste, etc.	Ok	X	Not Ok	
CLASS III UNIT	Check for leachate seeps, odors, ponding, erosion, exposed waste, non-vegetative areas,	Ok	X	Not Ok	
CLASS II SURFACE IMPOUNDMENT					
	Check that freeboard is greater than 2'	Ok	X	Not Ok	
	Check that no odors are present	Ok	X	Not Ok	
	Check for liquids in the LCRS sump	No		Yes	X

COMMENTS: Note any repairs or improvements needed.
There was about 2" of water in the LCRS sump.

CERTIFICATION:
I completed the facility inspection checklist and certify that the information contained on this record is true and correct to the best of my knowledge:

Signed by: Roy C. Pike Date: 1/14/2016

Reviewed by: Robert Brillisour Date: 2/2/2016

UNION MINE LANDFILL
WEEKLY FACILITY INSPECTION CHECKLIST

Inspected by: Roy C. Pike Time: 13:43 Date: 1/21/2016

Weather Conditions: sunny

GENERAL CONDITIONS	FOCUS OF INSPECTION				
Liquids:	Check for entering or leaving property	No	X	Yes	
Litter:	General appearance & illegal dumping	Ok	X	Not Ok	
Roads:	Check maintenance & condition	Ok	X	Not Ok	
Gates & Fences:	Check integrity & security	Ok	X	Not Ok	
Drainage Paths:	Check integrity of drainage paths	Ok	X	Not Ok	
Storm Water Ponds:	Check intergity of ponds	Ok	X	Not Ok	
Perimeter Gas Wells:	Check integrity of locks & monuments	Ok	X	Not Ok	
CLASS II UNIT	Check for leachate seeps, odors, ponding, erosion, exposed waste, etc.	Ok	X	Not Ok	
CLASS III UNIT	Check for leachate seeps, odors, ponding, erosion, exposed waste, non-vegetative areas,	Ok	X	Not Ok	
CLASS II SURFACE IMPOUNDMENT					
	Check that freeboard is greater than 2'	Ok	X	Not Ok	
	Check that no odors are present	Ok	X	Not Ok	
	Check for liquids in the LCRS sump	No		Yes	X

COMMENTS: Note any repairs or improvements needed.

There was about 1/2" of water in the LCRS sump

CERTIFICATION:

I completed the facility inspection checklist and certify that the information contained on this record is true and correct to the best of my knowledge:

Signed by: Roy C. Pike Date: 1/21/2016

Reviewed by: Robert Brillisour Date: 2/2/2016

UNION MINE LANDFILL
WEEKLY FACILITY INSPECTION CHECKLIST

Inspected by: Roy C. Pike Time: 10:52 Date: 1/28/2016

Weather Conditions: Cloudy

GENERAL CONDITIONS	FOCUS OF INSPECTION				
Liquids:	Check for entering or leaving property	No	X	Yes	
Litter:	General appearance & illegal dumping	Ok	X	Not Ok	
Roads:	Check maintenance & condition	Ok	X	Not Ok	
Gates & Fences:	Check integrity & security	Ok	X	Not Ok	
Drainage Paths:	Check integrity of drainage paths	Ok	X	Not Ok	
Storm Water Ponds:	Check intergity of ponds	Ok	X	Not Ok	
Perimeter Gas Wells:	Check integrity of locks & monuments	Ok	X	Not Ok	
CLASS II UNIT	Check for leachate seeps, odors, ponding, erosion, exposed waste, etc.	Ok	X	Not Ok	
CLASS III UNIT	Check for leachate seeps, odors, ponding, erosion, exposed waste, non-vegetative areas,	Ok	X	Not Ok	
CLASS II SURFACE IMPOUNDMENT					
	Check that freeboard is greater than 2'	Ok	X	Not Ok	
	Check that no odors are present	Ok	X	Not Ok	
	Check for liquids in the LCRS sump	No		Yes	X

COMMENTS: Note any repairs or improvements needed.

About 2 3/4" of water in the LCRS sump

CERTIFICATION:

I completed the facility inspection checklist and certify that the information contained on this record is true and correct to the best of my knowledge:

Signed by: Roy C. Pike Date: 1/28/2016

Reviewed by: Robert Brillisour Date: 2/2/2016

UNION MINE LANDFILL
WEEKLY FACILITY INSPECTION CHECKLIST

Inspected by: Chad Casner Time: 15:15 Date: 2/4/2016

Weather Conditions: sunny

GENERAL CONDITIONS	FOCUS OF INSPECTION				
Liquids:	Check for entering or leaving property	No	x	Yes	x
Litter:	General appearance & illegal dumping	Ok	x	Not Ok	
Roads:	Check maintenance & condition	Ok	x	Not Ok	
Gates & Fences:	Check integrity & security	Ok	x	Not Ok	
Drainage Paths:	Check integrity of drainage paths	Ok	x	Not Ok	
Storm Water Ponds:	Check intergity of ponds	Ok	x	Not Ok	
Perimeter Gas Wells:	Check integrity of locks & monuments	Ok	x	Not Ok	
CLASS II UNIT	Check for leachate seeps, odors, ponding, erosion, exposed waste, etc.	Ok	x	Not Ok	
CLASS III UNIT	Check for leachate seeps, odors, ponding, erosion, exposed waste, non-vegetative areas,	Ok	x	Not Ok	
CLASS II SURFACE IMPOUNDMENT					
	Check that freeboard is greater than 2'	Ok	x	Not Ok	
	Check that no odors are present	Ok	x	Not Ok	
	Check for liquids in the LCRS sump	No		Yes	x

COMMENTS: Note any repairs or improvements needed.

CERTIFICATION:
I completed the facility inspection checklist and certify that the information contained on this record is true and correct to the best of my knowledge:

Signed by: Chad casner Date: 2/4/2016

Reviewed by: Robert Brillisour Date: 3/4/2016

UNION MINE LANDFILL
WEEKLY FACILITY INSPECTION CHECKLIST

Inspected by: Chad casner Time: 14:00 Date: 2/11/2016

Weather Conditions: sunny

GENERAL CONDITIONS	FOCUS OF INSPECTION				
Liquids:	Check for entering or leaving property	No		Yes	x
Litter:	General appearance & illegal dumping	Ok	x	Not Ok	
Roads:	Check maintenance & condition	Ok	x	Not Ok	
Gates & Fences:	Check integrity & security	Ok	x	Not Ok	
Drainage Paths:	Check integrity of drainage paths	Ok	x	Not Ok	
Storm Water Ponds:	Check intergity of ponds	Ok	x	Not Ok	
Perimeter Gas Wells:	Check integrity of locks & monuments	Ok	x	Not Ok	
CLASS II UNIT	Check for leachate seeps, odors, ponding, erosion, exposed waste, etc.	Ok	x	Not Ok	
CLASS III UNIT	Check for leachate seeps, odors, ponding, erosion, exposed waste, non-vegetative areas,	Ok	x	Not Ok	
CLASS II SURFACE IMPOUNDMENT					
	Check that freeboard is greater than 2'	Ok	x	Not Ok	
	Check that no odors are present	Ok	x	Not Ok	
	Check for liquids in the LCRS sump	No		Yes	x

COMMENTS: Note any repairs or improvements needed.

CERTIFICATION:
I completed the facility inspection checklist and certify that the information contained on this record is true and correct to the best of my knowledge:

Signed by: Chad Casner Date: 2/11/2016

Reviewed by: Robert Brillisour Date: 3/4/2016

UNION MINE LANDFILL
WEEKLY FACILITY INSPECTION CHECKLIST

Inspected by: Chad casner Time: 1130 Date: 2/18/2016

Weather Conditions: overcast light rain

GENERAL CONDITIONS	FOCUS OF INSPECTION				
Liquids:	Check for entering or leaving property	No		Yes	x
Litter:	General appearance & illegal dumping	Ok	x	Not Ok	
Roads:	Check maintenance & condition	Ok	x	Not Ok	
Gates & Fences:	Check integrity & security	Ok	x	Not Ok	
Drainage Paths:	Check integrity of drainage paths	Ok	x	Not Ok	
Storm Water Ponds:	Check intergity of ponds	Ok	x	Not Ok	
Perimeter Gas Wells:	Check integrity of locks & monuments	Ok	x	Not Ok	
CLASS II UNIT	Check for leachate seeps, odors, ponding, erosion, exposed waste, etc.	Ok	x	Not Ok	
CLASS III UNIT	Check for leachate seeps, odors, ponding, erosion, exposed waste, non-vegetative areas,	Ok	x	Not Ok	
CLASS II SURFACE IMPOUNDMENT					
	Check that freeboard is greater than 2'	Ok	x	Not Ok	
	Check that no odors are present	Ok	x	Not Ok	
	Check for liquids in the LCRS sump	No		Yes	x

COMMENTS: Note any repairs or improvements needed.

CERTIFICATION:
I completed the facility inspection checklist and certify that the information contained on this record is true and correct to the best of my knowledge:

Signed by: Chad casner Date: 2/18/2016

Reviewed by: Robert Brillisour Date: 3/4/2016

UNION MINE LANDFILL
WEEKLY FACILITY INSPECTION CHECKLIST

Inspected by: Chad Casner Time: 13:35 Date: 2/25/2016

Weather Conditions: sunny

GENERAL CONDITIONS	FOCUS OF INSPECTION				
Liquids:	Check for entering or leaving property	No		Yes	X
Litter:	General appearance & illegal dumping	Ok	X	Not Ok	
Roads:	Check maintenance & condition	Ok	X	Not Ok	
Gates & Fences:	Check integrity & security	Ok	X	Not Ok	
Drainage Paths:	Check integrity of drainage paths	Ok	X	Not Ok	
Storm Water Ponds:	Check intergity of ponds	Ok	X	Not Ok	
Perimeter Gas Wells:	Check integrity of locks & monuments	Ok	X	Not Ok	
CLASS II UNIT	Check for leachate seeps, odors, ponding, erosion, exposed waste, etc.	Ok	X	Not Ok	
CLASS III UNIT	Check for leachate seeps, odors, ponding, erosion, exposed waste, non-vegetative areas,	Ok	X	Not Ok	
CLASS II SURFACE IMPOUNDMENT					
	Check that freeboard is greater than 2'	Ok	X	Not Ok	
	Check that no odors are present	Ok	X	Not Ok	
	Check for liquids in the LCRS sump	No		Yes	X

COMMENTS: Note any repairs or improvements needed.

CERTIFICATION:
I completed the facility inspection checklist and certify that the information contained on this record is true and correct to the best of my knowledge:

Signed by: Chad casner Date: 2.25.2016

Reviewed by: Robert Brilllisour Date: 3/4/2016

UNION MINE LANDFILL
WEEKLY STANDARD OBSERVATIONS

Inspected by: ROY C. PIKE Time: 14:10 Date: 03-03-16

GENERAL SITE CONDITIONS

Liquids:	Check for entering or leaving property	No	☒	Yes	☐
Litter:	General appearance & illegal dumping	Ok	☒	Not Ok	☐
Roads:	Check maintenance & condition	Ok	☒	Not Ok	☐
Gates & Fences:	Check integrity & security	Ok	☐	Not Ok	☐
Drainage Paths:	Check integrity of drainage paths	Ok	☒	Not Ok	☐
Storm Water Ponds:	Check integrity of ponds	Ok	☒	Not Ok	☐
Perimeter Gas Wells:	Check integrity of locks & monuments	Ok	☒	Not Ok	☐

CLASS II UNIT - PERIMETER

* Evidence of liquid leaving or entering, estimated size of affected area, and flow rate: (Show affected area on map)	Ok	☒	Not Ok	☐
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	☒	Not Ok	☐
* Evidence of erosion and/or of day lighted refuse.	Ok	☒	Not Ok	☐

CLASS II UNIT - AREA

* Evidence of ponded water at any point on the WM facility (Show affected area on map).	Ok	☒	Not Ok	☐
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	☒	Not Ok	☐
* Evidence of erosion and/or of day lighted refuse.	Ok	☒	Not Ok	☐

CLASS III UNIT - PERIMETER

* Evidence of liquid leaving or entering, estimated size of affected area, and flow rate: (Show affected area on map)	Ok	☒	Not Ok	☐
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	☒	Not Ok	☐
* Evidence of erosion and/or of day lighted refuse.	Ok	☒	Not Ok	☐

CLASS III UNIT - AREA

* Evidence of ponded water at any point on the WM facility (Show affected area on map). PONDING BETWEEN EW-4 & EW-5 WELLS.	Ok	☐	Not Ok	☒
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	☒	Not Ok	☐
* Evidence of erosion and/or of day lighted refuse.	Ok	☒	Not Ok	☐

CLASS II SURFACE IMPOUNDMENT

*Check that freeboard is greater than 2'	Ok	☒	Not Ok	☐
*Check for liquids in the LCRS sump/sump pump operating properly.	Ok	☒	Not Ok	☐

RECEIVING WATERS: MARTINEZ CREEK

* Check for floating & suspended materials of waste origin including source and size of affected area:	Ok	☒	Not Ok	☐
* Check for discoloration and turbidity: description of color, source, and size of affected area.	Ok	☒	Not Ok	☐
* Check for odors including characterization, source, and distance of travel from source.	Ok	☒	Not Ok	☐
* Check for evidence of water uses: presence of water-associated wildlife.	Ok	☒	Not Ok	☐

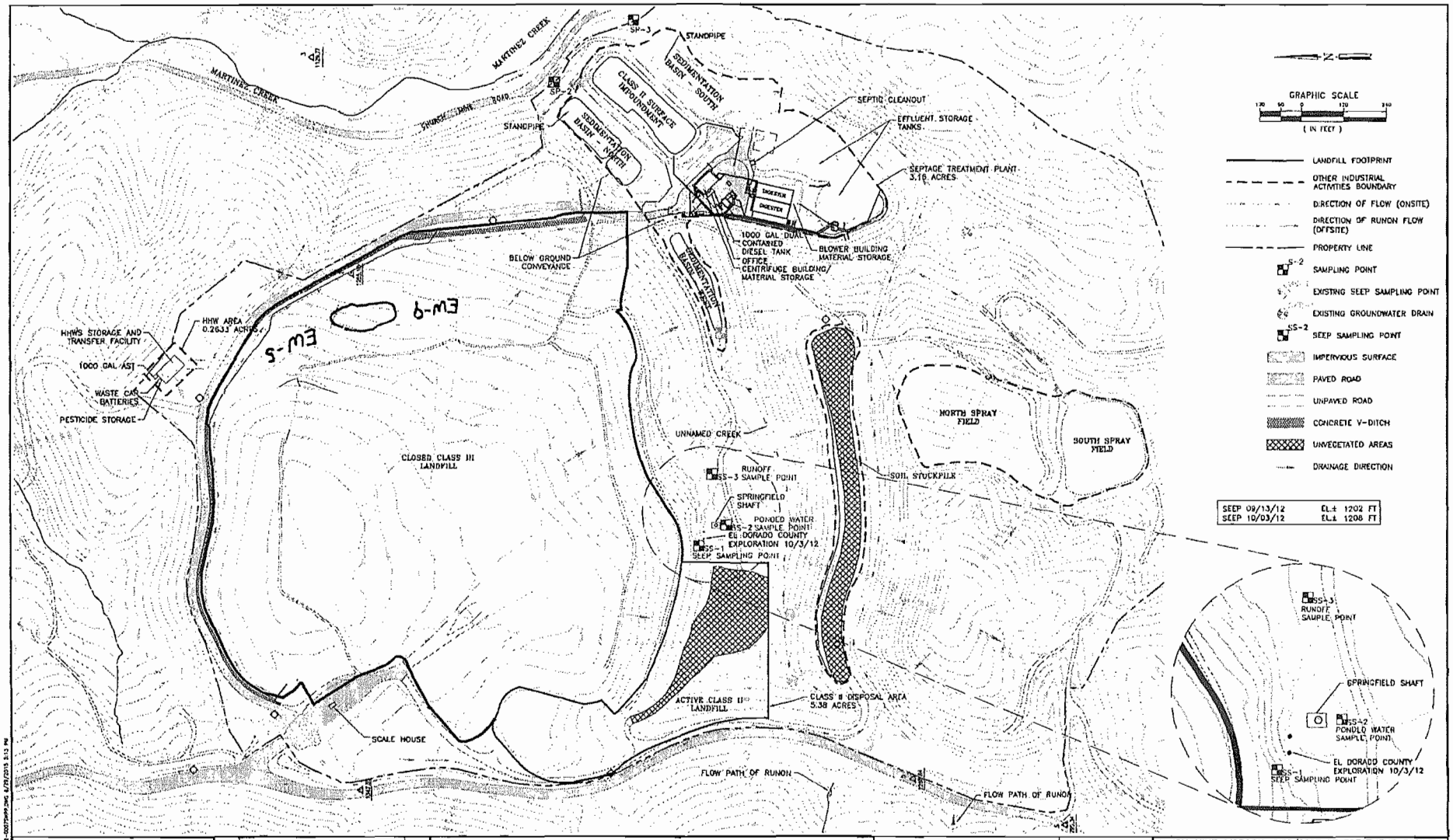
* Estimated flow rate: 0.9 FROM NORTH POND 0.0 FROM SOUTH POND FT/S
* Weather conditions including wind direction and estimated velocity: OVER CAST & NO WIND
* Total precipitation previous two days: 0
* Total precipitation on day of inspection: AT 11:46 AM, NO RAIN = 0

UNION MINE LANDFILL
WEEKLY STANDARD OBSERVATIONS

Inspected by: ROY C. PIKE Time: 11:36 Date: 03-10-16

GENERAL SITE CONDITIONS					
Liquids:	Check for entering or leaving property	No	☐	Yes	☒
Litter:	General appearance & illegal dumping	Ok	☒	Not Ok	☐
Roads:	Check maintenance & condition	Ok	☒	Not Ok	☐
Gates & Fences:	Check integrity & security	Ok	☒	Not Ok	☐
Drainage Paths:	Check integrity of drainage paths	Ok	☒	Not Ok	☐
Storm Water Ponds:	Check integrity of ponds	Ok	☐	Not Ok	☐
Perimeter Gas Wells:	Check integrity of locks & monuments	Ok	☒	Not Ok	☐
CLASS II UNIT - PERIMETER					
* Evidence of liquid leaving or entering, estimated size of affected area, and flow rate: (Show affected area on map)		Ok	☒	Not Ok	☐
* Check for odors including characterization, source, and distance of travel from source: _____		Ok	☒	Not Ok	☐
* Evidence of erosion and/or of day lighted refuse.		Ok	☒	Not Ok	☐
CLASS II UNIT - AREA					
* Evidence of ponded water at any point on the WM facility (Show affected area on map).		Ok	☒	Not Ok	☐
* Check for odors including characterization, source, and distance of travel from source: _____		Ok	☒	Not Ok	☐
* Evidence of erosion and/or of day lighted refuse.		Ok	☒	Not Ok	☐
CLASS III UNIT - PERIMETER					
* Evidence of liquid leaving or entering, estimated size of affected area, and flow rate: (Show affected area on map)		Ok	☒	Not Ok	☐
* Check for odors including characterization, source, and distance of travel from source: _____		Ok	☒	Not Ok	☐
* Evidence of erosion and/or of day lighted refuse.		Ok	☒	Not Ok	☐
CLASS III UNIT - AREA					
* Evidence of ponded water at any point on the WM facility (Show affected area on map).		Ok	☐	Not Ok	☒
* Check for odors including characterization, source, and distance of travel from source: _____		Ok	☒	Not Ok	☐
* Evidence of erosion and/or of day lighted refuse.		Ok	☒	Not Ok	☐
CLASS II SURFACE IMPOUNDMENT					
*Check that freeboard is greater than 2'		Ok	☒	Not Ok	☐
*Check for liquids in the LCRS sump/sump pump operating properly.		Ok	☒	Not Ok	☐
RECEIVING WATERS: MARTINEZ CREEK					
* Check for floating & suspended materials of waste origin including source and size of affected area:		Ok	☒	Not Ok	☐
* Check for discoloration and turbidity: description of color, source, and size of affected area.		Ok	☒	Not Ok	☐
* Check for odors including characterization, source, and distance of travel from source.		Ok	☒	Not Ok	☐
* Check for evidence of water uses: presence of water-associated wildlife.		Ok	☒	Not Ok	☐

* Estimated flow rate: 2.1 NORTH POND & 1.8 SOUTH. FT/S
* Weather conditions including wind direction and estimated velocity: OVERCAST WITH NO WIND.
* Total precipitation previous two days: 0
* Total precipitation on day of inspection: 0



NO.	REVISION DESCRIPTION	BY:

TETRA TECH BAS
1360 Valley Vista Drive, Diamond Bar, CA 91765
TEL 909.860.7777 / FAX 909.860.8017

UNION MINE DISPOSAL SITE/SEPTAGE TREATMENT FACILITY

SITE MAP

DESIGNED BY : –	SCALE : AS SHOWN	
DRAWN BY : A.N.P.	DATE : 12-2013	FILE NO.: 22-0007SWPP.DWG
CHECKED BY : M.O.	DATE : 12-2013	FIGURE 1
APPROVED BY : –	DATE : 12-2013	

UNION MINE LANDFILL
WEEKLY STANDARD OBSERVATIONS

Inspected by: ROY C. PIKE Time: 14:09 Date: 03-16-16

GENERAL SITE CONDITIONS

Liquids:	Check for entering or leaving property	No	☐	Yes	☒
Litter:	General appearance & illegal dumping	Ok	☒	Not Ok	☐
Roads:	Check maintenance & condition	Ok	☒	Not Ok	☐
Gates & Fences:	Check integrity & security	Ok	☒	Not Ok	☐
Drainage Paths:	Check integrity of drainage paths	Ok	☒	Not Ok	☐
Storm Water Ponds:	Check integrity of ponds	Ok	☒	Not Ok	☐
Perimeter Gas Wells:	Check integrity of locks & monuments	Ok	☒	Not Ok	☐

CLASS II UNIT - PERIMETER

* Evidence of liquid leaving or entering, estimated size of affected area, and flow rate: (Show affected area on map)	Ok	☒	Not Ok	☐
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	☒	Not Ok	☐
* Evidence of erosion and/or of day lighted refuse.	Ok	☒	Not Ok	☐

CLASS II UNIT - AREA

* Evidence of ponded water at any point on the WM facility (Show affected area on map).	Ok	☒	Not Ok	☐
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	☒	Not Ok	☐
* Evidence of erosion and/or of day lighted refuse.	Ok	☒	Not Ok	☐

CLASS III UNIT - PERIMETER

* Evidence of liquid leaving or entering, estimated size of affected area, and flow rate: (Show affected area on map)	Ok	☒	Not Ok	☐
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	☒	Not Ok	☐
* Evidence of erosion and/or of day lighted refuse.	Ok	☒	Not Ok	☐

CLASS III UNIT - AREA

* Evidence of ponded water at any point on the WM facility (Show affected area on map).	Ok	☐	Not Ok	☒
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	☒	Not Ok	☐
* Evidence of erosion and/or of day lighted refuse.	Ok	☒	Not Ok	☐

CLASS II SURFACE IMPOUNDMENT

*Check that freeboard is greater than 2'	Ok	☒	Not Ok	☐
*Check for liquids in the LCRS sump/sump pump operating properly.	Ok	☒	Not Ok	☐

RECEIVING WATERS: MARTINEZ CREEK

* Check for floating & suspended materials of waste origin including source and size of affected area:	Ok	☒	Not Ok	☐
* Check for discoloration and turbidity: description of color, source, and size of affected area.	Ok	☒	Not Ok	☐
* Check for odors including characterization, source, and distance of travel from source.	Ok	☒	Not Ok	☐
* Check for evidence of water uses: presence of water-associated wildlife.	Ok	☒	Not Ok	☐

* Estimated flow rate: 2.1 ~~GPM~~ FT/S
* Weather conditions including wind direction and estimated velocity: SUNNY WEST TO EAST WIND 5 MPH.
* Total precipitation previous two days: 0.20
* Total precipitation on day of inspection: 0

COMMENTS: Note any repairs or improvements needed.

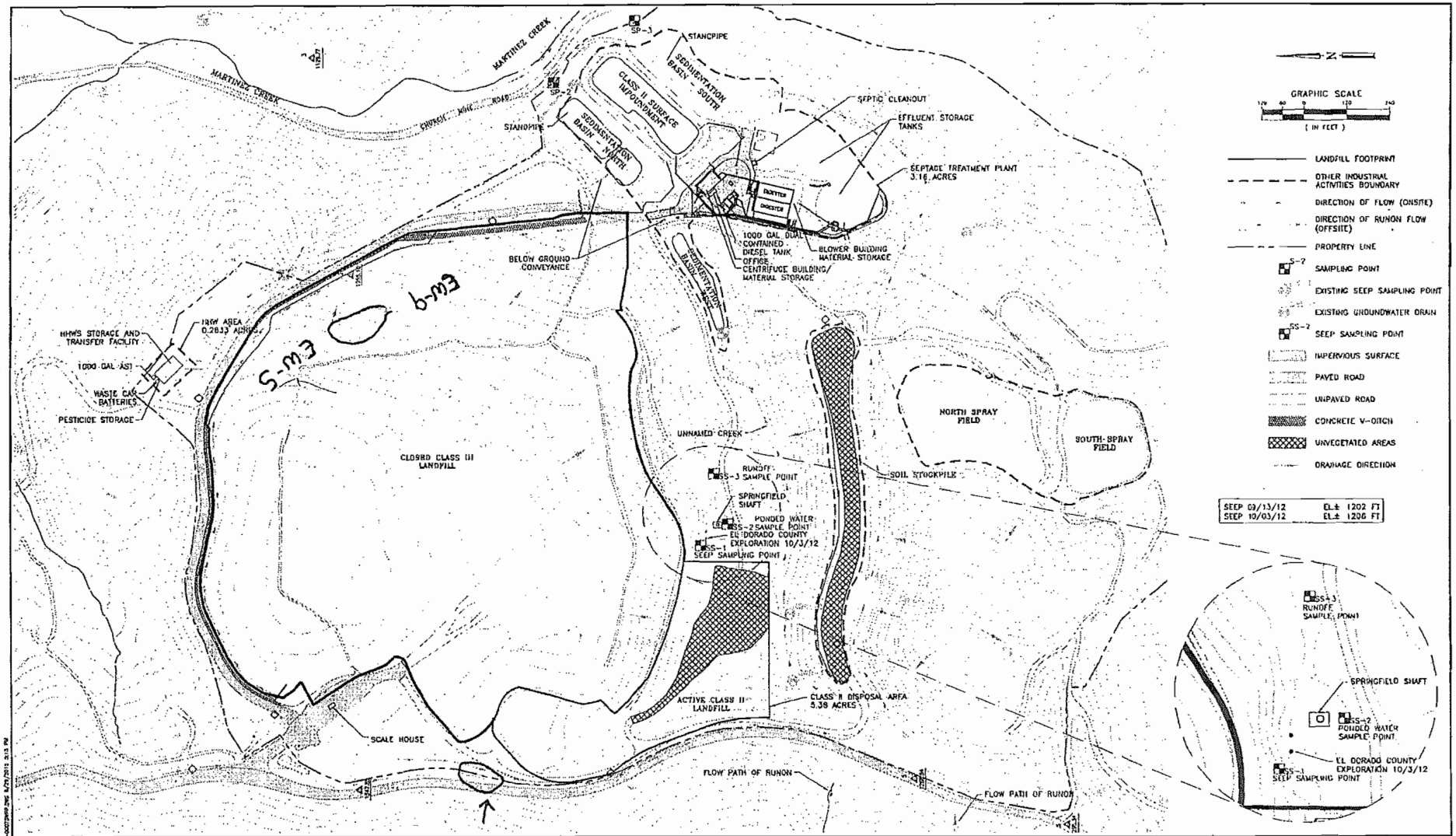
STANDING WATER OR SMALL POND ON LAND FILL WERE MARKED & SLIGHT AMOUNT OF WATER COMEING IN UNDER THE FENCE BETWEEN THE SCALE HOUSE & OPEN CELL.

CERTIFICATION:

I completed the facility inspection checklist and certify that the information contained on this record is true and correct to the best of my knowledge:

Signed by: Roy Charles Pitts Date: 03-16-16

Reviewed by: [signature] Date: 4/5/16



AREA OF SLIGHT WATER IS COMING IN UNDER THE FENCE.

NO.	REVISION DESCRIPTION	BY:

TETRA TECH BAS
1330 Valley Vista Drive, Diamond Bar, CA 91765
TEL 909.860.7777 FAX 909.860.8017

UNION MINE DISPOSAL SITE/SEPTAGE TREATMENT FACILITY

SITE MAP

DESIGNED BY : -	SCALE : AS SHOWN	
DRAWN BY : A.N.P.	DATE : 12-2013	FILE NO.: 22-00075\SPP.DWG
CHECKED BY : W.O.	DATE : 12-2013	FIGURE 1
APPROVED BY : -	DATE : 12-2013	

UNION MINE LANDFILL
WEEKLY STANDARD OBSERVATIONS

Inspected by: ROY C. PINE Time: 13:45 Date: 03-22-2016

GENERAL SITE CONDITIONS					
Liquids:	Check for entering or leaving property	No	☐	Yes	☒
Litter:	General appearance & illegal dumping	Ok	☒	Not Ok	☐
Roads:	Check maintenance & condition	Ok	☒	Not Ok	☐
Gates & Fences:	Check integrity & security	Ok	☒	Not Ok	☐
Drainage Paths:	Check integrity of drainage paths	Ok	☒	Not Ok	☐
Storm Water Ponds:	Check integrity of ponds	Ok	☒	Not Ok	☐
Perimeter Gas Wells:	Check integrity of locks & monuments	Ok	☒	Not Ok	☐
CLASS II UNIT - PERIMETER					
* Evidence of liquid leaving or entering, estimated size of affected area, and flow rate: (Show affected area on map)		Ok	☒	Not Ok	☐
* Check for odors including characterization, source, and distance of travel from source: _____		Ok	☒	Not Ok	☐
* Evidence of erosion and/or of day lighted refuse.		Ok	☒	Not Ok	☐
CLASS II UNIT - AREA					
* Evidence of ponded water at any point on the WM facility (Show affected area on map).		Ok	☐	Not Ok	☒
* Check for odors including characterization, source, and distance of travel from source: _____		Ok	☒	Not Ok	☐
* Evidence of erosion and/or of day lighted refuse.		Ok	☒	Not Ok	☐
CLASS III UNIT - PERIMETER					
* Evidence of liquid leaving or entering, estimated size of affected area, and flow rate: (Show affected area on map)		Ok	☒	Not Ok	☐
* Check for odors including characterization, source, and distance of travel from source: _____		Ok	☒	Not Ok	☐
* Evidence of erosion and/or of day lighted refuse.		Ok	☒	Not Ok	☐
CLASS III UNIT - AREA					
* Evidence of ponded water at any point on the WM facility (Show affected area on map).		Ok	☐	Not Ok	☒
* Check for odors including characterization, source, and distance of travel from source: _____		Ok	☒	Not Ok	☐
* Evidence of erosion and/or of day lighted refuse.		Ok	☒	Not Ok	☐
CLASS II SURFACE IMPOUNDMENT					
*Check that freeboard is greater than 2'		Ok	☒	Not Ok	☐
*Check for liquids in the LCRS sump/sump pump operating properly.		Ok	☒	Not Ok	☐
RECEIVING WATERS: MARTINEZ CREEK					
* Check for floating & suspended materials of waste origin including source and size of affected area:		Ok	☒	Not Ok	☐
* Check for discoloration and turbidity: description of color, source, and size of affected area.		Ok	☒	Not Ok	☐
* Check for odors including characterization, source, and distance of travel from source.		Ok	☒	Not Ok	☐
* Check for evidence of water uses: presence of water-associated wildlife.		Ok	☒	Not Ok	☐

* Estimated flow rate: NORTH PONDS OUT FLOW 2.16GPM SOUTH WAS 2.9 GPM.
* Weather conditions including wind direction and estimated velocity: CLOUDY Flow rate FT/S
* Total precipitation previous two days: .71
* Total precipitation on day of inspection: 0

COMMENTS: Note any repairs or improvements needed.

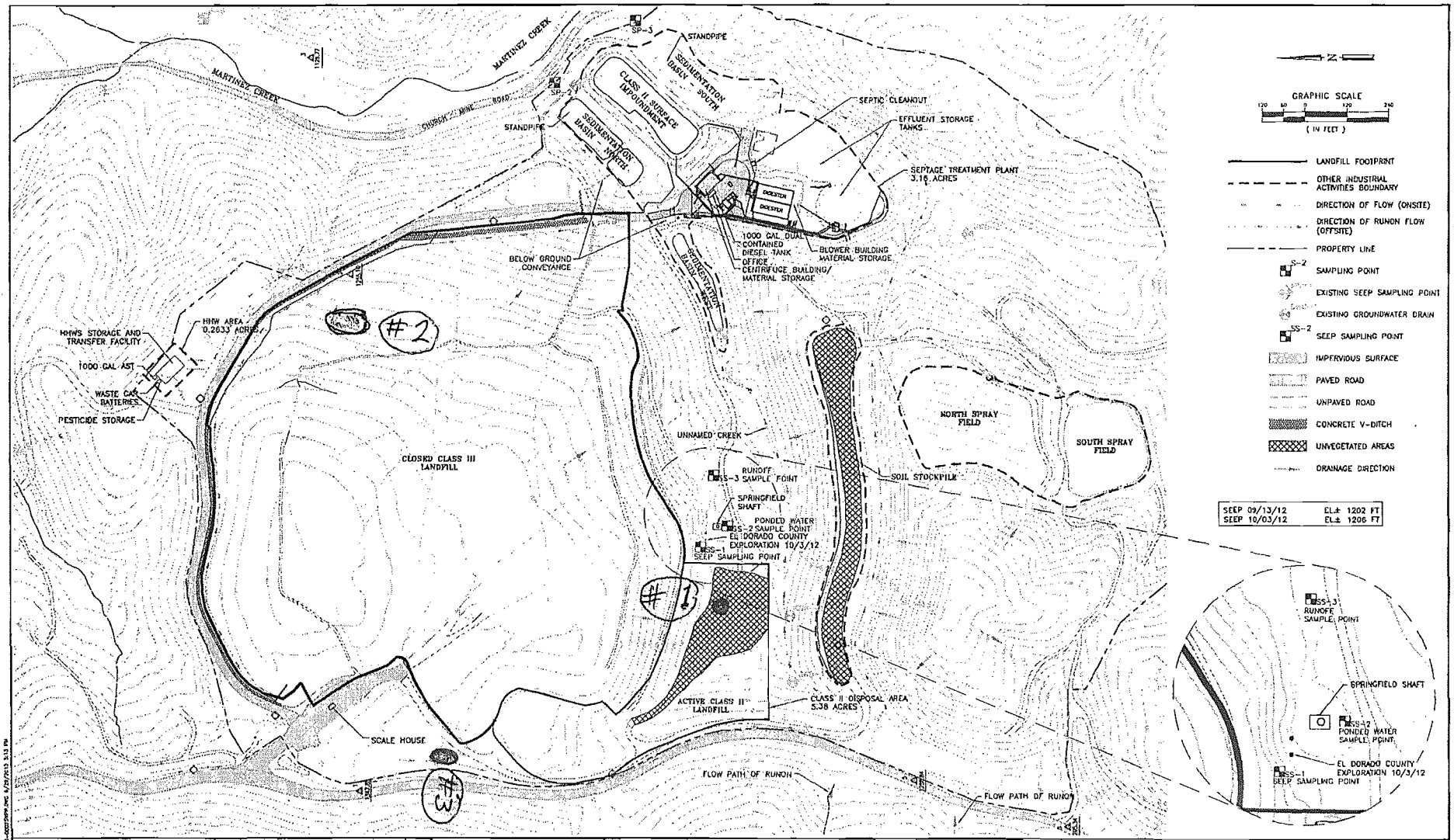
(#1) 3 SMALL, PUDDLES, LESS THAN 2" DEEP ON CLASS-II CELL, /A (#2) BIGER PUDDLES OR SMALLER POND ON CLASS-~~III~~ (3) UNIT-AREA / & A SMALL AMOUNT OF WATER COMING IN UNDER THE FENCE BETWEEN THE SCALE HOUSE & THE CLASS-II CELL, NO FLOW MEASURABLE.

CERTIFICATION:

I completed the facility inspection checklist and certify that the information contained on this record is true and correct to the best of my knowledge:

Signed by: Ron C. Rider Date: 03-22-16

Reviewed by: Robert Bullin Date: 4/5/16



NO.	REVISION DESCRIPTION	BY:

TETRA TECH BAS
1360 Valley Vista Drive, Diamond Bar, CA 91765
TEL 909.860.7777 FAX 909.860.8017

UNION MINE DISPOSAL SITE/SEPTAGE TREATMENT FACILITY

SITE MAP

DESIGNED BY : -	SCALE : AS SHOWN	
DRAWN BY : A.M.P.	DATE : 12-2013	FILE NO.: 22-0007SWPP.DWG
CHECKED BY : M.D.	DATE : 12-2013	FIGURE 1
APPROVED BY : -	DATE : 12-2013	

UNION MINE LANDFILL
WEEKLY STANDARD OBSERVATIONS

Inspected by: ROY C. PIKE Time: 13:44 Date: 03-30-16

GENERAL SITE CONDITIONS

Liquids:	Check for entering or leaving property	No	X	Yes	
Litter:	General appearance & illegal dumping	Ok	X	Not Ok	
Roads:	Check maintenance & condition	Ok	X	Not Ok	
Gates & Fences:	Check integrity & security	Ok	X	Not Ok	
Drainage Paths:	Check integrity of drainage paths	Ok	X	Not Ok	
Storm Water Ponds:	Check integrity of ponds	Ok	X	Not Ok	
Perimeter Gas Wells:	Check integrity of locks & monuments	Ok	X	Not Ok	

CLASS II UNIT - PERIMETER

* Evidence of liquid leaving or entering, estimated size of affected area, and flow rate: (Show affected area on map)		Ok	X	Not Ok	
* Check for odors including characterization, source, and distance of travel from source: _____		Ok	X	Not Ok	
* Evidence of erosion and/or of day lighted refuse.		Ok	X	Not Ok	

CLASS II UNIT - AREA

* Evidence of ponded water at any point on the WM facility (Show affected area on map).		Ok	X	Not Ok	
* Check for odors including characterization, source, and distance of travel from source: _____		Ok	X	Not Ok	
* Evidence of erosion and/or of day lighted refuse.		Ok	X	Not Ok	

CLASS III UNIT - PERIMETER

* Evidence of liquid leaving or entering, estimated size of affected area, and flow rate: (Show affected area on map)		Ok	X	Not Ok	
* Check for odors including characterization, source, and distance of travel from source: _____		Ok	X	Not Ok	
* Evidence of erosion and/or of day lighted refuse.		Ok	X	Not Ok	

CLASS III UNIT - AREA

* Evidence of ponded water at any point on the WM facility (Show affected area on map).		Ok		Not Ok	X
* Check for odors including characterization, source, and distance of travel from source: _____		Ok	X	Not Ok	
* Evidence of erosion and/or of day lighted refuse.		Ok	X	Not Ok	

CLASS II SURFACE IMPOUNDMENT

*Check that freeboard is greater than 2'		Ok	X	Not Ok	
*Check for liquids in the LCRS sump/sump pump operating properly.		Ok	X	Not Ok	

RECEIVING WATERS: MARTINEZ CREEK

* Check for floating & suspended materials of waste origin including source and size of affected area:		Ok	X	Not Ok	
* Check for discoloration and turbidity: description of color, source, and size of affected area.		Ok	X	Not Ok	
* Check for odors including characterization, source, and distance of travel from source.		Ok	X	Not Ok	
* Check for evidence of water uses: presence of water-associated wildlife.		Ok	X	Not Ok	

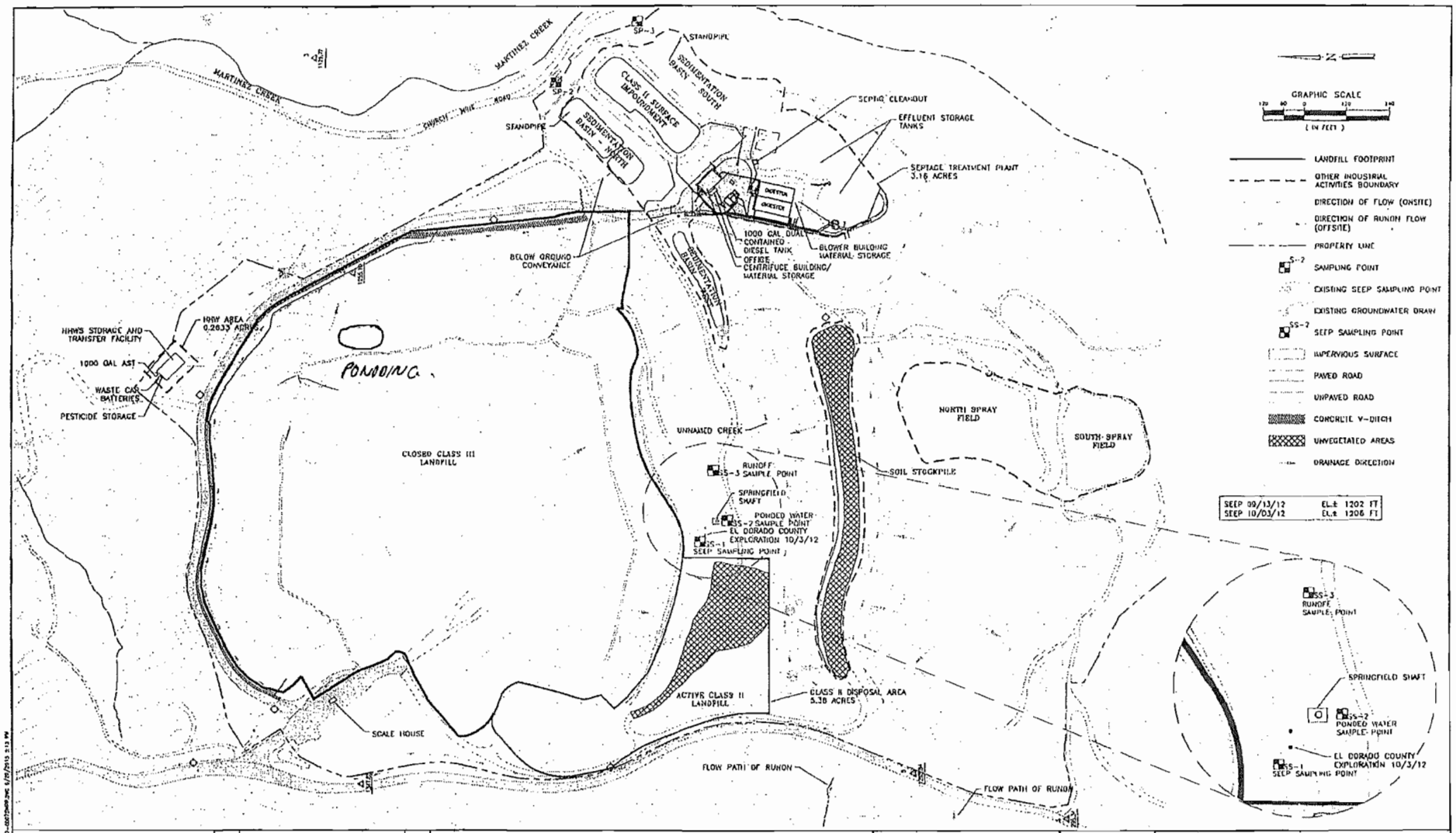
* Estimated flow rate: SOUTH POND 0.5 ~~GPM~~ NORTH POND 1.5 GPM
* Weather conditions including wind direction and estimated velocity: NO WIND Flowrate = FT/S
* Total precipitation previous two days: 0
* Total precipitation on day of inspection: 0

COMMENTS: Note any repairs or improvements needed.
SOME PONDOING AT HIGHLIGHTED AREA, ALMOST A FOOT DEEP.

CERTIFICATION:
I completed the facility inspection checklist and certify that the information contained on this record is true and correct to the best of my knowledge:

Signed by: [signature] Date: 03-30-16

Reviewed by: [signature] Date: 4/5/16



NO.	REVISION DESCRIPTION	BY.

TETRA TECH BAS
3380 Valley Vista Drive, Diamond Bar, CA 91765
TEL 909.860.7777 FAX 909.860.0017

UNION MINE DISPOSAL SITE/SEPTAGE TREATMENT FACILITY

SITE MAP

DESIGNED BY : -	SCALE : AS SHOWN	
DRAWN BY : A.N.P.	DATE : 12-2013	FILE NO.: 32-00075APP.DWG
CHECKED BY : V.D.	DATE : 12-2013	FIGURE 1
APPROVED BY : -	DATE : 12-2013	

UNION MINE LANDFILL
WEEKLY STANDARD OBSERVATIONS

Inspected by: Chad Casner Time: 1510 Date: 4-7-16

GENERAL SITE CONDITIONS

Liquids:	Check for entering or leaving property	No	x	Yes	
Litter:	General appearance & illegal dumping	Ok	x	Not Ok	
Roads:	Check maintenance & condition	Ok	x	Not Ok	
Gates & Fences:	Check integrity & security	Ok	x	Not Ok	
Drainage Paths:	Check integrity of drainage paths	Ok	x	Not Ok	
Storm Water Ponds:	Check integrity of ponds	Ok	x	Not Ok	
Perimeter Gas Wells:	Check integrity of locks & monuments	Ok	x	Not Ok	

CLASS II UNIT - PERIMETER

* Evidence of liquid leaving or entering, estimated size of affected area, and flow rate: (Show affected area on map)	Ok	x	Not Ok	
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	x	Not Ok	
* Evidence of erosion and/or of day lighted refuse.	Ok	x	Not Ok	

CLASS II UNIT - AREA

* Evidence of ponded water at any point on the WM facility (Show affected area on map).	Ok	x	Not Ok	
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	x	Not Ok	
* Evidence of erosion and/or of day lighted refuse.	Ok	x	Not Ok	

CLASS III UNIT - PERIMETER

* Evidence of liquid leaving or entering, estimated size of affected area, and flow rate: (Show affected area on map)	Ok	x	Not Ok	
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	x	Not Ok	
* Evidence of erosion and/or of day lighted refuse.	Ok	x	Not Ok	

CLASS III UNIT - AREA

* Evidence of ponded water at any point on the WM facility (Show affected area on map).	Ok	x	Not Ok	✓
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	x	Not Ok	
* Evidence of erosion and/or of day lighted refuse.	Ok	x	Not Ok	

CLASS II SURFACE IMPOUNDMENT

*Check that freeboard is greater than 2'	Ok	x	Not Ok	
*Check for liquids in the LCRS sump/sump pump operating properly.	Ok	x	Not Ok	

RECEIVING WATERS: MARTINEZ CREEK

* Check for floating & suspended materials of waste origin including source and size of affected area:	Ok	x	Not Ok	
* Check for discoloration and turbidity: description of color, source, and size of affected area.	Ok	x	Not Ok	
* Check for odors including characterization, source, and distance of travel from source.	Ok	x	Not Ok	
* Check for evidence of water uses: presence of water-associated wildlife.	Ok	x	Not Ok	

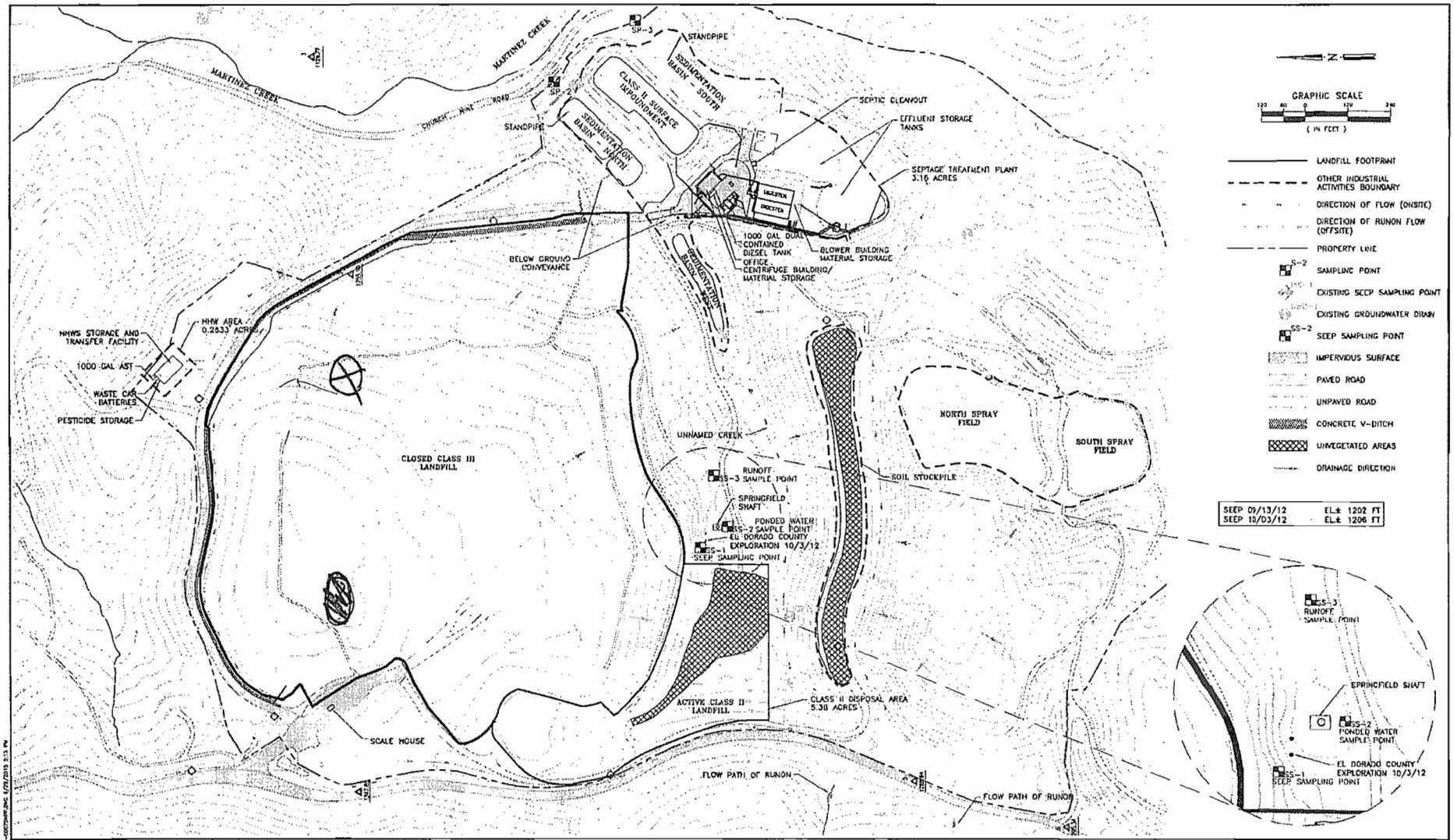
* Estimated flow rate: 1.5 FT PS
* Weather conditions including wind direction and estimated velocity: sunny & weird
* Total precipitation previous two days: Ø
* Total precipitation on day of inspection: Ø

COMMENTS: Note any repairs or improvements needed.

CERTIFICATION:
I completed the facility inspection checklist and certify that the information contained on this record is true and correct to the best of my knowledge.

Signed by: _____ Date: 4-7-2016

Reviewed by: _____ Date: 5/9/16



NO.	REVISION DESCRIPTION	BY:

TETRA TECH BAS
1360 Valley Vista Drive, Diamond Bar, CA 91765
TEL 909.860.7777 FAX 909.860.8017

UNION MINE DISPOSAL SITE/SEPTAGE TREATMENT FACILITY

SITE MAP

DESIGNED BY : -	SCALE : AS SHOWN	
DRAWN BY : A.N.P.	DATE : 12-2013	FILE NO.: 22-00075WPP.DWG
CHECKED BY : W.O.	DATE : 12-2013	FIGURE 1
APPROVED BY : -	DATE : 12-2013	

UNION MINE LANDFILL
WEEKLY STANDARD OBSERVATIONS

Inspected by: Chad Casner Time: 1340 Date: 4-14-16

GENERAL SITE CONDITIONS

Liquids:	Check for entering or leaving property	No	X	Yes	
Litter:	General appearance & illegal dumping	Ok	X	Not Ok	
Roads:	Check maintenance & condition	Ok	X	Not Ok	
Gates & Fences:	Check integrity & security	Ok	X	Not Ok	
Drainage Paths:	Check integrity of drainage paths	Ok	X	Not Ok	
Storm Water Ponds:	Check integrity of ponds	Ok	X	Not Ok	
Perimeter Gas Wells:	Check integrity of locks & monuments	Ok	X	Not Ok	

CLASS II UNIT - PERIMETER

* Evidence of liquid leaving or entering, estimated size of affected area, and flow rate: (Show affected area on map)	Ok	X	Not Ok	
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	X	Not Ok	
* Evidence of erosion and/or of day lighted refuse.	Ok	X	Not Ok	

CLASS II UNIT - AREA

* Evidence of ponded water at any point on the WM facility (Show affected area on map).	Ok	X	Not Ok	
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	X	Not Ok	
* Evidence of erosion and/or of day lighted refuse.	Ok	X	Not Ok	

CLASS III UNIT - PERIMETER

* Evidence of liquid leaving or entering, estimated size of affected area, and flow rate: (Show affected area on map)	Ok	X	Not Ok	
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	X	Not Ok	
* Evidence of erosion and/or of day lighted refuse.	Ok	X	Not Ok	

CLASS III UNIT - AREA

* Evidence of ponded water at any point on the WM facility (Show affected area on map).	Ok	X	Not Ok	✓
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	X	Not Ok	
* Evidence of erosion and/or of day lighted refuse.	Ok	X	Not Ok	

CLASS II SURFACE IMPOUNDMENT

*Check that freeboard is greater than 2'	Ok	X	Not Ok	
*Check for liquids in the LCRS sump/sump pump operating properly.	Ok		Not Ok	X

RECEIVING WATERS: MARTINEZ CREEK

* Check for floating & suspended materials of waste origin including source and size of affected area:	Ok	✓	Not Ok	
* Check for discoloration and turbidity: description of color, source, and size of affected area.	Ok	✓	Not Ok	
* Check for odors including characterization, source, and distance of travel from source.	Ok	✓	Not Ok	
* Check for evidence of water uses: presence of water-associated wildlife.	Ok	✓	Not Ok	

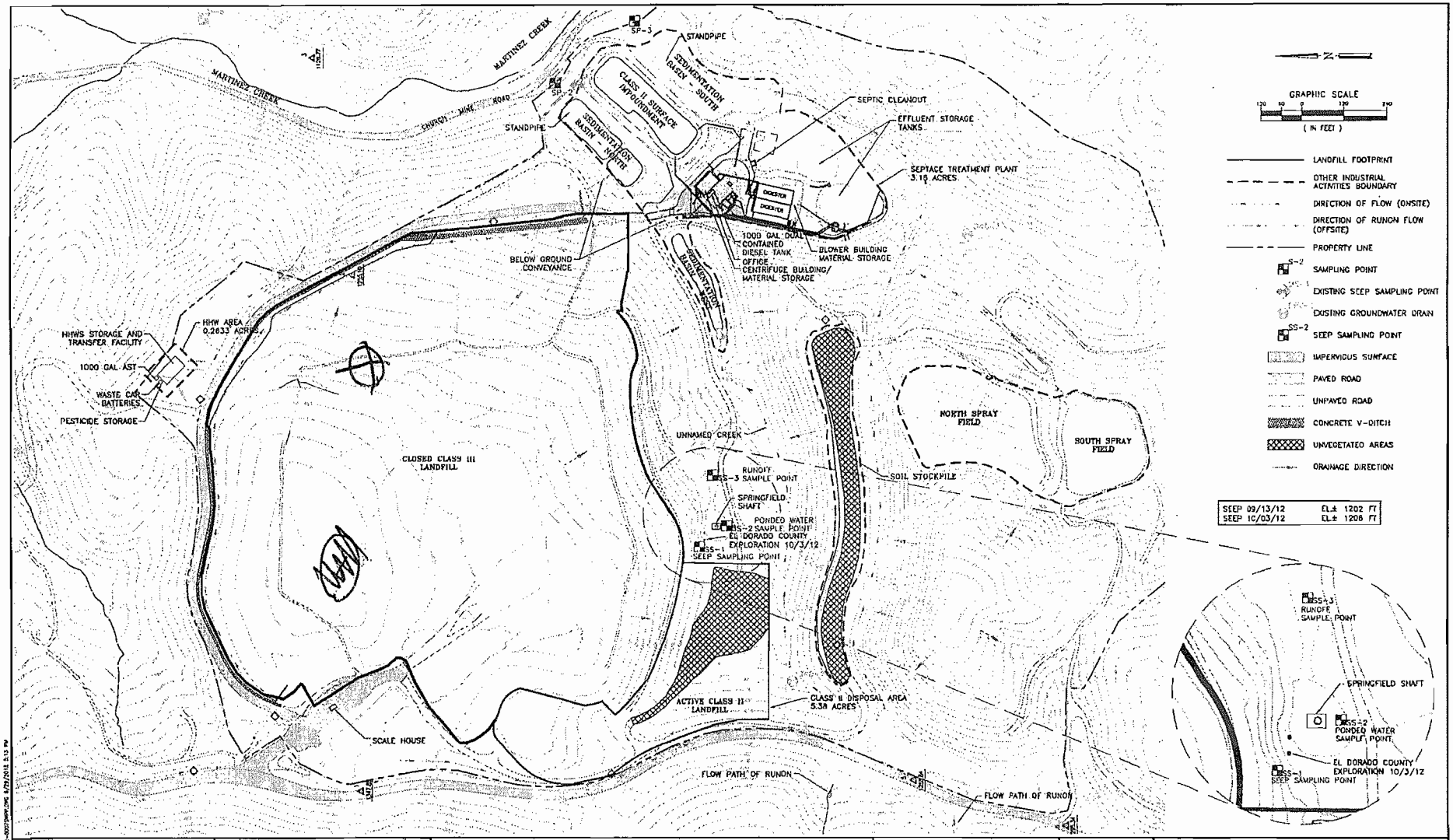
* Estimated flow rate: 1.5 FPS
* Weather conditions including wind direction and estimated velocity: SE 5 MPH Sunny
* Total precipitation previous two days: 0
* Total precipitation on day of inspection: 0.12

COMMENTS: Note any repairs or improvements needed.

CERTIFICATION:
I completed the facility inspection checklist and certify that the information contained on this record is true and correct to the best of my knowledge:

Signed by: Chad Casnek Date: 04-14-2016

Reviewed by: Robert Sullivan Date: 5/9/16



NO.	REVISION DESCRIPTION	BY:

TETRA TECH BAS
1360 Valley Vista Drive, Diamond Bar, CA 91765
TEL 909.860.7777 FAX 909.860.8017

UNION MINE DISPOSAL SITE/SEPTAGE TREATMENT FACILITY

SITE MAP

DESIGNED BY : -	SCALE : AS SHOWN	
DRAWN BY : A.H.P.	DATE : 12-2013	FILE NO.: 22-0007SWPP.DWG
CHECKED BY : M.D.	DATE : 12-2013	FIGURE 1
APPROVED BY : -	DATE : 12-2013	

UNION MINE LANDFILL
WEEKLY STANDARD OBSERVATIONS

Inspected by: Chad Casner Time: 1400 Date: 4-21-2016

GENERAL SITE CONDITIONS

Liquids:	Check for entering or leaving property	No	+	Yes	
Litter:	General appearance & illegal dumping	Ok	Y	Not Ok	
Roads:	Check maintenance & condition	Ok	X	Not Ok	
Gates & Fences:	Check integrity & security	Ok	X	Not Ok	
Drainage Paths:	Check integrity of drainage paths	Ok	Y	Not Ok	
Storm Water Ponds:	Check integrity of ponds	Ok	X	Not Ok	
Perimeter Gas Wells:	Check integrity of locks & monuments	Ok	X	Not Ok	

CLASS II UNIT - PERIMETER

* Evidence of liquid leaving or entering, estimated size of affected area, and flow rate: (Show affected area on map)	Ok	X	Not Ok	
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	X	Not Ok	
* Evidence of erosion and/or of day lighted refuse.	Ok	X	Not Ok	

CLASS II UNIT - AREA

* Evidence of ponded water at any point on the WM facility (Show affected area on map).	Ok	X	Not Ok	
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	X	Not Ok	
* Evidence of erosion and/or of day lighted refuse.	Ok	X	Not Ok	

CLASS III UNIT - PERIMETER

* Evidence of liquid leaving or entering, estimated size of affected area, and flow rate: (Show affected area on map)	Ok	Y	Not Ok	
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	Y	Not Ok	
* Evidence of erosion and/or of day lighted refuse.	Ok	Y	Not Ok	

CLASS III UNIT - AREA

* Evidence of ponded water at any point on the WM facility (Show affected area on map).	Ok		Not Ok	+
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	X	Not Ok	
* Evidence of erosion and/or of day lighted refuse.	Ok	X	Not Ok	

CLASS II SURFACE IMPOUNDMENT

*Check that freeboard is greater than 2'	Ok	Y	Not Ok	
*Check for liquids in the LCRS sump/sump pump operating properly.	Ok	Y	Not Ok	

RECEIVING WATERS: MARTINEZ CREEK

* Check for floating & suspended materials of waste origin including source and size of affected area:	Ok	Y	Not Ok	
* Check for discoloration and turbidity: description of color, source, and size of affected area.	Ok	Y	Not Ok	
* Check for odors including characterization, source, and distance of travel from source.	Ok	X	Not Ok	
* Check for evidence of water uses: presence of water-associated wildlife.	Ok	X	Not Ok	

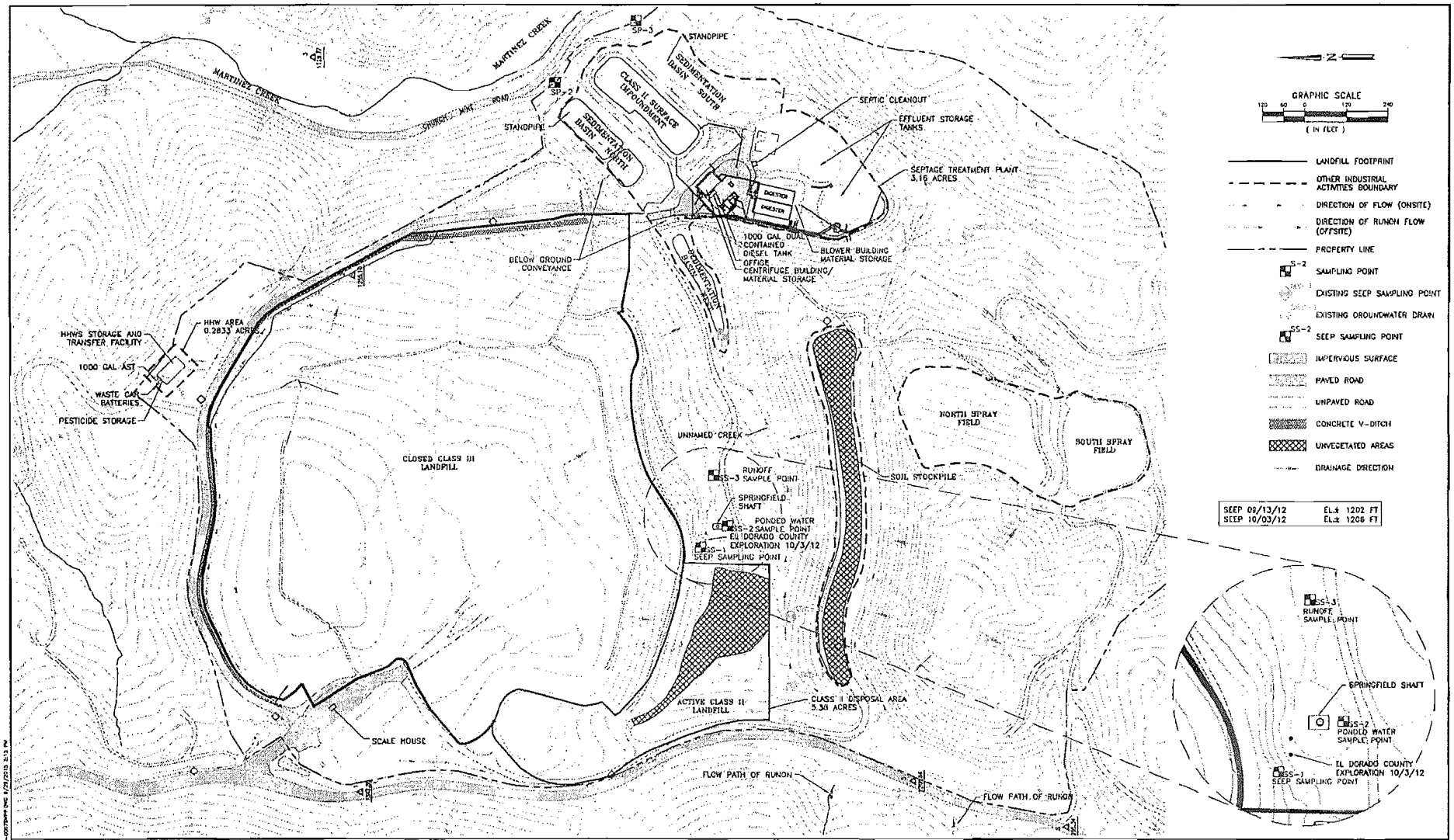
* Estimated flow rate: 2.0 FTPS
* Weather conditions including wind direction and estimated velocity: SUNNY / OVER CAST
* Total precipitation previous two days: 0
* Total precipitation on day of inspection: 0

COMMENTS: Note any repairs or improvements needed.

CERTIFICATION:
I completed the facility inspection checklist and certify that the information contained on this record is true and correct to the best of my knowledge:

Signed by: Chad Gasner Date: 4-21-16

Reviewed by: Robert Sullivan Date: 5/9/16



NO.	REVISION DESCRIPTION	BY:

TETRA TECH BAS
1360 Valley Vista Drive, Diamond Bar, CA 91765
TEL 909.860.7777 FAX 909.860.8017

UNION MINE DISPOSAL SITE/SEPTAGE TREATMENT FACILITY

SITE MAP

DESIGNED BY : -	SCALE : AS SHOWN		
DRAWN BY : A.N.P.	DATE : 12-2013	FILE NO.: 22-00075MPP.DWG	
CHECKED BY : M.O.	DATE : 12-2013	FIGURE 1	
APPROVED BY : -	DATE : 12-2013		

UNION MINE LANDFILL
WEEKLY STANDARD OBSERVATIONS

Inspected by: Chad Casner Time: 10:30 Date: 04-27-2016

GENERAL SITE CONDITIONS

Liquids:	Check for entering or leaving property	No	+	Yes	
Litter:	General appearance & illegal dumping	Ok	x	Not Ok	
Roads:	Check maintenance & condition	Ok	x	Not Ok	
Gates & Fences:	Check integrity & security	Ok	x	Not Ok	
Drainage Paths:	Check integrity of drainage paths	Ok	x	Not Ok	
Storm Water Ponds:	Check integrity of ponds	Ok	x	Not Ok	
Perimeter Gas Wells:	Check integrity of locks & monuments	Ok	x	Not Ok	

CLASS II UNIT - PERIMETER

* Evidence of liquid leaving or entering, estimated size of affected area, and flow rate: (Show affected area on map)	Ok	x	Not Ok	
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	x	Not Ok	
* Evidence of erosion and/or of day lighted refuse.	Ok	x	Not Ok	

CLASS II UNIT - AREA

* Evidence of ponded water at any point on the WM facility (Show affected area on map).	Ok	x	Not Ok	
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	x	Not Ok	
* Evidence of erosion and/or of day lighted refuse.	Ok	x	Not Ok	

CLASS III UNIT - PERIMETER

* Evidence of liquid leaving or entering, estimated size of affected area, and flow rate: (Show affected area on map)	Ok	x	Not Ok	
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	x	Not Ok	
* Evidence of erosion and/or of day lighted refuse.	Ok	x	Not Ok	

CLASS III UNIT - AREA

* Evidence of ponded water at any point on the WM facility (Show affected area on map).	Ok		Not Ok	+
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	x	Not Ok	
* Evidence of erosion and/or of day lighted refuse.	Ok	x	Not Ok	

CLASS II SURFACE IMPOUNDMENT

*Check that freeboard is greater than 2'	Ok	x	Not Ok	
*Check for liquids in the LCRS sump/sump pump operating properly.	Ok	x	Not Ok	

RECEIVING WATERS: MARTINEZ CREEK

* Check for floating & suspended materials of waste origin including source and size of affected area:	Ok	x	Not Ok	
* Check for discoloration and turbidity: description of color, source, and size of affected area.	Ok	x	Not Ok	
* Check for odors including characterization, source, and distance of travel from source.	Ok	x	Not Ok	
* Check for evidence of water uses: presence of water-associated wildlife.	Ok	x	Not Ok	

* Estimated flow rate: 1.5 FTPS
* Weather conditions including wind direction and estimated velocity: Sunny & Windy
* Total precipitation previous two days: .31
* Total precipitation on day of inspection: 0

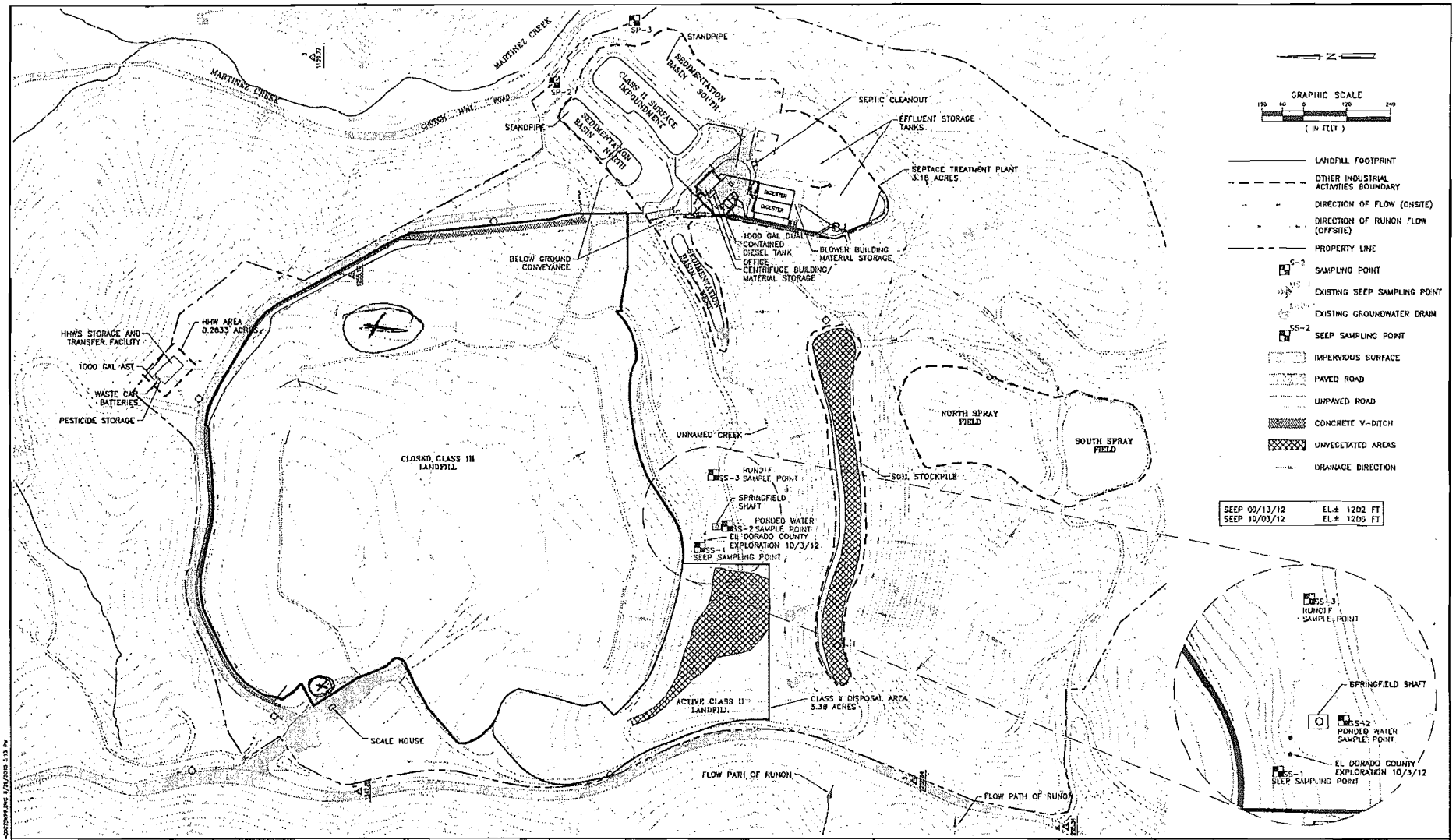
COMMENTS: Note any repairs or improvements needed.

CERTIFICATION:

I completed the facility inspection checklist and certify that the information contained on this record is true and correct to the best of my knowledge.

Signed by: _____ Date: 6-27-16

Reviewed by: Robert Brillisen Date: 5/9/16



NO.	REVISION DESCRIPTION	BY:

TETRA TECH BAS
1360 Valley Vista Drive, Diamond Bar, CA 91765
TEL 909.860.7777 FAX 909.860.8017

UNION MINE DISPOSAL SITE/SEPTAGE TREATMENT FACILITY

SITE MAP

DESIGNED BY : -	SCALE : AS SHOWN	
DRAWN BY : A.M.P.	DATE : 12-2013	FILE NO.: 22-00073WPP.DWG
CHECKED BY : M.G.	DATE : 12-2013	FIGURE 1
APPROVED BY : -	DATE : 12-2013	

UNION MINE LANDFILL
WEEKLY STANDARD OBSERVATIONS

Inspected by: ROY C. PIKE Time: 11:14 Date: 05-05-16

GENERAL SITE CONDITIONS

Liquids:	Check for entering or leaving property			Yes	
Litter:	General appearance & illegal dumping	Ok	X	Not Ok	
Roads:	Check maintenance & condition	Ok	X	Not Ok	
Gates & Fences:	Check integrity & security	Ok		Not Ok	
Drainage Paths:	Check integrity of drainage paths	Ok	X	Not Ok	
Storm Water Ponds:	Check integrity of ponds	Ok	X	Not Ok	
Perimeter Gas Wells:	Check integrity of locks & monuments	Ok	X	Not Ok	

CLASS II UNIT - PERIMETER

* Evidence of liquid leaving or entering, estimated size of affected area, and flow rate: (Show affected area on map)	Ok	X	Not Ok	
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	X	Not Ok	
* Evidence of erosion and/or of day lighted refuse.	Ok	X	Not Ok	

CLASS II UNIT - AREA

* Evidence of ponded water at any point on the WM facility (Show affected area on map).	Ok	X	Not Ok	
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	X	Not Ok	
* Evidence of erosion and/or of day lighted refuse.	Ok	X	Not Ok	

CLASS III UNIT - PERIMETER

* Evidence of liquid leaving or entering, estimated size of affected area, and flow rate: (Show affected area on map)	Ok	X	Not Ok	X
* Check for odors including characterization, source, and distance of travel from source: UNDER FENCE UP TOP.	Ok	X	Not Ok	
* Evidence of erosion and/or of day lighted refuse.	Ok	X	Not Ok	

Liquid outside but not perimeter of class III opposite side of access road.

CLASS III UNIT - AREA

* Evidence of ponded water at any point on the WM facility (Show affected area on map).	Ok		Not Ok	X
* Check for odors including characterization, source, and distance of travel from source: BETWEEN STORAGE BUILD & PLANT.	Ok	X	Not Ok	
* Evidence of erosion and/or of day lighted refuse.	Ok	X	Not Ok	

CLASS II SURFACE IMPOUNDMENT

*Check that freeboard is greater than 2'	Ok	X	Not Ok	
*Check for liquids in the LCRS sump/sump pump operating properly.	Ok	X	Not Ok	

RECEIVING WATERS: MARTINEZ CREEK

* Check for floating & suspended materials of waste origin including source and size of affected area:	Ok	X	Not Ok	
* Check for discoloration and turbidity: description of color, source, and size of affected area.	Ok	X	Not Ok	
* Check for odors including characterization, source, and distance of travel from source.	Ok	X	Not Ok	
* Check for evidence of water uses: presence of water-associated wildlife.	Ok	X	Not Ok	

* Estimated flow rate: ~~0 WIND~~ NORTH = 0.05 SOUTH = 0.02
* Weather conditions including wind direction and estimated velocity: CLOUDY OVER CAST 0 WIND -
* Total precipitation previous two days: 0
* Total precipitation on day of inspection: 0

COMMENTS: Note any repairs or improvements needed.

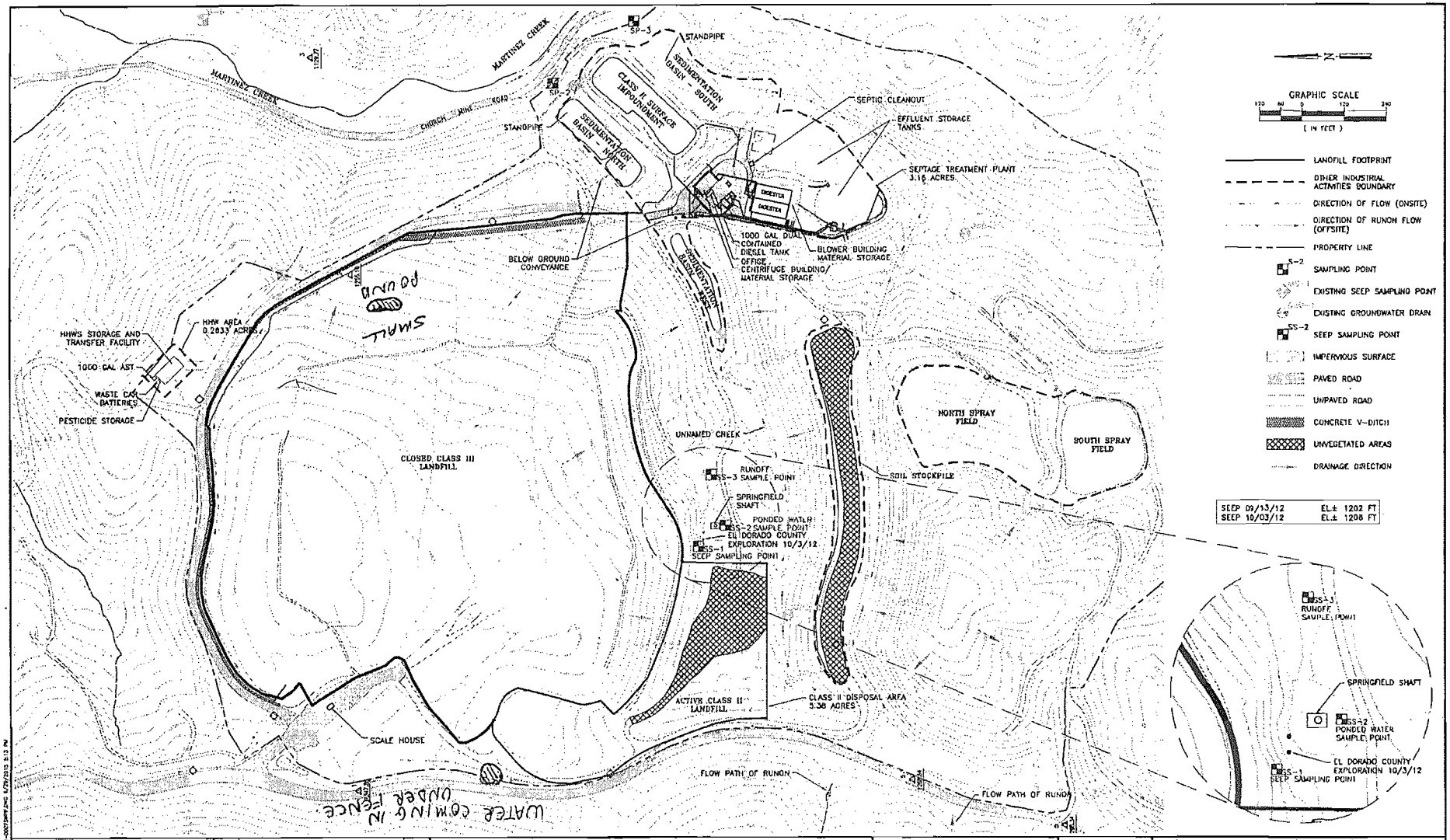
A SMALL AMOUNT OF RUNNING WATER COMING IN UNDER THE FEANCE BETWEEN THE SCALE HOUSE & CELL, / & A SMALL POOND BETWEEN STORAGE BUILDING & PLANT.

CERTIFICATION:

I completed the facility inspection checklist and certify that the information contained on this record is true and correct to the best of my knowledge:

Signed by: [signature] Date: 05-05-16

Reviewed by: Robert Brillisour Date: 5/31/16



NO.	REVISION DESCRIPTION	BY:

TETRA TECH BAS
1360 Valley Vista Drive, Diamond Bar, CA 91765
TEL 909.860.7777 FAX 909.860.8017

UNION MINE DISPOSAL SITE/SEPTAGE TREATMENT FACILITY

SITE MAP

DESIGNED BY : -	SCALE : AS SHOWN	
DRAWN BY : A.M.P.	DATE : 12-2013	FILE NO.: 22-0007SHPP.DWG
CHECKED BY : M.O.	DATE : 12-2013	FIGURE 1
APPROVED BY : -	DATE : 12-2013	

G:\DOC\UNION MINE\SHPP\22-0007SHPP.DWG 8/29/2013 8:13 PM

UNION MINE LANDFILL
WEEKLY STANDARD OBSERVATIONS

Inspected by: ROY C. PIKE Time: 10:47 Date: 05-12-16

GENERAL SITE CONDITIONS

Liquids:	Check for entering or leaving property	No	☒	Yes	☐
Litter:	General appearance & illegal dumping	Ok	☒	Not Ok	☐
Roads:	Check maintenance & condition	Ok	☒	Not Ok	☐
Gates & Fences:	Check integrity & security	Ok	☒	Not Ok	☐
Drainage Paths:	Check integrity of drainage paths	Ok	☒	Not Ok	☐
Storm Water Ponds:	Check integrity of ponds	Ok	☒	Not Ok	☐
Perimeter Gas Wells:	Check integrity of locks & monuments	Ok	☒	Not Ok	☐

CLASS II UNIT - PERIMETER

* Evidence of liquid leaving or entering, estimated size of affected area, and flow rate: (Show affected area on map)	Ok	☒	Not Ok	☐
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	☒	Not Ok	☐
* Evidence of erosion and/or of day lighted refuse.	Ok	☒	Not Ok	☐

CLASS II UNIT - AREA

* Evidence of ponded water at any point on the WM facility (Show affected area on map).	Ok	☒	Not Ok	☐
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	☒	Not Ok	☐
* Evidence of erosion and/or of day lighted refuse.	Ok	☒	Not Ok	☐

CLASS III UNIT - PERIMETER

* Evidence of liquid leaving or entering, estimated size of affected area, and flow rate: (Show affected area on map)	Ok	☒	Not Ok	☐
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	☒	Not Ok	☐
* Evidence of erosion and/or of day lighted refuse.	Ok	☒	Not Ok	☐

CLASS III UNIT - AREA

* Evidence of ponded water at any point on the WM facility (Show affected area on map).	Ok correct	X	Not Ok	☒ Same as 5/5/16
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	☒	Not Ok	☐
* Evidence of erosion and/or of day lighted refuse.	Ok	☒	Not Ok	☐

CLASS II SURFACE IMPOUNDMENT

*Check that freeboard is greater than 2'	Ok	☒	Not Ok	☐
*Check for liquids in the LCRS sump/sump pump operating properly.	Ok	☒	Not Ok	☐

RECEIVING WATERS: MARTINEZ CREEK

* Check for floating & suspended materials of waste origin including source and size of affected area:	Ok	☒	Not Ok	☐
* Check for discoloration and turbidity: description of color, source, and size of affected area.	Ok	☒	Not Ok	☐
* Check for odors including characterization, source, and distance of travel from source.	Ok	☒	Not Ok	☐
* Check for evidence of water uses: presence of water-associated wildlife.	Ok	☒	Not Ok	☐

* Estimated flow rate: NORTH POND .05 / SOUTH POND .0.0
* Weather conditions including wind direction and estimated velocity: SUNNY 5 MPH WEST TO EAST WIND & SUNNY.
* Total precipitation previous two days: 0
* Total precipitation on day of inspection: 0

COMMENTS: Note any repairs or improvements needed.
SOME PONDING BETWEEN STORAGE BUILDING & PLANT

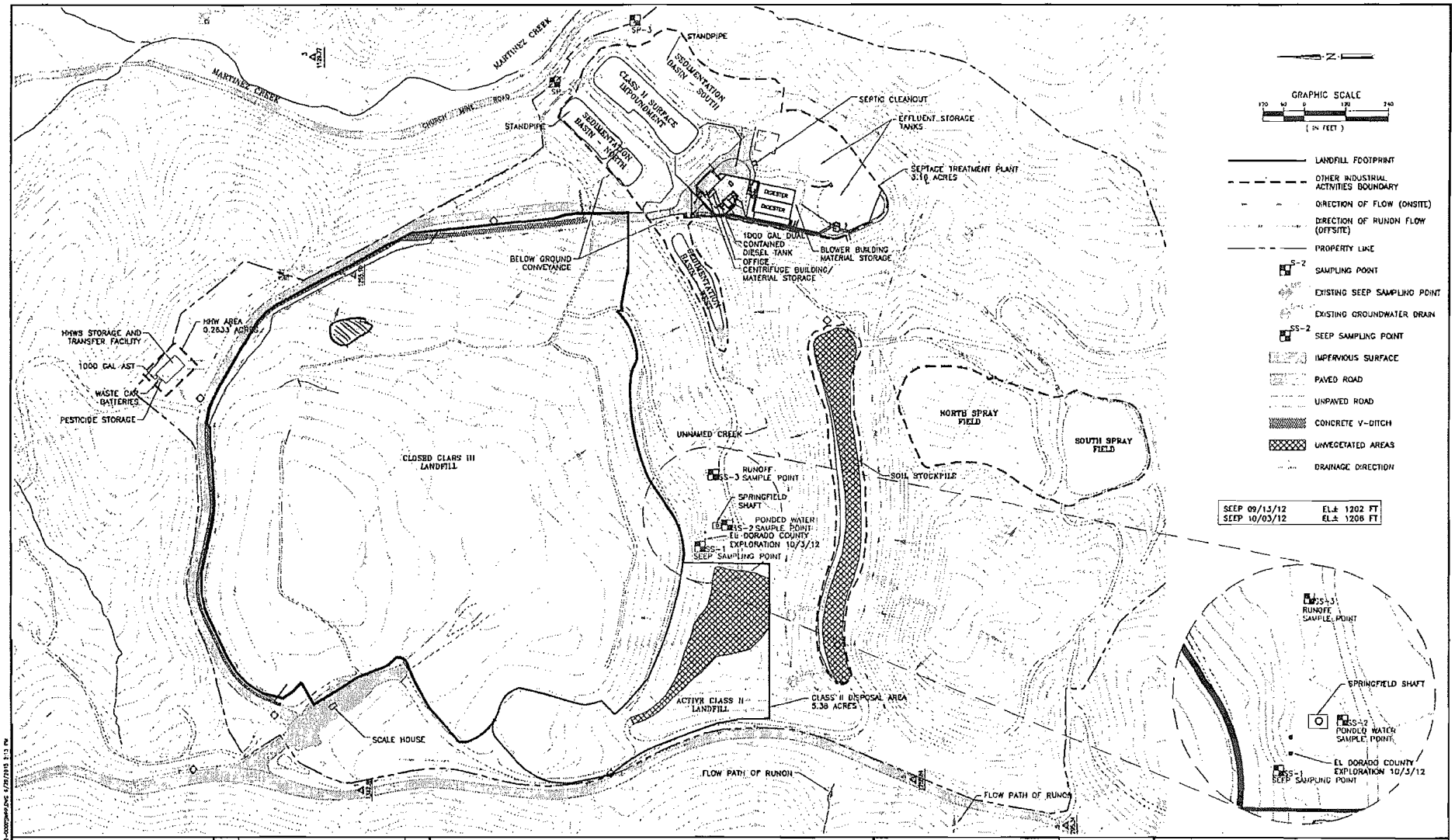
CERTIFICATION:
I completed the facility inspection checklist and certify that the information contained on this record is true and correct to the best of my knowledge:

Signed by: [signature] Date: 05-12-16

Reviewed by: Robert Brillhour Date: 6/2/16

work Order is approved to repair ponded water on class III bench.

work will be performed June 2016.



NO.	REVISION DESCRIPTION	BY

TETRA TECH BAS
1320 Valley Vista Drive, Diamond Bar, CA 91765
TEL 909.860.7777 FAX 909.860.0017

UNION MINE DISPOSAL SITE/SEPTAGE TREATMENT FACILITY

SITE MAP

DESIGNED BY : -	SCALE : AS SHOWN	
DRAWN BY : A.N.P.	DATE : 12-2013	FILE NO.: 22-00075MPP.DWG
CHECKED BY : M.O.	DATE : 12-2013	FIGURE 1
APPROVED BY : -	DATE : 12-2013	

UNION MINE LANDFILL
WEEKLY STANDARD OBSERVATIONS

Inspected by: ROY C. PIKE Time: ~~05-19-16~~ 15:07 Date: 05-19-16

GENERAL SITE CONDITIONS

Liquids:	Check for entering or leaving property	No	☒	Yes	☐
Litter:	General appearance & illegal dumping	Ok	☒	Not Ok	☐
Roads:	Check maintenance & condition	Ok	☒	Not Ok	☐
Gates & Fences:	Check integrity & security	Ok	☒	Not Ok	☐
Drainage Paths:	Check integrity of drainage paths	Ok	☒	Not Ok	☐
Storm Water Ponds:	Check integrity of ponds	Ok	☒	Not Ok	☐
Perimeter Gas Wells:	Check integrity of locks & monuments	Ok	☒	Not Ok	☐

CLASS II UNIT - PERIMETER

* Evidence of liquid leaving or entering, estimated size of affected area, and flow rate: (Show affected area on map)	Ok	☒	Not Ok ☐
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	☒	Not Ok ☐
* Evidence of erosion and/or of day lighted refuse.	Ok	☒	Not Ok ☐

CLASS II UNIT - AREA

* Evidence of ponded water at any point on the WM facility (Show affected area on map).	Ok	☒	Not Ok ☐
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	☒	Not Ok ☐
* Evidence of erosion and/or of day lighted refuse.	Ok	☒	Not Ok ☐

CLASS III UNIT - PERIMETER

* Evidence of liquid leaving or entering, estimated size of affected area, and flow rate: (Show affected area on map)	Ok	☒	Not Ok ☐
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	☒	Not Ok ☐
* Evidence of erosion and/or of day lighted refuse.	Ok	☒	Not Ok ☐

CLASS III UNIT - AREA

* Evidence of ponded water at any point on the WM facility (Show affected area on map).	Ok	☐	Not Ok ☒
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	☒	Not Ok ☐
* Evidence of erosion and/or of day lighted refuse.	Ok	☒	Not Ok ☐

CLASS II SURFACE IMPOUNDMENT

*Check that freeboard is greater than 2'	Ok	☒	Not Ok ☐
*Check for liquids in the LCRS sump/sump pump operating properly.	Ok	☒	Not Ok ☐

RECEIVING WATERS: MARTINEZ CREEK

* Check for floating & suspended materials of waste origin including source and size of affected area:	Ok	☒	Not Ok ☐
* Check for discoloration and turbidity: description of color, source, and size of affected area.	Ok	☒	Not Ok ☐
* Check for odors including characterization, source, and distance of travel from source.	Ok	☒	Not Ok ☐
* Check for evidence of water uses: presence of water-associated wildlife.	Ok	☒	Not Ok ☐

* Estimated flow rate: NORTH POND = .03 / SOUTH POUND 0.0
* Weather conditions including wind direction and estimated velocity: NO WIND.
* Total precipitation previous two days: 0
* Total precipitation on day of inspection: 0

COMMENTS: Note any repairs or improvements needed.

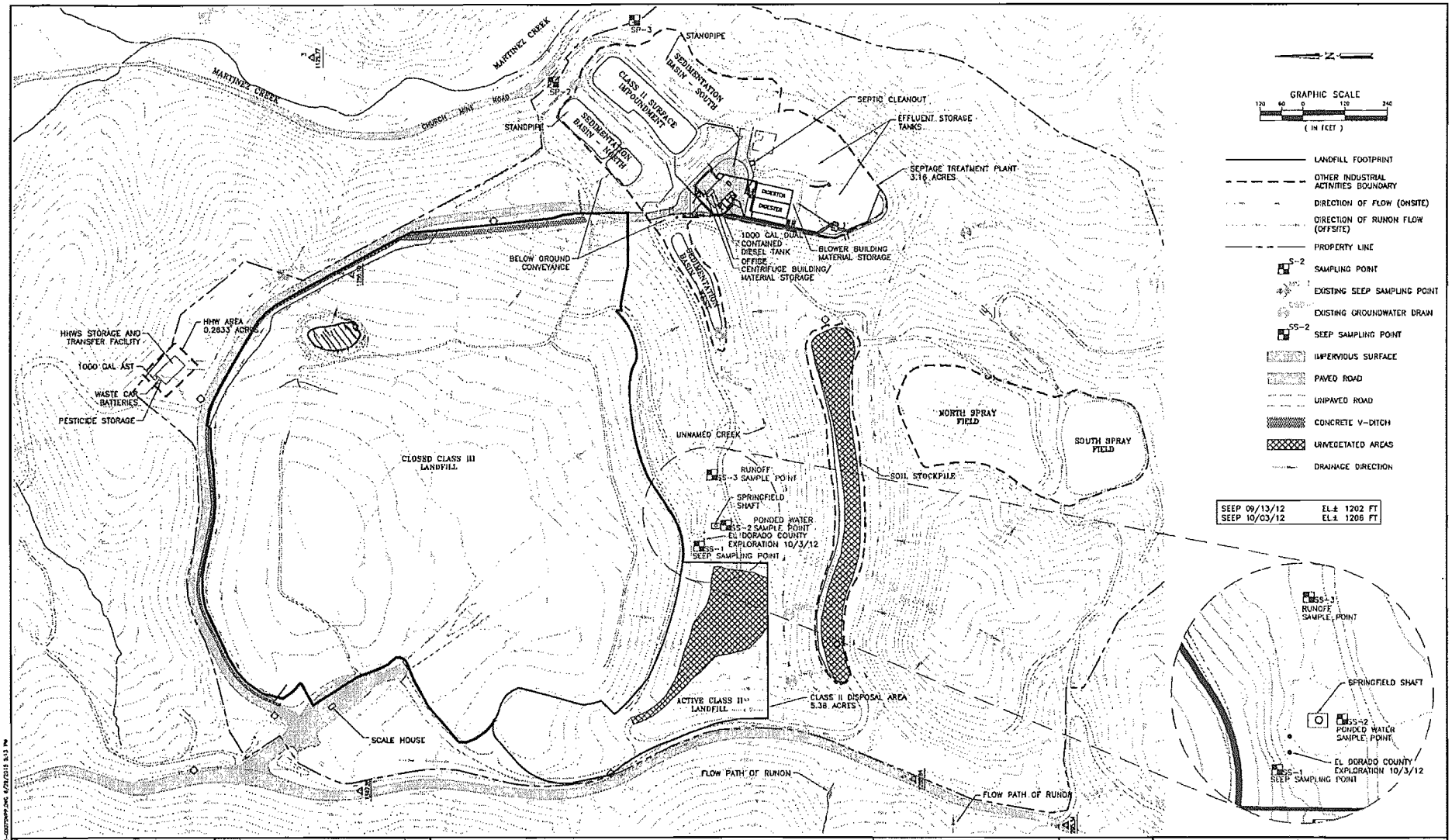
A SMALL ~~POND~~ RED POND BETWEEN STORAGE BUILDING & PLANT.

CERTIFICATION:

I completed the facility inspection checklist and certify that the information contained on this record is true and correct to the best of my knowledge:

Signed by: Roy C. Dibble Date: 05-19-16

Reviewed by: Robert Brillhart Date: 06-2-16



NO.	REVISION DESCRIPTION	BY:

TETRA TECH BAS
1360 Valley Vista Drive, Diamond Bar, CA 91765
TEL 909.860.7777 FAX 909.860.0017

UNION MINE DISPOSAL SITE/SEPTAGE TREATMENT FACILITY

SITE MAP

DESIGNED BY : -	SCALE : AS SHOWN	
DRAWN BY : A.N.P.	DATE : 12-2013	FILE NO.: 22-00075WPP.DWG
CHECKED BY : M.D.	DATE : 12-2013	FIGURE 1
APPROVED BY : -	DATE : 12-2013	

UNION MINE LANDFILL
WEEKLY STANDARD OBSERVATIONS

Inspected by: ROY C. PIKE Time: _____ Date: 05-26-2016

GENERAL SITE CONDITIONS

Liquids:	Check for entering or leaving property	No	☒	Yes	☐
Litter:	General appearance & illegal dumping	Ok	☒	Not Ok	☐
Roads:	Check maintenance & condition	Ok	☒	Not Ok	☐
Gates & Fences:	Check integrity & security	Ok	☒	Not Ok	☐
Drainage Paths:	Check integrity of drainage paths	Ok	☒	Not Ok	☐
Storm Water Ponds:	Check integrity of ponds	Ok	☒	Not Ok	☐
Perimeter Gas Wells:	Check integrity of locks & monuments	Ok	☒	Not Ok	☐

CLASS II UNIT - PERIMETER

* Evidence of liquid leaving or entering, estimated size of affected area, and flow rate: (Show affected area on map)	Ok	☒	Not Ok ☐
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	☒	Not Ok ☐
* Evidence of erosion and/or of day lighted refuse.	Ok	☒	Not Ok ☐

CLASS II UNIT - AREA

* Evidence of ponded water at any point on the WM facility (Show affected area on map).	Ok	☒	Not Ok ☐
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	☒	Not Ok ☐
* Evidence of erosion and/or of day lighted refuse.	Ok	☒	Not Ok ☐

CLASS III UNIT - PERIMETER

* Evidence of liquid leaving or entering, estimated size of affected area, and flow rate: (Show affected area on map)	Ok	☒	Not Ok ☐
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	☒	Not Ok ☐
* Evidence of erosion and/or of day lighted refuse.	Ok	☒	Not Ok ☐

CLASS III UNIT - AREA

* Evidence of ponded water at any point on the WM facility (Show affected area on map).	Ok	☐	Not Ok ☒
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	☒	Not Ok ☐
* Evidence of erosion and/or of day lighted refuse.	Ok	☒	Not Ok ☐

CLASS II SURFACE IMPOUNDMENT

*Check that freeboard is greater than 2'	Ok	☒	Not Ok ☐
*Check for liquids in the LCRS sump/sump pump operating properly.	Ok	☒	Not Ok ☐

RECEIVING WATERS: MARTINEZ CREEK

* Check for floating & suspended materials of waste origin including source and size of affected area:	Ok	☒	Not Ok ☐
* Check for discoloration and turbidity: description of color, source, and size of affected area.	Ok	☒	Not Ok ☐
* Check for odors including characterization, source, and distance of travel from source.	Ok	☒	Not Ok ☐
* Check for evidence of water uses: presence of water-associated wildlife.	Ok	☒	Not Ok ☐

* Estimated flow rate: NORTH POND = 0.4 / SOUTH POND 0.1
* Weather conditions including wind direction and estimated velocity: NO WIND.
* Total precipitation previous two days: 0
* Total precipitation on day of inspection: 0

COMMENTS: Note any repairs or improvements needed.

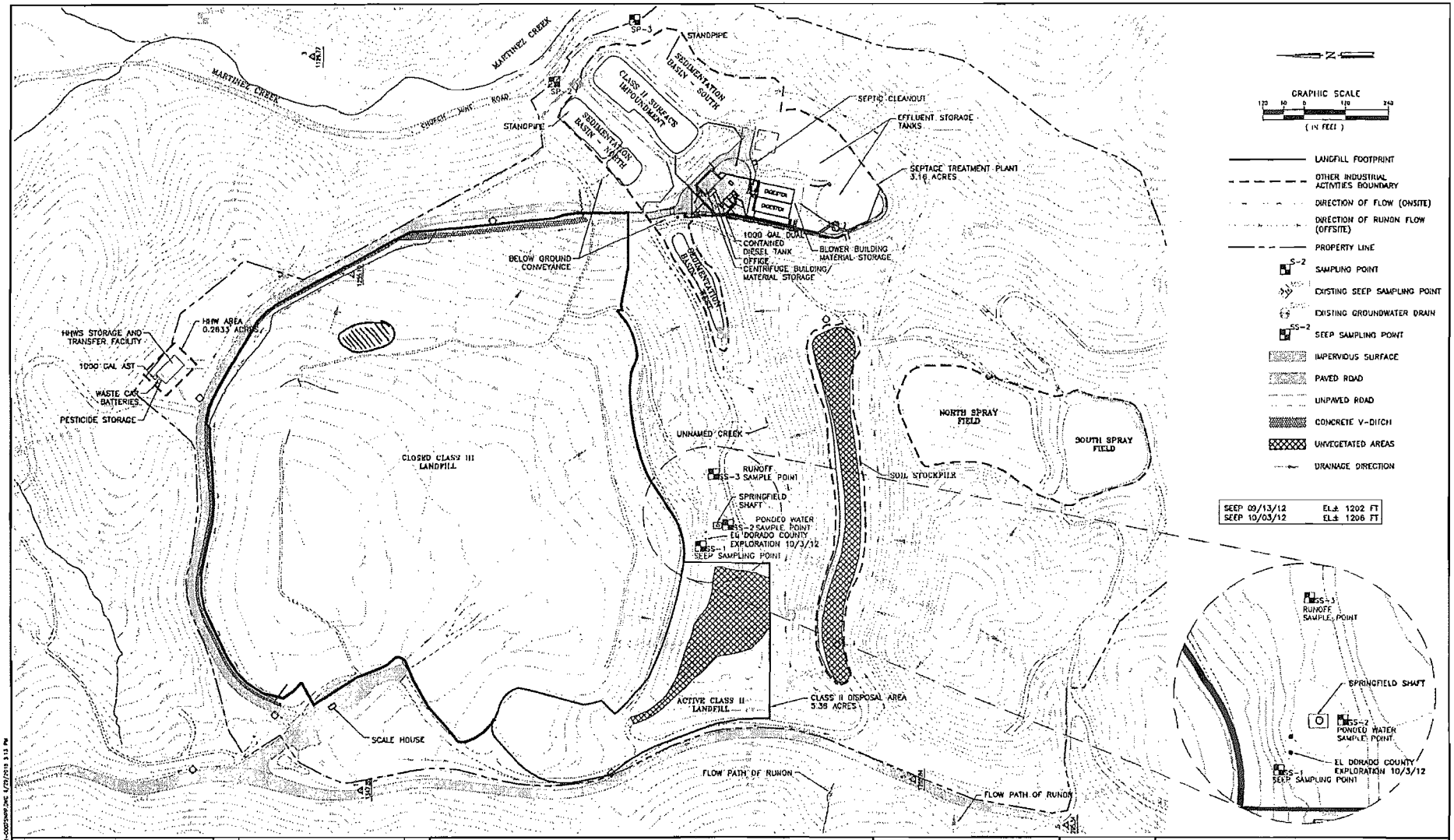
A SMALL POND BETWEEN STORAGE BUILDING & LOWER PLANT.

CERTIFICATION:

I completed the facility inspection checklist and certify that the information contained on this record is true and correct to the best of my knowledge:

Signed by: Roy E. Lobe Date: 05-26-16

Reviewed by: Robert Brillisour Date: 6/2/16



NO.	REVISION DESCRIPTION	BY.

TETRA TECH BAS
1380 Valley Vista Drive, Diamond Bar, CA 91765
TEL 909.860.7777 FAX 909.860.8017

UNION MINE DISPOSAL SITE/SEPTAGE TREATMENT FACILITY

SITE MAP

DESIGNED BY : –	SCALE : AS SHOWN	
DRAWN BY : A.M.P.	DATE : 12-2013	FILE NO.: 22-0007SAPP.DWG
CHECKED BY : M.O.	DATE : 12-2013	FIGURE 1
APPROVED BY : –	DATE : 12-2013	

UNION MINE LANDFILL
WEEKLY STANDARD OBSERVATIONS

Inspected by: Chad Casner Time: 1330 Date: 06-02-16

GENERAL SITE CONDITIONS

Liquids:	Check for entering or leaving property	No	X	Yes	
Litter:	General appearance & illegal dumping	Ok	X	Not Ok	
Roads:	Check maintenance & condition	Ok	X	Not Ok	
Gates & Fences:	Check integrity & security	Ok	X	Not Ok	
Drainage Paths:	Check integrity of drainage paths	Ok	X	Not Ok	
Storm Water Ponds:	Check integrity of ponds	Ok	X	Not Ok	
Perimeter Gas Wells:	Check integrity of locks & monuments	Ok	X	Not Ok	

CLASS II UNIT - PERIMETER

* Evidence of liquid leaving or entering, estimated size of affected area, and flow rate: (Show affected area on map)	Ok	X	Not Ok	
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	X	Not Ok	
* Evidence of erosion and/or of day lighted refuse.	Ok	X	Not Ok	

CLASS II UNIT - AREA

* Evidence of ponded water at any point on the WM facility (Show affected area on map).	Ok	X	Not Ok	
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	X	Not Ok	
* Evidence of erosion and/or of day lighted refuse.	Ok	X	Not Ok	

CLASS III UNIT - PERIMETER

* Evidence of liquid leaving or entering, estimated size of affected area, and flow rate: (Show affected area on map)	Ok	X	Not Ok	
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	X	Not Ok	
* Evidence of erosion and/or of day lighted refuse.	Ok	X	Not Ok	

CLASS III UNIT - AREA

* Evidence of ponded water at any point on the WM facility (Show affected area on map).	Ok	X	Not Ok	
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	X	Not Ok	
* Evidence of erosion and/or of day lighted refuse.	Ok	X	Not Ok	

CLASS II SURFACE IMPOUNDMENT

*Check that freeboard is greater than 2'	Ok	X	Not Ok	
*Check for liquids in the LCRS sump/sump pump operating properly.	Ok	X	Not Ok	X

RECEIVING WATERS: MARTINEZ CREEK

* Check for floating & suspended materials of waste origin including source and size of affected area:	Ok	X	Not Ok	
* Check for discoloration and turbidity: description of color, source, and size of affected area.	Ok	X	Not Ok	
* Check for odors including characterization, source, and distance of travel from source.	Ok	X	Not Ok	
* Check for evidence of water uses: presence of water-associated wildlife.	Ok	X	Not Ok	

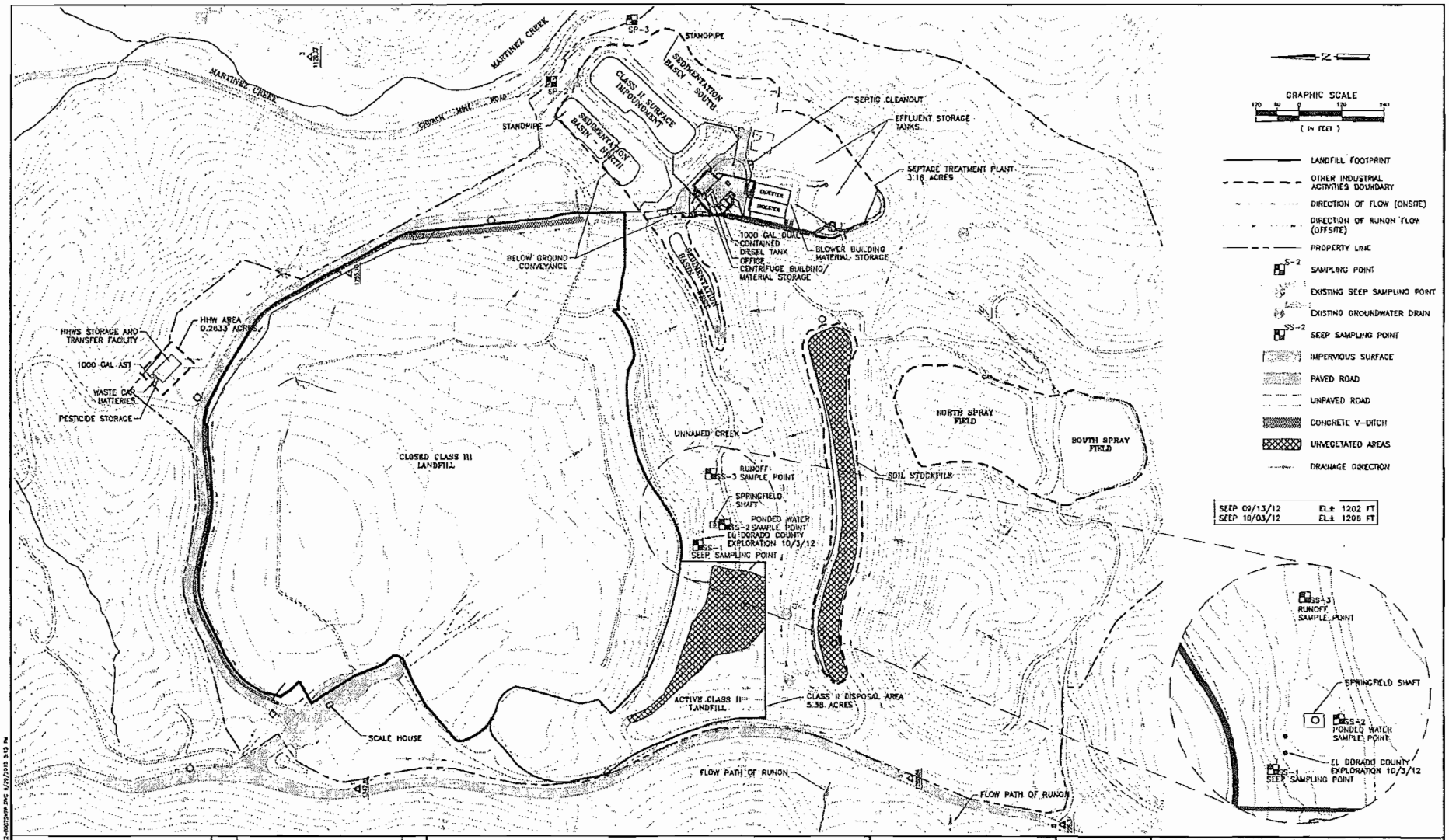
* Estimated flow rate: S-0
* Weather conditions including wind direction and estimated velocity: N-03
* Total precipitation previous two days: 0
* Total precipitation on day of inspection: 0

COMMENTS: Note any repairs or improvements needed.

CERTIFICATION:
I completed the facility inspection checklist and certify that the information contained on this record is true and correct to the best of my knowledge:

Signed by: _____ Date: 6-2-16

Reviewed by: Robert Gallivan Date: 7/7/16



NO.	REVISION DESCRIPTION	BY.

TETRA TECH BAS
1360 Valley View Drive, Diamond Bar, CA 91765
TEL 909.860.7777 FAX 909.860.8017

UNION MINE DISPOSAL SITE/SEPTAGE TREATMENT FACILITY

SITE MAP

DESIGNED BY : –	SCALE : AS SHOWN	
DRAWN BY : A.N.P.	DATE : 12-2013	F.S.E. NO.: 22-00075MPP.DWG
CHECKED BY : M.O.	DATE : 12-2013	FIGURE 1
APPROVED BY : –	DATE : 12-2013	

UNION MINE LANDFILL
WEEKLY STANDARD OBSERVATIONS

Inspected by: ROY C. PIKE Time: 14:13 Date: 06-09-16

GENERAL SITE CONDITIONS

Liquids:	Check for entering or leaving property	No	☒	Yes	☐
Litter:	General appearance & illegal dumping	Ok	☒	Not Ok	☐
Roads:	Check maintenance & condition	Ok	☒	Not Ok	☐
Gates & Fences:	Check integrity & security	Ok	☒	Not Ok	☐
Drainage Paths:	Check integrity of drainage paths	Ok	☒	Not Ok	☐
Storm Water Ponds:	Check integrity of ponds	Ok	☒	Not Ok	☐
Perimeter Gas Wells:	Check integrity of locks & monuments	Ok	☒	Not Ok	☐

CLASS II UNIT - PERIMETER

* Evidence of liquid leaving or entering, estimated size of affected area, and flow rate: (Show affected area on map)	Ok	☒	Not Ok	☐
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	☒	Not Ok	☐
* Evidence of erosion and/or of day lighted refuse.	Ok	☒	Not Ok	☐

CLASS II UNIT - AREA

* Evidence of ponded water at any point on the WM facility (Show affected area on map).	Ok	☒	Not Ok	☐
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	☒	Not Ok	☐
* Evidence of erosion and/or of day lighted refuse.	Ok	☒	Not Ok	☐

CLASS III UNIT - PERIMETER

* Evidence of liquid leaving or entering, estimated size of affected area, and flow rate: (Show affected area on map)	Ok	☒	Not Ok	☐
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	☒	Not Ok	☐
* Evidence of erosion and/or of day lighted refuse.	Ok	☒	Not Ok	☐

CLASS III UNIT - AREA

* Evidence of ponded water at any point on the WM facility (Show affected area on map).	Ok	☒	Not Ok	☐
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	☒	Not Ok	☐
* Evidence of erosion and/or of day lighted refuse.	Ok	☒	Not Ok	☐

CLASS II SURFACE IMPOUNDMENT

*Check that freeboard is greater than 2'	Ok	☒	Not Ok	☐
*Check for liquids in the LCRS sump/sump pump operating properly.	Ok	☒	Not Ok	☐

RECEIVING WATERS: MARTINEZ CREEK

* Check for floating & suspended materials of waste origin including source and size of affected area:	Ok	☒	Not Ok	☐
* Check for discoloration and turbidity: description of color, source, and size of affected area.	Ok	☒	Not Ok	☐
* Check for odors including characterization, source, and distance of travel from source.	Ok	☒	Not Ok	☐
* Check for evidence of water uses: presence of water-associated wildlife.	Ok	☒	Not Ok	☐

* Estimated flow rate: 0 FLOW FROM NORTH & 0 FLOW FROM SOUTH.
* Weather conditions including wind direction and estimated velocity: 5 MPH WIND WEST TO EAST
* Total precipitation previous two days: 0
* Total precipitation on day of inspection: 0

COMMENTS: Note any repairs or improvements needed.

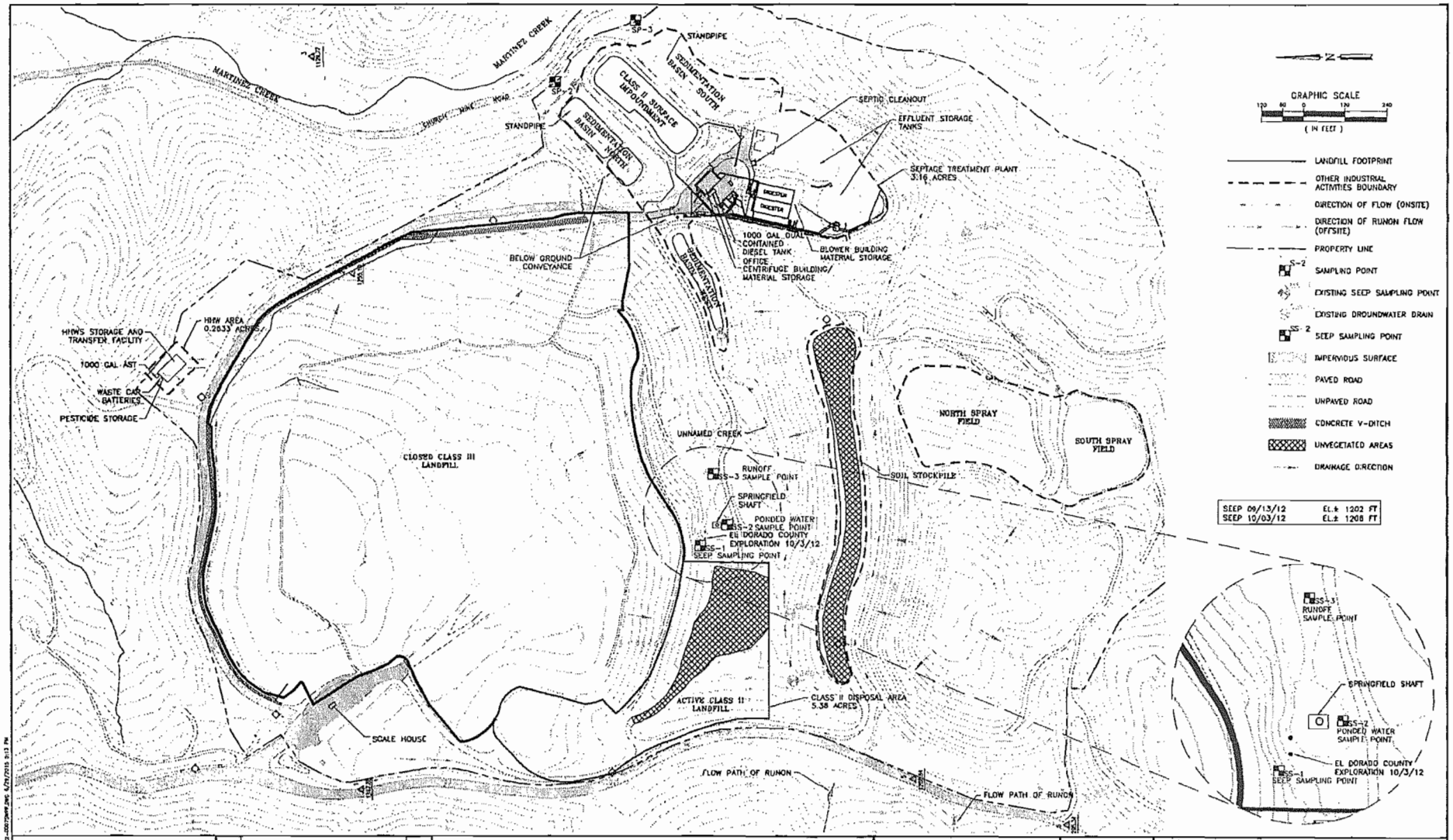
THE SMALL POND ON LANDFILL BETWEEN STORAGE BUILDING & LOWER PLANT HAS BEEN FILLED WITH DIRT.

CERTIFICATION:

I completed the facility inspection checklist and certify that the information contained on this record is true and correct to the best of my knowledge:

Signed by: [signature] Date: 06-09-16

Reviewed by: Robert Grillrson [signature] Date: 2/7/16



NO.	REVISION DESCRIPTION	BY:

TETRA TECH BAS
1360 Valley Vista Drive, Diamond Bar, CA 91765
TEL 909.860.7777 FAX 909.860.8017

UNION MINE DISPOSAL SITE/SEPTAGE TREATMENT FACILITY

SITE MAP

DESIGNED BY : –		SCALE : AS SHOWN	
DRAWN BY : A.N.P.		DATE : 12-2013	FILE NO.: 22-0007SMPP.DWG
CHECKED BY : M.Q.		DATE : 12-2013	FIGURE 1
APPROVED BY : –		DATE : 12-2013	

UNION MINE LANDFILL
WEEKLY STANDARD OBSERVATIONS

Inspected by: Chad Casner Time: 1450 Date: 6-16-16

GENERAL SITE CONDITIONS

Liquids:	Check for entering or leaving property	No	Y	Yes	
Litter:	General appearance & illegal dumping	Ok	Y	Not Ok	
Roads:	Check maintenance & condition	Ok	Y	Not Ok	
Gates & Fences:	Check integrity & security	Ok	Y	Not Ok	
Drainage Paths:	Check integrity of drainage paths	Ok	Y	Not Ok	
Storm Water Ponds:	Check integrity of ponds	Ok	Y	Not Ok	
Perimeter Gas Wells:	Check integrity of locks & monuments	Ok	Y	Not Ok	

CLASS II UNIT - PERIMETER

* Evidence of liquid leaving or entering, estimated size of affected area, and flow rate: (Show affected area on map)	Ok	Y	Not Ok	
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	Y	Not Ok	
* Evidence of erosion and/or of day lighted refuse.	Ok	Y	Not Ok	

CLASS II UNIT - AREA

* Evidence of ponded water at any point on the WM facility (Show affected area on map).	Ok	Y	Not Ok	
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	Y	Not Ok	
* Evidence of erosion and/or of day lighted refuse.	Ok	Y	Not Ok	

CLASS III UNIT - PERIMETER

* Evidence of liquid leaving or entering, estimated size of affected area, and flow rate: (Show affected area on map)	Ok	Y	Not Ok	
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	Y	Not Ok	
* Evidence of erosion and/or of day lighted refuse.	Ok	Y	Not Ok	

CLASS III UNIT - AREA

* Evidence of ponded water at any point on the WM facility (Show affected area on map).	Ok	Y	Not Ok	
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	Y	Not Ok	
* Evidence of erosion and/or of day lighted refuse.	Ok	Y	Not Ok	

CLASS II SURFACE IMPOUNDMENT

*Check that freeboard is greater than 2'	Ok	Y	Not Ok	
*Check for liquids in the LCRS sump/sump pump operating properly.	Ok	Y	Not Ok	

RECEIVING WATERS: MARTINEZ CREEK

* Check for floating & suspended materials of waste origin including source and size of affected area:	Ok	Y	Not Ok	
* Check for discoloration and turbidity: description of color, source, and size of affected area.	Ok	Y	Not Ok	
* Check for odors including characterization, source, and distance of travel from source.	Ok	Y	Not Ok	
* Check for evidence of water uses: presence of water-associated wildlife.	Ok	Y	Not Ok	

* Estimated flow rate: Q
* Weather conditions including wind direction and estimated velocity: Q Rain & wind
* Total precipitation previous two days: Q
* Total precipitation on day of inspection: Q

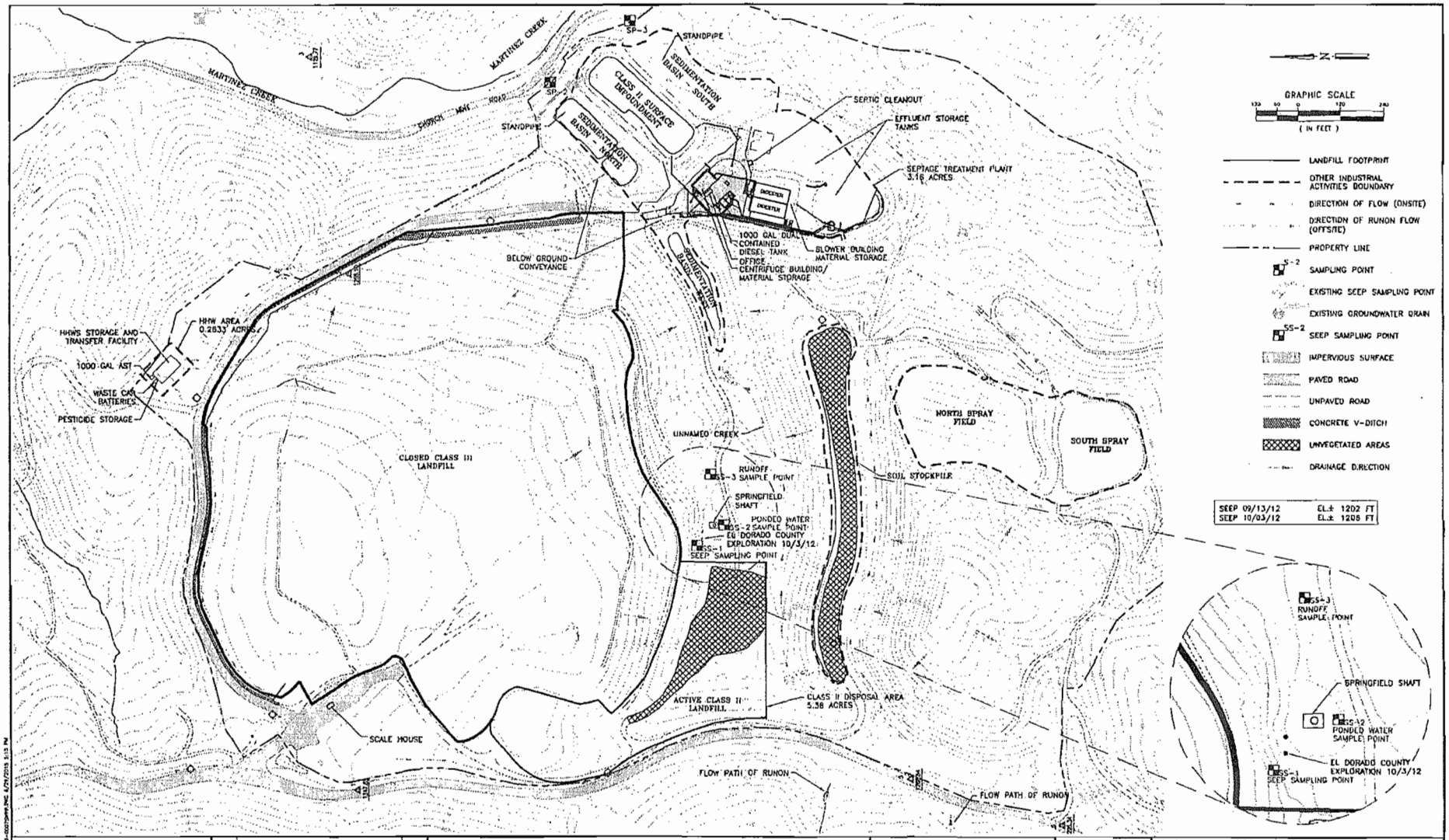
COMMENTS: Note any repairs or improvements needed.

CERTIFICATION:

I completed the facility inspection checklist and certify that the information contained on this record is true and correct to the best of my knowledge:

Signed by: _____ Date: 6-16-16

Reviewed by: Robert Gillissen Date: 7/7/16



NO.	REVISION DESCRIPTION	BY:

TETRA TECH BAS
1360 Valley Vista Drive, Diamond Bar, CA 91765
TEL 909.860.7777 FAX 909.860.8017

UNION MINE DISPOSAL SITE/SEPTAGE TREATMENT FACILITY

SITE MAP

DESIGNED BY : -	SCALE : AS SHOWN	
DRAWN BY : A.N.P.	DATE : 12-2013	FILE NO.: 22-00738PP.DWG
CHECKED BY : M.D.	DATE : 12-2013	FIGURE 1
APPROVED BY : -	DATE : 12-2013	

UNION MINE LANDFILL
WEEKLY STANDARD OBSERVATIONS

Inspected by: Chad Cosner Time: 1106 am Date: 06-23-16

GENERAL SITE CONDITIONS

Liquids:	Check for entering or leaving property	No	X	Yes	
Litter:	General appearance & illegal dumping	Ok	X	Not Ok	
Roads:	Check maintenance & condition	Ok	X	Not Ok	
Gates & Fences:	Check integrity & security	Ok	X	Not Ok	
Drainage Paths:	Check integrity of drainage paths	Ok	X	Not Ok	
Storm Water Ponds:	Check integrity of ponds	Ok	X	Not Ok	
Perimeter Gas Wells:	Check integrity of locks & monuments	Ok	X	Not Ok	

CLASS II UNIT - PERIMETER

* Evidence of liquid leaving or entering, estimated size of affected area, and flow rate: (Show affected area on map)		Ok	X	Not Ok	
* Check for odors including characterization, source, and distance of travel from source: _____		Ok	X	Not Ok	
* Evidence of erosion and/or of day lighted refuse.		Ok	X	Not Ok	

CLASS II UNIT - AREA

* Evidence of ponded water at any point on the WM facility (Show affected area on map).		Ok	X	Not Ok	
* Check for odors including characterization, source, and distance of travel from source: _____		Ok	X	Not Ok	
* Evidence of erosion and/or of day lighted refuse.		Ok	X	Not Ok	

CLASS III UNIT - PERIMETER

* Evidence of liquid leaving or entering, estimated size of affected area, and flow rate: (Show affected area on map)		Ok	X	Not Ok	
* Check for odors including characterization, source, and distance of travel from source: _____		Ok	X	Not Ok	
* Evidence of erosion and/or of day lighted refuse.		Ok	X	Not Ok	

CLASS III UNIT - AREA

* Evidence of ponded water at any point on the WM facility (Show affected area on map).		Ok	X	Not Ok	
* Check for odors including characterization, source, and distance of travel from source: _____		Ok	X	Not Ok	
* Evidence of erosion and/or of day lighted refuse.		Ok	X	Not Ok	

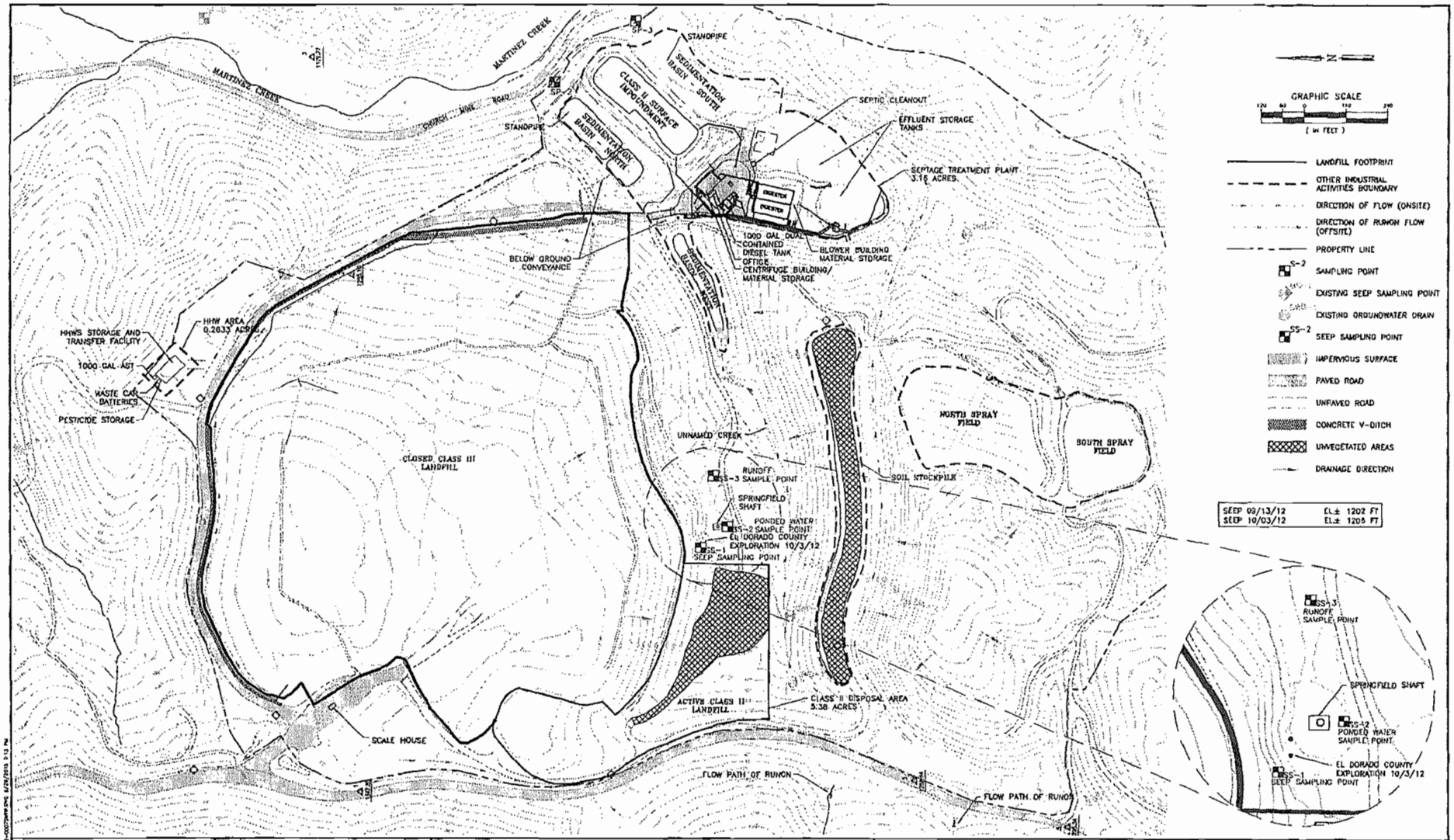
CLASS II SURFACE IMPOUNDMENT

*Check that freeboard is greater than 2'		Ok	X	Not Ok	
*Check for liquids in the LCRS sump/sump pump operating properly.		Ok	X	Not Ok	

RECEIVING WATERS: MARTINEZ CREEK

* Check for floating & suspended materials of waste origin including source and size of affected area:		Ok	X	Not Ok	
* Check for discoloration and turbidity: description of color, source, and size of affected area.		Ok	X	Not Ok	
* Check for odors including characterization, source, and distance of travel from source.		Ok	X	Not Ok	
* Check for evidence of water uses: presence of water-associated wildlife.		Ok	X	Not Ok	

* Estimated flow rate: Ø
* Weather conditions including wind direction and estimated velocity: Sunny Wind Ø
* Total precipitation previous two days: Ø
* Total precipitation on day of inspection: Ø



NO.	REVISION DESCRIPTION	BY:

TETRA TECH BAS
1360 Valley Vista Drive, Diamond Bar, CA 91765
TEL 909.860.7777 FAX 909.860.8017

UNION MINE DISPOSAL SITE/SEPTAGE TREATMENT FACILITY

SITE MAP

DESIGNED BY : -		SCALE : AS SHOWN	
DRAWN BY : A.N.P.		DATE : 12-2013	FILE NO.: 22-00075MPP.DWG
CHECKED BY : M.D.		DATE : 12-2013	FIGURE 1
APPROVED BY : -		DATE : 12-2013	

COMMENTS: Note any repairs or improvements needed.

CERTIFICATION:

I completed the facility inspection checklist and certify that the information contained on this record is true and correct to the best of my knowledge.

Signed by: _____ Date: 06-23-16

Reviewed by: Robert Sullivan Date: 7/7/16

UNION MINE LANDFILL
WEEKLY STANDARD OBSERVATIONS

Inspected by: Chad Casner Time: 1405 Date: 06-30-16

GENERAL SITE CONDITIONS

Liquids:	Check for entering or leaving property	No	X	Yes	
Litter:	General appearance & illegal dumping	Ok	X	Not Ok	
Roads:	Check maintenance & condition	Ok	X	Not Ok	
Gates & Fences:	Check integrity & security	Ok	X	Not Ok	
Drainage Paths:	Check integrity of drainage paths	Ok	X	Not Ok	
Storm Water Ponds:	Check integrity of ponds	Ok	X	Not Ok	
Perimeter Gas Wells:	Check integrity of locks & monuments	Ok	X	Not Ok	

CLASS II UNIT - PERIMETER

* Evidence of liquid leaving or entering, estimated size of affected area, and flow rate: (Show affected area on map)	Ok	X	Not Ok	
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	X	Not Ok	
* Evidence of erosion and/or of day lighted refuse.	Ok	X	Not Ok	

CLASS II UNIT - AREA

* Evidence of ponded water at any point on the WM facility (Show affected area on map).	Ok	X	Not Ok	
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	X	Not Ok	
* Evidence of erosion and/or of day lighted refuse.	Ok	X	Not Ok	

CLASS III UNIT - PERIMETER

* Evidence of liquid leaving or entering, estimated size of affected area, and flow rate: (Show affected area on map)	Ok	X	Not Ok	
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	X	Not Ok	
* Evidence of erosion and/or of day lighted refuse.	Ok	X	Not Ok	

CLASS III UNIT - AREA

* Evidence of ponded water at any point on the WM facility (Show affected area on map).	Ok	X	Not Ok	
* Check for odors including characterization, source, and distance of travel from source: _____	Ok	X	Not Ok	
* Evidence of erosion and/or of day lighted refuse.	Ok	X	Not Ok	

CLASS II SURFACE IMPOUNDMENT

*Check that freeboard is greater than 2'	Ok	X	Not Ok	
*Check for liquids in the LCRS sump/sump pump operating properly.	Ok	X	Not Ok	

RECEIVING WATERS: MARTINEZ CREEK

* Check for floating & suspended materials of waste origin including source and size of affected area:	Ok	X	Not Ok	
* Check for discoloration and turbidity: description of color, source, and size of affected area.	Ok	X	Not Ok	
* Check for odors including characterization, source, and distance of travel from source.	Ok	X	Not Ok	
* Check for evidence of water uses: presence of water-associated wildlife.	Ok	X	Not Ok	

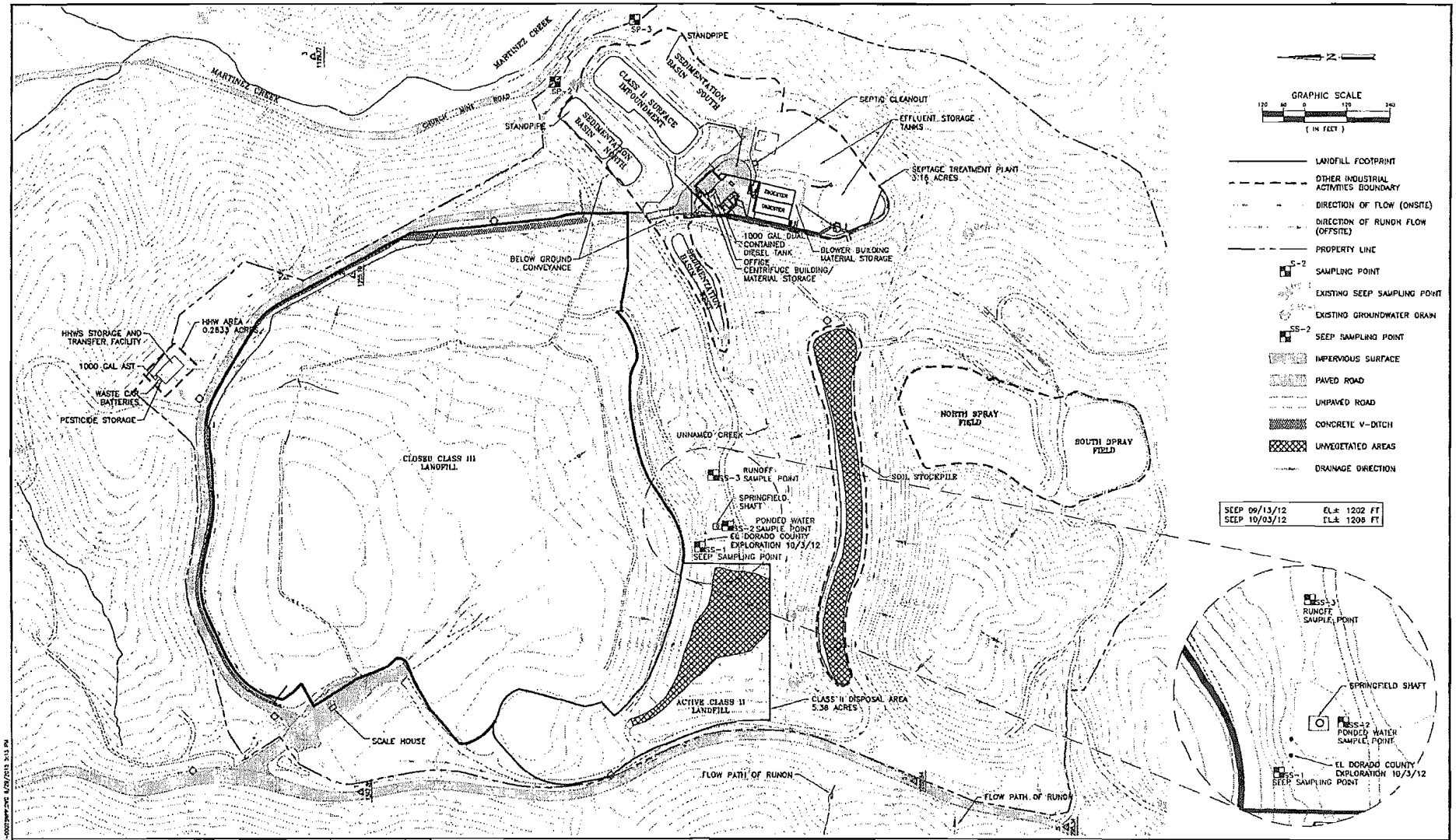
* Estimated flow rate: 0
* Weather conditions including wind direction and estimated velocity: SUNNY & WIND
* Total precipitation previous two days: 0
* Total precipitation on day of inspection: 0

COMMENTS: Note any repairs or improvements needed.

CERTIFICATION:
I completed the facility inspection checklist and certify that the information contained on this record is true and correct to the best of my knowledge:

Signed by: _____ Date: 6-30-16

Reviewed by: Robert Gillsour Date: 7/7/16



NO.	REVISION DESCRIPTION	BY:

TETRA TECH BAS
1340 Valley Vista Drive, Diamond Bar, CA 91765
TEL 909.860.7777 FAX 909.860.8017

UNION MINE DISPOSAL SITE/SEPTAGE TREATMENT FACILITY

SITE MAP

DESIGNED BY : -	SCALE : AS SHOWN	
DRAWN BY : A.M.P.	DATE : 12-2013	FILE NO.: 22-00075MPP.DWG
CHECKED BY : M.O.	DATE : 12-2013	FIGURE 1
APPROVED BY : -	DATE : 12-2013	

Appendix B

Lab Analytical Reports

2016

Union Mine

CALIFORNIA LABORATORY SERVICES

3249 Fitzgerald Road Rancho Cordova, CA 95742

15 March 2016

CLS Work Order #: CZC0355

COC #:

Greg Stanton

El Dorado County Environmental

2850 Fairlane Court, Building C

Placerville, CA 95667

Project Name: Union Mine Disposal Facility

Enclosed are the results of analyses for samples received by the laboratory on 03/08/16 12:32. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness. Any comments and exceptions are addressed below as well as under the Notes and Definitions section.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

James Liang, Ph.D.
Laboratory Director

CA DOHS ELAP Accreditation/Registration number 1233

CALIFORNIA LABORATORY SERVICES

03/15/16 16:31

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZC0355**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Resnlt	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
S-1 (CZC0355-01) Water	**Sampled: 03/08/16 09:00**	**Received: 03/08/16 12:32**								
Bicarbonate as CaCO3	**84**	0.50	5.0	mg/L	1	CZ01764	03/10/16	03/10/16	SM2320B	
Carbonate as CaCO3	ND	0.50	5.0	"	1	"	"	"	"	
Chloride	**11**	0.026	0.50	"	1	CZ01712	03/08/16	03/08/16	EPA 300.0	
Hydroxide as CaCO3	ND	0.50	5.0	"	1	CZ01764	03/10/16	03/10/16	SM2320B	
Nitrate as N	**0.91**	0.053	0.40	"	1	CZ01712	03/08/16	03/08/16	EPA 300.0	
Sulfate as SO4	**61**	0.19	2.5	"	5	"	"	03/09/16	"	
Total Alkalinity	**84**	1.0	5.0	"	1	CZ01764	03/10/16	03/10/16	SM2320B	
Total Dissolved Solids	**240**	10	10	"	1	CZ01723	03/09/16	03/10/16	SM2540C	
Total Suspended Solids	**2.4**	2.0	5.0	"	1	CZ01750	03/10/16	03/10/16	SM2540D	J
S-2 (CZC0355-02) Water	**Sampled: 03/08/16 10:25**	**Received: 03/08/16 12:32**								
Bicarbonate as CaCO3	**51**	0.50	5.0	mg/L	1	CZ01764	03/10/16	03/10/16	SM2320B	
Carbonate as CaCO3	ND	0.50	5.0	"	1	"	"	"	"	
Chloride	**7.7**	0.026	0.50	"	1	CZ01712	03/08/16	03/08/16	EPA 300.0	
Hydroxide as CaCO3	ND	0.50	5.0	"	1	CZ01764	03/10/16	03/10/16	SM2320B	
Nitrate as N	**0.59**	0.053	0.40	"	1	CZ01712	03/08/16	03/08/16	EPA 300.0	
Sulfate as SO4	**39**	0.038	0.50	"	1	"	"	"	"	
Total Alkalinity	**51**	1.0	5.0	"	1	CZ01764	03/10/16	03/10/16	SM2320B	
Total Dissolved Solids	**140**	10	10	"	1	CZ01723	03/09/16	03/10/16	SM2540C	
Total Suspended Solids	**9.0**	2.0	5.0	"	1	CZ01750	03/10/16	03/10/16	SM2540D	
S-6 (CZC0355-03) Water	**Sampled: 03/08/16 10:00**	**Received: 03/08/16 12:32**								
Bicarbonate as CaCO3	**40**	0.50	5.0	mg/L	1	CZ01764	03/10/16	03/10/16	SM2320B	
Carbonate as CaCO3	ND	0.50	5.0	"	1	"	"	"	"	
Chloride	**3.7**	0.026	0.50	"	1	CZ01712	03/08/16	03/08/16	EPA 300.0	
Hydroxide as CaCO3	ND	0.50	5.0	"	1	CZ01764	03/10/16	03/10/16	SM2320B	
Nitrate as N	**0.54**	0.053	0.40	"	1	CZ01712	03/08/16	03/08/16	EPA 300.0	
Sulfate as SO4	**11**	0.038	0.50	"	1	"	"	"	"	
Total Alkalinity	**40**	1.0	5.0	"	1	CZ01764	03/10/16	03/10/16	SM2320B	
Total Dissolved Solids	**82**	10	10	"	1	CZ01723	03/09/16	03/10/16	SM2540C	
Total Suspended Solids	**6.0**	2.0	5.0	"	1	CZ01750	03/10/16	03/10/16	SM2540D	

CALIFORNIA LABORATORY SERVICES

03/15/16 16:31

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZC0355**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
S-7 (CZC0355-04) Water Sampled: 03/08/16 10:40 Received: 03/08/16 12:32										
Bicarbonate as CaCO3	**42**	0.50	5.0	mg/L	1	CZ01764	03/10/16	03/10/16	SM2320B	
Carbonate as CaCO3	ND	0.50	5.0	"	1	"	"	"	"	
Chloride	**3.8**	0.026	0.50	"	1	CZ01712	03/08/16	03/08/16	EPA 300.0	
Hydroxide as CaCO3	ND	0.50	5.0	"	1	CZ01764	03/10/16	03/10/16	SM2320B	
Nitrate as N	**0.53**	0.053	0.40	"	1	CZ01712	03/08/16	03/08/16	EPA 300.0	
Sulfate as SO4	**12**	0.038	0.50	"	1	"	"	"	"	
Total Alkalinity	**42**	1.0	5.0	"	1	CZ01764	03/10/16	03/10/16	SM2320B	
Total Dissolved Solids	**79**	10	10	"	1	CZ01723	03/09/16	03/10/16	SM2540C	
Total Suspended Solids	**51**	2.0	5.0	"	1	CZ01750	03/10/16	03/10/16	SM2540D	
GWD-1 (CZC0355-05) Water Sampled: 03/08/16 09:30 Received: 03/08/16 12:32										
Sulfate as SO4	**44**	0.19	2.5	mg/L	5	CZ01712	03/08/16	03/09/16	EPA 300.0	
Total Dissolved Solids	**120**	10	10	"	1	CZ01723	03/09/16	03/10/16	SM2540C	
GWD-2 (CZC0355-06) Water Sampled: 03/08/16 09:10 Received: 03/08/16 12:32										
Sulfate as SO4	**74**	0.19	2.5	mg/L	5	CZ01712	03/08/16	03/09/16	EPA 300.0	
Total Dissolved Solids	**210**	10	10	"	1	CZ01723	03/09/16	03/10/16	SM2540C	
GWD-3 (CZC0355-07) Water Sampled: 03/08/16 11:00 Received: 03/08/16 12:32										
Sulfate as SO4	**66**	0.19	2.5	mg/L	5	CZ01712	03/08/16	03/09/16	EPA 300.0	
Total Dissolved Solids	**210**	10	10	"	1	CZ01723	03/09/16	03/10/16	SM2540C	
MS-1 (CZC0355-08) Water Sampled: 03/08/16 10:10 Received: 03/08/16 12:32										
Chloride	**12**	0.026	0.50	mg/L	1	CZ01712	03/08/16	03/08/16	EPA 300.0	
pH	**6.18**	0.01	0.01	pH Units	1	CZ01716	03/09/16	03/09/16	SM4500-H B	HT-F
Total Dissolved Solids	**200**	10	10	mg/L	1	CZ01723	03/09/16	03/10/16	SM2540C	

CALIFORNIA LABORATORY SERVICES

03/15/16 16:31

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZC0355**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Pendar Tunnel (CZC0355-09) Water	**Sampled: 03/08/16 09:35**		**Received: 03/08/16 12:32**							
Sulfate as SO4	**17**	0.038	0.50	mg/L	1	CZ01712	03/08/16	03/08/16	EPA 300.0	
Total Dissolved Solids	**79**	10	10	"	1	CZ01723	03/09/16	03/10/16	SM2540C	

CALIFORNIA LABORATORY SERVICES

03/15/16 16:31

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZC0355**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Metals (Dissolved) by EPA 200 Series Methods

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
S-1 (CZC0355-01) Water Sampled: 03/08/16 09:00 Received: 03/08/16 12:32										
Arsenic	**14**	0.27	2.0	µg/L	1	CZ01759	03/10/16	03/10/16	EPA 200.8	
Calcium	**39000**	14	1000	"	1	CZ01734	03/09/16	03/09/16	EPA 200.7	
Copper	ND	3.2	10	"	1	"	"	"	"	
Iron	**42**	6.8	100	"	1	"	"	"	"	J
Magnesium	**15000**	26	1000	"	1	"	"	"	"	
Potassium	**2700**	180	1000	"	1	"	"	"	"	
Sodium	**13000**	17	1000	"	1	"	"	"	"	
Zinc	ND	9.3	20	"	1	"	"	"	"	
S-2 (CZC0355-02) Water Sampled: 03/08/16 10:25 Received: 03/08/16 12:32										
Arsenic	**6.3**	0.27	2.0	µg/L	1	CZ01759	03/10/16	03/10/16	EPA 200.8	
Calcium	**23000**	14	1000	"	1	CZ01734	03/09/16	03/09/16	EPA 200.7	
Copper	**4.6**	3.2	10	"	1	"	"	"	"	J
Iron	**110**	6.8	100	"	1	"	"	"	"	
Magnesium	**9500**	26	1000	"	1	"	"	"	"	
Potassium	**2100**	180	1000	"	1	"	"	"	"	
Sodium	**9300**	17	1000	"	1	"	"	"	"	
Zinc	**18**	9.3	20	"	1	"	"	"	"	J
S-6 (CZC0355-03) Water Sampled: 03/08/16 10:00 Received: 03/08/16 12:32										
Arsenic	**0.50**	0.27	2.0	µg/L	1	CZ01759	03/10/16	03/10/16	EPA 200.8	J
Calcium	**13000**	14	1000	"	1	CZ01734	03/09/16	03/09/16	EPA 200.7	
Copper	ND	3.2	10	"	1	"	"	"	"	
Iron	**12**	6.8	100	"	1	"	"	"	"	J
Magnesium	**5000**	26	1000	"	1	"	"	"	"	
Potassium	**1500**	180	1000	"	1	"	"	"	"	
Sodium	**6000**	17	1000	"	1	"	"	"	"	
Zinc	ND	9.3	20	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

03/15/16 16:31

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZC0355**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Metals (Dissolved) by EPA 200 Series Methods

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
S-7 (CZC0355-04) Water Sampled: 03/08/16 10:40 Received: 03/08/16 12:32										
Arsenic	**1.1**	0.27	2.0	µg/L	1	CZ01759	03/10/16	03/10/16	EPA 200.8	J
Calcium	**14000**	14	1000	"	1	CZ01734	03/09/16	03/09/16	EPA 200.7	
Copper	ND	3.2	10	"	1	"	"	"	"	
Iron	**17**	6.8	100	"	1	"	"	"	"	J
Magnesium	**5200**	26	1000	"	1	"	"	"	"	
Potassium	**1800**	180	1000	"	1	"	"	"	"	
Sodium	**6100**	17	1000	"	1	"	"	"	"	
Zinc	ND	9.3	20	"	1	"	"	"	"	
GWD-1 (CZC0355-05) Water Sampled: 03/08/16 09:30 Received: 03/08/16 12:32										
Arsenic	**1.5**	0.27	2.0	µg/L	1	CZ01759	03/10/16	03/10/16	EPA 200.8	J
Iron	**160**	6.8	100	"	1	CZ01734	03/09/16	03/09/16	EPA 200.7	
GWD-2 (CZC0355-06) Water Sampled: 03/08/16 09:10 Received: 03/08/16 12:32										
Arsenic	**0.99**	0.27	2.0	µg/L	1	CZ01759	03/10/16	03/10/16	EPA 200.8	J
Iron	ND	6.8	100	"	1	CZ01734	03/09/16	03/09/16	EPA 200.7	
GWD-3 (CZC0355-07) Water Sampled: 03/08/16 11:00 Received: 03/08/16 12:32										
Arsenic	**0.94**	0.27	2.0	µg/L	1	CZ01759	03/10/16	03/10/16	EPA 200.8	J
Iron	**930**	6.8	100	"	1	CZ01734	03/09/16	03/09/16	EPA 200.7	
MS-1 (CZC0355-08) Water Sampled: 03/08/16 10:10 Received: 03/08/16 12:32										
Arsenic	**0.62**	0.27	2.0	µg/L	1	CZ01759	03/10/16	03/10/16	EPA 200.8	J
Iron	ND	6.8	100	"	1	CZ01734	03/09/16	03/09/16	EPA 200.7	

CALIFORNIA LABORATORY SERVICES

03/15/16 16:31

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZC0355**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Metals (Dissolved) by EPA 200 Series Methods

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Pendar Tunnel (CZC0355-09) Water	**Sampled: 03/08/16 09:35**		**Received: 03/08/16 12:32**							
Arsenic	**35**	0.27	2.0	µg/L	1	CZ01759	03/10/16	03/10/16	EPA 200.8	
Iron	ND	6.8	100	"	1	CZ01734	03/09/16	03/09/16	EPA 200.7	

CALIFORNIA LABORATORY SERVICES

03/15/16 16:31

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZC0355**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ01712 - General Prep											
Blank (CZ01712-BLK1)					Prepared & Analyzed: 03/08/16						
Chloride	ND	0.026	0.50	mg/L							
Nitrate as N	ND	0.053	0.40	"							
Sulfate as SO4	ND	0.038	0.50	"							
LCS (CZ01712-BS1)					Prepared & Analyzed: 03/08/16						
Chloride	4.76	0.026	0.50	mg/L	5.00		95	80-120			
Nitrate as N	0.486	0.053	0.40	"	0.451		108	80-120			
Sulfate as SO4	5.22	0.038	0.50	"	5.00		104	80-120			
LCS Dup (CZ01712-BSD1)					Prepared & Analyzed: 03/08/16						
Chloride	4.78	0.026	0.50	mg/L	5.00		96	80-120	0.5	20	
Nitrate as N	0.488	0.053	0.40	"	0.451		108	80-120	0.6	20	
Sulfate as SO4	5.25	0.038	0.50	"	5.00		105	80-120	0.6	20	
Matrix Spike (CZ01712-MS1)		**Source: CZC0353-02**			Prepared & Analyzed: 03/08/16						
Chloride	9.31	0.026	0.50	mg/L	5.00	4.96	87	80-120			
Nitrate as N	0.483	0.053	0.40	"	0.451	ND	107	80-120			
Sulfate as SO4	21.6	0.038	0.50	"	5.00	16.8	96	80-120			
Matrix Spike Dup (CZ01712-MSD1)		**Source: CZC0353-02**			Prepared & Analyzed: 03/08/16						
Chloride	9.28	0.026	0.50	mg/L	5.00	4.96	86	80-120	0.4	20	
Nitrate as N	0.480	0.053	0.40	"	0.451	ND	106	80-120	0.6	20	
Sulfate as SO4	21.6	0.038	0.50	"	5.00	16.8	95	80-120	0.2	20	
Batch CZ01723 - General Preparation											
Blank (CZ01723-BLK1)					Prepared: 03/09/16 Analyzed: 03/10/16						
Total Dissolved Solids	ND	10	10	mg/L							

CALIFORNIA LABORATORY SERVICES

03/15/16 16:31

El Dorado County Environmental	Project: Union Mine Disposal Facility	CLS Work Order #: CZC0355
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ01723 - General Preparation											
Duplicate (CZ01723-DUP1)		**Source: CZC0355-01**			Prepared: 03/09/16 Analyzed: 03/10/16						
Total Dissolved Solids	226	10	10	mg/L		236			4	20	
Batch CZ01750 - General Preparation											
Blank (CZ01750-BLK1)					Prepared & Analyzed: 03/10/16						
Total Suspended Solids	ND	2.0	5.0	mg/L							
Duplicate (CZ01750-DUP1)		**Source: CZC0412-02**			Prepared & Analyzed: 03/10/16						
Total Suspended Solids	ND	2.0	5.0	mg/L		2.00				20	
Batch CZ01764 - General Preparation											
Blank (CZ01764-BLK1)					Prepared & Analyzed: 03/10/16						
Bicarbonate as CaCO3	ND	0.50	5.0	mg/L							
Carbonate as CaCO3	ND	0.50	5.0	"							
Hydroxide as CaCO3	ND	0.50	5.0	"							
Total Alkalinity	ND	1.0	5.0	"							
Duplicate (CZ01764-DUP1)		**Source: CZC0355-01**			Prepared & Analyzed: 03/10/16						
Bicarbonate as CaCO3	81.6	0.50	5.0	mg/L		83.6			2	20	
Carbonate as CaCO3	ND	0.50	5.0	"		ND				20	
Hydroxide as CaCO3	ND	0.50	5.0	"		ND				20	
Total Alkalinity	81.6	1.0	5.0	"		83.6			2	20	

CALIFORNIA LABORATORY SERVICES

03/15/16 16:31

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZC0355**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Metals (Dissolved) by EPA 200 Series Methods - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ01734 - 6010A/No Digestion											
Blank (CZ01734-BLK1)					Prepared & Analyzed: 03/09/16						
Calcium	ND	14	1000	µg/L							
Copper	ND	3.2	10	"							
Iron	20.7	6.8	100	"							J
Iron	20.7	6.8	100	"							J
Magnesium	ND	26	1000	"							
Potassium	ND	180	1000	"							
Sodium	24.1	17	1000	"							J
Zinc	ND	9.3	20	"							
LCS (CZ01734-BS1)					Prepared & Analyzed: 03/09/16						
Calcium	5500	14	1000	µg/L	5000		110	85-115			
Copper	1120	3.2	10	"	1000		112	85-115			
Iron	1010	6.8	100	"	1000		101	80-120			
Iron	1010	6.8	100	"	1000		101	85-115			
Magnesium	5390	26	1000	"	5000		108	85-115			
Potassium	5220	180	1000	"	5000		104	85-115			
Sodium	5610	17	1000	"	5000		112	85-115			
Zinc	1280	9.3	20	"	1000		128	85-115			QM-1
Matrix Spike (CZ01734-MS1)		**Source: CZC0355-01**			Prepared & Analyzed: 03/09/16						
Calcium	43500	14	1000	µg/L	5000	38900	92	70-130			
Copper	1080	3.2	10	"	1000	ND	108	70-130			
Iron	1050	6.8	100	"	1000	42.3	101	70-130			
Iron	1050	6.8	100	"	1000	42.3	101	75-125			
Magnesium	20200	26	1000	"	5000	15500	94	70-130			
Potassium	7870	180	1000	"	5000	2660	104	70-130			
Sodium	18000	17	1000	"	5000	12700	105	70-130			
Zinc	1230	9.3	20	"	1000	ND	123	70-130			

CALIFORNIA LABORATORY SERVICES

03/15/16 16:31

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZC0355**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Metals (Dissolved) by EPA 200 Series Methods - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ01759 - EPA 200 Series											
Blank (CZ01759-BLK1)					Prepared & Analyzed: 03/10/16						
Arsenic	ND	0.27	2.0	µg/L							
LCS (CZ01759-BS1)					Prepared & Analyzed: 03/10/16						
Arsenic	99.6	0.27	2.0	µg/L	100		100	85-115			
Matrix Spike (CZ01759-MS1)		**Source: CZC0335-01**			Prepared & Analyzed: 03/10/16						
Arsenic	110	0.27	2.0	µg/L	100	1.75	108	70-130			
Matrix Spike (CZ01759-MS2)		**Source: CZC0355-09**			Prepared & Analyzed: 03/10/16						
Arsenic	154	0.27	2.0	µg/L	100	35.5	119	70-130			

CALIFORNIA LABORATORY SERVICES

03/15/16 16:31

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZC0355**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Notes and Definitions

QM-1	The spike recovery was outside acceptance limits for the LCS or LCSD. The batch was accepted based on acceptable MS/MSD recoveries & RPD's.
J	Detected but below the Reporting Limit; therefore, result is an estimated concentration.
HT-F	This is a field test method and it is performed in the lab outside holding time.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit (or method detection limit when specified)
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

This is a "MDL Report", thus if the report denotes an "ND" for a particular analyte, it should be noted that the analyte was not detected at or above the MDL.

CALIFORNIA LABORATORY SERVICES

03/15/16 16:31

El Dorado County Environmental 2850 Fairlane Court, Building C Placerville CA, 95667	Project: Union Mine Disposal Facility Project Number: [none] Project Manager: Greg Stanton	**CLS Work Order #: CZC0355** COC #:

CZC0355

CLS Laboratories
3249 Fitzgerald Road, Rancho Cordova, CA
Phone: (916) 638-7301

CHAIN OF CUSTODY/ANALYSIS REQUEST FORM

Lab Login#   Date 3/8/16   Page 1 of 1

Union Mine Disposal Facility

Report to: Robert Lauritzen
El Dorado County Environmental Management
2850 Fairlane Court, Bldg C
Placerville, CA 95667
Office: (530) 621-5130
Fax: (530) 626-7130

Sample ID	Date	Time	Lab ID	Sample Matrix	# of Containers	Dissolved Metals (HNO3)	*Chloride, TDS, SO4 (NP)	BiCarb,Carb Alk, Nitrate as N (NP)	*TSS (NP)	Diss. As, Fe (HNO3)	Chloride, TDS, pH (NP)	TDS, SO4 (NP)	Comments
S-1	3/8/16	0900		water	3	x	x	x	x				
S-2		1025		water	3	x	x	x	x				
S-6		1000		water	3	x	x	x	x				
S-7		1040		water	3	x	x	x	x				
GWD-1		0930		water	2					x		x	
GWD-2		0910		water	2					x		x	
GWD-3		1100		water	2					x		x	
MS-1		1010		water	2					x	x		
Pendar Tunnel	↓	0835		water	2					x		x	

Relinquished by Signature: Robert Lauritzen (signed)
Printed Name: Robert Lauritzen
El Dorado County Date/Time: 3/8/16 1232

Received by Signature: [illegible]
Printed Name:
Date/Time: 3/8/16 1232

TAT Requirements
X Standard (10 days)

Report Requirements
___ I. Routine Report
___ II. Report includes DUP MS/MSD as required
___ III. Data Validation Report
X RWQCB (MDLs/PQLs/Trace#)

Additional Info:
Metals Field Filtered: yes
Dissolved metals= Ca,K,Mg,Na,As,Cu,Fe, Zn
Nitrate as Nitrogen

Invoice Greg Stanton EDCEM
Address: 2850 Fairlane Ct., Bldg C, Placerville, CA, 95667
Contract # 037-C-0007-EOS

CALIFORNIA LABORATORY SERVICES

03/15/16 16:31

El Dorado County Environmental 2850 Fairlane Court, Building C Placerville CA, 95667	Project: Union Mine Disposal Facility Project Number: [none] Project Manager: Greg Stanton	**CLS Work Order #: CZC0355** COC #:

CLS LABS
SAMPLE RECEIVING EXCEPTION REPORTS

CLS Labs Job # CZC0355

Problem discovered by: Brad **Date:** 3/8/16

Nature of problem

Sulfite **Chlorine, Total** **Chlorine, Residual** **Ph** **Dissolved O2**

(Circle analysis above) Received out of HOLD time.

Client contacted? Yes _____ **No** _____ **Spoke With:** _____

By whom: _____ **Date:** ___/___/___ **Time:** _____ **HRS**

Client instructions:

Resolution of problem:

Logged in regardless and will be ran for analysis requested.

H:\Will\Orellana\SampleException.Doc

CALIFORNIA LABORATORY SERVICES

3249 Fitzgerald Road Rancho Cordova, CA 95742

25 May 2016

CLS Work Order #: CZE0789

COC #:

Greg Stanton

El Dorado County Environmental

2850 Fairlane Court, Building C

Placerville, CA 95667

Project Name: Union Mine Disposal Facility

Enclosed are the results of analyses for samples received by the laboratory on 05/18/16 11:45. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness. Any comments and exceptions are addressed below as well as under the Notes and Definitions section.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

James Liang, Ph.D.
Laboratory Director

CA DOHS ELAP Accreditation/Registration number 1233

CALIFORNIA LABORATORY SERVICES

05/25/16 15:55

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0789**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
S-1 (CZE0789-01) Water Sampled: 05/18/16 08:40 Received: 05/18/16 11:45										
Bicarbonate as CaCO3	**240**	0.50	5.0	mg/L	1	CZ03565	05/19/16	05/19/16	SM2320B	
Carbonate as CaCO3	ND	0.50	5.0	"	1	"	"	"	"	
Chloride	**56**	0.13	2.5	"	5	CZ03556	05/19/16	05/19/16	EPA 300.0	
Cyanide (dissolved)	ND	0.0012	0.0050	"	1	CZ03680	05/24/16	05/24/16	SM4500	
Hydroxide as CaCO3	ND	0.50	5.0	"	1	CZ03565	05/19/16	05/19/16	SM2320B	
Nitrate as N	**1.3**	0.053	0.40	"	1	CZ03556	05/19/16	05/19/16	EPA 300.0	
Sulfate as SO4	**60**	0.19	2.5	"	5	"	"	05/19/16	"	
Sulfide, Dissolved	ND	0.84	1.0	"	1	CZ03571	05/19/16	05/19/16	EPA 9030B	
Total Alkalinity	**240**	1.0	5.0	"	1	CZ03565	05/19/16	05/19/16	SM2320B	
Total Dissolved Solids	**440**	10	10	"	1	CZ03561	05/19/16	05/20/16	SM2540C	
Total Organic Carbon	**5.6**	0.54	1.0	"	1	CZ03643	05/23/16	05/23/16	SM5310B	
Total Suspended Solids	ND	2.0	5.0	"	1	CZ03560	05/19/16	05/19/16	SM2540D	
S-2 (CZE0789-02) Water Sampled: 05/18/16 10:05 Received: 05/18/16 11:45										
Bicarbonate as CaCO3	**190**	0.50	5.0	mg/L	1	CZ03565	05/19/16	05/19/16	SM2320B	
Carbonate as CaCO3	ND	0.50	5.0	"	1	"	"	"	"	
Chloride	**42**	0.13	2.5	"	5	CZ03556	05/19/16	05/19/16	EPA 300.0	
Cyanide (dissolved)	ND	0.0012	0.0050	"	1	CZ03680	05/24/16	05/24/16	SM4500	
Hydroxide as CaCO3	ND	0.50	5.0	"	1	CZ03565	05/19/16	05/19/16	SM2320B	
Nitrate as N	**0.14**	0.053	0.40	"	1	CZ03556	05/19/16	05/19/16	EPA 300.0	J
Sulfate as SO4	**73**	0.19	2.5	"	5	"	"	05/19/16	"	
Sulfide, Dissolved	ND	0.84	1.0	"	1	CZ03571	05/19/16	05/19/16	EPA 9030B	
Total Alkalinity	**190**	1.0	5.0	"	1	CZ03565	05/19/16	05/19/16	SM2320B	
Total Dissolved Solids	**360**	10	10	"	1	CZ03561	05/19/16	05/20/16	SM2540C	
Total Organic Carbon	**8.6**	0.54	1.0	"	1	CZ03643	05/23/16	05/23/16	SM5310B	
Total Suspended Solids	ND	2.0	5.0	"	1	CZ03560	05/19/16	05/19/16	SM2540D	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0789**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
S-6 (CZE0789-03) Water	**Sampled: 05/18/16 09:40**	**Received: 05/18/16 11:45**								
Bicarbonate as CaCO3	**84**	0.50	5.0	mg/L	1	CZ03565	05/19/16	05/19/16	SM2320B	
Carbonate as CaCO3	ND	0.50	5.0	"	1	"	"	"	"	
Chloride	**7.9**	0.026	0.50	"	1	CZ03556	05/19/16	05/19/16	EPA 300.0	
Cyanide (dissolved)	ND	0.0012	0.0050	"	1	CZ03680	05/24/16	05/24/16	SM4500	
Hydroxide as CaCO3	ND	0.50	5.0	"	1	CZ03565	05/19/16	05/19/16	SM2320B	
Nitrate as N	**0.13**	0.053	0.40	"	1	CZ03556	05/19/16	05/19/16	EPA 300.0	J
Sulfate as SO4	**31**	0.038	0.50	"	1	"	"	"	"	
Sulfide, Dissolved	ND	0.84	1.0	"	1	CZ03571	05/19/16	05/19/16	EPA 9030B	
Total Alkalinity	**84**	1.0	5.0	"	1	CZ03565	05/19/16	05/19/16	SM2320B	
Total Dissolved Solids	**130**	10	10	"	1	CZ03561	05/19/16	05/20/16	SM2540C	
Total Organic Carbon	**5.8**	0.54	1.0	"	1	CZ03643	05/23/16	05/23/16	SM5310B	
Total Suspended Solids	ND	2.0	5.0	"	1	CZ03560	05/19/16	05/19/16	SM2540D	
S-7 (CZE0789-04) Water	**Sampled: 05/18/16 10:30**	**Received: 05/18/16 11:45**								
Bicarbonate as CaCO3	**88**	0.50	5.0	mg/L	1	CZ03565	05/19/16	05/19/16	SM2320B	
Carbonate as CaCO3	ND	0.50	5.0	"	1	"	"	"	"	
Chloride	**12**	0.026	0.50	"	1	CZ03556	05/19/16	05/19/16	EPA 300.0	
Cyanide (dissolved)	ND	0.0012	0.0050	"	1	CZ03680	05/24/16	05/24/16	SM4500	
Hydroxide as CaCO3	ND	0.50	5.0	"	1	CZ03565	05/19/16	05/19/16	SM2320B	
Nitrate as N	**0.12**	0.053	0.40	"	1	CZ03556	05/19/16	05/19/16	EPA 300.0	J
Sulfate as SO4	**38**	0.038	0.50	"	1	"	"	"	"	
Sulfide, Dissolved	ND	0.84	1.0	"	1	CZ03571	05/19/16	05/19/16	EPA 9030B	
Total Alkalinity	**88**	1.0	5.0	"	1	CZ03565	05/19/16	05/19/16	SM2320B	
Total Dissolved Solids	**170**	10	10	"	1	CZ03561	05/19/16	05/20/16	SM2540C	
Total Organic Carbon	**5.1**	0.54	1.0	"	1	CZ03643	05/23/16	05/23/16	SM5310B	
Total Suspended Solids	ND	2.0	5.0	"	1	CZ03560	05/19/16	05/19/16	SM2540D	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0789**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Metals (Dissolved) by EPA 200 Series Methods

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
S-1 (CZE0789-01) Water Sampled: 05/18/16 08:40 Received: 05/18/16 11:45										
Aluminum	ND	27	50	µg/L	1	CZ03654	05/23/16	05/24/16	EPA 200.7	
Antimony	ND	0.00057	0.0060	mg/L	1	CZ03537	05/19/16	05/19/16	EPA 200.8	
Arsenic	**0.033**	0.00027	0.0020	"	1	"	"	"	"	
Barium	**79**	0.91	20	µg/L	1	CZ03654	05/23/16	05/24/16	EPA 200.7	
Beryllium	ND	0.43	5.0	"	1	"	"	"	"	
Cadmium	ND	2.8	10	"	1	"	"	"	"	
Calcium	**77000**	14	1000	"	1	"	"	"	"	
Chromium	ND	9.9	10	"	1	"	"	"	"	
Cobalt	ND	7.6	20	"	1	"	"	"	"	
Copper	**3.3**	3.2	10	"	1	"	"	"	"	J
Iron	**150**	6.8	100	"	1	"	"	"	"	
Lead	ND	0.0012	0.025	mg/L	5	CZ03537	05/19/16	05/19/16	EPA 200.8	
Magnesium	**30000**	26	1000	µg/L	1	CZ03654	05/23/16	05/24/16	EPA 200.7	
Manganese	**1600**	0.92	20	"	1	"	"	"	"	
Mercury	**1.7**	0.15	0.20	"	1	CZ03568	05/19/16	05/23/16	EPA 245.1	Hg
Nickel	**18**	14	20	"	1	CZ03654	05/23/16	05/24/16	EPA 200.7	J
Potassium	**8400**	180	1000	"	1	"	"	"	"	
Selenium	ND	0.0011	0.0050	mg/L	1	CZ03537	05/19/16	05/19/16	EPA 200.8	
Silver	ND	2.9	10	µg/L	1	CZ03654	05/23/16	05/24/16	EPA 200.7	
Sodium	**38000**	17	1000	"	1	"	"	"	"	
Thallium	**0.0017**	0.00055	0.0050	mg/L	5	CZ03537	05/19/16	05/19/16	EPA 200.8	J
Tin	ND	18	100	µg/L	1	CZ03654	05/23/16	05/24/16	EPA 200.7	
Vanadium	**0.0029**	0.00044	0.0030	mg/L	1	CZ03537	05/19/16	05/19/16	EPA 200.8	J
Zinc	ND	9.3	20	µg/L	1	CZ03654	05/23/16	05/24/16	EPA 200.7	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0789**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Metals (Dissolved) by EPA 200 Series Methods

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
S-2 (CZE0789-02) Water Sampled: 05/18/16 10:05 Received: 05/18/16 11:45										
Aluminum	ND	27	50	µg/L	1	CZ03654	05/23/16	05/24/16	EPA 200.7	
Antimony	**0.0032**	0.00057	0.0060	mg/L	1	CZ03537	05/19/16	05/19/16	EPA 200.8	J
Arsenic	**0.017**	0.00027	0.0020	"	1	"	"	"	"	
Barium	**32**	0.91	20	µg/L	1	CZ03654	05/23/16	05/24/16	EPA 200.7	
Beryllium	ND	0.43	5.0	"	1	"	"	"	"	
Cadmium	ND	2.8	10	"	1	"	"	"	"	
Calcium	**65000**	14	1000	"	1	"	"	"	"	
Chromium	ND	9.9	10	"	1	"	"	"	"	
Cobalt	ND	7.6	20	"	1	"	"	"	"	
Copper	ND	3.2	10	"	1	"	"	"	"	
Iron	**14**	6.8	100	"	1	"	"	"	"	J
Lead	**0.00041**	0.00023	0.0050	mg/L	1	CZ03537	05/19/16	05/19/16	EPA 200.8	J
Magnesium	**27000**	26	1000	µg/L	1	CZ03654	05/23/16	05/24/16	EPA 200.7	
Manganese	**260**	0.92	20	"	1	"	"	"	"	
Mercury	**0.94**	0.15	0.20	"	1	CZ03568	05/19/16	05/23/16	EPA 245.1	Hg
Nickel	ND	14	20	"	1	CZ03654	05/23/16	05/24/16	EPA 200.7	
Potassium	**2400**	180	1000	"	1	"	"	"	"	
Selenium	ND	0.0011	0.0050	mg/L	1	CZ03537	05/19/16	05/19/16	EPA 200.8	
Silver	ND	2.9	10	µg/L	1	CZ03654	05/23/16	05/24/16	EPA 200.7	
Sodium	**30000**	17	1000	"	1	"	"	"	"	
Thallium	ND	0.00011	0.0010	mg/L	1	CZ03537	05/19/16	05/19/16	EPA 200.8	
Tin	ND	18	100	µg/L	1	CZ03654	05/23/16	05/24/16	EPA 200.7	
Vanadium	**0.0013**	0.00044	0.0030	mg/L	1	CZ03537	05/19/16	05/19/16	EPA 200.8	J
Zinc	ND	9.3	20	µg/L	1	CZ03654	05/23/16	05/24/16	EPA 200.7	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0789**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Metals (Dissolved) by EPA 200 Series Methods

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
S-6 (CZE0789-03) Water Sampled: 05/18/16 09:40 Received: 05/18/16 11:45										
Aluminum	ND	27	50	µg/L	1	CZ03654	05/23/16	05/24/16	EPA 200.7	
Antimony	**0.0017**	0.00057	0.0060	mg/L	1	CZ03537	05/19/16	05/19/16	EPA 200.8	J
Arsenic	**0.00057**	0.00027	0.0020	"	1	"	"	"	"	J
Barium	**27**	0.91	20	µg/L	1	CZ03654	05/23/16	05/24/16	EPA 200.7	
Beryllium	ND	0.43	5.0	"	1	"	"	"	"	
Cadmium	ND	2.8	10	"	1	"	"	"	"	
Calcium	**24000**	14	1000	"	1	"	"	"	"	
Chromium	ND	9.9	10	"	1	"	"	"	"	
Cobalt	ND	7.6	20	"	1	"	"	"	"	
Copper	ND	3.2	10	"	1	"	"	"	"	
Iron	ND	6.8	100	"	1	"	"	"	"	
Lead	ND	0.00023	0.0050	mg/L	1	CZ03537	05/19/16	05/19/16	EPA 200.8	
Magnesium	**9500**	26	1000	µg/L	1	CZ03654	05/23/16	05/24/16	EPA 200.7	
Manganese	**2.4**	0.92	20	"	1	"	"	"	"	J
Mercury	**0.50**	0.15	0.20	"	1	CZ03568	05/19/16	05/23/16	EPA 245.1	Hg
Nickel	ND	14	20	"	1	CZ03654	05/23/16	05/24/16	EPA 200.7	
Potassium	ND	180	1000	"	1	"	"	"	"	
Selenium	ND	0.0011	0.0050	mg/L	1	CZ03537	05/19/16	05/19/16	EPA 200.8	
Silver	ND	2.9	10	µg/L	1	CZ03654	05/23/16	05/24/16	EPA 200.7	
Sodium	**8900**	17	1000	"	1	"	"	"	"	
Thallium	ND	0.00011	0.0010	mg/L	1	CZ03537	05/19/16	05/19/16	EPA 200.8	
Tin	ND	18	100	µg/L	1	CZ03654	05/23/16	05/24/16	EPA 200.7	
Vanadium	**0.0013**	0.00044	0.0030	mg/L	1	CZ03537	05/19/16	05/19/16	EPA 200.8	J
Zinc	ND	9.3	20	µg/L	1	CZ03654	05/23/16	05/24/16	EPA 200.7	

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0789**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Metals (Dissolved) by EPA 200 Series Methods

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
S-7 (CZE0789-04) Water Sampled: 05/18/16 10:30 Received: 05/18/16 11:45										
Aluminum	ND	27	50	µg/L	1	CZ03654	05/23/16	05/24/16	EPA 200.7	
Antimony	**0.0014**	0.00057	0.0060	mg/L	1	CZ03537	05/19/16	05/19/16	EPA 200.8	J
Arsenic	**0.0030**	0.00027	0.0020	"	1	"	"	"	"	
Barium	**27**	0.91	20	µg/L	1	CZ03654	05/23/16	05/24/16	EPA 200.7	
Beryllium	ND	0.43	5.0	"	1	"	"	"	"	
Cadmium	ND	2.8	10	"	1	"	"	"	"	
Calcium	**29000**	14	1000	"	1	"	"	"	"	
Chromium	ND	9.9	10	"	1	"	"	"	"	
Cobalt	ND	7.6	20	"	1	"	"	"	"	
Copper	ND	3.2	10	"	1	"	"	"	"	
Iron	**70**	6.8	100	"	1	"	"	"	"	J
Lead	ND	0.00023	0.0050	mg/L	1	CZ03537	05/19/16	05/19/16	EPA 200.8	
Magnesium	**12000**	26	1000	µg/L	1	CZ03654	05/23/16	05/24/16	EPA 200.7	
Manganese	**59**	0.92	20	"	1	"	"	"	"	
Mercury	**0.22**	0.15	0.20	"	1	CZ03568	05/19/16	05/23/16	EPA 245.1	Hg
Nickel	ND	14	20	"	1	CZ03654	05/23/16	05/24/16	EPA 200.7	
Potassium	ND	180	1000	"	1	"	"	"	"	
Selenium	ND	0.0011	0.0050	mg/L	1	CZ03537	05/19/16	05/19/16	EPA 200.8	
Silver	ND	2.9	10	µg/L	1	CZ03654	05/23/16	05/24/16	EPA 200.7	
Sodium	**11000**	17	1000	"	1	"	"	"	"	
Thallium	ND	0.00011	0.0010	mg/L	1	CZ03537	05/19/16	05/19/16	EPA 200.8	
Tin	ND	18	100	µg/L	1	CZ03654	05/23/16	05/24/16	EPA 200.7	
Vanadium	**0.00073**	0.00044	0.0030	mg/L	1	CZ03537	05/19/16	05/19/16	EPA 200.8	J
Zinc	ND	9.3	20	µg/L	1	CZ03654	05/23/16	05/24/16	EPA 200.7	

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0789**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ03556 - General Prep											
Blank (CZ03556-BLK1)					Prepared & Analyzed: 05/19/16						
Chloride	ND	0.026	0.50	mg/L							
Nitrate as N	ND	0.053	0.40	"							
Sulfate as SO4	ND	0.038	0.50	"							
LCS (CZ03556-BS1)					Prepared & Analyzed: 05/19/16						
Chloride	4.51	0.026	0.50	mg/L	5.00		90	80-120			
Nitrate as N	0.464	0.053	0.40	"	0.451		103	80-120			
Sulfate as SO4	4.84	0.038	0.50	"	5.00		97	80-120			
LCS Dup (CZ03556-BSD1)					Prepared & Analyzed: 05/19/16						
Chloride	4.62	0.026	0.50	mg/L	5.00		92	80-120	3	20	
Nitrate as N	0.474	0.053	0.40	"	0.451		105	80-120	2	20	
Sulfate as SO4	4.95	0.038	0.50	"	5.00		99	80-120	2	20	
Matrix Spike (CZ03556-MS1)		**Source: CZE0808-01**			Prepared & Analyzed: 05/19/16						
Chloride	9.15	0.026	0.50	mg/L	5.00	4.72	89	80-120			
Nitrate as N	0.519	0.053	0.40	"	0.451	0.137	85	80-120			
Sulfate as SO4	6.26	0.038	0.50	"	5.00	1.49	96	80-120			
Matrix Spike Dup (CZ03556-MSD1)		**Source: CZE0808-01**			Prepared & Analyzed: 05/19/16						
Chloride	9.21	0.026	0.50	mg/L	5.00	4.72	90	80-120	0.7	20	
Nitrate as N	0.518	0.053	0.40	"	0.451	0.137	84	80-120	0.3	20	
Sulfate as SO4	6.23	0.038	0.50	"	5.00	1.49	95	80-120	0.6	20	
Batch CZ03560 - General Preparation											
Blank (CZ03560-BLK1)					Prepared & Analyzed: 05/19/16						
Total Suspended Solids	ND	2.0	5.0	mg/L							

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0789**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ03560 - General Preparation											
Duplicate (CZ03560-DUP1)		**Source: CZE0754-02**			Prepared & Analyzed: 05/19/16						
Total Suspended Solids	ND	2.0	5.0	mg/L		ND				20	
Batch CZ03561 - General Preparation											
Blank (CZ03561-BLK1)					Prepared: 05/19/16 Analyzed: 05/20/16						
Total Dissolved Solids	ND	10	10	mg/L							
Duplicate (CZ03561-DUP1)		**Source: CZE0732-01**			Prepared: 05/19/16 Analyzed: 05/20/16						
Total Dissolved Solids	352	10	10	mg/L		341			3	20	
Batch CZ03565 - General Preparation											
Blank (CZ03565-BLK1)					Prepared & Analyzed: 05/19/16						
Bicarbonate as CaCO3	ND	0.50	5.0	mg/L							
Carbonate as CaCO3	ND	0.50	5.0	"							
Hydroxide as CaCO3	ND	0.50	5.0	"							
Total Alkalinity	ND	1.0	5.0	"							
Duplicate (CZ03565-DUP1)		**Source: CZE0789-01**			Prepared & Analyzed: 05/19/16						
Bicarbonate as CaCO3	247	0.50	5.0	mg/L		245			1	20	
Carbonate as CaCO3	ND	0.50	5.0	"		ND				20	
Hydroxide as CaCO3	ND	0.50	5.0	"		ND				20	
Total Alkalinity	247	1.0	5.0	"		245			1	20	
Batch CZ03571 - General Preparation											
Blank (CZ03571-BLK1)					Prepared & Analyzed: 05/19/16						
Sulfide, Dissolved	ND	0.84	1.0	mg/L							

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0789**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ03571 - General Preparation											
LCS (CZ03571-BS1)					Prepared & Analyzed: 05/19/16						
Sulfide, Dissolved	12.8	0.84	1.0	mg/L	13.3		96	80-120			
LCS Dup (CZ03571-BSD1)					Prepared & Analyzed: 05/19/16						
Sulfide, Dissolved	12.8	0.84	1.0	mg/L	13.3		96	80-120	0	20	
Batch CZ03643 - General Preparation											
Blank (CZ03643-BLK1)					Prepared & Analyzed: 05/23/16						
Total Organic Carbon	ND	0.54	1.0	mg/L							
LCS (CZ03643-BS1)					Prepared & Analyzed: 05/23/16						
Total Organic Carbon	10.4	0.54	1.0	mg/L	10.0		104	75-125			
LCS Dup (CZ03643-BSD1)					Prepared & Analyzed: 05/23/16						
Total Organic Carbon	10.5	0.54	1.0	mg/L	10.0		105	75-125	2	25	
Matrix Spike (CZ03643-MS1)		**Source: CZE0897-10**			Prepared & Analyzed: 05/23/16						
Total Organic Carbon	9.80	0.54	1.0	mg/L	10.0	ND	98	75-125			
Matrix Spike Dup (CZ03643-MSD1)		**Source: CZE0897-10**			Prepared & Analyzed: 05/23/16						
Total Organic Carbon	9.94	0.54	1.0	mg/L	10.0	ND	99	75-125	1	25	
Batch CZ03680 - General Preparation											
Blank (CZ03680-BLK1)					Prepared & Analyzed: 05/24/16						
Cyanide (dissolved)	ND	0.0012	0.0050	mg/L							

CALIFORNIA LABORATORY SERVICES

05/25/16 15:55

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0789**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ03680 - General Preparation											
LCS (CZ03680-BS1)					Prepared & Analyzed: 05/24/16						
Cyanide (dissolved)	0.102	0.0012	0.0050	mg/L	0.100		102	75-125			
LCS Dup (CZ03680-BSD1)					Prepared & Analyzed: 05/24/16						
Cyanide (dissolved)	0.102	0.0012	0.0050	mg/L	0.100		102	75-125	0	25	
Matrix Spike (CZ03680-MS1)		**Source: CZE0789-01**			Prepared & Analyzed: 05/24/16						
Cyanide (dissolved)	0.0950	0.0012	0.0050	mg/L	0.100	ND	95	75-125			
Matrix Spike Dup (CZ03680-MSD1)		**Source: CZE0789-01**			Prepared & Analyzed: 05/24/16						
Cyanide (dissolved)	0.0980	0.0012	0.0050	mg/L	0.100	ND	98	75-125	3	25	

CALIFORNIA LABORATORY SERVICES

05/25/16 15:55

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0789**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Metals (Dissolved) by EPA 200 Series Methods - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ03537 - EPA 3020A											
Blank (CZ03537-BLK1)					Prepared: 05/18/16 Analyzed: 05/19/16						
Antimony	ND	0.00057	0.0060	mg/L							
Arsenic	ND	0.00027	0.0020	"							
Lead	ND	0.00023	0.0050	"							
Selenium	ND	0.0011	0.0050	"							
Thallium	ND	0.00011	0.0010	"							
Vanadium	0.00386	0.00044	0.0030	"							QM-7
LCS (CZ03537-BS1)					Prepared: 05/18/16 Analyzed: 05/19/16						
Antimony	0.0915	0.00057	0.0060	mg/L	0.100		92	85-115			
Arsenic	0.109	0.00027	0.0020	"	0.100		109	85-115			
Lead	0.109	0.00023	0.0050	"	0.100		109	85-115			
Selenium	0.107	0.0011	0.0050	"	0.100		107	85-115			
Thallium	0.103	0.00011	0.0010	"	0.100		103	85-115			
Vanadium	0.112	0.00044	0.0030	"	0.100		112	85-115			
Matrix Spike (CZ03537-MS1)		**Source: CZE0741-01**			Prepared: 05/18/16 Analyzed: 05/19/16						
Antimony	0.0893	0.00057	0.0060	mg/L	0.100	0.00145	88	70-130			
Arsenic	0.110	0.00027	0.0020	"	0.100	0.00273	108	70-130			
Lead	0.109	0.00023	0.0050	"	0.100	ND	109	70-130			
Selenium	0.105	0.0011	0.0050	"	0.100	ND	105	70-130			
Thallium	0.107	0.00011	0.0010	"	0.100	0.000380	107	70-130			
Vanadium	0.130	0.00044	0.0030	"	0.100	0.0221	108	70-130			
Matrix Spike (CZ03537-MS2)		**Source: CZE0789-01**			Prepared & Analyzed: 05/19/16						
Antimony	0.0667	0.00057	0.0060	mg/L	0.100	ND	67	70-130			QM-7
Arsenic	0.157	0.00027	0.0020	"	0.100	0.0329	124	70-130			
Lead	0.184	0.00023	0.0050	"	0.100	ND	184	70-130			QM-7
Selenium	0.138	0.0011	0.0050	"	0.100	ND	138	70-130			QM-7
Thallium	0.183	0.00011	0.0010	"	0.100	0.00170	181	70-130			QM-7
Vanadium	0.132	0.00044	0.0030	"	0.100	0.00288	129	70-130			

CALIFORNIA LABORATORY SERVICES

05/25/16 15:55

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0789**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Metals (Dissolved) by EPA 200 Series Methods - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ03568 - EPA 200 Series											
Blank (CZ03568-BLK1)					Prepared: 05/19/16 Analyzed: 05/23/16						
Mercury	ND	0.15	0.20	µg/L							
LCS (CZ03568-BS1)					Prepared: 05/19/16 Analyzed: 05/23/16						
Mercury	4.75	0.15	0.20	µg/L	5.00		95	85-115			
Matrix Spike (CZ03568-MS1)		**Source: CZE0741-01**			Prepared: 05/19/16 Analyzed: 05/23/16						
Mercury	4.63	0.15	0.20	µg/L	5.00	0.150	90	70-130			
Matrix Spike (CZ03568-MS2)		**Source: CZE0782-01**			Prepared: 05/19/16 Analyzed: 05/23/16						
Mercury	7.32	0.15	0.20	µg/L	5.00	4.84	50	70-130			QM-7
Matrix Spike Dup (CZ03568-MSD1)		**Source: CZE0741-01**			Prepared: 05/19/16 Analyzed: 05/23/16						
Mercury	4.19	0.15	0.20	µg/L	5.00	0.150	81	70-130	10	25	
Batch CZ03654 - 6010A/No Digestion											
Blank (CZ03654-BLK1)					Prepared: 05/23/16 Analyzed: 05/24/16						
Aluminum	ND	27	50	µg/L							
Barium	ND	0.91	20	"							
Beryllium	ND	0.43	5.0	"							
Cadmium	ND	2.8	10	"							
Calcium	25.6	14	1000	"							J
Chromium	ND	9.9	10	"							
Cobalt	ND	7.6	20	"							
Copper	ND	3.2	10	"							
Iron	ND	6.8	100	"							
Magnesium	ND	26	1000	"							
Manganese	ND	0.92	20	"							
Nickel	ND	14	20	"							
Potassium	ND	180	1000	"							
Silver	ND	2.9	10	"							
Sodium	ND	17	1000	"							
Tin	ND	18	100	"							
Zinc	ND	9.3	20	"							

CALIFORNIA LABORATORY SERVICES

05/25/16 15:55

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0789**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Metals (Dissolved) by EPA 200 Series Methods - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ03654 - 6010A/No Digestion											
LCS (CZ03654-BS1)					Prepared: 05/23/16 Analyzed: 05/24/16						
Aluminum	5170	27	50	µg/L	5000		103	85-115			
Barium	1160	0.91	20	"	1000		116	85-115			QM-1
Beryllium	1150	0.43	5.0	"	1000		115	85-115			
Cadmium	1180	2.8	10	"	1000		118	85-115			QM-1
Calcium	5500	14	1000	"	5000		110	85-115			
Chromium	1140	9.9	10	"	1000		114	85-115			
Cobalt	1130	7.6	20	"	1000		113	85-115			
Copper	1190	3.2	10	"	1000		119	85-115			QM-1
Iron	1180	6.8	100	"	1000		118	85-115			QM-1
Magnesium	5770	26	1000	"	5000		115	85-115			
Manganese	1180	0.92	20	"	1000		118	85-115			QM-1
Nickel	1140	14	20	"	1000		114	85-115			
Potassium	5070	180	1000	"	5000		101	85-115			
Silver	1140	2.9	10	"	1000		114	85-115			
Sodium	5010	17	1000	"	5000		100	85-115			
Tin	1100	18	100	"	1000		110	85-115			
Zinc	1190	9.3	20	"	1000		119	85-115			QM-1
Matrix Spike (CZ03654-MS1)		**Source: CZE0864-01**			Prepared: 05/23/16 Analyzed: 05/24/16						
Aluminum	4890	27	50	µg/L	5000	ND	98	70-130			
Barium	1100	0.91	20	"	1000	66.8	104	70-130			
Beryllium	1110	0.43	5.0	"	1000	ND	111	70-130			
Cadmium	1130	2.8	10	"	1000	ND	113	70-130			
Calcium	22100	14	1000	"	5000	17300	96	70-130			
Chromium	1070	9.9	10	"	1000	ND	107	70-130			
Cobalt	1060	7.6	20	"	1000	ND	106	70-130			
Copper	1120	3.2	10	"	1000	ND	112	70-130			
Iron	936	6.8	100	"	1000	29.1	91	70-130			
Magnesium	17300	26	1000	"	5000	12300	98	70-130			
Manganese	1100	0.92	20	"	1000	ND	110	70-130			
Nickel	1020	14	20	"	1000	ND	102	70-130			
Potassium	5740	180	1000	"	5000	1230	90	70-130			
Silver	311	2.9	10	"	1000	ND	31	70-130			QM-7
Sodium	20000	17	1000	"	5000	15600	88	70-130			
Tin	708	18	100	"	1000	ND	71	70-130			
Zinc	1150	9.3	20	"	1000	ND	115	70-130			

CALIFORNIA LABORATORY SERVICES

05/25/16 15:55

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0789**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Metals (Dissolved) by EPA 200 Series Methods - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ03654 - 6010A/No Digestion											
Matrix Spike (CZ03654-MS2)		**Source: CZE0868-01**			Prepared: 05/23/16 Analyzed: 05/24/16						
Aluminum	4940	27	50	µg/L	5000	ND	99	70-130			
Barium	1130	0.91	20	"	1000	114	102	70-130			
Beryllium	1100	0.43	5.0	"	1000	ND	110	70-130			
Cadmium	1110	2.8	10	"	1000	ND	111	70-130			
Calcium	46300	14	1000	"	5000	42100	84	70-130			
Chromium	1050	9.9	10	"	1000	ND	105	70-130			
Cobalt	1040	7.6	20	"	1000	ND	104	70-130			
Copper	1110	3.2	10	"	1000	ND	111	70-130			
Iron	934	6.8	100	"	1000	22.0	91	70-130			
Magnesium	29500	26	1000	"	5000	24900	91	70-130			
Manganese	1080	0.92	20	"	1000	ND	108	70-130			
Nickel	986	14	20	"	1000	ND	99	70-130			
Potassium	5430	180	1000	"	5000	645	96	70-130			
Silver	348	2.9	10	"	1000	ND	35	70-130			QM-7
Sodium	26700	17	1000	"	5000	22300	88	70-130			
Tin	682	18	100	"	1000	ND	68	70-130			QM-7
Zinc	1200	9.3	20	"	1000	25.3	117	70-130			

CALIFORNIA LABORATORY SERVICES

05/25/16 15:55

El Dorado County Environmental 2850 Fairlane Court, Building C Placerville CA, 95667	Project: Union Mine Disposal Facility Project Number: [none] Project Manager: Greg Stanton	**CLS Work Order #: CZE0789** COC #:

Notes and Definitions

QM-7	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.
QM-1	The spike recovery was outside acceptance limits for the LCS or LCSD. The batch was accepted based on acceptable MS/MSD recoveries & RPD's.
J	Detected but below the Reporting Limit; therefore, result is an estimated concentration.
Hg	It was analyzed by ICP/MS (EPA method 200.8) due to that the mercury analyzer is down.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit (or method detection limit when specified)
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

This is a "MDL Report", thus if the report denotes an "ND" for a particular analyte, it should be noted that the analyte was not detected at or above the MDL.

CALIFORNIA LABORATORY SERVICES

05/25/16 15:55

El Dorado County Environmental 2850 Fairlane Court, Building C Placerville CA, 95667	Project: Union Mine Disposal Facility Project Number: [none] Project Manager: Greg Stanton	**CLS Work Order #: CZE0789** COC #:

CLS Laboratories

3249 Fitzgerald Road, Rancho Cordova, CA

Phone (916) 638-7301

CHAIN OF CUSTODY/ANALYSIS REQUEST FORM

Lab Login# Date 5/18/16 Page 1 of 1

Union Mine Disposal Facility

Report to: Robert Lauritzen
El Dorado County Environmental Management
2850 Fairlane Court, Bldg C
Placerville CA 95667
Office (530) 621-5130
Fax (530) 626 7130

Sample ID	Date	Time	Lab ID	Sample Matrix	# of Containers	[illegible] Ca, Mg, K, Na	[illegible] As, Cu, Fe, Zn	Chloride, TDS, SO4	BiCarb, Carb, Nitrate	[illegible]	[illegible]	Sulfide	Inorganics	Cyanide				Comments
						HNO3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Zn acetate	HNO3	NaOH				
S-1	5/18/16	0840		liquid	7	x	x	x	x	x	x	x	x	x				
S-2		[illegible]		liquid	7	x	x	x	x	x	x	x	x	x				
S-6		[illegible]		liquid	7	x	x	x	x	x	x	x	x	x				
S-7		1030		liquid	7	x	x	x	x	x	x	x	x	x				
		(1015)																

Relinquished by Signature: [signature]	Received by Signature: [signature]	TAT Requirements	Report Requirements
Printed Name: Robert Lauritzen	Printed Name: [illegible]	Standard (5 days)	Routine Report; Report includes DUP, MS, MSD as required
El Dorado County Date/Time: 5/18/16 11:15	Date/Time: [illegible]	x [illegible]	Data Validation Report; X RWQCB (MDLs/PQLs/Trace#)

Additional Info: cyanide & sulfide
Metals Field Filtered: yes
Dissolved metals = Ca, K, Mg, Na, As, Cu, Fe, Zn
Inorganics: Al, Sb, Ba, Be, Cd, Cr, Co, Pb, Mn, Hg, Ni, Se, Ag, Tl, Sn, V

Invoice: Greg Stanton EDCEM
Address: 2850 Fairlane Ct Bldg C Placerville CA 95667
Contract # 037 C 0607-BOS

CALIFORNIA LABORATORY SERVICES

3249 Fitzgerald Road Rancho Cordova, CA 95742

25 May 2016

CLS Work Order #: CZE0787

COC #:

Greg Stanton

El Dorado County Environmental

2850 Fairlane Court, Building C

Placerville, CA 95667

Project Name: Union Mine Disposal Facility

Enclosed are the results of analyses for samples received by the laboratory on 05/18/16 11:45. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness. Any comments and exceptions are addressed below as well as under the Notes and Definitions section.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

James Liang, Ph.D.
Laboratory Director

CA DOHS ELAP Accreditation/Registration number 1233

CALIFORNIA LABORATORY SERVICES

05/25/16 15:42

El Dorado County Environmental 2850 Fairlane Court, Building C Placerville CA, 95667	Project: Union Mine Disposal Facility Project Number: [none] Project Manager: Greg Stanton	**CLS Work Order #: CZE0787** COC #:

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
GWD-1 (CZE0787-01) Water Sampled: 05/18/16 09:15 Received: 05/18/16 11:45										
Sulfate as SO4	**64**	0.19	2.5	mg/L	5	CZ03556	05/19/16	05/19/16	EPA 300.0	
Total Dissolved Solids	**180**	10	10	"	1	CZ03561	05/19/16	05/20/16	SM2540C	

CALIFORNIA LABORATORY SERVICES

05/25/16 15:42

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0787**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Metals (Dissolved) by EPA 200 Series Methods

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
GWD-1 (CZE0787-01) Water Sampled: 05/18/16 09:15 Received: 05/18/16 11:45										
Arsenic	**0.43**	0.27	2.0	µg/L	1	CZ03537	05/19/16	05/19/16	EPA 200.8	J
Iron	**110**	6.8	100	"	1	CZ03654	05/23/16	05/24/16	EPA 200.7	

CALIFORNIA LABORATORY SERVICES

05/25/16 15:42

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0787**
2850 Fairlanc Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ03556 - General Prep											
Blank (CZ03556-BLK1)					Prepared & Analyzed: 05/19/16						
Sulfate as SO4	ND	0.038	0.50	mg/L							
LCS (CZ03556-BS1)					Prepared & Analyzed: 05/19/16						
Sulfate as SO4	4.84	0.038	0.50	mg/L	5.00		97	80-120			
LCS Dup (CZ03556-BSD1)					Prepared & Analyzed: 05/19/16						
Sulfate as SO4	4.95	0.038	0.50	mg/L	5.00		99	80-120	2	20	
Matrix Spike (CZ03556-MS1)		**Source: CZE0808-01**			Prepared & Analyzed: 05/19/16						
Sulfate as SO4	6.26	0.038	0.50	mg/L	5.00	1.49	96	80-120			
Matrix Spike Dup (CZ03556-MSD1)		**Source: CZE0808-01**			Prepared & Analyzed: 05/19/16						
Sulfate as SO4	6.23	0.038	0.50	mg/L	5.00	1.49	95	80-120	0.6	20	
Batch CZ03561 - General Preparation											
Blank (CZ03561-BLK1)					Prepared: 05/19/16 Analyzed: 05/20/16						
Total Dissolved Solids	ND	10	10	mg/L							
Duplicate (CZ03561-DUP1)		**Source: CZE0732-01**			Prepared: 05/19/16 Analyzed: 05/20/16						
Total Dissolved Solids	352	10	10	mg/L		341			3	20	

CALIFORNIA LABORATORY SERVICES

05/25/16 15:42

El Dorado County Environmental 2850 Fairlane Court, Building C Placerville CA, 95667	Project: Union Mine Disposal Facility Project Number: [none] Project Manager: Greg Stanton	**CLS Work Order #: CZE0787** COC #:

Metals (Dissolved) by EPA 200 Series Methods - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ03537 - EPA 3020A											
Blank (CZ03537-BLK1)					Prepared: 05/18/16 Analyzed: 05/19/16						
Arsenic	ND	0.27	2.0	µg/L							
LCS (CZ03537-BS1)					Prepared: 05/18/16 Analyzed: 05/19/16						
Arsenic	109	0.27	2.0	µg/L	100		109	85-115			
Matrix Spike (CZ03537-MS1)		**Source: CZE0741-01**			Prepared: 05/18/16 Analyzed: 05/19/16						
Arsenic	110	0.27	2.0	µg/L	100	2.73	108	70-130			
Matrix Spike (CZ03537-MS2)		**Source: CZE0789-01**			Prepared & Analyzed: 05/19/16						
Arsenic	157	0.27	2.0	µg/L	100	32.9	124	70-130			
Batch CZ03654 - 6010A/No Digestion											
Blank (CZ03654-BLK1)					Prepared: 05/23/16 Analyzed: 05/24/16						
Iron	ND	6.8	100	µg/L							
LCS (CZ03654-BS1)					Prepared: 05/23/16 Analyzed: 05/24/16						
Iron	1180	6.8	100	µg/L	1000		118	80-120			
Matrix Spike (CZ03654-MS1)		**Source: CZE0864-01**			Prepared: 05/23/16 Analyzed: 05/24/16						
Iron	936	6.8	100	µg/L	1000	29.1	91	75-125			
Matrix Spike (CZ03654-MS2)		**Source: CZE0868-01**			Prepared: 05/23/16 Analyzed: 05/24/16						
Iron	934	6.8	100	µg/L	1000	22.0	91	75-125			

CALIFORNIA LABORATORY SERVICES

05/25/16 15:42

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0787**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Notes and Definitions

J	Detected but below the Reporting Limit; therefore, result is an estimated concentration.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit (or method detection limit when specified)
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

This is a "MDL Report", thus if the report denotes an "ND" for a particular analyte, it should be noted that the analyte was not detected at or above the MDL.

CALIFORNIA LABORATORY SERVICES

05/25/16 15:42

El Dorado County Environmental 2850 Fairlane Court, Building C Placerville CA, 95667	Project: Union Mine Disposal Facility Project Number: [none] Project Manager: Greg Stanton	**CLS Work Order #: CZE0787** COC #:

CLS Laboratories
3249 Fitzgerald Road, Rancho Cordova, CA
Phone. (916) 638-7301

CHAIN OF CUSTODY/ANALYSIS REQUEST FORM

Lab Login# Date 5/18/16 Page 1 of 1

Union Mine Disposal Facility

Report to: Robert Lauritzen
El Dorado County Environmental Management
2850 Fairlane Court, Bldg C
Placerville, CA 95667
Office (530) 621-5179
Fax (530) 626-7130

Analysis Requested

Sample ID	Date	Time	Lab ID	Sample Matrix	# of Containers	Dissolved As & Fe (HNO3)	Sulfate, TDS (NP)	Comments
GWD-1	5/18/16	0915		liquid	2	x	x	

Relinquished by:
Signature: [signature]
Printed Name: Robert Lauritzen
robert lauritzen
El Dorado County
Date/Time: 5/18/16 1150

Received by:
Signature: [signature]
Printed Name: [illegible]
Date/Time: [illegible]

TAT Requirements
X Standard (5 days)
X txt file needed

Report Requirements
___ I. Routine Report
___ II. Report(includes DUP MS MSD, as required
___ III. Data Validation Report
X PQL/QCB (MDLs/PQLs/Trace#)

Additional Info:
Metals Field Filtered (Yes)

Invoice Greg Stanton, EDCEM
Address 2850 Fairlane Ct., Bldg C Placerville CA, 95667
Contract # 037-C-0607-BOS

CALIFORNIA LABORATORY SERVICES

3249 Fitzgerald Road Rancho Cordova, CA 95742

14 July 2016

CLS Work Order #: CZF0317

COC #:

Greg Stanton

El Dorado County Environmental

2850 Fairlane Court, Building C

Placerville, CA 95667

Project Name: Union Mine Disposal Facility

Enclosed are the results of analyses for samples received by the laboratory on 06/08/16 11:53. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness. Any comments and exceptions are addressed below as well as under the Notes and Definitions section.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

James Liang, Ph.D.
Laboratory Director

CA DOHS ELAP Accreditation/Registration number 1233

CALIFORNIA LABORATORY SERVICES

07/14/16 10:53

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0317**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Chlorinated Herbicides by EPA Method 8151A

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-1 (trench) (CZF0317-01) Water Sampled: 06/08/16 10:20 Received: 06/08/16 11:53										
Surrogate: 2,4-DCAA	*111 %*		*50-150*	µg/L		*CZ04155*	06/10/16	*06/14/16*	*EPA 8151A*	
2,4,5-T	ND	0.040	0.50	"	1	"	"	"	"	
2,4,5-TP (Silvex)	ND	0.0070	0.20	"	1	"	"	"	"	
2,4-D (2,4-Dichlorophenoxyacetic acid)	ND	0.061	1.0	"	1	"	"	"	"	
2,4-DB	ND	0.22	2.0	"	1	"	"	"	"	
Dalapon	ND	0.084	2.0	"	1	"	"	"	"	
Dicamba	ND	0.093	1.0	"	1	"	"	"	"	
Dichloroprop	ND	0.040	2.0	"	1	"	"	"	"	
Dinoseb	ND	0.055	1.0	"	1	"	"	"	"	
MCPA	ND	0.73	250	"	1	"	"	"	"	
MCPP	ND	1.6	250	"	1	"	"	"	"	
Pentachlorophenol	ND	0.011	0.20	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0317**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-1 (trench) (CZF0317-01) Water Sampled: 06/08/16 10:20 Received: 06/08/16 11:53										
Bicarbonate as CaCO3	**150**	0.50	5.0	mg/L	1	CZ04156	06/10/16	06/10/16	SM2320B	
Carbonate as CaCO3	ND	0.50	5.0	"	1	"	"	"	"	
Chloride	**57**	0.13	2.5	"	5	CZ04050	06/08/16	06/08/16	EPA 300.0	
Cyanide (dissolved)	ND	0.0012	0.0050	"	1	CZ04150	06/10/16	06/10/16	SM4500	
Hydroxide as CaCO3	ND	0.50	5.0	"	1	CZ04156	06/10/16	06/10/16	SM2320B	
Nitrate as N	ND	0.053	0.40	"	1	CZ04050	06/08/16	06/08/16	EPA 300.0	
Sulfate as SO4	**53**	0.19	2.5	"	5	"	"	06/08/16	"	
Sulfide, Dissolved	ND	0.84	1.0	"	1	CZ04122	06/09/16	06/09/16	SM4500-S F	
Total Alkalinity	**150**	1.0	5.0	"	1	CZ04156	06/10/16	06/10/16	SM2320B	
Total Dissolved Solids	**480**	10	10	"	1	CZ04107	06/09/16	06/10/16	SM2540C	
Total Organic Carbon	**48**	5.4	10	"	10	CZ04086	06/09/16	06/10/16	SM5310B	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0317**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Metals (Dissolved) by EPA 200 Series Methods

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-1 (trench) (Field Filtered) (CZF0317-02) Water Sampled: 06/08/16 10:20 Received: 06/08/16 11:53										
Aluminum	ND	27	50	µg/L	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Antimony	ND	0.57	6.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	
Arsenic	**800**	0.27	2.0	"	1	"	"	"	"	
Barium	**240**	0.91	20	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Beryllium	ND	0.43	5.0	"	1	"	"	"	"	
Cadmium	ND	2.8	10	"	1	"	"	"	"	
Calcium	**92000**	14	1000	"	1	"	"	"	"	
Chromium	ND	9.9	10	"	1	"	"	"	"	
Cobalt	**9.6**	7.6	20	"	1	"	"	"	"	J
Copper	**6.4**	3.2	10	"	1	"	"	"	"	J
Iron	**14000**	6.8	100	"	1	"	"	"	"	
Lead	ND	0.23	5.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	
Magnesium	**31000**	26	1000	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Manganese	**1400**	0.92	20	"	1	"	"	"	"	
Mercury	ND	1.0	1.0	"	1	CZ04163	06/10/16	06/13/16	EPA 245.1	Hg
Nickel	**17**	14	20	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	J
Potassium	**7500**	180	1000	"	1	"	"	06/14/16	"	
Selenium	ND	1.1	5.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	
Silver	ND	2.9	10	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Sodium	**41000**	17	1000	"	1	"	"	"	"	
Thallium	ND	0.11	1.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	
Tin	ND	18	100	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Vanadium	ND	0.44	3.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	
Zinc	**16**	9.3	20	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	J

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0317**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Organophosphorus Pesticides by EPA Method 8141A

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-1 (trench) (CZF0317-01) Water Sampled: 06/08/16 10:20 Received: 06/08/16 11:53										
Surrogate: EPN	*111 %*		*50-150*	µg/L		*CZ04130*	06/09/16	*06/14/16*	*EPA 8141A*	
Bolstar	ND	0.018	0.050	"	1	"	"	"	"	
Chlorpyrifos	ND	0.018	0.050	"	1	"	"	"	"	
Coumaphos	ND	0.017	0.10	"	1	"	"	"	"	
Demeton	ND	0.026	0.10	"	1	"	"	"	"	
Diazinon	ND	0.033	0.050	"	1	"	"	"	"	
Dichlorvos	ND	0.023	0.10	"	1	"	"	"	"	
Disulfoton	ND	0.031	0.050	"	1	"	"	"	"	
Ethoprop	ND	0.016	0.050	"	1	"	"	"	"	
Fensulfothion	ND	0.036	0.050	"	1	"	"	"	"	
Fenthion	ND	0.018	0.050	"	1	"	"	"	"	
Guthion	ND	0.027	0.10	"	1	"	"	"	"	
Malathion	ND	0.014	0.050	"	1	"	"	"	"	
Merphos	ND	0.021	0.050	"	1	"	"	"	"	
Methyl parathion	ND	0.014	0.050	"	1	"	"	"	"	
Mevinphos	ND	0.033	0.050	"	1	"	"	"	"	
Phorate	ND	0.015	0.050	"	1	"	"	"	"	
Prothiofos	ND	0.0031	0.050	"	1	"	"	"	"	
Ronnel	ND	0.016	0.050	"	1	"	"	"	"	
Stirophos	ND	0.021	0.050	"	1	"	"	"	"	
Trichloronate	ND	0.020	0.050	"	1	"	"	"	"	

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0317**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-1 (trench) (CZF0317-01) Water Sampled: 06/08/16 10:20 Received: 06/08/16 11:53										
Surrogate: 2,4,6-Tribromophenol	*77 %*		*10-123*	µg/L		*CZ04113*	06/09/16	*06/11/16*	*EPA 8270C*	
Surrogate: 2-Fluorobiphenyl	*78 %*		*43-116*	"		"	"	"	"	
Surrogate: 2-Fluorophenol	*50 %*		*21-110*	"		"	"	"	"	
Surrogate: Nitrobenzene-d5	*72 %*		*35-114*	"		"	"	"	"	
Surrogate: Phenol-d6	*33 %*		*10-110*	"		"	"	"	"	
Surrogate: Terphenyl-dl4	*72 %*		*33-141*	"		"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.94	10	"	1	"	"	"	"	
1,2-Dichlorobenzene	ND	1.1	10	"	1	"	"	"	"	
1,3-Dichlorobenzene	ND	1.2	10	"	1	"	"	"	"	
1,4-Dichlorobenzene	ND	1.1	10	"	1	"	"	"	"	
2,4,5-Trichlorophenol	ND	0.87	10	"	1	"	"	"	"	
2,4,6-Trichlorophenol	ND	0.96	10	"	1	"	"	"	"	
2,4-Dichlorophenol	ND	0.87	10	"	1	"	"	"	"	
2,4-Dimethylphenol	ND	4.0	10	"	1	"	"	"	"	
2,4-Dinitrophenol	ND	0.62	25	"	1	"	"	"	"	
2,4-Dinitrotoluene (2,4-DNT)	ND	0.81	10	"	1	"	"	"	"	
2,6-Dinitrotoluene (2,6-DNT)	ND	0.71	10	"	1	"	"	"	"	
2-Chloronaphthalene	ND	0.70	10	"	1	"	"	"	"	
2-Chlorophenol	ND	0.88	10	"	1	"	"	"	"	
2-Methylnaphthalene	ND	0.72	10	"	1	"	"	"	"	
2-Methylphenol	ND	1.6	10	"	1	"	"	"	"	
2-Nitroaniline	ND	0.61	25	"	1	"	"	"	"	
2-Nitrophenol	ND	0.94	10	"	1	"	"	"	"	
3 & 4-Methylphenol	ND	2.6	10	"	1	"	"	"	"	
3,3'-Dichlorobenzidine	ND	4.1	20	"	1	"	"	"	"	
3-Nitroaniline	ND	0.96	25	"	1	"	"	"	"	
4,6-Dinitro-2-methylphenol	ND	1.2	25	"	1	"	"	"	"	
4-Bromophenyl phenyl ether	ND	0.80	10	"	1	"	"	"	"	
4-Chloro-3-methylphenol	ND	0.94	10	"	1	"	"	"	"	
4-Chloroaniline	ND	1.8	10	"	1	"	"	"	"	
4-Chlorophenyl phenyl ether	ND	0.78	10	"	1	"	"	"	"	
4-Nitroaniline	ND	0.87	25	"	1	"	"	"	"	
4-Nitrophenol	ND	0.95	25	"	1	"	"	"	"	
Acenaphthene	ND	0.74	10	"	1	"	"	"	"	
Acenaphthylene	ND	0.63	10	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0317**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-1 (trench) (CZF0317-01) Water Sampled: 06/08/16 10:20 Received: 06/08/16 11:53										
Anthracene	ND	0.65	10	µg/L	1	CZ04113	"	06/11/16	EPA 8270C	
Benzo (a) anthracene	ND	1.7	10	"	1	"	"	"	"	
Benzo (a) pyrene	ND	2.1	10	"	1	"	"	"	"	
Benzo (b) fluoranthene	ND	3.3	10	"	1	"	"	"	"	
Benzo (g,h,i) perylene	ND	2.7	10	"	1	"	"	"	"	
Benzo (k) fluoranthene	ND	1.5	10	"	1	"	"	"	"	
Benzoic acid	ND	4.2	25	"	1	"	"	"	"	
Benzyl alcohol	ND	1.6	10	"	1	"	"	"	"	
Bis(2-chloroethoxy)methane	ND	0.67	10	"	1	"	"	"	"	
Bis(2-chloroethyl)ether	ND	0.66	10	"	1	"	"	"	"	
Bis(2-chloroisopropyl)ether	ND	0.54	10	"	1	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	1.1	10	"	1	"	"	"	"	
Butyl benzyl phthalate	ND	4.4	10	"	1	"	"	"	"	
Chrysene	ND	0.78	10	"	1	"	"	"	"	
Dibenz (a,h) anthracene	ND	2.4	10	"	1	"	"	"	"	
Dibenzofuran	ND	0.67	10	"	1	"	"	"	"	
Diethyl phthalate	ND	4.7	10	"	1	"	"	"	"	
Dimethyl phthalate	ND	4.2	10	"	1	"	"	"	"	
Di-n-butyl phthalate	ND	3.8	10	"	1	"	"	"	"	
Di-n-octyl phthalate	ND	3.4	10	"	1	"	"	"	"	
Fluoranthene	ND	0.66	10	"	1	"	"	"	"	
Fluorene	ND	0.67	10	"	1	"	"	"	"	
Hexachlorobenzene	ND	0.86	10	"	1	"	"	"	"	
Hexachlorobutadiene	ND	1.9	10	"	1	"	"	"	"	
Hexachlorocyclopentadiene	ND	0.55	10	"	1	"	"	"	"	
Hexachloroethane	ND	1.2	10	"	1	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	1.7	10	"	1	"	"	"	"	
Isophorone	ND	0.62	10	"	1	"	"	"	"	
Naphthalene	ND	0.70	10	"	1	"	"	"	"	
Nitrobenzene (NB)	ND	0.64	10	"	1	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	0.62	10	"	1	"	"	"	"	
N-Nitrosodiphenylamine	ND	0.93	10	"	1	"	"	"	"	
Pentachlorophenol	ND	1.8	25	"	1	"	"	"	"	
Phenanthrene	ND	0.59	10	"	1	"	"	"	"	
Phenol	ND	1.2	10	"	1	"	"	"	"	
Pyrene	ND	0.73	10	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0317**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-1 (trench) (CZF0317-01) Water Sampled: 06/08/16 10:20 Received: 06/08/16 11:53										
Surrogate: 1,2-Dichloroethane-d4	*115 %*		*66-135*	µg/L		*CZ04084*	06/08/16	*06/08/16*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene	*118 %*		*73-125*	"		"	"	"	"	
Surrogate: Toluene-d8	*80 %*		*72-125*	"		"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.17	0.50	"	1	"	"	"	"	
1,1,1-Trichloroethane	ND	0.095	0.50	"	1	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.19	0.50	"	1	"	"	"	"	
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.23	0.50	"	1	"	"	"	"	
1,1,2-Trichloroethane	ND	0.15	0.50	"	1	"	"	"	"	
1,1-Dichloroethane	ND	0.11	0.50	"	1	"	"	"	"	
1,1-Dichloroethene	ND	0.14	0.50	"	1	"	"	"	"	
1,1-Dichloropropene	ND	0.15	0.50	"	1	"	"	"	"	
1,2,3-Trichlorobenzene	ND	0.15	0.50	"	1	"	"	"	"	
1,2,3-Trichloropropane	ND	0.23	0.50	"	1	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.11	0.50	"	1	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.15	0.50	"	1	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	0.39	1.0	"	1	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.15	0.50	"	1	"	"	"	"	
1,2-Dichlorobenzene	ND	0.097	0.50	"	1	"	"	"	"	
1,2-Dichloroethane	ND	0.16	0.50	"	1	"	"	"	"	
1,2-Dichloropropane	ND	0.14	0.50	"	1	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.12	0.50	"	1	"	"	"	"	
1,3-Dichlorobenzene	ND	0.12	0.50	"	1	"	"	"	"	
1,3-Dichloropropane	ND	0.16	0.50	"	1	"	"	"	"	
1,4-Dichloro-2-butene	ND	1.0	1.0	"	1	"	"	"	"	
1,4-Dichlorobenzene	ND	0.16	0.50	"	1	"	"	"	"	
2,2-Dichloropropane	ND	0.27	0.50	"	1	"	"	"	"	
2-Butanone	ND	1.1	10	"	1	"	"	"	"	
2-Hexanone	ND	0.90	10	"	1	"	"	"	"	
4-Methyl-2-pentanone	ND	1.6	10	"	1	"	"	"	"	
Acetone	ND	1.0	10	"	1	"	"	"	"	
Acrylonitrile	ND	5.0	5.0	"	1	"	"	"	"	
Benzene	ND	0.11	0.50	"	1	"	"	"	"	
Bromobenzene	ND	0.13	0.50	"	1	"	"	"	"	
Bromochloromethane	ND	0.13	0.50	"	1	"	"	"	"	
Bromodichloromethane	ND	0.12	0.50	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0317**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-1 (trench) (CZF0317-01) Water Sampled: 06/08/16 10:20 Received: 06/08/16 11:53										
Bromoform	ND	0.15	0.50	µg/L	1	CZ04084	"	06/08/16	EPA 8260B	
Bromomethane	ND	0.39	1.0	"	1	"	"	"	"	
Carbon disulfide	ND	0.13	0.50	"	1	"	"	"	"	
Carbon tetrachloride	ND	0.17	0.50	"	1	"	"	"	"	
Chlorobenzene	ND	0.082	0.50	"	1	"	"	"	"	
Chloroethane	ND	0.15	0.50	"	1	"	"	"	"	
Chloroform	ND	0.19	0.50	"	1	"	"	"	"	
Chloromethane	ND	0.056	1.0	"	1	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.15	0.50	"	1	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.14	0.50	"	1	"	"	"	"	
Dibromochloromethane	ND	0.14	0.50	"	1	"	"	"	"	
Dibromomethane	ND	0.25	0.50	"	1	"	"	"	"	
Dichlorodifluoromethane (Freon 12)	ND	0.14	1.0	"	1	"	"	"	"	
Ethylbenzene	ND	0.10	0.50	"	1	"	"	"	"	
Hexachlorobutadiene	ND	0.23	0.50	"	1	"	"	"	"	
Iodomethane	ND	1.0	1.0	"	1	"	"	"	"	
Isopropylbenzene	ND	0.11	0.50	"	1	"	"	"	"	
Methyl tert-butyl ether	ND	0.095	0.50	"	1	"	"	"	"	
Methylene chloride	ND	0.24	0.50	"	1	"	"	"	"	
Naphthalene	ND	0.21	0.50	"	1	"	"	"	"	
n-Butylbenzene	ND	0.10	0.50	"	1	"	"	"	"	
n-Propylbenzene	ND	0.13	0.50	"	1	"	"	"	"	
o-Chlorotoluene	ND	0.092	0.50	"	1	"	"	"	"	
p-Chlorotoluene	ND	0.11	0.50	"	1	"	"	"	"	
p-Isopropyltoluene	ND	0.14	0.50	"	1	"	"	"	"	
sec-Butylbenzene	ND	0.088	0.50	"	1	"	"	"	"	
Styrene	ND	0.10	0.50	"	1	"	"	"	"	
tert-Butylbenzene	ND	0.082	0.50	"	1	"	"	"	"	
Tetrachloroethene	ND	0.13	0.50	"	1	"	"	"	"	
Toluene	ND	0.11	0.50	"	1	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.15	0.50	"	1	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.18	0.50	"	1	"	"	"	"	
Trichloroethene	ND	0.063	0.50	"	1	"	"	"	"	
Trichlorofluoromethane	ND	0.14	0.50	"	1	"	"	"	"	
Vinyl acetate	ND	0.20	1.0	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0317**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-1 (trench) (CZF0317-01) Water Sampled: 06/08/16 10:20 Received: 06/08/16 11:53										
Vinyl chloride	ND	0.14	1.0	µg/L	1	CZ04084	"	06/08/16	EPA 8260B	
Xylenes (total)	ND	0.33	1.0	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0317**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Chlorinated Herbicides by EPA Method 8151A - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ04155 - EPA 8151A											
Blank (CZ04155-BLK1)					Prepared: 06/10/16 Analyzed: 06/14/16						
Surrogate: 2,4-DCAA	*2.73*			*µg/L*	*2.50*		*109*	*50-150*			
2,4,5-T	ND	0.040	0.50	"							
2,4,5-TP (Silvex)	ND	0.0070	0.20	"							
2,4-D (2,4-Dichlorophenoxyacetic acid)	ND	0.061	1.0	"							
2,4-DB	ND	0.22	2.0	"							
Dalapon	ND	0.084	2.0	"							
Dicamba	ND	0.093	1.0	"							
Dichloroprop	ND	0.040	2.0	"							
Dinoseb	ND	0.055	1.0	"							
MCPA	ND	0.73	250	"							
MCPP	ND	1.6	250	"							
Pentachlorophenol	ND	0.011	0.20	"							
LCS (CZ04155-BS1)					Prepared: 06/10/16 Analyzed: 06/14/16						
Surrogate: 2,4-DCAA	*3.49*			*µg/L*	*2.50*		*140*	*50-150*			
Dicamba	1.24	0.093	1.0	"	1.25		99	50-150			
Dichloroprop	1.50	0.040	2.0	"	1.25		120	50-150			J
LCS Dup (CZ04155-BSD1)					Prepared: 06/10/16 Analyzed: 06/14/16						
Surrogate: 2,4-DCAA	*2.60*			*µg/L*	*2.50*		*104*	*50-150*			
Dicamba	1.68	0.093	1.0	"	1.25		134	50-150	30	30	
Dichloroprop	1.78	0.040	2.0	"	1.25		142	50-150	17	30	J

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0317**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ04050 - General Prep											
Blank (CZ04050-BLK1)					Prepared & Analyzed: 06/08/16						
Chloride	ND	0.026	0.50	mg/L							
Nitrate as N	ND	0.053	0.40	"							
Sulfate as SO4	ND	0.038	0.50	"							
LCS (CZ04050-BS1)					Prepared & Analyzed: 06/08/16						
Chloride	4.69	0.026	0.50	mg/L	5.00		94	80-120			
Nitrate as N	0.476	0.053	0.40	"	0.451		105	80-120			
Sulfate as SO4	5.07	0.038	0.50	"	5.00		101	80-120			
LCS Dup (CZ04050-BSD1)					Prepared & Analyzed: 06/08/16						
Chloride	4.84	0.026	0.50	mg/L	5.00		97	80-120	3	20	
Nitrate as N	0.514	0.053	0.40	"	0.451		114	80-120	8	20	
Sulfate as SO4	5.14	0.038	0.50	"	5.00		103	80-120	1	20	
Matrix Spike (CZ04050-MS1)		**Source: CZF0287-01**			Prepared & Analyzed: 06/08/16						
Chloride	6.70	0.026	0.50	mg/L	5.00	2.33	87	80-120			
Nitrate as N	1.02	0.053	0.40	"	0.451	0.648	83	80-120			
Sulfate as SO4	8.86	0.038	0.50	"	5.00	3.97	98	80-120			
Matrix Spike Dup (CZ04050-MSD1)		**Source: CZF0287-01**			Prepared & Analyzed: 06/08/16						
Chloride	6.56	0.026	0.50	mg/L	5.00	2.33	85	80-120	2	20	
Nitrate as N	1.01	0.053	0.40	"	0.451	0.648	79	80-120	2	20	QM-7
Sulfate as SO4	8.67	0.038	0.50	"	5.00	3.97	94	80-120	2	20	
Batch CZ04086 - General Prep											
Blank (CZ04086-BLK1)					Prepared: 06/09/16 Analyzed: 06/10/16						
Total Organic Carbon	ND	0.54	1.0	mg/L							

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0317**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ04086 - General Prep											
LCS (CZ04086-BS1)					Prepared: 06/09/16 Analyzed: 06/10/16						
Total Organic Carbon	9.29	0.54	1.0	mg/L	10.0		93	75-125			
LCS Dup (CZ04086-BSD1)					Prepared: 06/09/16 Analyzed: 06/10/16						
Total Organic Carbon	10.1	0.54	1.0	mg/L	10.0		101	75-125	9	25	
Matrix Spike (CZ04086-MS1)		**Source: CZF0329-05**			Prepared: 06/09/16 Analyzed: 06/10/16						
Total Organic Carbon	22.3	0.54	1.0	mg/L	10.0	9.96	123	75-125			
Matrix Spike Dup (CZ04086-MSD1)		**Source: CZF0329-05**			Prepared: 06/09/16 Analyzed: 06/10/16						
Total Organic Carbon	23.0	0.54	1.0	mg/L	10.0	9.96	130	75-125	3	25	QM-7
Batch CZ04107 - General Preparation											
Blank (CZ04107-BLK1)					Prepared: 06/09/16 Analyzed: 06/10/16						
Total Dissolved Solids	ND	10	10	mg/L							
Duplicate (CZ04107-DUP1)		**Source: CZF0266-01**			Prepared: 06/09/16 Analyzed: 06/10/16						
Total Dissolved Solids	161	10	10	mg/L		164			2	20	
Batch CZ04122 - General Preparation											
Blank (CZ04122-BLK1)					Prepared & Analyzed: 06/09/16						
Sulfide, Dissolved	ND	0.84	1.0	mg/L							
LCS (CZ04122-BS1)					Prepared & Analyzed: 06/09/16						
Sulfide, Dissolved	12.8	0.84	1.0	mg/L	13.3		96	80-120			

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0317**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ04122 - General Preparation											
LCS Dup (CZ04122-BSD1)					Prepared & Analyzed: 06/09/16						
Sulfide, Dissolved	12.8	0.84	1.0	mg/L	13.3		96	80-120	0	20	
Batch CZ04150 - General Prep											
Blank (CZ04150-BLK1)					Prepared & Analyzed: 06/10/16						
Cyanide (dissolved)	ND	0.0012	0.0050	mg/L							
LCS (CZ04150-BS1)					Prepared & Analyzed: 06/10/16						
Cyanide (dissolved)	0.103	0.0012	0.0050	mg/L	0.100		103	75-125			
LCS Dup (CZ04150-BSD1)					Prepared & Analyzed: 06/10/16						
Cyanide (dissolved)	0.0976	0.0012	0.0050	mg/L	0.100		98	75-125	5	25	
Matrix Spike (CZ04150-MS1)		**Source: CZF0320-01**			Prepared & Analyzed: 06/10/16						
Cyanide (dissolved)	0.0883	0.0012	0.0050	mg/L	0.100	ND	88	75-125			
Matrix Spike Dup (CZ04150-MSD1)		**Source: CZF0320-01**			Prepared & Analyzed: 06/10/16						
Cyanide (dissolved)	0.0942	0.0012	0.0050	mg/L	0.100	ND	94	75-125	6	25	
Batch CZ04156 - General Preparation											
Blank (CZ04156-BLK1)					Prepared & Analyzed: 06/10/16						
Bicarbonate as CaCO3	ND	0.50	5.0	mg/L							
Carbonate as CaCO3	ND	0.50	5.0	"							
Hydroxide as CaCO3	ND	0.50	5.0	"							
Total Alkalinity	ND	1.0	5.0	"							

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0317**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ04156 - General Preparation											
Duplicate (CZ04156-DUP1)		**Source: CZF0316-01**			Prepared & Analyzed: 06/10/16						
Bicarbonate as CaCO3	213	0.50	5.0	mg/L		213			0.2	20	
Carbonate as CaCO3	ND	0.50	5.0	"		ND				20	
Hydroxide as CaCO3	ND	0.50	5.0	"		ND				20	
Total Alkalinity	213	1.0	5.0	"		213			0.2	20	

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0317**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Metals (Dissolved) by EPA 200 Series Methods - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ04163 - EPA 200 Series											
Blank (CZ04163-BLK1)					Prepared: 06/10/16 Analyzed: 06/13/16						
Mercury	ND	1.0	1.0	µg/L							
LCS (CZ04163-BS1)					Prepared: 06/10/16 Analyzed: 06/13/16						
Mercury	5.54	1.0	1.0	µg/L	5.00		111	85-115			
Matrix Spike (CZ04163-MS1)		**Source: CZF0316-02**			Prepared: 06/10/16 Analyzed: 06/13/16						
Mercury	6.00	1.0	2.0	µg/L	5.00	ND	120	70-130			
Matrix Spike (CZ04163-MS2)		**Source: CZF0317-02**			Prepared: 06/10/16 Analyzed: 06/13/16						
Mercury	6.46	1.0	1.0	µg/L	5.00	ND	129	70-130			
Batch CZ04180 - 6010A/No Digestion											
Blank (CZ04180-BLK1)					Prepared & Analyzed: 06/13/16						
Aluminum	ND	27	50	µg/L							
Barium	ND	0.91	20	"							
Beryllium	ND	0.43	5.0	"							
Cadmium	ND	2.8	10	"							
Calcium	ND	14	1000	"							
Chromium	ND	9.9	10	"							
Cobalt	ND	7.6	20	"							
Copper	ND	3.2	10	"							
Iron	ND	6.8	100	"							
Magnesium	ND	26	1000	"							
Manganese	ND	0.92	20	"							
Nickel	ND	14	20	"							
Potassium	ND	180	1000	"							
Silver	ND	2.9	10	"							
Sodium	ND	17	1000	"							
Tin	ND	18	100	"							
Zinc	ND	9.3	20	"							

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0317**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Metals (Dissolved) by EPA 200 Series Methods - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ04180 - 6010A/No Digestion											
LCS (CZ04180-BS1)					Prepared & Analyzed: 06/13/16						
Aluminum	5110	27	50	µg/L	5000		102	85-115			
Barium	1140	0.91	20	"	1000		114	85-115			
Beryllium	1110	0.43	5.0	"	1000		111	85-115			
Cadmium	1140	2.8	10	"	1000		114	85-115			
Calcium	5170	14	1000	"	5000		103	85-115			
Chromium	1120	9.9	10	"	1000		112	85-115			
Cobalt	1100	7.6	20	"	1000		110	85-115			
Copper	1120	3.2	10	"	1000		112	85-115			
Iron	1040	6.8	100	"	1000		104	85-115			
Magnesium	5160	26	1000	"	5000		103	85-115			
Manganese	1150	0.92	20	"	1000		115	85-115			
Nickel	1110	14	20	"	1000		111	85-115			
Potassium	5560	180	1000	"	5000		111	85-115			
Silver	1250	2.9	10	"	1000		125	85-115			QM-1
Sodium	5320	17	1000	"	5000		106	85-115			
Tin	1080	18	100	"	1000		108	85-115			
Zinc	1130	9.3	20	"	1000		113	85-115			
Matrix Spike (CZ04180-MS1)		**Source: CZF0316-02**			Prepared & Analyzed: 06/13/16						
Aluminum	4950	27	50	µg/L	5000	ND	99	70-130			
Barium	1070	0.91	20	"	1000	64.9	100	70-130			
Beryllium	1060	0.43	5.0	"	1000	ND	106	70-130			
Cadmium	1060	2.8	10	"	1000	ND	106	70-130			
Calcium	36700	14	1000	"	5000	31900	96	70-130			
Chromium	1050	9.9	10	"	1000	ND	105	70-130			
Cobalt	994	7.6	20	"	1000	ND	99	70-130			
Copper	1020	3.2	10	"	1000	ND	102	70-130			
Iron	1080	6.8	100	"	1000	68.8	101	70-130			
Magnesium	19200	26	1000	"	5000	14600	91	70-130			
Manganese	1160	0.92	20	"	1000	119	104	70-130			
Nickel	964	14	20	"	1000	ND	96	70-130			
Potassium	6800	180	1000	"	5000	1780	100	70-130			
Silver	1000	2.9	10	"	1000	ND	100	70-130			
Sodium	69800	17	1000	"	5000	65000	95	70-130			
Tin	982	18	100	"	1000	ND	98	70-130			
Zinc	1070	9.3	20	"	1000	ND	107	70-130			

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0317**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Metals (Dissolved) by EPA 200 Series Methods - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ04180 - 6010A/No Digestion											
Matrix Spike (CZ04180-MS2)		**Source: CZF0266-01**			Prepared & Analyzed: 06/13/16						
Aluminum	5220	27	50	µg/L	5000	ND	104	70-130			
Barium	1120	0.91	20	"	1000	13.5	111	70-130			
Beryllium	1090	0.43	5.0	"	1000	ND	109	70-130			
Cadmium	1150	2.8	10	"	1000	ND	115	70-130			
Calcium	42000	14	1000	"	5000	38200	76	70-130			
Chromium	1150	9.9	10	"	1000	ND	115	70-130			
Cobalt	1070	7.6	20	"	1000	ND	107	70-130			
Copper	1100	3.2	10	"	1000	ND	110	70-130			
Iron	1020	6.8	100	"	1000	ND	102	70-130			
Magnesium	16000	26	1000	"	5000	11500	91	70-130			
Manganese	1080	0.92	20	"	1000	2.69	108	70-130			
Nickel	1060	14	20	"	1000	ND	106	70-130			
Potassium	6220	180	1000	"	5000	ND	124	70-130			
Silver	793	2.9	10	"	1000	ND	79	70-130			
Sodium	13100	17	1000	"	5000	7800	105	70-130			
Tin	926	18	100	"	1000	ND	93	70-130			
Zinc	1170	9.3	20	"	1000	34.6	113	70-130			
Batch CZ04209 - EPA 200 Series											
Blank (CZ04209-BLK1)					Prepared: 06/13/16 Analyzed: 06/14/16						
Antimony	ND	0.57	6.0	µg/L							
Arsenic	ND	0.27	2.0	"							
Lead	0.260	0.23	5.0	"							J
Selenium	ND	1.1	5.0	"							
Thallium	0.400	0.11	1.0	"							J
Vanadium	ND	0.44	3.0	"							

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0317**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Metals (Dissolved) by EPA 200 Series Methods - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ04209 - EPA 200 Series											
LCS (CZ04209-BS1)					Prepared: 06/13/16 Analyzed: 06/14/16						
Antimony	103	0.57	6.0	µg/L	100		103	85-115			
Arsenic	101	0.27	2.0	"	100		101	85-115			
Lead	99.5	0.23	5.0	"	100		99	85-115			
Selenium	101	1.1	5.0	"	100		101	85-115			
Thallium	98.7	0.11	1.0	"	100		99	85-115			
Vanadium	102	0.44	3.0	"	100		102	85-115			
Matrix Spike (CZ04209-MS1)		**Source: CZF0316-02**			Prepared: 06/13/16 Analyzed: 06/14/16						
Antimony	102	0.57	6.0	µg/L	100	ND	102	70-130			
Arsenic	132	0.27	2.0	"	100	4.76	127	70-130			
Lead	121	0.23	5.0	"	100	ND	121	70-130			
Selenium	143	1.1	5.0	"	100	ND	143	70-130			QM-7
Thallium	119	0.11	1.0	"	100	0.400	119	70-130			
Vanadium	115	0.44	3.0	"	100	ND	115	70-130			
Matrix Spike (CZ04209-MS2)		**Source: CZF0317-02**			Prepared: 06/13/16 Analyzed: 06/14/16						
Antimony	108	0.57	6.0	µg/L	100	ND	108	70-130			
Arsenic	941	0.27	2.0	"	100	798	144	70-130			QM-7
Lead	115	0.23	5.0	"	100	ND	115	70-130			
Selenium	164	1.1	5.0	"	100	ND	164	70-130			QM-7
Thallium	113	0.11	1.0	"	100	ND	113	70-130			
Vanadium	118	0.44	3.0	"	100	ND	118	70-130			

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0317**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Organophosphorus Pesticides by EPA Method 8141A - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ04130 - EPA 3510B GCNV											
Blank (CZ04130-BLK1)					Prepared: 06/09/16 Analyzed: 06/14/16						
Surrogate: EPN	*2.41*			*µg/L*	*2.50*		*97*	*50-150*			
Bolstar	ND	0.018	0.050	"							
Chlorpyrifos	ND	0.018	0.050	"							
Coumaphos	ND	0.017	0.10	"							
Demeton	ND	0.026	0.10	"							
Diazinon	ND	0.033	0.050	"							
Dichlorvos	ND	0.023	0.10	"							
Disulfoton	ND	0.031	0.050	"							
Ethoprop	ND	0.016	0.050	"							
Fensulfothion	ND	0.036	0.050	"							
Fenthion	ND	0.018	0.050	"							
Guthion	ND	0.027	0.10	"							
Malathion	ND	0.014	0.050	"							
Merphos	ND	0.021	0.050	"							
Methyl parathion	ND	0.014	0.050	"							
Mevinphos	ND	0.033	0.050	"							
Phorate	ND	0.015	0.050	"							
Prothiofos	ND	0.0031	0.050	"							
Ronnel	ND	0.016	0.050	"							
Stirophos	ND	0.021	0.050	"							
Trichloronate	ND	0.020	0.050	"							
LCS (CZ04130-BS1)					Prepared: 06/09/16 Analyzed: 06/14/16						
Surrogate: EPN	*1.64*			*µg/L*	*2.50*		*66*	*50-150*			
Methyl parathion	0.0873	0.014	0.050	"	0.125		70	50-150			
Ronnel	0.0678	0.016	0.050	"	0.125		54	50-150			
Stirophos	0.0973	0.021	0.050	"	0.125		78	50-150			
Trichloronate	0.0774	0.020	0.050	"	0.125		62	50-150			

CALIFORNIA LABORATORY SERVICES

07/14/16 10:53

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0317**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Organophosphorus Pesticides by EPA Method 8141A - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ04130 - EPA 3510B GCNV											
LCS Dup (CZ04130-BSD1)					Prepared: 06/09/16 Analyzed: 06/14/16						
Surrogate: EPN	*2.25*			*µg/L*	*2.50*		*90*	*50-150*			
Methyl parathion	0.110	0.014	0.050	"	0.125		88	50-150	23	30	
Ronnel	0.0834	0.016	0.050	"	0.125		67	50-150	21	30	
Stirophos	0.131	0.021	0.050	"	0.125		105	50-150	30	30	
Trichloronate	0.105	0.020	0.050	"	0.125		84	50-150	30	30	

CALIFORNIA LABORATORY SERVICES

07/14/16 10:53

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0317**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Semivolatile Organic Compounds by EPA Method 8270C - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ04113 - EPA 3510B GCMS											
Blank (CZ04113-BLK1)					Prepared: 06/09/16 Analyzed: 06/10/16						
Surrogate: 2,4,6-Tribromophenol	*36.7*			*µg/L*	*40.0*		*92*	*10-123*			
Surrogate: 2-Fluorobiphenyl	*32.2*			*"*	*40.0*		*80*	*43-116*			
Surrogate: 2-Fluorophenol	*23.4*			*"*	*40.0*		*59*	*21-110*			
Surrogate: Nitrobenzene-d5	*30.3*			*"*	*40.0*		*76*	*35-114*			
Surrogate: Phenol-d6	*15.7*			*"*	*40.0*		*39*	*10-110*			
Surrogate: Terphenyl-dl4	*34.2*			*"*	*40.0*		*85*	*33-141*			
1,2,4-Trichlorobenzene	ND	0.94	10	"							
1,2-Dichlorobenzene	ND	1.1	10	"							
1,3-Dichlorobenzene	ND	1.2	10	"							
1,4-Dichlorobenzene	ND	1.1	10	"							
2,4,5-Trichlorophenol	ND	0.87	10	"							
2,4,6-Trichlorophenol	ND	0.96	10	"							
2,4-Dichlorophenol	ND	0.87	10	"							
2,4-Dimethylphenol	ND	4.0	10	"							
2,4-Dinitrophenol	ND	0.62	25	"							
2,4-Dinitrotoluene (2,4-DNT)	ND	0.81	10	"							
2,6-Dinitrotoluene (2,6-DNT)	ND	0.71	10	"							
2-Chloronaphthalene	ND	0.70	10	"							
2-Chlorophenol	ND	0.88	10	"							
2-Methylnaphthalene	ND	0.72	10	"							
2-Methylphenol	ND	1.6	10	"							
2-Nitroaniline	ND	0.61	25	"							
2-Nitrophenol	ND	0.94	10	"							
3 & 4-Methylphenol	ND	2.6	10	"							
3,3'-Dichlorobenzidine	ND	4.1	20	"							
3-Nitroaniline	ND	0.96	25	"							
4,6-Dinitro-2-methylphenol	ND	1.2	25	"							
4-Bromophenyl phenyl ether	ND	0.80	10	"							
4-Chloro-3-methylphenol	ND	0.94	10	"							
4-Chloroaniline	ND	1.8	10	"							
4-Chlorophenyl phenyl ether	ND	0.78	10	"							
4-Nitroaniline	ND	0.87	25	"							
4-Nitrophenol	ND	0.95	25	"							
Acenaphthene	ND	0.74	10	"							
Acenaphthylene	ND	0.63	10	"							

CALIFORNIA LABORATORY SERVICES

07/14/16 10:53

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0317**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Semivolatile Organic Compounds by EPA Method 8270C - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ04113 - EPA 3510B GCMS											
Blank (CZ04113-BLK1)					Prepared: 06/09/16 Analyzed: 06/10/16						
Anthracene	ND	0.65	10	µg/L							
Benzo (a) anthracene	ND	1.7	10	"							
Benzo (a) pyrene	ND	2.1	10	"							
Benzo (b) fluoranthene	ND	3.3	10	"							
Benzo (g,h,i) perylene	ND	2.7	10	"							
Benzo (k) fluoranthene	ND	1.5	10	"							
Benzoic acid	ND	4.2	25	"							
Benzyl alcohol	ND	1.6	10	"							
Bis(2-chloroethoxy)methane	ND	0.67	10	"							
Bis(2-chloroethyl)ether	ND	0.66	10	"							
Bis(2-chloroisopropyl)ether	ND	0.54	10	"							
Bis(2-ethylhexyl)phthalate	ND	1.1	10	"							
Butyl benzyl phthalate	ND	4.4	10	"							
Chrysene	ND	0.78	10	"							
Dibenz (a,h) anthracene	ND	2.4	10	"							
Dibenzofuran	ND	0.67	10	"							
Diethyl phthalate	ND	4.7	10	"							
Dimethyl phthalate	ND	4.2	10	"							
Di-n-butyl phthalate	ND	3.8	10	"							
Di-n-octyl phthalate	ND	3.4	10	"							
Fluoranthene	ND	0.66	10	"							
Fluorene	ND	0.67	10	"							
Hexachlorobenzene	ND	0.86	10	"							
Hexachlorobutadiene	ND	1.9	10	"							
Hexachlorocyclopentadiene	ND	0.55	10	"							
Hexachloroethane	ND	1.2	10	"							
Indeno (1,2,3-cd) pyrene	ND	1.7	10	"							
Isophorone	ND	0.62	10	"							
Naphthalene	ND	0.70	10	"							
Nitrobenzene (NB)	ND	0.64	10	"							
N-Nitrosodi-n-propylamine	ND	0.62	10	"							
N-Nitrosodiphenylamine	ND	0.93	10	"							
Pentachlorophenol	ND	1.8	25	"							
Phenanthrene	ND	0.59	10	"							
Phenol	ND	1.2	10	"							
Pyrene	ND	0.73	10	"							

CALIFORNIA LABORATORY SERVICES

07/14/16 10:53

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0317**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Semivolatile Organic Compounds by EPA Method 8270C - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ04113 - EPA 3510B GCMS											
LCS (CZ04113-BS1)					Prepared: 06/09/16 Analyzed: 06/10/16						
Surrogate: 2,4,6-Tribromophenol	*39.0*			*µg/L*	*40.0*		*98*	*10-123*			
Surrogate: 2-Fluorobiphenyl	*44.0*			"	*40.0*		*110*	*43-116*			
Surrogate: 2-Fluorophenol	*35.7*			"	*40.0*		*89*	*21-110*			
Surrogate: Nitrobenzene-d5	*35.0*			"	*40.0*		*87*	*35-114*			
Surrogate: Phenol-d6	*17.6*			"	*40.0*		*44*	*10-110*			
Surrogate: Terphenyl-dl4	*35.1*			"	*40.0*		*88*	*33-141*			
1,2,4-Trichlorobenzene	21.1	0.94	10	"	40.0		53	39-118			
1,4-Dichlorobenzene	26.1	1.1	10	"	40.0		65	36-117			
2,4-Dinitrotoluene (2,4-DNT)	31.2	0.81	10	"	40.0		78	24-116			
2-Chlorophenol	30.1	0.88	10	"	40.0		75	23-134			
4-Chloro-3-methylphenol	33.7	0.94	10	"	40.0		84	23-117			
4-Nitrophenol	19.5	0.95	25	"	40.0		49	10-108			J
Acenaphthene	29.5	0.74	10	"	40.0		74	46-118			
N-Nitrosodi-n-propylamine	29.0	0.62	10	"	40.0		73	41-126			
Pentachlorophenol	39.4	1.8	25	"	40.0		99	10-113			
Phenol	16.2	1.2	10	"	40.0		40	5-112			
Pyrene	29.9	0.73	10	"	40.0		75	26-127			
LCS Dup (CZ04113-BSD1)					Prepared: 06/09/16 Analyzed: 06/10/16						
Surrogate: 2,4,6-Tribromophenol	*26.2*			*µg/L*	*40.0*		*66*	*10-123*			
Surrogate: 2-Fluorobiphenyl	*34.6*			"	*40.0*		*86*	*43-116*			
Surrogate: 2-Fluorophenol	*27.8*			"	*40.0*		*69*	*21-110*			
Surrogate: Nitrobenzene-d5	*32.5*			"	*40.0*		*81*	*35-114*			
Surrogate: Phenol-d6	*19.2*			"	*40.0*		*48*	*10-110*			
Surrogate: Terphenyl-dl4	*37.0*			"	*40.0*		*93*	*33-141*			
1,2,4-Trichlorobenzene	24.2	0.94	10	"	40.0		60	39-118	13	28	
1,4-Dichlorobenzene	28.2	1.1	10	"	40.0		71	36-117	8	28	
2,4-Dinitrotoluene (2,4-DNT)	33.9	0.81	10	"	40.0		85	24-116	8	38	
2-Chlorophenol	32.5	0.88	10	"	40.0		81	23-134	8	40	
4-Chloro-3-methylphenol	34.1	0.94	10	"	40.0		85	23-117	1	42	
4-Nitrophenol	22.2	0.95	25	"	40.0		55	10-108	13	45	J
Acenaphthene	32.1	0.74	10	"	40.0		80	46-118	9	31	
N-Nitrosodi-n-propylamine	30.5	0.62	10	"	40.0		76	41-126	5	38	
Pentachlorophenol	28.9	1.8	25	"	40.0		72	10-113	31	45	
Phenol	18.1	1.2	10	"	40.0		45	5-112	11	42	
Pyrene	33.1	0.73	10	"	40.0		83	26-127	10	31	

CALIFORNIA LABORATORY SERVICES

07/14/16 10:53

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0317**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Semivolatile Organic Compounds by EPA Method 8270C - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch CZ04113 - EPA 3510B GCMS

07/14/16 10:53

El Dorado County Environmental
2850 Fairlane Court, Building C
Placerville CA, 95667

Project: Union Mine Disposal Facility
Project Number: [none]
Project Manager: Greg Stanton

CLS Work Order #: CZF0317
COC #:

Volatile Organic Compounds by EPA Method 8260B - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ04084 - EPA 5030 Water MS											
Blank (CZ04084-BLK1)				Prepared & Analyzed: 06/08/16							
Surrogate: 1,2-Dichloroethane-d4	*11.4*			*µg/L*	*10.0*		*114*	*66-135*			
Surrogate: 4-Bromofluorobenzene	*11.4*			*"*	*10.0*		*114*	*73-125*			
Surrogate: Toluene-d8	*8.04*			*"*	*10.0*		*80*	*72-125*			
1,1,1,2-Tetrachloroethane	ND	0.17	0.50	"							
1,1,1-Trichloroethane	ND	0.095	0.50	"							
1,1,2,2-Tetrachloroethane	ND	0.19	0.50	"							
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.23	0.50	"							
1,1,2-Trichloroethane	ND	0.15	0.50	"							
1,1-Dichloroethane	ND	0.11	0.50	"							
1,1-Dichloroethene	ND	0.14	0.50	"							
1,1-Dichloropropene	ND	0.15	0.50	"							
1,2,3-Trichlorobenzene	ND	0.15	0.50	"							
1,2,3-Trichloropropane	ND	0.23	0.50	"							
1,2,4-Trichlorobenzene	ND	0.11	0.50	"							
1,2,4-Trimethylbenzene	ND	0.15	0.50	"							
1,2-Dibromo-3-chloropropane	ND	0.39	1.0	"							
1,2-Dibromoethane (EDB)	ND	0.15	0.50	"							
1,2-Dichlorobenzene	ND	0.097	0.50	"							
1,2-Dichloroethane	ND	0.16	0.50	"							
1,2-Dichloropropane	ND	0.14	0.50	"							
1,3,5-Trimethylbenzene	ND	0.12	0.50	"							
1,3-Dichlorobenzene	ND	0.12	0.50	"							
1,3-Dichloropropane	ND	0.16	0.50	"							
1,4-Dichloro-2-butene	ND	1.0	1.0	"							
1,4-Dichlorobenzene	ND	0.16	0.50	"							
2,2-Dichloropropane	ND	0.27	0.50	"							
2-Butanone	ND	1.1	10	"							
2-Hexanone	ND	0.90	10	"							
4-Methyl-2-pentanone	ND	1.6	10	"							
Acetone	ND	1.0	10	"							
Acrylonitrile	ND	5.0	5.0	"							
Benzene	ND	0.11	0.50	"							
Bromobenzene	ND	0.13	0.50	"							
Bromochloromethane	ND	0.13	0.50	"							
Bromodichloromethane	ND	0.12	0.50	"							

CALIFORNIA LABORATORY SERVICES

07/14/16 10:53

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0317**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Volatile Organic Compounds by EPA Method 8260B - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ04084 - EPA 5030 Water MS											
Blank (CZ04084-BLK1)					Prepared & Analyzed: 06/08/16						
Bromoform	ND	0.15	0.50	µg/L							
Bromomethane	ND	0.39	1.0	"							
Carbon disulfide	ND	0.13	0.50	"							
Carbon tetrachloride	ND	0.17	0.50	"							
Chlorobenzene	ND	0.082	0.50	"							
Chloroethane	ND	0.15	0.50	"							
Chloroform	ND	0.19	0.50	"							
Chloromethane	ND	0.056	1.0	"							
cis-1,2-Dichloroethene	ND	0.15	0.50	"							
cis-1,3-Dichloropropene	ND	0.14	0.50	"							
Dibromochloromethane	ND	0.14	0.50	"							
Dibromomethane	ND	0.25	0.50	"							
Dichlorodifluoromethane (Freon 12)	ND	0.14	1.0	"							
Ethylbenzene	ND	0.10	0.50	"							
Hexachlorobutadiene	ND	0.23	0.50	"							
Iodomethane	ND	1.0	1.0	"							
Isopropylbenzene	ND	0.11	0.50	"							
Methyl tert-butyl ether	ND	0.095	0.50	"							
Methylene chloride	ND	0.24	0.50	"							
Naphthalene	ND	0.21	0.50	"							
n-Butylbenzene	ND	0.10	0.50	"							
n-Propylbenzene	ND	0.13	0.50	"							
o-Chlorotoluene	ND	0.092	0.50	"							
p-Chlorotoluene	ND	0.11	0.50	"							
p-Isopropyltoluene	ND	0.14	0.50	"							
sec-Butylbenzene	ND	0.088	0.50	"							
Styrene	ND	0.10	0.50	"							
tert-Butylbenzene	ND	0.082	0.50	"							
Tetrachloroethene	ND	0.13	0.50	"							
Toluene	ND	0.11	0.50	"							
trans-1,2-Dichloroethene	ND	0.15	0.50	"							
trans-1,3-Dichloropropene	ND	0.18	0.50	"							
Trichloroethene	ND	0.063	0.50	"							
Trichlorofluoromethane	ND	0.14	0.50	"							
Vinyl acetate	ND	0.20	1.0	"							
Vinyl chloride	ND	0.14	1.0	"							

CALIFORNIA LABORATORY SERVICES

07/14/16 10:53

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0317**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Volatile Organic Compounds by EPA Method 8260B - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ04084 - EPA 5030 Water MS											
Blank (CZ04084-BLK1)					Prepared & Analyzed: 06/08/16						
Xylenes (total)	ND	0.33	1.0	µg/L							
LCS (CZ04084-BS1)					Prepared & Analyzed: 06/08/16						
Surrogate: 1,2-Dichloroethane-d4	*9.08*			*µg/L*	*10.0*		*91*	*66-135*			
Surrogate: 4-Bromofluorobenzene	*9.64*			"	*10.0*		*96*	*73-125*			
Surrogate: Toluene-d8	*10.5*			"	*10.0*		*105*	*72-125*			
1,1-Dichloroethene	18.2	0.14	0.50	"	20.0		91	42-150			
Benzene	20.7	0.11	0.50	"	20.0		103	60-135			
Chlorobenzene	20.7	0.082	0.50	"	20.0		104	60-133			
Toluene	20.9	0.11	0.50	"	20.0		105	60-137			
Trichloroethene	19.6	0.063	0.50	"	20.0		98	62-140			
LCS Dup (CZ04084-BSD1)					Prepared & Analyzed: 06/08/16						
Surrogate: 1,2-Dichloroethane-d4	*8.42*			*µg/L*	*10.0*		*84*	*66-135*			
Surrogate: 4-Bromofluorobenzene	*12.4*			"	*10.0*		*124*	*73-125*			
Surrogate: Toluene-d8	*10.2*			"	*10.0*		*102*	*72-125*			
1,1-Dichloroethene	16.3	0.14	0.50	"	20.0		82	42-150	11	25	
Benzene	19.7	0.11	0.50	"	20.0		99	60-135	5	25	
Chlorobenzene	19.9	0.082	0.50	"	20.0		99	60-133	4	25	
Toluene	19.6	0.11	0.50	"	20.0		98	60-137	7	25	
Trichloroethene	19.3	0.063	0.50	"	20.0		96	62-140	1	25	

CALIFORNIA LABORATORY SERVICES

07/14/16 10:53

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0317**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Notes and Definitions

QM-7	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.
QM-1	The spike recovery was outside acceptance limits for the LCS or LCSD. The batch was accepted based on acceptable MS/MSD recoveries & RPD's.
J	Detected but below the Reporting Limit; therefore, result is an estimated concentration.
Hg	It was analyzed by ICP/MS (EPA method 200.8) due to that the mercury analyzer is down.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit (or method detection limit when specified)
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

This is a "MDL Report", thus if the report denotes an "ND" for a particular analyte, it should be noted that the analyte was not detected at or above the MDL.

CALIFORNIA LABORATORY SERVICES

07/14/16 10:53

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0317**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

CZF0317

CLS Laboratories

3249 Fitzgerald Road, Rancho Cordova CA

Phone: (916) 638-7301

CHAIN OF CUSTODY/ANALYSIS REQUEST FORM

Lab Login# Date 7/8/16 Page 1 of 1

Union Mine Disposal Facility

Report to: Robert Lauritzen
El Dorado County Environmental Management
2850 Fairlane Court, Bldg C
Placerville CA 95667
Office: (530) 621-5120
Fax: (530) 626-7160

Sample ID	Date	Time	Lab ID	Sample Matrix	# of Containers	Dis-Ac Fe Ca Mg K Na (HNO3)	VOC & TOC (HCL)	Bicarb/Carb Alkalinity (NP)	Nitrate-N SO4 Cl TDS (NP)	Dissolved Inorganics (HNO3)	Sulfide (Zn-Acetate)	SVOC 8270C (NP)	Chlorinated Herbicides (NP)	Organophosphorus Pesticides (NP)	Cyanide (NaOH)			Comments
SS-1 (trench)	7/8/16	1020		water	12	X	X	X	X	X	X	X	X	X	X			
~~SS-2 (plug)~~				~~water~~	~~12~~	X	X	X	X	X	X	X	X	X	X			

Relinquished by
Signature: Robert Lauritzen
Printed Name: Robert Lauritzen
El Dorado County
Date/Time: 7/8/16 1645

Recieved by
Signature: Greg Stanton
Printed Name: Greg Stanton
Date/Time: 07/8/16 1653 (0.9)

TAT Requirements
X Standard (5 days)
X 1st Fe needed

Report Requirements
I Routine Report
II Receipt includes DUP,MS MSD, as required
III Data Validation Report
X RWQCB (MDLs/PQLs/Tracer)

Additional Info
Metals Field Filtered yes
Dissolved Metals-As, Fe, Ca, Mg, K, Na
Nitrate as Nitrogen
dissolved inorganics-Al, Sb, Ba, Be, Cd, Cr, Co, Cu, Pb, Mn, Hg, Ni, Se, Ag, Tl, Sn, Va, Zn

Invoice: Greg Stanton, EDCEM
Address: 2850 Fairlane Ct., Bldg C, Placerville, CA 95667
Contract # 07-C-0607-BOS

CALIFORNIA LABORATORY SERVICES

3249 Fitzgerald Road Rancho Cordova, CA 95742

25 May 2016

CLS Work Order #: CZE0616

COC #:

Robert Lauritzen

El Dorado County Environmental

2850 Fairlane Court, Building C

Placerville, CA 95667

Project Name: Union Mine Disposal Facility

Enclosed are the results of analyses for samples received by the laboratory on 05/13/16 12:08. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness. Any comments and exceptions are addressed below as well as under the Notes and Definitions section.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

James Liang, Ph.D.
Laboratory Director

CA DOHS ELAP Accreditation/Registration number 1233

CALIFORNIA LABORATORY SERVICES

05/25/16 12:02

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0616**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Robert Lauritzen	

Chlorinated Herbicides by EPA Method 8151A

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LCRS-pipe (CZE0616-01) Water Sampled: 05/13/16 09:00 Received: 05/13/16 12:08										
Surrogate: 2,4-DCAA	*71 %*		*50-150*	µg/L		*CZ03562*	05/19/16	*05/24/16*	*EPA 8151A*	
2,4,5-T	ND	0.040	0.50	"	1	"	"	"	"	
2,4,5-TP (Silvex)	ND	0.0070	0.20	"	1	"	"	"	"	
2,4-D (2,4-Dichlorophenoxyacetic acid)	ND	0.061	1.0	"	1	"	"	"	"	
2,4-DB	ND	0.22	2.0	"	1	"	"	"	"	
Dalapon	ND	0.084	2.0	"	1	"	"	"	"	
Dicamba	ND	0.093	1.0	"	1	"	"	"	"	
Dichloroprop	ND	0.040	2.0	"	1	"	"	"	"	
Dinoseb	ND	0.055	1.0	"	1	"	"	"	"	
MCPA	ND	0.73	250	"	1	"	"	"	"	
MCPP	ND	1.6	250	"	1	"	"	"	"	
Pentachlorophenol	ND	0.011	0.20	"	1	"	"	"	"	
Class II-Pond (CZE0616-02) Water Sampled: 05/13/16 09:50 Received: 05/13/16 12:08										
Surrogate: 2,4-DCAA	*75 %*		*50-150*	µg/L		*CZ03562*	05/19/16	*05/24/16*	*EPA 8151A*	
2,4,5-T	ND	0.046	0.58	"	1	"	"	"	"	
2,4,5-TP (Silvex)	ND	0.0081	0.23	"	1	"	"	"	"	
2,4-D (2,4-Dichlorophenoxyacetic acid)	ND	0.071	1.2	"	1	"	"	"	"	
2,4-DB	ND	0.26	2.3	"	1	"	"	"	"	
Dalapon	ND	0.097	2.3	"	1	"	"	"	"	
Dicamba	ND	0.11	1.2	"	1	"	"	"	"	
Dichloroprop	ND	0.046	2.3	"	1	"	"	"	"	
Dinoseb	ND	0.064	1.2	"	1	"	"	"	"	
MCPA	ND	0.84	290	"	1	"	"	"	"	
MCPP	ND	1.8	290	"	1	"	"	"	"	
Pentachlorophenol	ND	0.013	0.23	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

05/25/16 12:02

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0616**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Robert Lauritzen	

Chlorinated Herbicides by EPA Method 8151A

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LCRS-Sump (CZE0616-03) Water Sampled: 05/13/16 10:30 Received: 05/13/16 12:08										
Surrogate: 2,4-DCAA	*89 %*		*50-150*	µg/L		*CZ03562*	05/19/16	*05/24/16*	*EPA 8151A*	
2,4,5-T	ND	0.040	0.50	"	1	"	"	"	"	
2,4,5-TP (Silvex)	ND	0.0070	0.20	"	1	"	"	"	"	
2,4-D (2,4-Dichlorophenoxyacetic acid)	ND	0.061	1.0	"	1	"	"	"	"	
2,4-DB	ND	0.22	2.0	"	1	"	"	"	"	
Dalapon	ND	0.084	2.0	"	1	"	"	"	"	
Dicamba	ND	0.093	1.0	"	1	"	"	"	"	
Dichloroprop	ND	0.040	2.0	"	1	"	"	"	"	
Dinoseb	ND	0.055	1.0	"	1	"	"	"	"	
MCPA	ND	0.73	250	"	1	"	"	"	"	
MCPP	ND	1.6	250	"	1	"	"	"	"	
Pentachlorophenol	ND	0.011	0.20	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

05/25/16 12:02

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0616**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Robert Lauritzen	

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LCRS-pipe (CZE0616-01) Water Sampled: 05/13/16 09:00 Received: 05/13/16 12:08										
Bicarbonate as CaCO3	**490**	0.50	5.0	mg/L	1	CZ03476	05/16/16	05/16/16	SM2320B	
Carbonate as CaCO3	ND	0.50	5.0	"	1	"	"	"	"	
Chloride	**140**	0.26	5.0	"	10	CZ03403	05/13/16	05/13/16	EPA 300.0	
Cyanide (dissolved)	ND	0.0012	0.0050	"	1	CZ03583	05/19/16	05/19/16	SM4500	
Hydroxide as CaCO3	ND	0.50	5.0	"	1	CZ03476	05/16/16	05/16/16	SM2320B	
Nitrate as N	**49**	0.53	4.0	"	10	CZ03403	05/13/16	05/13/16	EPA 300.0	
Sulfate as SO4	**76**	0.38	5.0	"	10	"	"	"	"	
Sulfide, Dissolved	ND	0.84	1.0	"	1	CZ03495	05/17/16	05/17/16	EPA 9030B	
Total Alkalinity	**490**	1.0	5.0	"	1	CZ03476	05/16/16	05/16/16	SM2320B	
Total Dissolved Solids	**950**	10	10	"	1	CZ03492	05/17/16	05/18/16	SM2540C	
Total Organic Carbon	**44**	2.7	5.0	"	5	CZ03483	05/17/16	05/18/16	SM5310B	
Class II-Pond (CZE0616-02) Water Sampled: 05/13/16 09:50 Received: 05/13/16 12:08										
Bicarbonate as CaCO3	**24**	0.50	5.0	mg/L	1	CZ03476	05/16/16	05/16/16	SM2320B	
Carbonate as CaCO3	**66**	0.50	5.0	"	1	"	"	"	"	
Chloride	**27**	0.026	0.50	"	1	CZ03403	05/13/16	05/13/16	EPA 300.0	
Cyanide (dissolved)	ND	0.0012	0.0050	"	1	CZ03583	05/19/16	05/19/16	SM4500	
Hydroxide as CaCO3	ND	0.50	5.0	"	1	CZ03476	05/16/16	05/16/16	SM2320B	
Nitrate as N	**4.8**	0.053	0.40	"	1	CZ03403	05/13/16	05/13/16	EPA 300.0	
Sulfate as SO4	**54**	0.19	2.5	"	5	"	"	05/16/16	"	
Sulfide, Dissolved	ND	0.84	1.0	"	1	CZ03495	05/17/16	05/17/16	EPA 9030B	
Total Alkalinity	**90**	1.0	5.0	"	1	CZ03476	05/16/16	05/16/16	SM2320B	
Total Dissolved Solids	**280**	10	10	"	1	CZ03492	05/17/16	05/18/16	SM2540C	
Total Organic Carbon	**16**	0.54	1.0	"	1	CZ03483	05/17/16	05/18/16	SM5310B	

CALIFORNIA LABORATORY SERVICES

05/25/16 12:02

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0616**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Robert Lauritzen	

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LCRS-Sump (CZE0616-03) Water	**Sampled: 05/13/16 10:30 Received: 05/13/16 12:08**									
Bicarbonate as CaCO3	**53**	0.50	5.0	mg/L	1	CZ03476	05/16/16	05/16/16	SM2320B	
Carbonate as CaCO3	ND	0.50	5.0	"	1	"	"	"	"	
Chloride	**44**	0.13	2.5	"	5	CZ03403	05/13/16	05/13/16	EPA 300.0	
Cyanide (dissolved)	ND	0.0012	0.0050	"	1	CZ03583	05/19/16	05/19/16	SM4500	
Hydroxide as CaCO3	ND	0.50	5.0	"	1	CZ03476	05/16/16	05/16/16	SM2320B	
Nitrate as N	**6.6**	0.053	0.40	"	1	CZ03403	05/13/16	05/13/16	EPA 300.0	
Sulfate as SO4	**130**	0.19	2.5	"	5	"	"	05/13/16	"	
Sulfide, Dissolved	ND	0.84	1.0	"	1	CZ03495	05/17/16	05/17/16	EPA 9030B	
Total Alkalinity	**53**	1.0	5.0	"	1	CZ03476	05/16/16	05/16/16	SM2320B	
Total Dissolved Solids	**410**	10	10	"	1	CZ03492	05/17/16	05/18/16	SM2540C	
Total Organic Carbon	**9.7**	0.54	1.0	"	1	CZ03483	05/17/16	05/18/16	SM5310B	

CALIFORNIA LABORATORY SERVICES

05/25/16 12:02

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0616**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Robert Lauritzen	

Metals (Dissolved) by EPA 200 Series Methods

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LCRS-pipe (CZE0616-01) Water	**Sampled: 05/13/16 09:00**	**Received: 05/13/16 12:08**								
Aluminum	ND	27	50	µg/L	1	CZ03567	05/19/16	05/19/16	EPA 200.7	
Antimony	ND	0.00057	0.0060	mg/L	1	CZ03501	05/17/16	05/17/16	EPA 200.8	
Arsenic	**0.010**	0.00027	0.0020	"	1	"	"	"	"	
Barium	**150**	0.91	20	µg/L	1	CZ03567	05/19/16	05/19/16	EPA 200.7	
Beryllium	ND	0.43	5.0	"	1	"	"	"	"	
Cadmium	ND	2.8	10	"	1	"	"	"	"	
Calcium	**110000**	14	1000	"	1	"	"	"	"	
Chromium	ND	9.9	10	"	1	"	"	"	"	
Cobalt	ND	7.6	20	"	1	"	"	"	"	
Copper	**15**	3.2	10	"	1	"	"	"	"	
Iron	**32**	6.8	100	"	1	"	"	"	"	J
Lead	ND	0.00023	0.0050	mg/L	1	CZ03501	05/17/16	05/17/16	EPA 200.8	
Magnesium	**75000**	26	1000	µg/L	1	CZ03567	05/19/16	05/19/16	EPA 200.7	
Manganese	**710**	0.92	20	"	1	"	"	"	"	
Mercury	**0.70**	0.15	0.20	"	1	CZ03522	05/17/16	05/18/16	EPA 245.1	Hg
Nickel	**27**	14	20	"	1	CZ03567	05/19/16	05/19/16	EPA 200.7	
Potassium	**35000**	180	1000	"	1	"	"	"	"	
Selenium	ND	0.0011	0.0050	mg/L	1	CZ03501	05/17/16	05/17/16	EPA 200.8	
Silver	**5.7**	2.9	10	µg/L	1	CZ03567	05/19/16	05/19/16	EPA 200.7	J
Sodium	**120000**	17	1000	"	1	"	"	"	"	
Thallium	ND	0.00011	0.0010	mg/L	1	CZ03501	05/17/16	05/17/16	EPA 200.8	
Tin	ND	18	100	µg/L	1	CZ03567	05/19/16	05/19/16	EPA 200.7	
Vanadium	**0.0036**	0.00044	0.0030	mg/L	1	CZ03501	05/17/16	05/17/16	EPA 200.8	
Zinc	**17**	9.3	20	µg/L	1	CZ03567	05/19/16	05/19/16	EPA 200.7	J

CALIFORNIA LABORATORY SERVICES

05/25/16 12:02

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0616**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Robert Lauritzen	

Metals (Dissolved) by EPA 200 Series Methods

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Class II-Pond (CZE0616-02) Water	**Sampled: 05/13/16 09:50**	**Received: 05/13/16 12:08**								
Aluminum	ND	27	50	µg/L	1	CZ03567	05/19/16	05/19/16	EPA 200.7	
Antimony	ND	0.00057	0.0060	mg/L	1	CZ03501	05/17/16	05/17/16	EPA 200.8	
Arsenic	**0.0053**	0.00027	0.0020	"	1	"	"	"	"	
Barium	**37**	0.91	20	µg/L	1	CZ03567	05/19/16	05/19/16	EPA 200.7	
Beryllium	ND	0.43	5.0	"	1	"	"	"	"	
Cadmium	ND	2.8	10	"	1	"	"	"	"	
Calcium	**21000**	14	1000	"	1	"	"	"	"	
Chromium	ND	9.9	10	"	1	"	"	"	"	
Cobalt	ND	7.6	20	"	1	"	"	"	"	
Copper	**10**	3.2	10	"	1	"	"	"	"	
Iron	**8.2**	6.8	100	"	1	"	"	"	"	J
Lead	ND	0.00023	0.0050	mg/L	1	CZ03501	05/17/16	05/17/16	EPA 200.8	
Magnesium	**26000**	26	1000	µg/L	1	CZ03567	05/19/16	05/19/16	EPA 200.7	
Manganese	**12**	0.92	20	"	1	"	"	"	"	J
Mercury	**0.41**	0.15	0.20	"	1	CZ03522	05/17/16	05/18/16	EPA 245.1	Hg
Nickel	ND	14	20	"	1	CZ03567	05/19/16	05/19/16	EPA 200.7	
Potassium	**5100**	180	1000	"	1	"	"	"	"	
Selenium	ND	0.0011	0.0050	mg/L	1	CZ03501	05/17/16	05/17/16	EPA 200.8	
Silver	**5.4**	2.9	10	µg/L	1	CZ03567	05/19/16	05/19/16	EPA 200.7	J
Sodium	**25000**	17	1000	"	1	"	"	"	"	
Thallium	ND	0.00011	0.0010	mg/L	1	CZ03501	05/17/16	05/17/16	EPA 200.8	
Tin	ND	18	100	µg/L	1	CZ03567	05/19/16	05/19/16	EPA 200.7	
Vanadium	**0.0031**	0.00044	0.0030	mg/L	1	CZ03501	05/17/16	05/17/16	EPA 200.8	
Zinc	ND	9.3	20	µg/L	1	CZ03567	05/19/16	05/19/16	EPA 200.7	

CALIFORNIA LABORATORY SERVICES

05/25/16 12:02

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0616**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Robert Lauritzen	

Metals (Dissolved) by EPA 200 Series Methods

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LCRS-Sump (CZE0616-03) Water Sampled: 05/13/16 10:30 Received: 05/13/16 12:08										
Aluminum	ND	27	50	µg/L	1	CZ03567	05/19/16	05/19/16	EPA 200.7	
Antimony	**0.00076**	0.00057	0.0060	mg/L	1	CZ03501	05/17/16	05/17/16	EPA 200.8	J
Arsenic	**0.0040**	0.00027	0.0020	"	1	"	"	"	"	
Barium	**52**	0.91	20	µg/L	1	CZ03567	05/19/16	05/19/16	EPA 200.7	
Beryllium	ND	0.43	5.0	"	1	"	"	"	"	
Cadmium	ND	2.8	10	"	1	"	"	"	"	
Calcium	**39000**	14	1000	"	1	"	"	"	"	
Chromium	ND	9.9	10	"	1	"	"	"	"	
Cobalt	ND	7.6	20	"	1	"	"	"	"	
Copper	**15**	3.2	10	"	1	"	"	"	"	
Iron	ND	6.8	100	"	1	"	"	"	"	
Lead	ND	0.00023	0.0050	mg/L	1	CZ03501	05/17/16	05/17/16	EPA 200.8	
Magnesium	**26000**	26	1000	µg/L	1	CZ03567	05/19/16	05/19/16	EPA 200.7	
Manganese	**2.7**	0.92	20	"	1	"	"	"	"	J
Mercury	**0.54**	0.15	0.20	"	1	CZ03522	05/17/16	05/18/16	EPA 245.1	Hg
Nickel	**19**	14	20	"	1	CZ03567	05/19/16	05/19/16	EPA 200.7	J
Potassium	**6100**	180	1000	"	1	"	"	"	"	
Selenium	ND	0.0011	0.0050	mg/L	1	CZ03501	05/17/16	05/17/16	EPA 200.8	
Silver	**5.3**	2.9	10	µg/L	1	CZ03567	05/19/16	05/19/16	EPA 200.7	J
Sodium	**53000**	17	1000	"	1	"	"	"	"	
Thallium	ND	0.00011	0.0010	mg/L	1	CZ03501	05/17/16	05/17/16	EPA 200.8	
Tin	ND	18	100	µg/L	1	CZ03567	05/19/16	05/19/16	EPA 200.7	
Vanadium	**0.0032**	0.00044	0.0030	mg/L	1	CZ03501	05/17/16	05/17/16	EPA 200.8	
Zinc	**11**	9.3	20	µg/L	1	CZ03567	05/19/16	05/19/16	EPA 200.7	J

CALIFORNIA LABORATORY SERVICES

05/25/16 12:02

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0616**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Robert Lauritzen	

Organophosphorus Pesticides by EPA Method 8141A

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LCRS-pipe (CZE0616-01) Water Sampled: 05/13/16 09:00 Received: 05/13/16 12:08										
Surrogate: EPN	*84 %*		*50-150*	µg/L		*CZ03523*	05/13/16	*05/19/16*	*EPA 8141A*	
Bolstar	ND	0.018	0.050	"	1	"	"	"	"	
Chlorpyrifos	ND	0.018	0.050	"	1	"	"	"	"	
Coumaphos	ND	0.017	0.10	"	1	"	"	"	"	
Demeton	ND	0.026	0.10	"	1	"	"	"	"	
Diazinon	ND	0.033	0.050	"	1	"	"	"	"	
Dichlorvos	ND	0.023	0.10	"	1	"	"	"	"	
Disulfoton	ND	0.031	0.050	"	1	"	"	"	"	
Ethoprop	ND	0.016	0.050	"	1	"	"	"	"	
Fensulfothion	ND	0.036	0.050	"	1	"	"	"	"	
Fenthion	ND	0.018	0.050	"	1	"	"	"	"	
Guthion	ND	0.027	0.10	"	1	"	"	"	"	
Malathion	ND	0.014	0.050	"	1	"	"	"	"	
Merphos	ND	0.021	0.050	"	1	"	"	"	"	
Methyl parathion	ND	0.014	0.050	"	1	"	"	"	"	
Mevinphos	**0.044**	0.033	0.050	"	1	"	"	"	"	J
Phorate	ND	0.015	0.050	"	1	"	"	"	"	
Prothiofos	ND	0.0031	0.050	"	1	"	"	"	"	
Ronnel	ND	0.016	0.050	"	1	"	"	"	"	
Stirophos	ND	0.021	0.050	"	1	"	"	"	"	
Trichloronate	ND	0.020	0.050	"	1	"	"	"	"	
Class II-Pond (CZE0616-02) Water Sampled: 05/13/16 09:50 Received: 05/13/16 12:08										
Surrogate: EPN	*129 %*		*50-150*	µg/L		*CZ03523*	05/13/16	*05/19/16*	*EPA 8141A*	
Bolstar	ND	0.018	0.050	"	1	"	"	"	"	
Chlorpyrifos	ND	0.018	0.050	"	1	"	"	"	"	
Coumaphos	ND	0.017	0.10	"	1	"	"	"	"	
Demeton	ND	0.026	0.10	"	1	"	"	"	"	
Diazinon	ND	0.033	0.050	"	1	"	"	"	"	
Dichlorvos	ND	0.023	0.10	"	1	"	"	"	"	
Disulfoton	ND	0.031	0.050	"	1	"	"	"	"	
Ethoprop	ND	0.016	0.050	"	1	"	"	"	"	
Fensulfothion	ND	0.036	0.050	"	1	"	"	"	"	
Fenthion	ND	0.018	0.050	"	1	"	"	"	"	
Guthion	ND	0.027	0.10	"	1	"	"	"	"	
Malathion	ND	0.014	0.050	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0616**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Robert Lauritzen	

Organophosphorus Pesticides by EPA Method 8141A

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Class II-Pond (CZE0616-02) Water Sampled: 05/13/16 09:50 Received: 05/13/16 12:08										
Merphos	ND	0.021	0.050	µg/L	1	CZ03523	"	05/19/16	EPA 8141A	
Methyl parathion	ND	0.014	0.050	"	1	"	"	"	"	
Mevinphos	ND	0.033	0.050	"	1	"	"	"	"	
Phorate	ND	0.015	0.050	"	1	"	"	"	"	
Prothiofos	ND	0.0031	0.050	"	1	"	"	"	"	
Ronnel	ND	0.016	0.050	"	1	"	"	"	"	
Stirophos	ND	0.021	0.050	"	1	"	"	"	"	
Trichloronate	ND	0.020	0.050	"	1	"	"	"	"	
LCRS-Sump (CZE0616-03) Water Sampled: 05/13/16 10:30 Received: 05/13/16 12:08										
Surrogate: EPN	*109 %*		*50-150*	µg/L		*CZ03523*	05/13/16	*05/19/16*	*EPA 8141A*	
Bolstar	ND	0.018	0.050	"	1	"	"	"	"	
Chlorpyrifos	ND	0.018	0.050	"	1	"	"	"	"	
Coumaphos	ND	0.017	0.10	"	1	"	"	"	"	
Demeton	ND	0.026	0.10	"	1	"	"	"	"	
Diazinon	ND	0.033	0.050	"	1	"	"	"	"	
Dichlorvos	ND	0.023	0.10	"	1	"	"	"	"	
Disulfoton	ND	0.031	0.050	"	1	"	"	"	"	
Ethoprop	ND	0.016	0.050	"	1	"	"	"	"	
Fensulfothion	ND	0.036	0.050	"	1	"	"	"	"	
Fenthion	ND	0.018	0.050	"	1	"	"	"	"	
Guthion	ND	0.027	0.10	"	1	"	"	"	"	
Malathion	ND	0.014	0.050	"	1	"	"	"	"	
Merphos	ND	0.021	0.050	"	1	"	"	"	"	
Methyl parathion	ND	0.014	0.050	"	1	"	"	"	"	
Mevinphos	ND	0.033	0.050	"	1	"	"	"	"	
Phorate	ND	0.015	0.050	"	1	"	"	"	"	
Prothiofos	ND	0.0031	0.050	"	1	"	"	"	"	
Ronnel	ND	0.016	0.050	"	1	"	"	"	"	
Stirophos	ND	0.021	0.050	"	1	"	"	"	"	
Trichloronate	ND	0.020	0.050	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0616**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Robert Lauritzen	

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LCRS-pipe (CZE0616-01) Water	**Sampled: 05/13/16 09:00**	**Received: 05/13/16 12:08**								
Surrogate: 2,4,6-Tribromophenol	*73 %*		*10-123*	µg/L		*CZ03482*	05/17/16	*05/18/16*	*EPA 8270C*	
Surrogate: 2-Fluorobiphenyl	*70 %*		*43-116*	"		"	"	"	"	
Surrogate: 2-Fluorophenol	*48 %*		*21-110*	"		"	"	"	"	
Surrogate: Nitrobenzene-d5	*71 %*		*35-114*	"		"	"	"	"	
Surrogate: Phenol-d6	*29 %*		*10-110*	"		"	"	"	"	
Surrogate: Terphenyl-dl4	*60 %*		*33-141*	"		"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.94	10	"	1	"	"	"	"	
1,2-Dichlorobenzene	ND	1.1	10	"	1	"	"	"	"	
1,3-Dichlorobenzene	ND	1.2	10	"	1	"	"	"	"	
1,4-Dichlorobenzene	ND	1.1	10	"	1	"	"	"	"	
2,4,5-Trichlorophenol	ND	0.87	10	"	1	"	"	"	"	
2,4,6-Trichlorophenol	ND	0.96	10	"	1	"	"	"	"	
2,4-Dichlorophenol	ND	0.87	10	"	1	"	"	"	"	
2,4-Dimethylphenol	ND	4.0	10	"	1	"	"	"	"	
2,4-Dinitrophenol	ND	0.62	25	"	1	"	"	"	"	
2,4-Dinitrotoluene (2,4-DNT)	ND	0.81	10	"	1	"	"	"	"	
2,6-Dinitrotoluene (2,6-DNT)	ND	0.71	10	"	1	"	"	"	"	
2-Chloronaphthalene	ND	0.70	10	"	1	"	"	"	"	
2-Chlorophenol	ND	0.88	10	"	1	"	"	"	"	
2-Methylnaphthalene	ND	0.72	10	"	1	"	"	"	"	
2-Methylphenol	ND	1.6	10	"	1	"	"	"	"	
2-Nitroaniline	ND	0.61	25	"	1	"	"	"	"	
2-Nitrophenol	ND	0.94	10	"	1	"	"	"	"	
3 & 4-Methylphenol	ND	2.6	10	"	1	"	"	"	"	
3,3'-Dichlorobenzidine	ND	4.1	20	"	1	"	"	"	"	
3-Nitroaniline	ND	0.96	25	"	1	"	"	"	"	
4,6-Dinitro-2-methylphenol	ND	1.2	25	"	1	"	"	"	"	
4-Bromophenyl phenyl ether	ND	0.80	10	"	1	"	"	"	"	
4-Chloro-3-methylphenol	ND	0.94	10	"	1	"	"	"	"	
4-Chloroaniline	**3.4**	1.8	10	"	1	"	"	"	"	J
4-Chlorophenyl phenyl ether	ND	0.78	10	"	1	"	"	"	"	
4-Nitroaniline	ND	0.87	25	"	1	"	"	"	"	
4-Nitrophenol	ND	0.95	25	"	1	"	"	"	"	
Acenaphthene	ND	0.74	10	"	1	"	"	"	"	
Acenaphthylene	ND	0.63	10	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0616**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Robert Lauritzen	

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LCRS-pipe (CZE0616-01) Water Sampled: 05/13/16 09:00 Received: 05/13/16 12:08										
Anthracene	ND	0.65	10	µg/L	1	CZ03482	"	05/18/16	EPA 8270C	
Benzo (a) anthracene	ND	1.7	10	"	1	"	"	"	"	
Benzo (a) pyrene	ND	2.1	10	"	1	"	"	"	"	
Benzo (b) fluoranthene	ND	3.3	10	"	1	"	"	"	"	
Benzo (g,h,i) perylene	ND	2.7	10	"	1	"	"	"	"	
Benzo (k) fluoranthene	ND	1.5	10	"	1	"	"	"	"	
Benzoic acid	ND	4.2	25	"	1	"	"	"	"	
Benzyl alcohol	ND	1.6	10	"	1	"	"	"	"	
Bis(2-chloroethoxy)methane	ND	0.67	10	"	1	"	"	"	"	
Bis(2-chloroethyl)ether	ND	0.66	10	"	1	"	"	"	"	
Bis(2-chloroisopropyl)ether	ND	0.54	10	"	1	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	1.1	10	"	1	"	"	"	"	
Butyl benzyl phthalate	ND	4.4	10	"	1	"	"	"	"	
Chrysene	ND	0.78	10	"	1	"	"	"	"	
Dibenz (a,h) anthracene	ND	2.4	10	"	1	"	"	"	"	
Dibenzofuran	ND	0.67	10	"	1	"	"	"	"	
Diethyl phthalate	ND	4.7	10	"	1	"	"	"	"	
Dimethyl phthalate	ND	4.2	10	"	1	"	"	"	"	
Di-n-butyl phthalate	ND	3.8	10	"	1	"	"	"	"	
Di-n-octyl phthalate	ND	3.4	10	"	1	"	"	"	"	
Fluoranthene	ND	0.66	10	"	1	"	"	"	"	
Fluorene	ND	0.67	10	"	1	"	"	"	"	
Hexachlorobenzene	ND	0.86	10	"	1	"	"	"	"	
Hexachlorobutadiene	ND	1.9	10	"	1	"	"	"	"	
Hexachlorocyclopentadiene	ND	0.55	10	"	1	"	"	"	"	
Hexachloroethane	ND	1.2	10	"	1	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	1.7	10	"	1	"	"	"	"	
Isophorone	ND	0.62	10	"	1	"	"	"	"	
Naphthalene	ND	0.70	10	"	1	"	"	"	"	
Nitrobenzene (NB)	ND	0.64	10	"	1	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	0.62	10	"	1	"	"	"	"	
N-Nitrosodiphenylamine	ND	0.93	10	"	1	"	"	"	"	
Pentachlorophenol	ND	1.8	25	"	1	"	"	"	"	
Phenanthrene	ND	0.59	10	"	1	"	"	"	"	
Phenol	ND	1.2	10	"	1	"	"	"	"	
Pyrene	ND	0.73	10	"	1	"	"	"	"	

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0616**
2850 Fairlane Court, Building C	Projeet Number: [none]	COC #:
Placerville CA, 95667	Projeet Manager: Robert Lauritzen	

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Class II-Pond (CZE0616-02) Water	**Sampled: 05/13/16 09:50**		**Received: 05/13/16 12:08**							
Surrogate: 2,4,6-Tribromophenol	*81 %*		*10-123*	µg/L		*CZ03482*	05/17/16	*05/18/16*	*EPA 8270C*	
Surrogate: 2-Fluorobiphenyl	*63 %*		*43-116*	"		"	"	"	"	
Surrogate: 2-Fluorophenol	*38 %*		*21-110*	"		"	"	"	"	
Surrogate: Nitrobenzene-d5	*64 %*		*35-114*	"		"	"	"	"	
Surrogate: Phenol-d6	*28 %*		*10-110*	"		"	"	"	"	
Surrogate: Terphenyl-dl4	*75 %*		*33-141*	"		"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.94	10	"	1	"	"	"	"	
1,2-Diehlorobenzene	ND	1.1	10	"	1	"	"	"	"	
1,3-Diehlorobenzene	ND	1.2	10	"	1	"	"	"	"	
1,4-Dichlorobenzene	ND	1.1	10	"	1	"	"	"	"	
2,4,5-Trichlorophenol	ND	0.87	10	"	1	"	"	"	"	
2,4,6-Trichlorophenol	ND	0.96	10	"	1	"	"	"	"	
2,4-Dichlorophenol	ND	0.87	10	"	1	"	"	"	"	
2,4-Dimethylphenol	ND	4.0	10	"	1	"	"	"	"	
2,4-Dinitrophenol	ND	0.62	25	"	1	"	"	"	"	
2,4-Dinitrotoluene (2,4-DNT)	ND	0.81	10	"	1	"	"	"	"	
2,6-Dinitrotoluene (2,6-DNT)	ND	0.71	10	"	1	"	"	"	"	
2-Chloronaphthalene	ND	0.70	10	"	1	"	"	"	"	
2-Chlorophenol	ND	0.88	10	"	1	"	"	"	"	
2-Methylnaphthalene	ND	0.72	10	"	1	"	"	"	"	
2-Methylphenol	ND	1.6	10	"	1	"	"	"	"	
2-Nitroaniline	ND	0.61	25	"	1	"	"	"	"	
2-Nitrophenol	ND	0.94	10	"	1	"	"	"	"	
3 & 4-Methylphenol	ND	2.6	10	"	1	"	"	"	"	
3,3'-Dichlorobenzidine	ND	4.1	20	"	1	"	"	"	"	
3-Nitroaniline	ND	0.96	25	"	1	"	"	"	"	
4,6-Dinitro-2-methylphenol	ND	1.2	25	"	1	"	"	"	"	
4-Bromophenyl phenyl ether	ND	0.80	10	"	1	"	"	"	"	
4-Chloro-3-methylphenol	ND	0.94	10	"	1	"	"	"	"	
4-Chloroaniline	ND	1.8	10	"	1	"	"	"	"	
4-Chlorophenyl phenyl ether	ND	0.78	10	"	1	"	"	"	"	
4-Nitroaniline	ND	0.87	25	"	1	"	"	"	"	
4-Nitrophenol	ND	0.95	25	"	1	"	"	"	"	
Acenaphthene	ND	0.74	10	"	1	"	"	"	"	
Acenaphthylene	ND	0.63	10	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0616**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Robert Lauritzen	

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Class II-Pond (CZE0616-02) Water Sampled: 05/13/16 09:50 Received: 05/13/16 12:08										
Anthracene	ND	0.65	10	µg/L	1	CZ03482	"	05/18/16	EPA 8270C	
Benzo (a) anthracene	ND	1.7	10	"	1	"	"	"	"	
Benzo (a) pyrene	ND	2.1	10	"	1	"	"	"	"	
Benzo (b) fluoranthene	ND	3.3	10	"	1	"	"	"	"	
Benzo (g,h,i) perylene	ND	2.7	10	"	1	"	"	"	"	
Benzo (k) fluoranthene	ND	1.5	10	"	1	"	"	"	"	
Benzoic acid	ND	4.2	25	"	1	"	"	"	"	
Benzyl alcohol	ND	1.6	10	"	1	"	"	"	"	
Bis(2-chloroethoxy)methane	ND	0.67	10	"	1	"	"	"	"	
Bis(2-chloroethyl)ether	ND	0.66	10	"	1	"	"	"	"	
Bis(2-chloroisopropyl)ether	ND	0.54	10	"	1	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	1.1	10	"	1	"	"	"	"	
Butyl benzyl phthalate	ND	4.4	10	"	1	"	"	"	"	
Chrysene	ND	0.78	10	"	1	"	"	"	"	
Dibenz (a,h) anthracene	ND	2.4	10	"	1	"	"	"	"	
Dibenzofuran	ND	0.67	10	"	1	"	"	"	"	
Diethyl phthalate	ND	4.7	10	"	1	"	"	"	"	
Dimethyl phthalate	ND	4.2	10	"	1	"	"	"	"	
Di-n-butyl phthalate	ND	3.8	10	"	1	"	"	"	"	
Di-n-octyl phthalate	ND	3.4	10	"	1	"	"	"	"	
Fluoranthene	ND	0.66	10	"	1	"	"	"	"	
Fluorene	ND	0.67	10	"	1	"	"	"	"	
Hexachlorobenzene	ND	0.86	10	"	1	"	"	"	"	
Hexachlorobutadiene	ND	1.9	10	"	1	"	"	"	"	
Hexachlorocyclopentadiene	ND	0.55	10	"	1	"	"	"	"	
Hexachloroethane	ND	1.2	10	"	1	"	"	"	"	
Indeno (1,2,3-ed) pyrene	ND	1.7	10	"	1	"	"	"	"	
Isophorone	ND	0.62	10	"	1	"	"	"	"	
Naphthalene	ND	0.70	10	"	1	"	"	"	"	
Nitrobenzene (NB)	ND	0.64	10	"	1	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	0.62	10	"	1	"	"	"	"	
N-Nitrosodiphenylamine	ND	0.93	10	"	1	"	"	"	"	
Pentachlorophenol	ND	1.8	25	"	1	"	"	"	"	
Phenanthrene	ND	0.59	10	"	1	"	"	"	"	
Phenol	ND	1.2	10	"	1	"	"	"	"	
Pyrene	ND	0.73	10	"	1	"	"	"	"	

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0616**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Robert Lauritzen	

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LCRS-Sump (CZE0616-03) Water	**Sampled: 05/13/16 10:30 Received: 05/13/16 12:08**									
Surrogate: 2,4,6-Tribromophenol	*90 %*		*10-123*	µg/L		*CZ03482*	05/17/16	*05/18/16*	*EPA 8270C*	
Surrogate: 2-Fluorobiphenyl	*70 %*		*43-116*	"		"	"	"	"	
Surrogate: 2-Fluorophenol	*50 %*		*21-110*	"		"	"	"	"	
Surrogate: Nitrobenzene-d5	*73 %*		*35-114*	"		"	"	"	"	
Surrogate: Phenol-d6	*40 %*		*10-110*	"		"	"	"	"	
Surrogate: Terphenyl-dl4	*71 %*		*33-141*	"		"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.94	10	"	1	"	"	"	"	
1,2-Dichlorobenzene	ND	1.1	10	"	1	"	"	"	"	
1,3-Dichlorobenzene	ND	1.2	10	"	1	"	"	"	"	
1,4-Dichlorobenzene	ND	1.1	10	"	1	"	"	"	"	
2,4,5-Trichlorophenol	ND	0.87	10	"	1	"	"	"	"	
2,4,6-Trichlorophenol	ND	0.96	10	"	1	"	"	"	"	
2,4-Dichlorophenol	ND	0.87	10	"	1	"	"	"	"	
2,4-Dimethylphenol	ND	4.0	10	"	1	"	"	"	"	
2,4-Dinitrophenol	ND	0.62	25	"	1	"	"	"	"	
2,4-Dinitrotoluene (2,4-DNT)	ND	0.81	10	"	1	"	"	"	"	
2,6-Dinitrotoluene (2,6-DNT)	ND	0.71	10	"	1	"	"	"	"	
2-Chloronaphthalene	ND	0.70	10	"	1	"	"	"	"	
2-Chlorophenol	ND	0.88	10	"	1	"	"	"	"	
2-Methylnaphthalene	ND	0.72	10	"	1	"	"	"	"	
2-Methylphenol	ND	1.6	10	"	1	"	"	"	"	
2-Nitroaniline	ND	0.61	25	"	1	"	"	"	"	
2-Nitrophenol	ND	0.94	10	"	1	"	"	"	"	
3 & 4-Methylphenol	ND	2.6	10	"	1	"	"	"	"	
3,3'-Dichlorobenzidine	ND	4.1	20	"	1	"	"	"	"	
3-Nitroaniline	ND	0.96	25	"	1	"	"	"	"	
4,6-Dinitro-2-methylphenol	ND	1.2	25	"	1	"	"	"	"	
4-Bromophenyl phenyl ether	ND	0.80	10	"	1	"	"	"	"	
4-Chloro-3-methylphenol	ND	0.94	10	"	1	"	"	"	"	
4-Chloroaniline	ND	1.8	10	"	1	"	"	"	"	
4-Chlorophenyl phenyl ether	ND	0.78	10	"	1	"	"	"	"	
4-Nitroaniline	ND	0.87	25	"	1	"	"	"	"	
4-Nitrophenol	ND	0.95	25	"	1	"	"	"	"	
Acenaphthene	ND	0.74	10	"	1	"	"	"	"	
Acenaphthylene	ND	0.63	10	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0616**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Robert Lauritzen	

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LCRS-Sump (CZE0616-03) Water Sampled: 05/13/16 10:30 Received: 05/13/16 12:08										
Anthracene	ND	0.65	10	µg/L	1	CZ03482	"	05/18/16	EPA 8270C	
Benzo (a) anthracene	ND	1.7	10	"	1	"	"	"	"	
Benzo (a) pyrene	ND	2.1	10	"	1	"	"	"	"	
Benzo (b) fluoranthene	ND	3.3	10	"	1	"	"	"	"	
Benzo (g,h,i) perylene	ND	2.7	10	"	1	"	"	"	"	
Benzo (k) fluoranthene	ND	1.5	10	"	1	"	"	"	"	
Benzoic acid	ND	4.2	25	"	1	"	"	"	"	
Benzyl alcohol	ND	1.6	10	"	1	"	"	"	"	
Bis(2-chloroethoxy)methane	ND	0.67	10	"	1	"	"	"	"	
Bis(2-chloroethyl)ether	ND	0.66	10	"	1	"	"	"	"	
Bis(2-chloroisopropyl)ether	ND	0.54	10	"	1	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	1.1	10	"	1	"	"	"	"	
Butyl benzyl phthalate	ND	4.4	10	"	1	"	"	"	"	
Chrysene	ND	0.78	10	"	1	"	"	"	"	
Dibenz (a,h) anthracene	ND	2.4	10	"	1	"	"	"	"	
Dibenzofuran	ND	0.67	10	"	1	"	"	"	"	
Diethyl phthalate	ND	4.7	10	"	1	"	"	"	"	
Dimethyl phthalate	ND	4.2	10	"	1	"	"	"	"	
Di-n-butyl phthalate	ND	3.8	10	"	1	"	"	"	"	
Di-n-octyl phthalate	ND	3.4	10	"	1	"	"	"	"	
Fluoranthene	ND	0.66	10	"	1	"	"	"	"	
Fluorene	ND	0.67	10	"	1	"	"	"	"	
Hexachlorobenzene	ND	0.86	10	"	1	"	"	"	"	
Hexachlorobutadiene	ND	1.9	10	"	1	"	"	"	"	
Hexachlorocyclopentadiene	ND	0.55	10	"	1	"	"	"	"	
Hexachloroethane	ND	1.2	10	"	1	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	1.7	10	"	1	"	"	"	"	
Isophorone	ND	0.62	10	"	1	"	"	"	"	
Naphthalene	ND	0.70	10	"	1	"	"	"	"	
Nitrobenzene (NB)	ND	0.64	10	"	1	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	0.62	10	"	1	"	"	"	"	
N-Nitrosodiphenylamine	ND	0.93	10	"	1	"	"	"	"	
Pentachlorophenol	ND	1.8	25	"	1	"	"	"	"	
Phenanthrene	ND	0.59	10	"	1	"	"	"	"	
Phenol	ND	1.2	10	"	1	"	"	"	"	
Pyrene	ND	0.73	10	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

05/25/16 12:02

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0616**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Robert Lauritzen	

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LCRS-pipe (CZE0616-01) Water	**Sampled: 05/13/16 09:00**	**Received: 05/13/16 12:08**								
Surrogate: 1,2-Dichloroethane-d4	*81 %*		*66-135*	µg/L		*CZ03457*	05/15/16	*05/15/16*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene	*110 %*		*73-125*	"		"	"	"	"	
Surrogate: Toluene-d8	*74 %*		*72-125*	"		"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.17	0.50	"	1	"	"	"	"	
1,1,1-Trichloroethane	ND	0.095	0.50	"	1	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.19	0.50	"	1	"	"	"	"	
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.23	0.50	"	1	"	"	"	"	
1,1,2-Trichloroethane	ND	0.15	0.50	"	1	"	"	"	"	
1,1-Dichloroethane	ND	0.11	0.50	"	1	"	"	"	"	
1,1-Dichloroethene	ND	0.14	0.50	"	1	"	"	"	"	
1,1-Dichloropropene	ND	0.15	0.50	"	1	"	"	"	"	
1,2,3-Trichlorobenzene	ND	0.15	0.50	"	1	"	"	"	"	
1,2,3-Trichloropropane	ND	0.23	0.50	"	1	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.11	0.50	"	1	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.15	0.50	"	1	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	0.39	1.0	"	1	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.15	0.50	"	1	"	"	"	"	
1,2-Dichlorobenzene	ND	0.097	0.50	"	1	"	"	"	"	
1,2-Dichloroethane	ND	0.16	0.50	"	1	"	"	"	"	
1,2-Dichloropropane	ND	0.14	0.50	"	1	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.12	0.50	"	1	"	"	"	"	
1,3-Dichlorobenzene	ND	0.12	0.50	"	1	"	"	"	"	
1,3-Dichloropropane	ND	0.16	0.50	"	1	"	"	"	"	
1,4-Dichloro-2-butene	ND	1.0	1.0	"	1	"	"	"	"	
1,4-Dichlorobenzene	ND	0.16	0.50	"	1	"	"	"	"	
2,2-Dichloropropane	ND	0.27	0.50	"	1	"	"	"	"	
2-Butanone	ND	1.1	10	"	1	"	"	"	"	
2-Hexanone	ND	0.90	10	"	1	"	"	"	"	
4-Methyl-2-pentanone	ND	1.6	10	"	1	"	"	"	"	
Acetone	ND	1.0	10	"	1	"	"	"	"	
Acrylonitrile	ND	5.0	5.0	"	1	"	"	"	"	
Benzene	ND	0.11	0.50	"	1	"	"	"	"	
Bromobenzene	ND	0.13	0.50	"	1	"	"	"	"	
Bromochloromethane	ND	0.13	0.50	"	1	"	"	"	"	
Bromodichloromethane	ND	0.12	0.50	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

05/25/16 12:02

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0616**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Robert Lauritzen	

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LCRS-pipe (CZE0616-01) Water Sampled: 05/13/16 09:00 Received: 05/13/16 12:08										
Bromoform	ND	0.15	0.50	µg/L	1	CZ03457	"	05/15/16	EPA 8260B	
Bromomethane	ND	0.39	1.0	"	1	"	"	"	"	
Carbon disulfide	ND	0.13	0.50	"	1	"	"	"	"	
Carbon tetrachloride	ND	0.17	0.50	"	1	"	"	"	"	
Chlorobenzene	ND	0.082	0.50	"	1	"	"	"	"	
Chloroethane	ND	0.15	0.50	"	1	"	"	"	"	
Chloroform	ND	0.19	0.50	"	1	"	"	"	"	
Chloromethane	ND	0.056	1.0	"	1	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.15	0.50	"	1	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.14	0.50	"	1	"	"	"	"	
Dibromochloromethane	ND	0.14	0.50	"	1	"	"	"	"	
Dibromomethane	ND	0.25	0.50	"	1	"	"	"	"	
Dichlorodifluoromethane (Freon 12)	ND	0.14	1.0	"	1	"	"	"	"	
Ethylbenzene	ND	0.10	0.50	"	1	"	"	"	"	
Hexachlorobutadiene	ND	0.23	0.50	"	1	"	"	"	"	
Iodomethane	ND	1.0	1.0	"	1	"	"	"	"	
Isopropylbenzene	ND	0.11	0.50	"	1	"	"	"	"	
Methyl tert-butyl ether	ND	0.095	0.50	"	1	"	"	"	"	
Methylene chloride	ND	0.24	0.50	"	1	"	"	"	"	
Naphthalene	ND	0.21	0.50	"	1	"	"	"	"	
n-Butylbenzene	ND	0.10	0.50	"	1	"	"	"	"	
n-Propylbenzene	ND	0.13	0.50	"	1	"	"	"	"	
o-Chlorotoluene	ND	0.092	0.50	"	1	"	"	"	"	
p-Chlorotoluene	ND	0.11	0.50	"	1	"	"	"	"	
p-Isopropyltoluene	ND	0.14	0.50	"	1	"	"	"	"	
sec-Butylbenzene	ND	0.088	0.50	"	1	"	"	"	"	
Styrene	ND	0.10	0.50	"	1	"	"	"	"	
tert-Butylbenzene	ND	0.082	0.50	"	1	"	"	"	"	
Tetrachloroethene	ND	0.13	0.50	"	1	"	"	"	"	
Toluene	ND	0.11	0.50	"	1	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.15	0.50	"	1	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.18	0.50	"	1	"	"	"	"	
Trichloroethene	ND	0.063	0.50	"	1	"	"	"	"	
Trichlorofluoromethane	ND	0.14	0.50	"	1	"	"	"	"	
Vinyl acetate	ND	0.20	1.0	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0616**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Robert Lauritzen	

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LCRS-pipe (CZE0616-01) Water Sampled: 05/13/16 09:00 Received: 05/13/16 12:08										
Vinyl chloride	ND	0.14	1.0	µg/L	1	CZ03457	"	05/15/16	EPA 8260B	
Xylenes (total)	ND	0.33	1.0	"	1	"	"	"	"	
Class II-Pond (CZE0616-02) Water Sampled: 05/13/16 09:50 Received: 05/13/16 12:08										
Surrogate: 1,2-Dichloroethane-d4	*83 %*		*66-135*	µg/L		*CZ03457*	05/15/16	*05/15/16*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene	*118 %*		*73-125*	"		"	"	"	"	
Surrogate: Toluene-d8	*82 %*		*72-125*	"		"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.17	0.50	"	1	"	"	"	"	
1,1,1-Trichloroethane	ND	0.095	0.50	"	1	"	"	"	"	
1,1,2,2-Tetraehloroethane	ND	0.19	0.50	"	1	"	"	"	"	
1,1,2-Trichloro-1,2,2-trifluoroetha ne (Freon 113)	ND	0.23	0.50	"	1	"	"	"	"	
1,1,2-Trichlorocthane	ND	0.15	0.50	"	1	"	"	"	"	
1,1-Dichloroethane	ND	0.11	0.50	"	1	"	"	"	"	
1,1-Dichloroethene	ND	0.14	0.50	"	1	"	"	"	"	
1,1-Dichloropropene	ND	0.15	0.50	"	1	"	"	"	"	
1,2,3-Trichlorobenzene	ND	0.15	0.50	"	1	"	"	"	"	
1,2,3-Trichloropropane	ND	0.23	0.50	"	1	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.11	0.50	"	1	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.15	0.50	"	1	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	0.39	1.0	"	1	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.15	0.50	"	1	"	"	"	"	
1,2-Dichlorobenzene	ND	0.097	0.50	"	1	"	"	"	"	
1,2-Dichloroethane	ND	0.16	0.50	"	1	"	"	"	"	
1,2-Dichloropropane	ND	0.14	0.50	"	1	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.12	0.50	"	1	"	"	"	"	
1,3-Dichlorobenzene	ND	0.12	0.50	"	1	"	"	"	"	
1,3-Dichloropropane	ND	0.16	0.50	"	1	"	"	"	"	
1,4-Dichloro-2-butene	ND	1.0	1.0	"	1	"	"	"	"	
1,4-Dichlorobenzene	ND	0.16	0.50	"	1	"	"	"	"	
2,2-Dichloropropane	ND	0.27	0.50	"	1	"	"	"	"	
2-Butanone	ND	1.1	10	"	1	"	"	"	"	
2-Hexanone	ND	0.90	10	"	1	"	"	"	"	
4-Methyl-2-pentanone	ND	1.6	10	"	1	"	"	"	"	
Acetone	ND	1.0	10	"	1	"	"	"	"	
Acrylonitrile	ND	5.0	5.0	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0616**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Robert Lauritzen	

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Class II-Pond (CZE0616-02) Water Sampled: 05/13/16 09:50 Received: 05/13/16 12:08										
Benzene	ND	0.11	0.50	µg/L	1	CZ03457	"	05/15/16	EPA 8260B	
Bromobenzene	ND	0.13	0.50	"	1	"	"	"	"	
Bromochloromethane	ND	0.13	0.50	"	1	"	"	"	"	
Bromodichloromethane	ND	0.12	0.50	"	1	"	"	"	"	
Bromoform	ND	0.15	0.50	"	1	"	"	"	"	
Bromomethane	ND	0.39	1.0	"	1	"	"	"	"	
Carbon disulfide	ND	0.13	0.50	"	1	"	"	"	"	
Carbon tetrachloride	ND	0.17	0.50	"	1	"	"	"	"	
Chlorobenzene	ND	0.082	0.50	"	1	"	"	"	"	
Chloroethane	ND	0.15	0.50	"	1	"	"	"	"	
Chloroform	ND	0.19	0.50	"	1	"	"	"	"	
Chloromethane	ND	0.056	1.0	"	1	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.15	0.50	"	1	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.14	0.50	"	1	"	"	"	"	
Dibromochloromethane	ND	0.14	0.50	"	1	"	"	"	"	
Dibromomethane	ND	0.25	0.50	"	1	"	"	"	"	
Dichlorodifluoromethane (Freon 12)	ND	0.14	1.0	"	1	"	"	"	"	
Ethylbenzene	ND	0.10	0.50	"	1	"	"	"	"	
Hexachlorobutadiene	ND	0.23	0.50	"	1	"	"	"	"	
Iodomethane	ND	1.0	1.0	"	1	"	"	"	"	
Isopropylbenzene	ND	0.11	0.50	"	1	"	"	"	"	
Methyl tert-butyl ether	ND	0.095	0.50	"	1	"	"	"	"	
Methylene chloride	ND	0.24	0.50	"	1	"	"	"	"	
Naphthalene	ND	0.21	0.50	"	1	"	"	"	"	
n-Butylbenzene	ND	0.10	0.50	"	1	"	"	"	"	
n-Propylbenzene	ND	0.13	0.50	"	1	"	"	"	"	
o-Chlorotoluene	ND	0.092	0.50	"	1	"	"	"	"	
p-Chlorotoluene	ND	0.11	0.50	"	1	"	"	"	"	
p-Isopropyltoluene	ND	0.14	0.50	"	1	"	"	"	"	
sec-Butylbenzene	ND	0.088	0.50	"	1	"	"	"	"	
Styrene	ND	0.10	0.50	"	1	"	"	"	"	
tert-Butylbenzene	ND	0.082	0.50	"	1	"	"	"	"	
Tetrachloroethene	ND	0.13	0.50	"	1	"	"	"	"	
Toluene	ND	0.11	0.50	"	1	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.15	0.50	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

05/25/16 12:02

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0616**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Robert Lauritzen	

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Class II-Pond (CZE0616-02) Water Sampled: 05/13/16 09:50 Received: 05/13/16 12:08										
trans-1,3-Dichloropropene	ND	0.18	0.50	µg/L	1	CZ03457	"	05/15/16	EPA 8260B	
Trichloroethene	ND	0.063	0.50	"	1	"	"	"	"	
Trichlorofluoromethane	ND	0.14	0.50	"	1	"	"	"	"	
Vinyl acetate	ND	0.20	1.0	"	1	"	"	"	"	
Vinyl chloride	ND	0.14	1.0	"	1	"	"	"	"	
Xylenes (total)	ND	0.33	1.0	"	1	"	"	"	"	
LCRS-Sump (CZE0616-03) Water Sampled: 05/13/16 10:30 Received: 05/13/16 12:08										
Surrogate: 1,2-Dichloroethane-d4	*102 %*		*66-135*	µg/L		*CZ03457*	05/15/16	*05/15/16*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene	*118 %*		*73-125*	"		"	"	"	"	
Surrogate: Toluene-d8	*83 %*		*72-125*	"		"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.17	0.50	"	1	"	"	"	"	
1,1,1-Trichloroethane	ND	0.095	0.50	"	1	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.19	0.50	"	1	"	"	"	"	
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.23	0.50	"	1	"	"	"	"	
1,1,2-Trichloroethane	ND	0.15	0.50	"	1	"	"	"	"	
1,1-Dichloroethane	ND	0.11	0.50	"	1	"	"	"	"	
1,1-Dichloroethene	ND	0.14	0.50	"	1	"	"	"	"	
1,1-Dichloropropene	ND	0.15	0.50	"	1	"	"	"	"	
1,2,3-Trichlorobenzene	ND	0.15	0.50	"	1	"	"	"	"	
1,2,3-Trichloropropane	ND	0.23	0.50	"	1	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.11	0.50	"	1	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.15	0.50	"	1	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	0.39	1.0	"	1	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.15	0.50	"	1	"	"	"	"	
1,2-Dichlorobenzene	ND	0.097	0.50	"	1	"	"	"	"	
1,2-Dichloroethane	ND	0.16	0.50	"	1	"	"	"	"	
1,2-Dichloropropane	ND	0.14	0.50	"	1	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.12	0.50	"	1	"	"	"	"	
1,3-Dichlorobenzene	ND	0.12	0.50	"	1	"	"	"	"	
1,3-Dichloropropane	ND	0.16	0.50	"	1	"	"	"	"	
1,4-Dichloro-2-butene	ND	1.0	1.0	"	1	"	"	"	"	
1,4-Dichlorobenzene	ND	0.16	0.50	"	1	"	"	"	"	
2,2-Dichloropropane	ND	0.27	0.50	"	1	"	"	"	"	
2-Butanone	ND	1.1	10	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

05/25/16 12:02

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0616**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Robert Lauritzen	

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LCRS-Sump (CZE0616-03) Water Sampled: 05/13/16 10:30 Received: 05/13/16 12:08										
2-Hexanone	ND	0.90	10	µg/L	1	CZ03457	"	05/15/16	EPA 8260B	
4-Methyl-2-pentanone	ND	1.6	10	"	1	"	"	"	"	
Acetone	ND	1.0	10	"	1	"	"	"	"	
Acrylonitrile	ND	5.0	5.0	"	1	"	"	"	"	
Benzene	ND	0.11	0.50	"	1	"	"	"	"	
Bromobenzene	ND	0.13	0.50	"	1	"	"	"	"	
Bromochloromethane	ND	0.13	0.50	"	1	"	"	"	"	
Bromodichloromethane	ND	0.12	0.50	"	1	"	"	"	"	
Bromoform	ND	0.15	0.50	"	1	"	"	"	"	
Bromomethane	ND	0.39	1.0	"	1	"	"	"	"	
Carbon disulfide	ND	0.13	0.50	"	1	"	"	"	"	
Carbon tetrachloride	ND	0.17	0.50	"	1	"	"	"	"	
Chlorobenzene	ND	0.082	0.50	"	1	"	"	"	"	
Chloroethane	ND	0.15	0.50	"	1	"	"	"	"	
Chloroform	ND	0.19	0.50	"	1	"	"	"	"	
Chloromethane	ND	0.056	1.0	"	1	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.15	0.50	"	1	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.14	0.50	"	1	"	"	"	"	
Dibromochloromethane	ND	0.14	0.50	"	1	"	"	"	"	
Dibromomethane	ND	0.25	0.50	"	1	"	"	"	"	
Dichlorodifluoromethane (Freon 12)	ND	0.14	1.0	"	1	"	"	"	"	
Ethylbenzene	ND	0.10	0.50	"	1	"	"	"	"	
Hexachlorobutadiene	ND	0.23	0.50	"	1	"	"	"	"	
Iodomethane	ND	1.0	1.0	"	1	"	"	"	"	
Isopropylbenzene	ND	0.11	0.50	"	1	"	"	"	"	
Methyl tert-butyl ether	ND	0.095	0.50	"	1	"	"	"	"	
Methylene chloride	ND	0.24	0.50	"	1	"	"	"	"	
Naphthalene	ND	0.21	0.50	"	1	"	"	"	"	
n-Butylbenzene	ND	0.10	0.50	"	1	"	"	"	"	
n-Propylbenzene	ND	0.13	0.50	"	1	"	"	"	"	
o-Chlorotoluene	ND	0.092	0.50	"	1	"	"	"	"	
p-Chlorotoluene	ND	0.11	0.50	"	1	"	"	"	"	
p-Isopropyltoluene	ND	0.14	0.50	"	1	"	"	"	"	
sec-Butylbenzene	ND	0.088	0.50	"	1	"	"	"	"	
Styrene	ND	0.10	0.50	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

05/25/16 12:02

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0616**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Robert Lauritzen	

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LCRS-Sump (CZE0616-03) Water	**Sampled: 05/13/16 10:30 Received: 05/13/16 12:08**									
tert-Butylbenzene	ND	0.082	0.50	µg/L	1	CZ03457	"	05/15/16	EPA 8260B	
Tetrachloroethene	ND	0.13	0.50	"	1	"	"	"	"	
Toluene	ND	0.11	0.50	"	1	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.15	0.50	"	1	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.18	0.50	"	1	"	"	"	"	
Trichloroethene	ND	0.063	0.50	"	1	"	"	"	"	
Trichlorofluoromethane	ND	0.14	0.50	"	1	"	"	"	"	
Vinyl acetate	ND	0.20	1.0	"	1	"	"	"	"	
Vinyl chloride	ND	0.14	1.0	"	1	"	"	"	"	
Xylenes (total)	ND	0.33	1.0	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0616**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Robert Lauritzen	

Chlorinated Herbicides by EPA Method 8151A - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ03562 - EPA 8151A											
Blank (CZ03562-BLK1)					Prepared: 05/19/16 Analyzed: 05/24/16						
Surrogate: 2,4-DCAA	*2.04*			*µg/L*	*2.50*		*81*	*50-150*			
2,4,5-T	ND	0.040	0.50	"							
2,4,5-TP (Silvex)	ND	0.0070	0.20	"							
2,4-D (2,4-Dichlorophenoxyacetic acid)	ND	0.061	1.0	"							
2,4-DB	ND	0.22	2.0	"							
Dalapon	ND	0.084	2.0	"							
Dicamba	ND	0.093	1.0	"							
Dichloroprop	ND	0.040	2.0	"							
Dinoseb	ND	0.055	1.0	"							
MCPA	ND	0.73	250	"							
MCPP	ND	1.6	250	"							
Pentachlorophenol	ND	0.011	0.20	"							
LCS (CZ03562-BS1)					Prepared: 05/19/16 Analyzed: 05/24/16						
Surrogate: 2,4-DCAA	*2.28*			*µg/L*	*2.50*		*91*	*50-150*			
Dicamba	1.26	0.093	1.0	"	1.25		101	50-150			
Dichloroprop	1.48	0.040	2.0	"	1.25		118	50-150			J
LCS Dup (CZ03562-BSD1)					Prepared: 05/19/16 Analyzed: 05/24/16						
Surrogate: 2,4-DCAA	*2.19*			*µg/L*	*2.50*		*88*	*50-150*			
Dicamba	1.27	0.093	1.0	"	1.25		102	50-150	0.5	30	
Dichloroprop	1.40	0.040	2.0	"	1.25		112	50-150	6	30	J

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0616**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Robert Lauritzen	

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ03403 - General Prep											
Blank (CZ03403-BLK1)					Prepared & Analyzed: 05/13/16						
Chloride	0.268	0.026	0.50	mg/L							J
Nitrate as N	ND	0.053	0.40	"							
Sulfate as SO4	ND	0.038	0.50	"							
LCS (CZ03403-BS1)					Prepared & Analyzed: 05/13/16						
Chloride	4.72	0.026	0.50	mg/L	5.00		94	80-120			
Nitrate as N	0.471	0.053	0.40	"	0.451		104	80-120			
Sulfate as SO4	5.06	0.038	0.50	"	5.00		101	80-120			
LCS Dup (CZ03403-BSD1)					Prepared & Analyzed: 05/13/16						
Chloride	4.76	0.026	0.50	mg/L	5.00		95	80-120	1	20	
Nitrate as N	0.477	0.053	0.40	"	0.451		106	80-120	1	20	
Sulfate as SO4	5.11	0.038	0.50	"	5.00		102	80-120	1	20	
Matrix Spike (CZ03403-MS1)		**Source: CZE0554-02**			Prepared & Analyzed: 05/13/16						
Chloride	54.3	0.026	0.50	mg/L	5.00	50.8	71	80-120			QM-4X
Nitrate as N	5.93	0.053	0.40	"	0.451	5.79	32	80-120			QM-4X
Sulfate as SO4	31.7	0.038	0.50	"	5.00	27.4	85	80-120			
Matrix Spike Dup (CZ03403-MSD1)		**Source: CZE0554-02**			Prepared & Analyzed: 05/13/16						
Chloride	54.4	0.026	0.50	mg/L	5.00	50.8	72	80-120	0.08	20	QM-4X
Nitrate as N	5.91	0.053	0.40	"	0.451	5.79	28	80-120	0.3	20	QM-4X
Sulfate as SO4	31.6	0.038	0.50	"	5.00	27.4	84	80-120	0.2	20	
Batch CZ03476 - General Preparation											
Blank (CZ03476-BLK1)					Prepared & Analyzed: 05/16/16						
Bicarbonate as CaCO3	ND	0.50	5.0	mg/L							
Carbonate as CaCO3	ND	0.50	5.0	"							
Hydroxide as CaCO3	ND	0.50	5.0	"							
Total Alkalinity	ND	1.0	5.0	"							

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0616**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Robert Lauritzen	

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ03476 - General Preparation											
Duplicate (CZ03476-DUP1)		**Source: CZE0641-01**			Prepared & Analyzed: 05/16/16						
Bicarbonate as CaCO3	6.20	0.50	5.0	mg/L		6.60			6	20	
Carbonate as CaCO3	ND	0.50	5.0	"		ND				20	
Hydroxide as CaCO3	ND	0.50	5.0	"		ND				20	
Total Alkalinity	6.20	1.0	5.0	"		6.60			6	20	
Batch CZ03483 - General Preparation											
Blank (CZ03483-BLK1)					Prepared: 05/17/16 Analyzed: 05/18/16						
Total Organic Carbon	ND	0.54	1.0	mg/L							
LCS (CZ03483-BS1)					Prepared: 05/17/16 Analyzed: 05/18/16						
Total Organic Carbon	9.36	0.54	1.0	mg/L	10.0		94	75-125			
LCS Dup (CZ03483-BSD1)					Prepared: 05/17/16 Analyzed: 05/18/16						
Total Organic Carbon	9.34	0.54	1.0	mg/L	10.0		93	75-125	0.2	25	
Matrix Spike (CZ03483-MS1)		**Source: CZE0552-06**			Prepared: 05/17/16 Analyzed: 05/18/16						
Total Organic Carbon	19.5	0.54	1.0	mg/L	10.0	7.50	120	75-125			
Matrix Spike Dup (CZ03483-MSD1)		**Source: CZE0552-06**			Prepared: 05/17/16 Analyzed: 05/18/16						
Total Organic Carbon	19.6	0.54	1.0	mg/L	10.0	7.50	121	75-125	0.3	25	
Batch CZ03492 - General Preparation											
Blank (CZ03492-BLK1)					Prepared: 05/17/16 Analyzed: 05/18/16						
Total Dissolved Solids	ND	10	10	mg/L							

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0616**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Robert Lauritzen	

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ03492 - General Preparation											
Duplicate (CZ03492-DUP1)		**Source: CZE0641-01**			Prepared: 05/17/16 Analyzed: 05/18/16						
Total Dissolved Solids	20.0	10	10	mg/L		20.0			0	20	
Batch CZ03495 - General Preparation											
Blank (CZ03495-BLK1)					Prepared & Analyzed: 05/17/16						
Sulfide, Dissolved	ND	0.84	1.0	mg/L							
LCS (CZ03495-BS1)					Prepared & Analyzed: 05/17/16						
Sulfide, Dissolved	12.8	0.84	1.0	mg/L	13.3		96	80-120			
LCS Dup (CZ03495-BSD1)					Prepared & Analyzed: 05/17/16						
Sulfide, Dissolved	12.8	0.84	1.0	mg/L	13.3		96	80-120	0	20	
Batch CZ03583 - General Preparation											
Blank (CZ03583-BLK1)					Prepared & Analyzed: 05/19/16						
Cyanide (dissolved)	ND	0.0012	0.0050	mg/L							
LCS (CZ03583-BS1)					Prepared & Analyzed: 05/19/16						
Cyanide (dissolved)	0.101	0.0012	0.0050	mg/L	0.100		101	75-125			
LCS Dup (CZ03583-BSD1)					Prepared & Analyzed: 05/19/16						
Cyanide (dissolved)	0.0988	0.0012	0.0050	mg/L	0.100		99	75-125	3	25	
Matrix Spike (CZ03583-MS1)		**Source: CZE0761-01**			Prepared & Analyzed: 05/19/16						
Cyanide (dissolved)	0.0832	0.0012	0.0050	mg/L	0.100	ND	83	75-125			

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0616**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Robert Lauritzen	

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ03583 - General Preparation											
Matrix Spike Dup (CZ03583-MSD1)		**Source: CZE0761-01**			Prepared & Analyzed: 05/19/16						
Cyanide (dissolved)	0.0946	0.0012	0.0050	mg/L	0.100	ND	95	75-125	13	25	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0616**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Robert Lauritzen	

Metals (Dissolved) by EPA 200 Series Methods - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ03501 - EPA 3020A											
Blank (CZ03501-BLK1)					Prepared & Analyzed: 05/17/16						
Antimony	ND	0.00057	0.0060	mg/L							
Arsenic	0.000410	0.00027	0.0020	"							J
Lead	ND	0.00023	0.0050	"							
Selenium	ND	0.0011	0.0050	"							
Thallium	ND	0.00011	0.0010	"							
Vanadium	0.00189	0.00044	0.0030	"							J
LCS (CZ03501-BS1)					Prepared & Analyzed: 05/17/16						
Antimony	0.0887	0.00057	0.0060	mg/L	0.100		89	85-115			
Arsenic	0.101	0.00027	0.0020	"	0.100		101	85-115			
Lead	0.101	0.00023	0.0050	"	0.100		101	85-115			
Selenium	0.0977	0.0011	0.0050	"	0.100		98	85-115			
Thallium	0.101	0.00011	0.0010	"	0.100		101	85-115			
Vanadium	0.101	0.00044	0.0030	"	0.100		101	85-115			
Matrix Spike (CZ03501-MS1)		**Source: CZE0659-02**			Prepared & Analyzed: 05/17/16						
Antimony	0.0885	0.00057	0.0060	mg/L	0.100	0.00137	87	70-130			
Arsenic	0.106	0.00027	0.0020	"	0.100	0.00367	102	70-130			
Lead	0.102	0.00023	0.0050	"	0.100	ND	102	70-130			
Selenium	0.0985	0.0011	0.0050	"	0.100	0.00110	97	70-130			
Thallium	0.103	0.00011	0.0010	"	0.100	0.000430	103	70-130			
Vanadium	0.102	0.00044	0.0030	"	0.100	0.00100	101	70-130			
Batch CZ03522 - EPA 200 Series											
Blank (CZ03522-BLK1)					Prepared: 05/17/16 Analyzed: 05/18/16						
Mercury	ND	0.15	0.20	µg/L							

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0616**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Robert Lauritzen	

Metals (Dissolved) by EPA 200 Series Methods - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ03522 - EPA 200 Series											
LCS (CZ03522-BS1)					Prepared: 05/17/16 Analyzed: 05/18/16						
Mercury	5.26	0.15	0.20	µg/L	5.00		105	85-115			
Matrix Spike (CZ03522-MS1)		**Source: CZE0502-01**			Prepared: 05/17/16 Analyzed: 05/18/16						
Mercury	3.76	0.15	0.20	µg/L	5.00	ND	75	70-130			
Matrix Spike Dup (CZ03522-MSD1)		**Source: CZE0502-01**			Prepared: 05/17/16 Analyzed: 05/18/16						
Mercury	3.61	0.15	0.20	µg/L	5.00	ND	72	70-130	4	25	
Batch CZ03567 - 6010A/No Digestion											
Blank (CZ03567-BLK1)					Prepared & Analyzed: 05/19/16						
Aluminum	ND	27	50	µg/L							
Barium	ND	0.91	20	"							
Beryllium	ND	0.43	5.0	"							
Boron	ND	4.4	50	"							
Cadmium	ND	2.8	10	"							
Calcium	ND	14	1000	"							
Chromium	ND	9.9	10	"							
Cobalt	ND	7.6	20	"							
Copper	ND	3.2	10	"							
Iron	ND	6.8	100	"							
Magnesium	ND	26	1000	"							
Manganese	ND	0.92	20	"							
Nickel	ND	14	20	"							
Potassium	ND	180	1000	"							
Silver	6.68	2.9	10	"							J
Sodium	ND	17	1000	"							
Tin	ND	18	100	"							
Zinc	ND	9.3	20	"							

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0616**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Robert Lauritzen	

Metals (Dissolved) by EPA 200 Series Methods - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ03567 - 6010A/No Digestion											
LCS (CZ03567-BS1)					Prepared & Analyzed: 05/19/16						
Aluminum	5190	27	50	µg/L	5000		104	85-115			
Barium	1070	0.91	20	"	1000		107	85-115			
Beryllium	1060	0.43	5.0	"	1000		106	85-115			
Boron	1030	4.4	50	"	1000		103	85-115			
Cadmium	1050	2.8	10	"	1000		105	85-115			
Calcium	5350	14	1000	"	5000		107	85-115			
Chromium	1040	9.9	10	"	1000		104	85-115			
Cobalt	1070	7.6	20	"	1000		107	85-115			
Copper	1050	3.2	10	"	1000		105	85-115			
Iron	1030	6.8	100	"	1000		103	85-115			
Magnesium	5340	26	1000	"	5000		107	85-115			
Manganese	1050	0.92	20	"	1000		105	85-115			
Nickel	1040	14	20	"	1000		104	85-115			
Potassium	5530	180	1000	"	5000		111	85-115			
Silver	1050	2.9	10	"	1000		105	85-115			
Sodium	5220	17	1000	"	5000		104	85-115			
Tin	1080	18	100	"	1000		108	85-115			
Zinc	1050	9.3	20	"	1000		105	85-115			
Matrix Spike (CZ03567-MS1)		**Source: CZE0762-01**			Prepared & Analyzed: 05/19/16						
Aluminum	5120	27	50	µg/L	5000	40.7	102	70-130			
Barium	946	0.91	20	"	1000	18.7	93	70-130			
Beryllium	1040	0.43	5.0	"	1000	ND	104	70-130			
Boron	1300	4.4	50	"	1000	202	110	70-130			
Cadmium	1130	2.8	10	"	1000	ND	113	70-130			
Calcium	14900	14	1000	"	5000	9170	114	70-130			
Chromium	981	9.9	10	"	1000	ND	98	70-130			
Cobalt	1070	7.6	20	"	1000	ND	107	70-130			
Copper	1090	3.2	10	"	1000	7.27	108	70-130			
Iron	1040	6.8	100	"	1000	152	89	70-130			
Magnesium	12400	26	1000	"	5000	6990	108	70-130			
Manganese	1080	0.92	20	"	1000	2.52	107	70-130			
Nickel	1010	14	20	"	1000	ND	101	70-130			
Potassium	97000	180	1000	"	5000	93500	71	70-130			
Silver	733	2.9	10	"	1000	5.80	73	70-130			
Sodium	306000	17	1000	"	5000	317000	NR	70-130			QM-4X

CALIFORNIA LABORATORY SERVICES

05/25/16 12:02

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0616**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Robert Lauritzen	

Metals (Dissolved) by EPA 200 Series Methods - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ03567 - 6010A/No Digestion											
Matrix Spike (CZ03567-MS1)		**Source: CZE0762-01**			Prepared & Analyzed: 05/19/16						
Tin	735	18	100	µg/L	1000	ND	73	70-130			
Zinc	1170	9.3	20	"	1000	27.9	114	70-130			
Matrix Spike (CZ03567-MS2)		**Source: CZE0763-01**			Prepared & Analyzed: 05/19/16						
Aluminum	4480	27	50	µg/L	5000	43.9	89	70-130			
Barium	940	0.91	20	"	1000	175	76	70-130			
Beryllium	892	0.43	5.0	"	1000	ND	89	70-130			
Boron	1230	4.4	50	"	1000	323	91	70-130			
Cadmium	882	2.8	10	"	1000	ND	88	70-130			
Calcium	69000	14	1000	"	5000	66700	45	70-130			QM-4X
Chromium	875	9.9	10	"	1000	19.3	86	70-130			
Cobalt	822	7.6	20	"	1000	ND	82	70-130			
Copper	855	3.2	10	"	1000	11.0	84	70-130			
Iron	920	6.8	100	"	1000	66.5	85	70-130			
Magnesium	42200	26	1000	"	5000	39600	52	70-130			QM-4X
Manganese	854	0.92	20	"	1000	4.61	85	70-130			
Nickel	786	14	20	"	1000	ND	79	70-130			
Potassium	14400	180	1000	"	5000	9430	99	70-130			
Silver	656	2.9	10	"	1000	4.77	65	70-130			QM-7
Sodium	439000	17	1000	"	5000	460000	NR	70-130			QM-4X
Tin	731	18	100	"	1000	ND	73	70-130			
Zinc	918	9.3	20	"	1000	ND	92	70-130			

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0616**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Robert Lauritzen	

Organophosphorus Pesticides by EPA Method 8141A - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ03523 - EPA 3510B GCNV											
Blank (CZ03523-BLK1)					Prepared: 05/13/16 Analyzed: 05/19/16						
Surrogate: EPN	*2.53*			*µg/L*	*2.50*		*101*	*50-150*			
Bolstar	ND	0.018	0.050	"							
Chlorpyrifos	ND	0.018	0.050	"							
Coumaphos	ND	0.017	0.10	"							
Demeton	ND	0.026	0.10	"							
Diazinon	ND	0.033	0.050	"							
Dichlorvos	ND	0.023	0.10	"							
Disulfoton	ND	0.031	0.050	"							
Ethoprop	ND	0.016	0.050	"							
Fensulfothion	ND	0.036	0.050	"							
Fenthion	ND	0.018	0.050	"							
Guthion	ND	0.027	0.10	"							
Malathion	ND	0.014	0.050	"							
Merphos	ND	0.021	0.050	"							
Methyl parathion	ND	0.014	0.050	"							
Mevinphos	ND	0.033	0.050	"							
Phorate	ND	0.015	0.050	"							
Prothiofos	ND	0.0031	0.050	"							
Ronnel	ND	0.016	0.050	"							
Stirophos	ND	0.021	0.050	"							
Trichloronate	ND	0.020	0.050	"							
LCS (CZ03523-BS1)					Prepared: 05/13/16 Analyzed: 05/19/16						
Surrogate: EPN	*3.12*			*µg/L*	*2.50*		*125*	*50-150*			
Methyl parathion	0.152	0.014	0.050	"	0.125		121	50-150			
Ronnel	0.142	0.016	0.050	"	0.125		114	50-150			
Stirophos	0.181	0.021	0.050	"	0.125		145	50-150			
Trichloronate	0.161	0.020	0.050	"	0.125		129	50-150			

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0616**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Robert Lauritzen	

Organophosphorus Pesticides by EPA Method 8141A - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ03523 - EPA 3510B GCNV											
LCS Dup (CZ03523-BSD1)					Prepared: 05/13/16 Analyzed: 05/19/16						
Surrogate: EPN	*2.76*			*µg/L*	*2.50*		*110*	*50-150*			
Methyl parathion	0.139	0.014	0.050	"	0.125		111	50-150	9	30	
Ronnel	0.148	0.016	0.050	"	0.125		118	50-150	4	30	
Stirophos	0.156	0.021	0.050	"	0.125		125	50-150	15	30	
Trichloronate	0.133	0.020	0.050	"	0.125		106	50-150	19	30	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0616**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Robert Lauritzen	

Semivolatile Organic Compounds by EPA Method 8270C - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ03482 - EPA 3510B GCMS											
Blank (CZ03482-BLK1)					Prepared: 05/17/16 Analyzed: 05/18/16						
Surrogate: 2,4,6-Tribromophenol	*28.3*			*µg/L*	*40.0*		*71*	*10-123*			
Surrogate: 2-Fluorobiphenyl	*28.3*			*"*	*40.0*		*71*	*43-116*			
Surrogate: 2-Fluorophenol	*27.0*			*"*	*40.0*		*68*	*21-110*			
Surrogate: Nitrobenzene-d5	*30.2*			*"*	*40.0*		*75*	*35-114*			
Surrogate: Phenol-d6	*19.5*			*"*	*40.0*		*49*	*10-110*			
Surrogate: Terphenyl-d14	*33.1*			*"*	*40.0*		*83*	*33-141*			
1,2,4-Trichlorobenzene	ND	0.94	10	"							
1,2-Dichlorobenzene	ND	1.1	10	"							
1,3-Dichlorobenzene	ND	1.2	10	"							
1,4-Dichlorobenzene	ND	1.1	10	"							
2,4,5-Trichlorophenol	ND	0.87	10	"							
2,4,6-Trichlorophenol	ND	0.96	10	"							
2,4-Dichlorophenol	ND	0.87	10	"							
2,4-Dimethylphenol	ND	4.0	10	"							
2,4-Dinitrophenol	ND	0.62	25	"							
2,4-Dinitrotoluene (2,4-DNT)	ND	0.81	10	"							
2,6-Dinitrotoluene (2,6-DNT)	ND	0.71	10	"							
2-Chloronaphthalene	ND	0.70	10	"							
2-Chlorophenol	ND	0.88	10	"							
2-Methylnaphthalene	ND	0.72	10	"							
2-Methylphenol	ND	1.6	10	"							
2-Nitroaniline	ND	0.61	25	"							
2-Nitrophenol	ND	0.94	10	"							
3 & 4-Methylphenol	ND	2.6	10	"							
3,3'-Dichlorobenzidine	ND	4.1	20	"							
3-Nitroaniline	ND	0.96	25	"							
4,6-Dinitro-2-methylphenol	ND	1.2	25	"							
4-Bromophenyl phenyl ether	ND	0.80	10	"							
4-Chloro-3-methylphenol	ND	0.94	10	"							
4-Chloroaniline	ND	1.8	10	"							
4-Chlorophenyl phenyl ether	ND	0.78	10	"							
4-Nitroaniline	ND	0.87	25	"							
4-Nitrophenol	ND	0.95	25	"							
Acenaphthene	ND	0.74	10	"							
Acenaphthylene	ND	0.63	10	"							

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0616**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Robert Lauritzen	

Semivolatile Organic Compounds by EPA Method 8270C - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ03482 - EPA 3510B GCMS											
Blank (CZ03482-BLK1)					Prepared: 05/17/16 Analyzed: 05/18/16						
Anthracene	ND	0.65	10	µg/L							
Benzo (a) anthracene	ND	1.7	10	"							
Benzo (a) pyrene	ND	2.1	10	"							
Benzo (b) fluoranthene	ND	3.3	10	"							
Benzo (g,h,i) perylene	ND	2.7	10	"							
Benzo (k) fluoranthene	ND	1.5	10	"							
Benzoic acid	ND	4.2	25	"							
Benzyl alcohol	ND	1.6	10	"							
Bis(2-chloroethoxy)methane	ND	0.67	10	"							
Bis(2-chloroethyl)ether	ND	0.66	10	"							
Bis(2-chloroisopropyl)ether	ND	0.54	10	"							
Bis(2-ethylhexyl)phthalate	ND	1.1	10	"							
Butyl benzyl phthalate	ND	4.4	10	"							
Chrysene	ND	0.78	10	"							
Dibenz (a,h) anthracene	ND	2.4	10	"							
Dibenzofuran	ND	0.67	10	"							
Diethyl phthalate	ND	4.7	10	"							
Dimethyl phthalate	ND	4.2	10	"							
Di-n-butyl phthalate	ND	3.8	10	"							
Di-n-octyl phthalate	ND	3.4	10	"							
Fluoranthene	ND	0.66	10	"							
Fluorene	ND	0.67	10	"							
Hexachlorobenzene	ND	0.86	10	"							
Hexachlorobutadiene	ND	1.9	10	"							
Hexachlorocyclopentadiene	ND	0.55	10	"							
Hexachloroethane	ND	1.2	10	"							
Indeno (1,2,3-cd) pyrene	ND	1.7	10	"							
Isophorone	ND	0.62	10	"							
Naphthalene	ND	0.70	10	"							
Nitrobenzene (NB)	ND	0.64	10	"							
N-Nitrosodi-n-propylamine	ND	0.62	10	"							
N-Nitrosodiphenylamine	ND	0.93	10	"							
Pentachlorophenol	ND	1.8	25	"							
Phenanthrene	ND	0.59	10	"							
Phenol	ND	1.2	10	"							
Pyrene	ND	0.73	10	"							

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0616**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Robert Lauritzen	

Semivolatile Organic Compounds by EPA Method 8270C - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ03482 - EPA 3510B GCMS											
LCS (CZ03482-BS1)				Prepared: 05/17/16 Analyzed: 05/18/16							
Surrogate: 2,4,6-Tribromophenol	*35.4*			*µg/L*	*40.0*		*88*	*10-123*			
Surrogate: 2-Fluorobiphenyl	*28.7*			*"*	*40.0*		*72*	*43-116*			
Surrogate: 2-Fluorophenol	*26.1*			*"*	*40.0*		*65*	*21-110*			
Surrogate: Nitrobenzene-d5	*34.3*			*"*	*40.0*		*86*	*35-114*			
Surrogate: Phenol-d6	*19.3*			*"*	*40.0*		*48*	*10-110*			
Surrogate: Terphenyl-dl4	*33.2*			*"*	*40.0*		*83*	*33-141*			
1,2,4-Trichlorobenzene	28.2	0.94	10	"	40.0		70	39-118			
1,4-Dichlorobenzene	25.0	1.1	10	"	40.0		63	36-117			
2,4-Dinitrotoluene (2,4-DNT)	32.4	0.81	10	"	40.0		81	24-116			
2-Chlorophenol	22.6	0.88	10	"	40.0		57	23-134			
4-Chloro-3-methylphenol	25.5	0.94	10	"	40.0		64	23-117			
4-Nitrophenol	19.3	0.95	25	"	40.0		48	10-108			J
Acenaphthene	31.3	0.74	10	"	40.0		78	46-118			
N-Nitrosodi-n-propylamine	33.9	0.62	10	"	40.0		85	41-126			
Pentachlorophenol	30.4	1.8	25	"	40.0		76	10-113			
Phenol	14.0	1.2	10	"	40.0		35	5-112			
Pyrene	28.5	0.73	10	"	40.0		71	26-127			
LCS Dup (CZ03482-BSD1)				Prepared: 05/17/16 Analyzed: 05/18/16							
Surrogate: 2,4,6-Tribromophenol	*35.4*			*µg/L*	*40.0*		*88*	*10-123*			
Surrogate: 2-Fluorobiphenyl	*32.3*			*"*	*40.0*		*81*	*43-116*			
Surrogate: 2-Fluorophenol	*24.9*			*"*	*40.0*		*62*	*21-110*			
Surrogate: Nitrobenzene-d5	*30.3*			*"*	*40.0*		*76*	*35-114*			
Surrogate: Phenol-d6	*17.5*			*"*	*40.0*		*44*	*10-110*			
Surrogate: Terphenyl-dl4	*33.2*			*"*	*40.0*		*83*	*33-141*			
1,2,4-Trichlorobenzene	24.6	0.94	10	"	40.0		62	39-118	13	28	
1,4-Dichlorobenzene	24.9	1.1	10	"	40.0		62	36-117	0.5	28	
2,4-Dinitrotoluene (2,4-DNT)	32.8	0.81	10	"	40.0		82	24-116	1	38	
2-Chlorophenol	22.2	0.88	10	"	40.0		55	23-134	2	40	
4-Chloro-3-methylphenol	25.8	0.94	10	"	40.0		64	23-117	1	42	
4-Nitrophenol	19.0	0.95	25	"	40.0		48	10-108	1	45	J
Acenaphthene	31.2	0.74	10	"	40.0		78	46-118	0.3	31	
N-Nitrosodi-n-propylamine	30.9	0.62	10	"	40.0		77	41-126	9	38	
Pentachlorophenol	31.4	1.8	25	"	40.0		78	10-113	3	45	
Phenol	13.0	1.2	10	"	40.0		32	5-112	8	42	
Pyrene	29.1	0.73	10	"	40.0		73	26-127	2	31	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0616**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Robert Lauritzen	

Semivolatile Organic Compounds by EPA Method 8270C - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ03482 - EPA 3510B GCMS											

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0616**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Robert Lauritzen	

Volatile Organic Compounds by EPA Method 8260B - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ03457 - EPA 5030 Water MS											
Blank (CZ03457-BLK1)				Prepared & Analyzed: 05/15/16							
Surrogate: 1,2-Dichloroethane-d4	*8.32*			*µg/L*	*10.0*		*83*	*66-135*			
Surrogate: 4-Bromofluorobenzene	*11.5*			*"*	*10.0*		*115*	*73-125*			
Surrogate: Toluene-d8	*8.06*			*"*	*10.0*		*81*	*72-125*			
1,1,1,2-Tetrachloroethane	ND	0.17	0.50	"							
1,1,1-Trichloroethane	ND	0.095	0.50	"							
1,1,2,2-Tetrachloroethane	ND	0.19	0.50	"							
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.23	0.50	"							
1,1,2-Trichloroethane	ND	0.15	0.50	"							
1,1-Dichloroethane	ND	0.11	0.50	"							
1,1-Dichloroethene	ND	0.14	0.50	"							
1,1-Dichloropropene	ND	0.15	0.50	"							
1,2,3-Trichlorobenzene	ND	0.15	0.50	"							
1,2,3-Trichloropropane	ND	0.23	0.50	"							
1,2,4-Trichlorobenzene	ND	0.11	0.50	"							
1,2,4-Trimethylbenzene	ND	0.15	0.50	"							
1,2-Dibromo-3-chloropropane	ND	0.39	1.0	"							
1,2-Dibromoethane (EDB)	ND	0.15	0.50	"							
1,2-Dichlorobenzene	ND	0.097	0.50	"							
1,2-Dichloroethane	ND	0.16	0.50	"							
1,2-Dichloropropane	ND	0.14	0.50	"							
1,3,5-Trimethylbenzene	ND	0.12	0.50	"							
1,3-Dichlorobenzene	ND	0.12	0.50	"							
1,3-Dichloropropane	ND	0.16	0.50	"							
1,4-Dichloro-2-butene	ND	1.0	1.0	"							
1,4-Dichlorobenzene	ND	0.16	0.50	"							
2,2-Dichloropropane	ND	0.27	0.50	"							
2-Butanone	ND	1.1	10	"							
2-Hexanone	ND	0.90	10	"							
4-Methyl-2-pentanone	ND	1.6	10	"							
Acetone	ND	1.0	10	"							
Acrylonitrile	ND	5.0	5.0	"							
Benzene	ND	0.11	0.50	"							
Bromobenzene	ND	0.13	0.50	"							
Bromochloromethane	ND	0.13	0.50	"							
Bromodichloromethane	ND	0.12	0.50	"							

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0616**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Robert Lauritzen	

Volatile Organic Compounds by EPA Method 8260B - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ03457 - EPA 5030 Water MS											
Blank (CZ03457-BLK1)					Prepared & Analyzed: 05/15/16						
Bromoform	ND	0.15	0.50	µg/L							
Bromomethane	ND	0.39	1.0	"							
Carbon disulfide	ND	0.13	0.50	"							
Carbon tetrachloride	ND	0.17	0.50	"							
Chlorobenzene	ND	0.082	0.50	"							
Chloroethane	ND	0.15	0.50	"							
Chloroform	ND	0.19	0.50	"							
Chloromethane	ND	0.056	1.0	"							
cis-1,2-Dichloroethene	ND	0.15	0.50	"							
cis-1,3-Dichloropropene	ND	0.14	0.50	"							
Dibromochloromethane	ND	0.14	0.50	"							
Dibromomethane	ND	0.25	0.50	"							
Dichlorodifluoromethane (Freon 12)	ND	0.14	1.0	"							
Ethylbenzene	ND	0.10	0.50	"							
Hexachlorobutadiene	ND	0.23	0.50	"							
Iodomethane	ND	1.0	1.0	"							
Isopropylbenzene	ND	0.11	0.50	"							
Methyl tert-butyl ether	ND	0.095	0.50	"							
Methylene chloride	ND	0.24	0.50	"							
Naphthalene	ND	0.21	0.50	"							
n-Butylbenzene	ND	0.10	0.50	"							
n-Propylbenzene	ND	0.13	0.50	"							
o-Chlorotoluene	ND	0.092	0.50	"							
p-Chlorotoluene	ND	0.11	0.50	"							
p-Isopropyltoluene	ND	0.14	0.50	"							
sec-Butylbenzene	ND	0.088	0.50	"							
Styrene	ND	0.10	0.50	"							
tert-Butylbenzene	ND	0.082	0.50	"							
Tetrachloroethene	ND	0.13	0.50	"							
Toluene	ND	0.11	0.50	"							
trans-1,2-Dichloroethene	ND	0.15	0.50	"							
trans-1,3-Dichloropropene	ND	0.18	0.50	"							
Trichloroethene	ND	0.063	0.50	"							
Trichlorofluoromethane	ND	0.14	0.50	"							
Vinyl acetate	ND	0.20	1.0	"							
Vinyl chloride	ND	0.14	1.0	"							

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0616**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Robert Lauritzen	

Volatile Organic Compounds by EPA Method 8260B - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ03457 - EPA 5030 Water MS											
Blank (CZ03457-BLK1)					Prepared & Analyzed: 05/15/16						
Xylenes (total)	ND	0.33	1.0	µg/L							
LCS (CZ03457-BS1)					Prepared & Analyzed: 05/15/16						
Surrogate: 1,2-Dichloroethane-d4	*7.79*			*µg/L*	*10.0*		*78*	*66-135*			
Surrogate: 4-Bromofluorobenzene	*10.6*			*"*	*10.0*		*106*	*73-125*			
Surrogate: Toluene-d8	*11.0*			*"*	*10.0*		*110*	*72-125*			
1,1-Dichloroethene	19.4	0.14	0.50	"	20.0		97	42-150			
Benzene	23.3	0.11	0.50	"	20.0		116	60-135			
Chlorobenzene	21.4	0.082	0.50	"	20.0		107	60-133			
Toluene	23.6	0.11	0.50	"	20.0		118	60-137			
Trichloroethene	20.9	0.063	0.50	"	20.0		104	62-140			
LCS Dup (CZ03457-BSD1)					Prepared & Analyzed: 05/15/16						
Surrogate: 1,2-Dichloroethane-d4	*8.31*			*µg/L*	*10.0*		*83*	*66-135*			
Surrogate: 4-Bromofluorobenzene	*10.9*			*"*	*10.0*		*109*	*73-125*			
Surrogate: Toluene-d8	*12.0*			*"*	*10.0*		*120*	*72-125*			
1,1-Dichloroethene	19.7	0.14	0.50	"	20.0		98	42-150	2	25	
Benzene	22.6	0.11	0.50	"	20.0		113	60-135	3	25	
Chlorobenzene	20.1	0.082	0.50	"	20.0		100	60-133	6	25	
Toluene	23.9	0.11	0.50	"	20.0		120	60-137	1	25	
Trichloroethene	20.8	0.063	0.50	"	20.0		104	62-140	0.2	25	

CALIFORNIA LABORATORY SERVICES

05/25/16 12:02

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZE0616**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Robert Lauritzen	

Notes and Definitions

QM-7	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.
QM-4X	The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.
J	Detected but below the Reporting Limit; therefore, result is an estimated concentration.
Hg	It was analyzed by ICP/MS (EPA method 200.8) due to that the mercury analyzer is down.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit (or method detection limit when specified)
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

This is a "MDL Report", thus if the report denotes an "ND" for a particular analyte, it should be noted that the analyte was not detected at or above the MDL.

CALIFORNIA LABORATORY SERVICES

05/25/16 12:02

El Dorado County Environmental 2850 Fairlane Court, Building C Placerville CA, 95667	Project: Union Mine Disposal Facility Project Number: [none] Project Manager: Robert Lauritzen	**CLS Work Order #: CZE0616** COC #:

CZE0616

CLS Laboratories
3249 Fitzgerald Road, Rancho Cordova CA
Phone: (916) 638-7301

CHAIN OF CUSTODY/ANALYSIS REQUEST FORM

Lab Log#: Date: 5/12/16 Page 1 of 1

Union Mine Disposal Facility

Report to: Robert Lauritzen
El Dorado County Environmental Management
2850 Fairlane Court, Bldg C
Placerville, CA 95667
Office (530) 621-6130
Fax (530) 626-7130

Sample ID	Date	Time	Lab ID	Sample Matrix	# of Containers	Dis-As, Fe, Ca Mg, K, Na	VOCs (8260B) & TOC	Bicarb/Carb/ Alkalinity	Nitrate-N, SO4/Cl/TDS	Dissolved Inorganics	Sulfide	SVOC 8270C	Chlorinated Herbicides	Organophosphorus	Cyanide			Comments
						HNO3	HCL	NP	NP	HNO3	Zn Acetate	NP	NP	NP	NaOH			
LCRS-nce	5/12/16	0940		water	12	x	x	x	x	x	x	x	x	x	x			
Class II-pond		0950		water	12	x	x	x	x	x	x	x	x	x	x			
LCRS-sump	V	1030		water	12	x	x	x	x	x	x	x	x	x	x			

Relinquished by
Signature: Robert Lauritzen
Printed Name: Robert Lauritzen
El Dorado County
Date/Time: 5/12/16 1209

Received by
Signature:
Printed Name:
Date/Time: 5/13/16 1209

TAT Requirements
X Standard (5 days)
[X] 1st No needed

Report Requirements
I Routine Report
II Report(includes DUP,MS MSD, as required.
III Data Validation Report
X RWQCB (MDLs/PQLs/Trace#)

Additional Info.
Metals/Inorganics Field Filtered: yes
Nitrate as N
Dissolved Metals-As, Fe, Ca, Mg, K, Na (plus inorganics below)
Dissolved Inorganics-Al, Sb, Ba, Be, Cd, Cl, Co, Cu, Pb, Mn, Hg, Ni, Se, Ag, Tl, Sn, Va, Zn
Important Note: Check if lab VOC template has been updated to include current list

Invoice Greg Stanton, EDCEM
Address 2850 Fairlane Ct., Bldg C, Placerville, CA 95667
Contract # 037-C-0607-BOS

CN & Sulfide → field filtered.

CALIFORNIA LABORATORY SERVICES

3249 Fitzgerald Road Rancho Cordova, CA 95742

29 June 2016

CLS Work Order #: CZF0316

COC #:

Greg Stanton

El Dorado County Environmental

2850 Fairlane Court, Building C

Placerville, CA 95667

Project Name: Union Mine Disposal Facility

Enclosed are the results of analyses for samples received by the laboratory on 06/08/16 11:53. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness. Any comments and exceptions are addressed below as well as under the Notes and Definitions section.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

James Liang, Ph.D.
Laboratory Director

CA DOHS ELAP Accreditation/Registration number 1233

CALIFORNIA LABORATORY SERVICES

06/29/16 15:59

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Chlorinated Herbicides by EPA Method 8151A

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
UM-3 (CZF0316-01) Water Sampled: 06/07/16 15:00 Received: 06/08/16 11:53										
Surrogate: 2,4-DCAA	*134 %*		*50-150*	µg/L		*CZ04155*	06/10/16	*06/14/16*	*EPA 8151A*	
2,4,5-T	ND	0.040	0.50	"	1	"	"	"	"	
2,4,5-TP (Silvex)	ND	0.0070	0.20	"	1	"	"	"	"	
2,4-D (2,4-Dichlorophenoxyacetic acid)	ND	0.061	1.0	"	1	"	"	"	"	
2,4-DB	ND	0.22	2.0	"	1	"	"	"	"	
Dalapon	ND	0.084	2.0	"	1	"	"	"	"	
Dicamba	ND	0.093	1.0	"	1	"	"	"	"	
Dichloroprop	ND	0.040	2.0	"	1	"	"	"	"	
Dinoseb	ND	0.055	1.0	"	1	"	"	"	"	
MCPA	ND	0.73	250	"	1	"	"	"	"	
MCPP	ND	1.6	250	"	1	"	"	"	"	
Pentachlorophenol	ND	0.011	0.20	"	1	"	"	"	"	
MW-5 (CZF0316-03) Water Sampled: 06/07/16 09:40 Received: 06/08/16 11:53										
Surrogate: 2,4-DCAA	*114 %*		*50-150*	µg/L		*CZ04155*	06/10/16	*06/14/16*	*EPA 8151A*	
2,4,5-T	ND	0.040	0.50	"	1	"	"	"	"	
2,4,5-TP (Silvex)	ND	0.0070	0.20	"	1	"	"	"	"	
2,4-D (2,4-Dichlorophenoxyacetic acid)	ND	0.061	1.0	"	1	"	"	"	"	
2,4-DB	ND	0.22	2.0	"	1	"	"	"	"	
Dalapon	ND	0.084	2.0	"	1	"	"	"	"	
Dicamba	ND	0.093	1.0	"	1	"	"	"	"	
Dichloroprop	ND	0.040	2.0	"	1	"	"	"	"	
Dinoseb	ND	0.055	1.0	"	1	"	"	"	"	
MCPA	ND	0.73	250	"	1	"	"	"	"	
MCPP	ND	1.6	250	"	1	"	"	"	"	
Pentachlorophenol	ND	0.011	0.20	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

06/29/16 15:59

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Chlorinated Herbicides by EPA Method 8151A

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-6 (CZF0316-05) Water Sampled: 06/07/16 10:30 Received: 06/08/16 11:53										
Surrogate: 2,4-DCAA	*118 %*		*50-150*	µg/L		*CZ04155*	06/10/16	*06/14/16*	*EPA 8151A*	
2,4,5-T	ND	0.040	0.50	"	1	"	"	"	"	
2,4,5-TP (Silvex)	ND	0.0070	0.20	"	1	"	"	"	"	
2,4-D (2,4-Dichlorophenoxyacetic acid)	ND	0.061	1.0	"	1	"	"	"	"	
2,4-DB	ND	0.22	2.0	"	1	"	"	"	"	
Dalapon	ND	0.084	2.0	"	1	"	"	"	"	
Dicamba	ND	0.093	1.0	"	1	"	"	"	"	
Dichloroprop	ND	0.040	2.0	"	1	"	"	"	"	
Dinoseb	ND	0.055	1.0	"	1	"	"	"	"	
MCPA	ND	0.73	250	"	1	"	"	"	"	
MCPP	ND	1.6	250	"	1	"	"	"	"	
Pentachlorophenol	ND	0.011	0.20	"	1	"	"	"	"	
MW-7 (CZF0316-07) Water Sampled: 06/07/16 13:00 Received: 06/08/16 11:53										
Surrogate: 2,4-DCAA	*87 %*		*50-150*	µg/L		*CZ04155*	06/10/16	*06/14/16*	*EPA 8151A*	
2,4,5-T	ND	0.040	0.50	"	1	"	"	"	"	
2,4,5-TP (Silvex)	ND	0.0070	0.20	"	1	"	"	"	"	
2,4-D (2,4-Dichlorophenoxyacetic acid)	ND	0.061	1.0	"	1	"	"	"	"	
2,4-DB	ND	0.22	2.0	"	1	"	"	"	"	
Dalapon	ND	0.084	2.0	"	1	"	"	"	"	
Dicamba	ND	0.093	1.0	"	1	"	"	"	"	
Dichloroprop	ND	0.040	2.0	"	1	"	"	"	"	
Dinoseb	ND	0.055	1.0	"	1	"	"	"	"	
MCPA	ND	0.73	250	"	1	"	"	"	"	
MCPP	ND	1.6	250	"	1	"	"	"	"	
Pentachlorophenol	ND	0.011	0.20	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

06/29/16 15:59

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Chlorinated Herbicides by EPA Method 8151A

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-9 (CZF0316-09) Water Sampled: 06/07/16 12:00 Received: 06/08/16 11:53										
Surrogate: 2,4-DCAA	*116 %*		*50-150*	µg/L		*CZ04155*	06/10/16	*06/14/16*	*EPA 8151A*	
2,4,5-T	ND	0.040	0.50	"	1	"	"	"	"	
2,4,5-TP (Silvex)	ND	0.0070	0.20	"	1	"	"	"	"	
2,4-D (2,4-Dichlorophenoxyacetic acid)	ND	0.061	1.0	"	1	"	"	"	"	
2,4-DB	ND	0.22	2.0	"	1	"	"	"	"	
Dalapon	ND	0.084	2.0	"	1	"	"	"	"	
Dicamba	ND	0.093	1.0	"	1	"	"	"	"	
Dichloroprop	ND	0.040	2.0	"	1	"	"	"	"	
Dinoseb	ND	0.055	1.0	"	1	"	"	"	"	
MCPA	ND	0.73	250	"	1	"	"	"	"	
MCPP	ND	1.6	250	"	1	"	"	"	"	
Pentachlorophenol	ND	0.011	0.20	"	1	"	"	"	"	
MW-10 (CZF0316-11) Water Sampled: 06/07/16 08:40 Received: 06/08/16 11:53										
Surrogate: 2,4-DCAA	*109 %*		*50-150*	µg/L		*CZ04155*	06/10/16	*06/14/16*	*EPA 8151A*	
2,4,5-T	ND	0.040	0.50	"	1	"	"	"	"	
2,4,5-TP (Silvex)	ND	0.0070	0.20	"	1	"	"	"	"	
2,4-D (2,4-Dichlorophenoxyacetic acid)	ND	0.061	1.0	"	1	"	"	"	"	
2,4-DB	ND	0.22	2.0	"	1	"	"	"	"	
Dalapon	ND	0.084	2.0	"	1	"	"	"	"	
Dicamba	ND	0.093	1.0	"	1	"	"	"	"	
Dichloroprop	ND	0.040	2.0	"	1	"	"	"	"	
Dinoseb	ND	0.055	1.0	"	1	"	"	"	"	
MCPA	ND	0.73	250	"	1	"	"	"	"	
MCPP	ND	1.6	250	"	1	"	"	"	"	
Pentachlorophenol	ND	0.011	0.20	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

06/29/16 15:59

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Chlorinated Herbicides by EPA Method 8151A

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-11 (CZF0316-13) Water Sampled: 06/07/16 11:20 Received: 06/08/16 11:53										
Surrogate: 2,4-DCAA	*113 %*		*50-150*	µg/L		*CZ04155*	06/10/16	*06/14/16*	*EPA 8151A*	
2,4,5-T	ND	0.040	0.50	"	1	"	"	"	"	
2,4,5-TP (Silvex)	ND	0.0070	0.20	"	1	"	"	"	"	
2,4-D (2,4-Dichlorophenoxyacetic acid)	ND	0.061	1.0	"	1	"	"	"	"	
2,4-DB	ND	0.22	2.0	"	1	"	"	"	"	
Dalapon	ND	0.084	2.0	"	1	"	"	"	"	
Dicamba	ND	0.093	1.0	"	1	"	"	"	"	
Dichloroprop	ND	0.040	2.0	"	1	"	"	"	"	
Dinoseb	ND	0.055	1.0	"	1	"	"	"	"	
MCPA	ND	0.73	250	"	1	"	"	"	"	
MCPP	ND	1.6	250	"	1	"	"	"	"	
Pentachlorophenol	ND	0.011	0.20	"	1	"	"	"	"	
MW-A (CZF0316-15) Water Sampled: 06/08/16 09:30 Received: 06/08/16 11:53										
Surrogate: 2,4-DCAA	*127 %*		*50-150*	µg/L		*CZ04155*	06/10/16	*06/14/16*	*EPA 8151A*	
2,4,5-T	ND	0.040	0.50	"	1	"	"	"	"	
2,4,5-TP (Silvex)	ND	0.0070	0.20	"	1	"	"	"	"	
2,4-D (2,4-Dichlorophenoxyacetic acid)	ND	0.061	1.0	"	1	"	"	"	"	
2,4-DB	ND	0.22	2.0	"	1	"	"	"	"	
Dalapon	ND	0.084	2.0	"	1	"	"	"	"	
Dicamba	ND	0.093	1.0	"	1	"	"	"	"	
Dichloroprop	ND	0.040	2.0	"	1	"	"	"	"	
Dinoseb	ND	0.055	1.0	"	1	"	"	"	"	
MCPA	ND	0.73	250	"	1	"	"	"	"	
MCPP	ND	1.6	250	"	1	"	"	"	"	
Pentachlorophenol	ND	0.011	0.20	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

06/29/16 15:59

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Chlorinated Herbicides by EPA Method 8151A

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-C (CZF0316-17) Water Sampled: 06/08/16 08:05 Received: 06/08/16 11:53										
Surrogate: 2,4-DCAA	*122 %*		*50-150*	µg/L		*CZ04155*	06/10/16	*06/14/16*	*EPA 8151A*	
2,4,5-T	ND	0.040	0.50	"	1	"	"	"	"	
2,4,5-TP (Silvex)	ND	0.0070	0.20	"	1	"	"	"	"	
2,4-D (2,4-Dichlorophenoxyacetic acid)	ND	0.061	1.0	"	1	"	"	"	"	
2,4-DB	ND	0.22	2.0	"	1	"	"	"	"	
Dalapon	ND	0.084	2.0	"	1	"	"	"	"	
Dicamba	ND	0.093	1.0	"	1	"	"	"	"	
Dichloroprop	ND	0.040	2.0	"	1	"	"	"	"	
Dinoseb	ND	0.055	1.0	"	1	"	"	"	"	
MCPA	ND	0.73	250	"	1	"	"	"	"	
MCPP	ND	1.6	250	"	1	"	"	"	"	
Pentachlorophenol	ND	0.011	0.20	"	1	"	"	"	"	
DUP2 (CZF0316-19) Water Sampled: 06/07/16 13:05 Received: 06/08/16 11:53										
Surrogate: 2,4-DCAA	*130 %*		*50-150*	µg/L		*CZ04155*	06/10/16	*06/14/16*	*EPA 8151A*	
2,4,5-T	ND	0.040	0.50	"	1	"	"	"	"	
2,4,5-TP (Silvex)	ND	0.0070	0.20	"	1	"	"	"	"	
2,4-D (2,4-Dichlorophenoxyacetic acid)	ND	0.061	1.0	"	1	"	"	"	"	
2,4-DB	ND	0.22	2.0	"	1	"	"	"	"	
Dalapon	ND	0.084	2.0	"	1	"	"	"	"	
Dicamba	ND	0.093	1.0	"	1	"	"	"	"	
Dichloroprop	ND	0.040	2.0	"	1	"	"	"	"	
Dinoseb	ND	0.055	1.0	"	1	"	"	"	"	
MCPA	ND	0.73	250	"	1	"	"	"	"	
MCPP	ND	1.6	250	"	1	"	"	"	"	
Pentachlorophenol	ND	0.011	0.20	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

06/29/16 15:59

El Dorado County Environmental
2850 Fairlane Court, Building C
Placerville CA, 95667

Project: Union Mine Disposal Facility
Project Number: [none]
Project Manager: Greg Stanton

CLS Work Order #: CZF0316
COC #:

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
UM-3 (CZF0316-01) Water Sampled: 06/07/16 15:00 Received: 06/08/16 11:53										
Bicarbonate as CaCO3	**210**	0.50	5.0	mg/L	1	CZ04156	06/10/16	06/10/16	SM2320B	
Carbonate as CaCO3	ND	0.50	5.0	"	1	"	"	"	"	
Chloride	**23**	0.026	0.50	"	1	CZ04080	06/08/16	06/08/16	EPA 300.0	
Cyanide (dissolved)	ND	0.0012	0.0050	"	1	CZ04150	06/10/16	06/10/16	SM4500	
Hydroxide as CaCO3	ND	0.50	5.0	"	1	CZ04156	06/10/16	06/10/16	SM2320B	
Nitrate as N	**0.14**	0.053	0.40	"	1	CZ04080	06/08/16	06/08/16	EPA 300.0	J
Sulfate as SO4	**32**	0.038	0.50	"	1	"	"	"	"	
Sulfide, Dissolved	ND	0.84	1.0	"	1	CZ04122	06/09/16	06/09/16	SM4500-S F	
Total Alkalinity	**210**	1.0	5.0	"	1	CZ04156	06/10/16	06/10/16	SM2320B	
Total Dissolved Solids	**290**	10	10	"	1	CZ04145	06/10/16	06/13/16	SM2540C	
Total Organic Carbon	**3.9**	0.54	1.0	"	1	CZ04086	06/09/16	06/10/16	SM5310B	
MW-5 (CZF0316-03) Water Sampled: 06/07/16 09:40 Received: 06/08/16 11:53										
Bicarbonate as CaCO3	**220**	0.50	5.0	mg/L	1	CZ04156	06/10/16	06/10/16	SM2320B	
Carbonate as CaCO3	ND	0.50	5.0	"	1	"	"	"	"	
Chloride	**2.4**	0.026	0.50	"	1	CZ04080	06/08/16	06/08/16	EPA 300.0	
Cyanide (dissolved)	ND	0.0012	0.0050	"	1	CZ04150	06/10/16	06/10/16	SM4500	
Hydroxide as CaCO3	ND	0.50	5.0	"	1	CZ04156	06/10/16	06/10/16	SM2320B	
Nitrate as N	ND	0.053	0.40	"	1	CZ04080	06/08/16	06/08/16	EPA 300.0	
Sulfate as SO4	**33**	0.038	0.50	"	1	"	"	"	"	
Sulfide, Dissolved	ND	0.84	1.0	"	1	CZ04122	06/09/16	06/09/16	SM4500-S F	
Total Alkalinity	**220**	1.0	5.0	"	1	CZ04156	06/10/16	06/10/16	SM2320B	
Total Dissolved Solids	**290**	10	10	"	1	CZ04145	06/10/16	06/13/16	SM2540C	
Total Organic Carbon	**3.2**	0.54	1.0	"	1	CZ04086	06/09/16	06/10/16	SM5310B	

CALIFORNIA LABORATORY SERVICES

06/29/16 15:59

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-6 (CZF0316-05) Water Sampled: 06/07/16 10:30 Received: 06/08/16 11:53										
Bicarbonate as CaCO3	**210**	0.50	5.0	mg/L	1	CZ04156	06/10/16	06/10/16	SM2320B	
Carbonate as CaCO3	ND	0.50	5.0	"	1	"	"	"	"	
Chloride	**3.8**	0.026	0.50	"	1	CZ04080	06/08/16	06/08/16	EPA 300.0	
Cyanide (dissolved)	ND	0.0012	0.0050	"	1	CZ04150	06/10/16	06/10/16	SM4500	
Hydroxide as CaCO3	ND	0.50	5.0	"	1	CZ04156	06/10/16	06/10/16	SM2320B	
Nitrate as N	**0.12**	0.053	0.40	"	1	CZ04080	06/08/16	06/08/16	EPA 300.0	J
Sulfate as SO4	**97**	0.19	2.5	"	5	"	"	06/08/16	"	
Sulfide, Dissolved	ND	0.84	1.0	"	1	CZ04122	06/09/16	06/09/16	SM4500-S F	
Total Alkalinity	**210**	1.0	5.0	"	1	CZ04156	06/10/16	06/10/16	SM2320B	
Total Dissolved Solids	**330**	10	10	"	1	CZ04145	06/10/16	06/13/16	SM2540C	
Total Organic Carbon	**4.4**	0.54	1.0	"	1	CZ04086	06/09/16	06/10/16	SM5310B	
MW-7 (CZF0316-07) Water Sampled: 06/07/16 13:00 Received: 06/08/16 11:53										
Bicarbonate as CaCO3	**260**	0.50	5.0	mg/L	1	CZ04156	06/10/16	06/10/16	SM2320B	
Carbonate as CaCO3	ND	0.50	5.0	"	1	"	"	"	"	
Chloride	**2.0**	0.026	0.50	"	1	CZ04080	06/08/16	06/08/16	EPA 300.0	
Cyanide (dissolved)	ND	0.0012	0.0050	"	1	CZ04150	06/10/16	06/10/16	SM4500	
Hydroxide as CaCO3	ND	0.50	5.0	"	1	CZ04156	06/10/16	06/10/16	SM2320B	
Nitrate as N	ND	0.053	0.40	"	1	CZ04080	06/08/16	06/08/16	EPA 300.0	
Sulfate as SO4	**24**	0.038	0.50	"	1	"	"	"	"	
Sulfide, Dissolved	ND	0.84	1.0	"	1	CZ04122	06/09/16	06/09/16	SM4500-S F	
Total Alkalinity	**260**	1.0	5.0	"	1	CZ04156	06/10/16	06/10/16	SM2320B	
Total Dissolved Solids	**290**	10	10	"	1	CZ04145	06/10/16	06/13/16	SM2540C	
Total Organic Carbon	**3.8**	0.54	1.0	"	1	CZ04086	06/09/16	06/10/16	SM5310B	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-9 (CZF0316-09) Water Sampled: 06/07/16 12:00 Received: 06/08/16 11:53										
Bicarbonate as CaCO3	**250**	0.50	5.0	mg/L	1	CZ04156	06/10/16	06/10/16	SM2320B	
Carbonate as CaCO3	ND	0.50	5.0	"	1	"	"	"	"	
Chloride	**2.0**	0.026	0.50	"	1	CZ04080	06/08/16	06/08/16	EPA 300.0	
Cyanide (dissolved)	ND	0.0012	0.0050	"	1	CZ04150	06/10/16	06/10/16	SM4500	
Hydroxide as CaCO3	ND	0.50	5.0	"	1	CZ04156	06/10/16	06/10/16	SM2320B	
Nitrate as N	ND	0.053	0.40	"	1	CZ04080	06/08/16	06/08/16	EPA 300.0	
Sulfate as SO4	**33**	0.038	0.50	"	1	"	"	"	"	
Sulfide, Dissolved	ND	0.84	1.0	"	1	CZ04122	06/09/16	06/09/16	SM4500-S F	
Total Alkalinity	**250**	1.0	5.0	"	1	CZ04156	06/10/16	06/10/16	SM2320B	
Total Dissolved Solids	**280**	10	10	"	1	CZ04145	06/10/16	06/13/16	SM2540C	
Total Organic Carbon	**5.4**	0.54	1.0	"	1	CZ04086	06/09/16	06/10/16	SM5310B	
MW-10 (CZF0316-11) Water Sampled: 06/07/16 08:40 Received: 06/08/16 11:53										
Bicarbonate as CaCO3	**250**	0.50	5.0	mg/L	1	CZ04156	06/10/16	06/10/16	SM2320B	
Carbonate as CaCO3	ND	0.50	5.0	"	1	"	"	"	"	
Chloride	**3.4**	0.026	0.50	"	1	CZ04080	06/08/16	06/08/16	EPA 300.0	
Cyanide (dissolved)	ND	0.0012	0.0050	"	1	CZ04150	06/10/16	06/10/16	SM4500	
Hydroxide as CaCO3	ND	0.50	5.0	"	1	CZ04156	06/10/16	06/10/16	SM2320B	
Nitrate as N	ND	0.053	0.40	"	1	CZ04080	06/08/16	06/08/16	EPA 300.0	
Sulfate as SO4	**65**	0.19	2.5	"	5	"	"	06/08/16	"	
Sulfide, Dissolved	ND	0.84	1.0	"	1	CZ04122	06/09/16	06/09/16	SM4500-S F	
Total Alkalinity	**250**	1.0	5.0	"	1	CZ04156	06/10/16	06/10/16	SM2320B	
Total Dissolved Solids	**360**	10	10	"	1	CZ04145	06/10/16	06/13/16	SM2540C	
Total Organic Carbon	**3.4**	0.54	1.0	"	1	CZ04086	06/09/16	06/16/16	SM5310B	

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-11 (CZF0316-13) Water Sampled: 06/07/16 11:20 Received: 06/08/16 11:53										
Bicarbonate as CaCO3	**82**	0.50	5.0	mg/L	1	CZ04156	06/10/16	06/10/16	SM2320B	
Carbonate as CaCO3	ND	0.50	5.0	"	1	"	"	"	"	
Chloride	**11**	0.026	0.50	"	1	CZ04080	06/08/16	06/08/16	EPA 300.0	
Cyanide (dissolved)	ND	0.0012	0.0050	"	1	CZ04150	06/10/16	06/10/16	SM4500	
Hydroxide as CaCO3	ND	0.50	5.0	"	1	CZ04156	06/10/16	06/10/16	SM2320B	
Nitrate as N	ND	0.053	0.40	"	1	CZ04080	06/08/16	06/08/16	EPA 300.0	
Sulfate as SO4	**33**	0.038	0.50	"	1	"	"	"	"	
Sulfide, Dissolved	ND	0.84	1.0	"	1	CZ04122	06/09/16	06/09/16	SM4500-S F	
Total Alkalinity	**82**	1.0	5.0	"	1	CZ04156	06/10/16	06/10/16	SM2320B	
Total Dissolved Solids	**160**	10	10	"	1	CZ04145	06/10/16	06/13/16	SM2540C	
Total Organic Carbon	**5.2**	0.54	1.0	"	1	CZ04086	06/09/16	06/10/16	SM5310B	
MW-A (CZF0316-15) Water Sampled: 06/08/16 09:30 Received: 06/08/16 11:53										
Bicarbonate as CaCO3	**66**	0.50	5.0	mg/L	1	CZ04156	06/10/16	06/10/16	SM2320B	
Carbonate as CaCO3	ND	0.50	5.0	"	1	"	"	"	"	
Chloride	**15**	0.026	0.50	"	1	CZ04080	06/08/16	06/08/16	EPA 300.0	
Cyanide (dissolved)	ND	0.0012	0.0050	"	1	CZ04150	06/10/16	06/10/16	SM4500	
Hydroxide as CaCO3	ND	0.50	5.0	"	1	CZ04156	06/10/16	06/10/16	SM2320B	
Nitrate as N	**0.34**	0.053	0.40	"	1	CZ04080	06/08/16	06/08/16	EPA 300.0	J
Sulfate as SO4	**86**	0.19	2.5	"	5	"	"	06/08/16	"	
Sulfide, Dissolved	ND	0.84	1.0	"	1	CZ04122	06/09/16	06/09/16	SM4500-S F	
Total Alkalinity	**66**	1.0	5.0	"	1	CZ04156	06/10/16	06/10/16	SM2320B	
Total Dissolved Solids	**220**	10	10	"	1	CZ04145	06/10/16	06/13/16	SM2540C	
Total Organic Carbon	**3.9**	0.54	1.0	"	1	CZ04086	06/09/16	06/10/16	SM5310B	

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-C (CZF0316-17) Water Sampled: 06/08/16 08:05 Received: 06/08/16 11:53										
Bicarbonate as CaCO3	**150**	0.50	5.0	mg/L	1	CZ04156	06/10/16	06/10/16	SM2320B	
Carbonate as CaCO3	ND	0.50	5.0	"	1	"	"	"	"	
Chloride	**36**	0.026	0.50	"	1	CZ04080	06/08/16	06/08/16	EPA 300.0	
Cyanide (dissolved)	ND	0.0012	0.0050	"	1	CZ04150	06/10/16	06/10/16	SM4500	
Hydroxide as CaCO3	ND	0.50	5.0	"	1	CZ04156	06/10/16	06/10/16	SM2320B	
Nitrate as N	**0.13**	0.053	0.40	"	1	CZ04080	06/08/16	06/08/16	EPA 300.0	J
Sulfate as SO4	**110**	0.19	2.5	"	5	"	"	06/08/16	"	
Sulfide, Dissolved	ND	0.84	1.0	"	1	CZ04122	06/09/16	06/09/16	SM4500-S F	
Total Alkalinity	**150**	1.0	5.0	"	1	CZ04156	06/10/16	06/10/16	SM2320B	
Total Dissolved Solids	**360**	10	10	"	1	CZ04145	06/10/16	06/13/16	SM2540C	
Total Organic Carbon	**4.7**	0.54	1.0	"	1	CZ04086	06/09/16	06/10/16	SM5310B	
DUP2 (CZF0316-19) Water Sampled: 06/07/16 13:05 Received: 06/08/16 11:53										
Bicarbonate as CaCO3	**260**	0.50	5.0	mg/L	1	CZ04156	06/10/16	06/10/16	SM2320B	
Carbonate as CaCO3	ND	0.50	5.0	"	1	"	"	"	"	
Chloride	**2.0**	0.026	0.50	"	1	CZ04080	06/08/16	06/09/16	EPA 300.0	
Cyanide (dissolved)	ND	0.0012	0.0050	"	1	CZ04150	06/10/16	06/10/16	SM4500	
Hydroxide as CaCO3	ND	0.50	5.0	"	1	CZ04156	06/10/16	06/10/16	SM2320B	
Nitrate as N	ND	0.053	0.40	"	1	CZ04080	06/08/16	06/09/16	EPA 300.0	
Sulfate as SO4	**24**	0.038	0.50	"	1	"	"	"	"	
Sulfide, Dissolved	ND	0.84	1.0	"	1	CZ04122	06/09/16	06/09/16	SM4500-S F	
Total Alkalinity	**260**	1.0	5.0	"	1	CZ04156	06/10/16	06/10/16	SM2320B	
Total Dissolved Solids	**290**	10	10	"	1	CZ04145	06/10/16	06/13/16	SM2540C	
Total Organic Carbon	**3.8**	0.54	1.0	"	1	CZ04086	06/09/16	06/16/16	SM5310B	

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Metals (Dissolved) by EPA 200 Series Methods

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
UM-3 (Field Filtered) (CZF0316-02) Water	**Sampled: 06/07/16 15:00**		**Received: 06/08/16 11:53**							
Aluminum	ND	27	50	µg/L	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Antimony	ND	0.57	6.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	
Arsenic	**4.8**	0.27	2.0	"	1	"	"	"	"	
Barium	**65**	0.91	20	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Beryllium	ND	0.43	5.0	"	1	"	"	"	"	
Cadmium	ND	2.8	10	"	1	"	"	"	"	
Calcium	**32000**	14	1000	"	1	"	"	"	"	
Chromium	ND	9.9	10	"	1	"	"	"	"	
Cobalt	ND	7.6	20	"	1	"	"	"	"	
Copper	ND	3.2	10	"	1	"	"	"	"	
Iron	**69**	6.8	100	"	1	"	"	"	"	J
Lead	ND	0.23	5.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	
Magnesium	**15000**	26	1000	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Manganese	**120**	0.92	20	"	1	"	"	"	"	
Mercury	ND	1.0	1.0	"	1	CZ04163	06/10/16	06/13/16	EPA 245.1	Hg
Nickel	ND	14	20	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Potassium	**1800**	180	1000	"	1	"	"	06/14/16	"	
Selenium	ND	1.1	5.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	
Silver	ND	2.9	10	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Sodium	**65000**	17	1000	"	1	"	"	"	"	
Thallium	**0.40**	0.11	1.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	J
Tin	ND	18	100	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Vanadium	ND	0.44	3.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	
Zinc	ND	9.3	20	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Metals (Dissolved) by EPA 200 Series Methods

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-5 (Field Filtered) (CZF0316-04) Water	**Sampled: 06/07/16 09:40**		**Received: 06/08/16 11:53**							
Aluminum	ND	27	50	µg/L	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Antimony	**0.95**	0.57	6.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	J
Arsenic	**2.4**	0.27	2.0	"	1	"	"	"	"	
Barium	**23**	0.91	20	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Beryllium	ND	0.43	5.0	"	1	"	"	"	"	
Cadmium	ND	2.8	10	"	1	"	"	"	"	
Calcium	**69000**	14	1000	"	1	"	"	"	"	
Chromium	ND	9.9	10	"	1	"	"	"	"	
Cobalt	ND	7.6	20	"	1	"	"	"	"	
Copper	ND	3.2	10	"	1	"	"	"	"	
Iron	ND	6.8	100	"	1	"	"	"	"	
Lead	ND	0.23	5.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	
Maguesium	**11000**	26	1000	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Manganese	**1.7**	0.92	20	"	1	"	"	"	"	J
Mercury	ND	1.0	1.0	"	1	CZ04163	06/10/16	06/13/16	EPA 245.1	Hg
Nickel	ND	14	20	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Potassium	**530**	180	1000	"	1	"	"	06/14/16	"	J
Selenium	ND	1.1	5.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	
Silver	ND	2.9	10	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Sodium	**13000**	17	1000	"	1	"	"	"	"	
Thallium	ND	0.11	1.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	
Tin	ND	18	100	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Vanadium	ND	0.44	3.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	
Zinc	ND	9.3	20	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Metals (Dissolved) by EPA 200 Series Methods

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-6 (Field Filtered) (CZF0316-06) Water	**Sampled: 06/07/16 10:30**	**Received: 06/08/16 11:53**								
Aluminum	ND	27	50	µg/L	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Antimony	**0.74**	0.57	6.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	J
Arsenic	**3.6**	0.27	2.0	"	1	"	"	"	"	
Barium	**20**	0.91	20	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	J
Beryllium	ND	0.43	5.0	"	1	"	"	"	"	
Cadmium	ND	2.8	10	"	1	"	"	"	"	
Calcium	**69000**	14	1000	"	1	"	"	"	"	
Chromium	ND	9.9	10	"	1	"	"	"	"	
Cobalt	ND	7.6	20	"	1	"	"	"	"	
Copper	ND	3.2	10	"	1	"	"	"	"	
Iron	ND	6.8	100	"	1	"	"	"	"	
Lead	ND	0.23	5.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	
Magnesium	**14000**	26	1000	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Manganese	ND	0.92	20	"	1	"	"	"	"	
Mercury	ND	1.0	1.0	"	1	CZ04163	06/10/16	06/13/16	EPA 245.1	Hg
Nickel	ND	14	20	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Potassium	**670**	180	1000	"	1	"	"	06/14/16	"	J
Selenium	ND	1.1	5.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	
Silver	ND	2.9	10	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Sodium	**29000**	17	1000	"	1	"	"	"	"	
Thallium	ND	0.11	1.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	
Tin	ND	18	100	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Vanadium	ND	0.44	3.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	
Zinc	ND	9.3	20	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Metals (Dissolved) by EPA 200 Series Methods

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-7 (Field Filtered) (CZF0316-08) Water	**Sampled: 06/07/16 13:00**		**Received: 06/08/16 11:53**							
Aluminum	ND	27	50	µg/L	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Antimony	ND	0.57	6.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	
Arsenic	**6.4**	0.27	2.0	"	1	"	"	"	"	
Barium	**39**	0.91	20	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Beryllium	ND	0.43	5.0	"	1	"	"	"	"	
Cadmium	ND	2.8	10	"	1	"	"	"	"	
Calcium	**32000**	14	1000	"	1	"	"	"	"	
Chromium	ND	9.9	10	"	1	"	"	"	"	
Cobalt	ND	7.6	20	"	1	"	"	"	"	
Copper	ND	3.2	10	"	1	"	"	"	"	
Iron	**160**	6.8	100	"	1	"	"	"	"	
Lead	ND	0.23	5.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	
Magnesium	**6000**	26	1000	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Manganese	**210**	0.92	20	"	1	"	"	"	"	
Mercury	ND	1.0	1.0	"	1	CZ04163	06/10/16	06/13/16	EPA 245.1	Hg
Nickel	ND	14	20	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Potassium	**1300**	180	1000	"	1	"	"	06/14/16	"	
Selenium	ND	1.1	5.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	
Silver	ND	2.9	10	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Sodium	**82000**	17	1000	"	1	"	"	"	"	
Thallium	ND	0.11	1.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	
Tin	ND	18	100	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Vanadium	ND	0.44	3.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	
Zinc	ND	9.3	20	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	

CALIFORNIA LABORATORY SERVICES

06/29/16 15:59

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Metals (Dissolved) by EPA 200 Series Methods

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-9 (Field Filtered) (CZF0316-10) Water	**Sampled: 06/07/16 12:00**		**Received: 06/08/16 11:53**							
Aluminum	ND	27	50	µg/L	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Antimony	ND	0.57	6.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	
Arsenic	**9.7**	0.27	2.0	"	1	"	"	"	"	
Barium	**29**	0.91	20	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Beryllium	ND	0.43	5.0	"	1	"	"	"	"	
Cadmium	ND	2.8	10	"	1	"	"	"	"	
Calcium	**40000**	14	1000	"	1	"	"	"	"	
Chromium	ND	9.9	10	"	1	"	"	"	"	
Cobalt	ND	7.6	20	"	1	"	"	"	"	
Copper	ND	3.2	10	"	1	"	"	"	"	
Iron	**200**	6.8	100	"	1	"	"	"	"	
Lead	ND	0.23	5.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	
Magnesium	**16000**	26	1000	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Manganese	**100**	0.92	20	"	1	"	"	"	"	
Mercury	ND	1.0	1.0	"	1	CZ04163	06/10/16	06/13/16	EPA 245.1	Hg
Nickel	ND	14	20	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Potassium	**1400**	180	1000	"	1	"	"	06/14/16	"	
Selenium	ND	1.1	5.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	
Silver	ND	2.9	10	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Sodium	**50000**	17	1000	"	1	"	"	"	"	
Thallium	ND	0.11	1.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	
Tin	ND	18	100	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Vanadium	ND	0.44	3.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	
Zinc	ND	9.3	20	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	

CALIFORNIA LABORATORY SERVICES

06/29/16 15:59

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Metals (Dissolved) by EPA 200 Series Methods

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-10 (Field Filtered) (CZF0316-12) Water Sampled: 06/07/16 08:40 Received: 06/08/16 11:53										
Aluminum	ND	27	50	µg/L	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Antimony	ND	0.57	6.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	
Arsenic	**6.4**	0.27	2.0	"	1	"	"	"	"	
Barium	**36**	0.91	20	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Beryllium	ND	0.43	5.0	"	1	"	"	"	"	
Cadmium	ND	2.8	10	"	1	"	"	"	"	
Calcium	**94000**	14	1000	"	1	"	"	"	"	
Chromium	ND	9.9	10	"	1	"	"	"	"	
Cobalt	ND	7.6	20	"	1	"	"	"	"	
Copper	ND	3.2	10	"	1	"	"	"	"	
Iron	**810**	6.8	100	"	1	"	"	"	"	
Lead	ND	0.23	5.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	
Magnesium	**12000**	26	1000	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Manganese	**1400**	0.92	20	"	1	"	"	"	"	
Mercury	ND	1.0	1.0	"	1	CZ04163	06/10/16	06/13/16	EPA 245.1	Hg
Nickel	ND	14	20	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Potassium	**720**	180	1000	"	1	"	"	06/14/16	"	J
Selenium	ND	1.1	5.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	
Silver	ND	2.9	10	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Sodium	**15000**	17	1000	"	1	"	"	"	"	
Thallium	ND	0.11	1.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	
Tin	ND	18	100	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Vanadium	ND	0.44	3.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	
Zinc	ND	9.3	20	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	

CALIFORNIA LABORATORY SERVICES

06/29/16 15:59

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Metals (Dissolved) by EPA 200 Series Methods

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-11 (Field Filtered) (CZF0316-14) Water Sampled: 06/07/16 11:20 Received: 06/08/16 11:53										
Aluminum	ND	27	50	µg/L	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Antimony	ND	0.57	6.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	
Arsenic	**3.8**	0.27	2.0	"	1	"	"	"	"	
Barium	**11**	0.91	20	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	J
Beryllium	ND	0.43	5.0	"	1	"	"	"	"	
Cadmium	ND	2.8	10	"	1	"	"	"	"	
Calcium	**13000**	14	1000	"	1	"	"	"	"	
Chromium	ND	9.9	10	"	1	"	"	"	"	
Cobalt	**32**	7.6	20	"	1	"	"	"	"	
Copper	ND	3.2	10	"	1	"	"	"	"	
Iron	**5300**	6.8	100	"	1	"	"	"	"	
Lead	ND	0.23	5.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	
Magnesium	**15000**	26	1000	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Manganese	**700**	0.92	20	"	1	"	"	"	"	
Mercury	ND	1.0	1.0	"	1	CZ04163	06/10/16	06/13/16	EPA 245.1	Hg
Nickel	ND	14	20	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Potassium	**400**	180	1000	"	1	"	"	06/14/16	"	J
Selenium	ND	1.1	5.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	
Silver	ND	2.9	10	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Sodium	**14000**	17	1000	"	1	"	"	"	"	
Thallium	ND	0.11	1.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	
Tin	ND	18	100	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Vanadium	ND	0.44	3.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	
Zinc	**56**	9.3	20	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	

CALIFORNIA LABORATORY SERVICES

06/29/16 15:59

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Metals (Dissolved) by EPA 200 Series Methods

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-A (Field Filtered) (CZF0316-16) Water	**Sampled: 06/08/16 09:30**		**Received: 06/08/16 11:53**							
Aluminum	**35**	27	50	µg/L	1	CZ04180	06/13/16	06/13/16	EPA 200.7	J
Antimony	ND	0.57	6.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	
Arsenic	**0.86**	0.27	2.0	"	1	"	"	"	"	J
Barium	**26**	0.91	20	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Beryllium	ND	0.43	5.0	"	1	"	"	"	"	
Cadmium	ND	2.8	10	"	1	"	"	"	"	
Calcium	**37000**	14	1000	"	1	"	"	"	"	
Chromium	ND	9.9	10	"	1	"	"	"	"	
Cobalt	ND	7.6	20	"	1	"	"	"	"	
Copper	**5.7**	3.2	10	"	1	"	"	"	"	J
Iron	**8.3**	6.8	100	"	1	"	"	"	"	J
Lead	ND	0.23	5.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	
Magnesium	**13000**	26	1000	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Manganese	**6.1**	0.92	20	"	1	"	"	"	"	J
Mercury	ND	1.0	1.0	"	1	CZ04163	06/10/16	06/13/16	EPA 245.1	Hg
Nickel	ND	14	20	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Potassium	**7500**	180	1000	"	1	"	"	06/14/16	"	
Selenium	ND	1.1	5.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	
Silver	ND	2.9	10	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Sodium	**14000**	17	1000	"	1	"	"	"	"	
Thallium	ND	0.11	1.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	
Tin	ND	18	100	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Vanadium	ND	0.44	3.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	
Zinc	ND	9.3	20	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	

CALIFORNIA LABORATORY SERVICES

06/29/16 15:59

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Metals (Dissolved) by EPA 200 Series Methods

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-C (Field Filtered) (CZF0316-18) Water	**Sampled: 06/08/16 08:05**		**Received: 06/08/16 11:53**							
Aluminum	ND	27	50	µg/L	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Antimony	**0.73**	0.57	6.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	J
Arsenic	**1.6**	0.27	2.0	"	1	"	"	"	"	J
Barium	**19**	0.91	20	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	J
Beryllium	ND	0.43	5.0	"	1	"	"	"	"	
Cadmium	ND	2.8	10	"	1	"	"	"	"	
Calcium	**66000**	14	1000	"	1	"	"	"	"	
Chromium	ND	9.9	10	"	1	"	"	"	"	
Cobalt	**15**	7.6	20	"	1	"	"	"	"	J
Copper	**6.8**	3.2	10	"	1	"	"	"	"	J
Iron	ND	6.8	100	"	1	"	"	"	"	
Lead	ND	0.23	5.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	
Magnesium	**22000**	26	1000	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Manganese	**1300**	0.92	20	"	1	"	"	"	"	
Mercury	ND	1.0	1.0	"	1	CZ04163	06/10/16	06/13/16	EPA 245.1	Hg
Nickel	ND	14	20	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Potassium	**2400**	180	1000	"	1	"	"	06/14/16	"	
Selenium	**3.0**	1.1	5.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	J
Silver	ND	2.9	10	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Sodium	**26000**	17	1000	"	1	"	"	"	"	
Thallium	ND	0.11	1.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	
Tin	ND	18	100	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Vanadium	ND	0.44	3.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	
Zinc	**37**	9.3	20	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	

CALIFORNIA LABORATORY SERVICES

06/29/16 15:59

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Metals (Dissolved) by EPA 200 Series Methods

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
DUP2 (Field Filtered) (CZF0316-20) Water	**Sampled: 06/07/16 13:05**		**Received: 06/08/16 11:53**							
Aluminum	ND	27	50	µg/L	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Antimony	ND	0.57	6.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	
Arsenic	**5.7**	0.27	2.0	"	1	"	"	"	"	
Barium	**39**	0.91	20	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Beryllium	ND	0.43	5.0	"	1	"	"	"	"	
Cadmium	ND	2.8	10	"	1	"	"	"	"	
Calcium	**31000**	14	1000	"	1	"	"	"	"	
Chromium	ND	9.9	10	"	1	"	"	"	"	
Cobalt	ND	7.6	20	"	1	"	"	"	"	
Copper	ND	3.2	10	"	1	"	"	"	"	
Iron	**150**	6.8	100	"	1	"	"	"	"	
Lead	ND	0.23	5.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	
Magnesium	**6000**	26	1000	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Manganese	**200**	0.92	20	"	1	"	"	"	"	
Mercury	ND	1.0	1.0	"	1	CZ04163	06/10/16	06/13/16	EPA 245.1	Hg
Nickel	ND	14	20	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Potassium	**1300**	180	1000	"	1	"	"	06/14/16	"	
Selenium	ND	1.1	5.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	
Silver	ND	2.9	10	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Sodium	**83000**	17	1000	"	1	"	"	"	"	
Thallium	ND	0.11	1.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	
Tin	ND	18	100	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	
Vanadium	ND	0.44	3.0	"	1	CZ04209	06/13/16	06/14/16	EPA 200.8	
Zinc	ND	9.3	20	"	1	CZ04180	06/13/16	06/13/16	EPA 200.7	

CALIFORNIA LABORATORY SERVICES

06/29/16 15:59

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Organophosphorus Pesticides by EPA Method 8141A

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
UM-3 (CZF0316-01) Water Sampled: 06/07/16 15:00 Received: 06/08/16 11:53										
Surrogate: EPN	*111 %*		*50-150*	µg/L		*CZ04130*	06/09/16	*06/14/16*	*EPA 8141A*	
Bolstar	ND	0.018	0.050	"	1	"	"	"	"	
Chlorpyrifos	ND	0.018	0.050	"	1	"	"	"	"	
Coumaphos	ND	0.017	0.10	"	1	"	"	"	"	
Demeton	ND	0.026	0.10	"	1	"	"	"	"	
Diazinon	ND	0.033	0.050	"	1	"	"	"	"	
Dichlorvos	ND	0.023	0.10	"	1	"	"	"	"	
Disulfoton	ND	0.031	0.050	"	1	"	"	"	"	
Ethoprop	ND	0.016	0.050	"	1	"	"	"	"	
Fensulfothion	ND	0.036	0.050	"	1	"	"	"	"	
Fenthion	ND	0.018	0.050	"	1	"	"	"	"	
Guthion	ND	0.027	0.10	"	1	"	"	"	"	
Malathion	ND	0.014	0.050	"	1	"	"	"	"	
Merphos	ND	0.021	0.050	"	1	"	"	"	"	
Methyl parathion	ND	0.014	0.050	"	1	"	"	"	"	
Mevinphos	ND	0.033	0.050	"	1	"	"	"	"	
Phorate	ND	0.015	0.050	"	1	"	"	"	"	
Prothiofos	ND	0.0031	0.050	"	1	"	"	"	"	
Ronnel	ND	0.016	0.050	"	1	"	"	"	"	
Stirophos	ND	0.021	0.050	"	1	"	"	"	"	
Trichloronate	ND	0.020	0.050	"	1	"	"	"	"	
MW-5 (CZF0316-03) Water Sampled: 06/07/16 09:40 Received: 06/08/16 11:53										
Surrogate: EPN	*123 %*		*50-150*	µg/L		*CZ04130*	06/09/16	*06/14/16*	*EPA 8141A*	
Bolstar	ND	0.018	0.050	"	1	"	"	"	"	
Chlorpyrifos	ND	0.018	0.050	"	1	"	"	"	"	
Coumaphos	ND	0.017	0.10	"	1	"	"	"	"	
Demeton	ND	0.026	0.10	"	1	"	"	"	"	
Diazinon	ND	0.033	0.050	"	1	"	"	"	"	
Dichlorvos	ND	0.023	0.10	"	1	"	"	"	"	
Disulfoton	ND	0.031	0.050	"	1	"	"	"	"	
Ethoprop	ND	0.016	0.050	"	1	"	"	"	"	
Fensulfothion	ND	0.036	0.050	"	1	"	"	"	"	
Fenthion	ND	0.018	0.050	"	1	"	"	"	"	
Guthion	ND	0.027	0.10	"	1	"	"	"	"	
Malathion	ND	0.014	0.050	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Organophosphorus Pesticides by EPA Method 8141A

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-5 (CZF0316-03) Water Sampled: 06/07/16 09:40 Received: 06/08/16 11:53										
Merphos	ND	0.021	0.050	µg/L	1	CZ04130	"	06/14/16	EPA 8141A	
Methyl parathion	ND	0.014	0.050	"	1	"	"	"	"	
Mevinphos	ND	0.033	0.050	"	1	"	"	"	"	
Phorate	ND	0.015	0.050	"	1	"	"	"	"	
Prothiofos	ND	0.0031	0.050	"	1	"	"	"	"	
Ronnel	ND	0.016	0.050	"	1	"	"	"	"	
Stirophos	ND	0.021	0.050	"	1	"	"	"	"	
Trichloronate	ND	0.020	0.050	"	1	"	"	"	"	
MW-6 (CZF0316-05) Water Sampled: 06/07/16 10:30 Received: 06/08/16 11:53										
Surrogate: EPN	*121 %*		*50-150*	µg/L		*CZ04130*	06/09/16	*06/14/16*	*EPA 8141A*	
Bolstar	ND	0.018	0.050	"	1	"	"	"	"	
Chlorpyrifos	ND	0.018	0.050	"	1	"	"	"	"	
Coumaphos	ND	0.017	0.10	"	1	"	"	"	"	
Demeton	ND	0.026	0.10	"	1	"	"	"	"	
Diazinon	ND	0.033	0.050	"	1	"	"	"	"	
Dichlorvos	ND	0.023	0.10	"	1	"	"	"	"	
Disulfoton	ND	0.031	0.050	"	1	"	"	"	"	
Ethoprop	ND	0.016	0.050	"	1	"	"	"	"	
Fensulfothion	ND	0.036	0.050	"	1	"	"	"	"	
Fenthion	ND	0.018	0.050	"	1	"	"	"	"	
Guthion	ND	0.027	0.10	"	1	"	"	"	"	
Malathion	ND	0.014	0.050	"	1	"	"	"	"	
Merphos	ND	0.021	0.050	"	1	"	"	"	"	
Methyl parathion	ND	0.014	0.050	"	1	"	"	"	"	
Mevinphos	ND	0.033	0.050	"	1	"	"	"	"	
Phorate	ND	0.015	0.050	"	1	"	"	"	"	
Prothiofos	ND	0.0031	0.050	"	1	"	"	"	"	
Ronnel	ND	0.016	0.050	"	1	"	"	"	"	
Stirophos	ND	0.021	0.050	"	1	"	"	"	"	
Trichloronate	ND	0.020	0.050	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Organophosphorus Pesticides by EPA Method 8141A

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-7 (CZF0316-07) Water Sampled: 06/07/16 13:00 Received: 06/08/16 11:53										
Surrogate: EPN	*140 %*		*50-150*	µg/L		*CZ04130*	06/09/16	*06/14/16*	*EPA 8141A*	
Bolstar	ND	0.018	0.050	"	1	"	"	"	"	
Chlorpyrifos	ND	0.018	0.050	"	1	"	"	"	"	
Coumaphos	ND	0.017	0.10	"	1	"	"	"	"	
Demeton	ND	0.026	0.10	"	1	"	"	"	"	
Diazinon	ND	0.033	0.050	"	1	"	"	"	"	
Dichlorvos	ND	0.023	0.10	"	1	"	"	"	"	
Disulfoton	ND	0.031	0.050	"	1	"	"	"	"	
Ethoprop	ND	0.016	0.050	"	1	"	"	"	"	
Fensulfothion	ND	0.036	0.050	"	1	"	"	"	"	
Fenthion	ND	0.018	0.050	"	1	"	"	"	"	
Guthion	ND	0.027	0.10	"	1	"	"	"	"	
Malathion	ND	0.014	0.050	"	1	"	"	"	"	
Merphos	ND	0.021	0.050	"	1	"	"	"	"	
Methyl parathion	ND	0.014	0.050	"	1	"	"	"	"	
Mevinphos	ND	0.033	0.050	"	1	"	"	"	"	
Phorate	ND	0.015	0.050	"	1	"	"	"	"	
Prothiofos	ND	0.0031	0.050	"	1	"	"	"	"	
Ronnel	ND	0.016	0.050	"	1	"	"	"	"	
Stirophos	ND	0.021	0.050	"	1	"	"	"	"	
Trichloronate	ND	0.020	0.050	"	1	"	"	"	"	
MW-9 (CZF0316-09) Water Sampled: 06/07/16 12:00 Received: 06/08/16 11:53										
Surrogate: EPN	*103 %*		*50-150*	µg/L		*CZ04130*	06/09/16	*06/14/16*	*EPA 8141A*	
Bolstar	ND	0.018	0.050	"	1	"	"	"	"	
Chlorpyrifos	ND	0.018	0.050	"	1	"	"	"	"	
Coumaphos	ND	0.017	0.10	"	1	"	"	"	"	
Demeton	ND	0.026	0.10	"	1	"	"	"	"	
Diazinon	ND	0.033	0.050	"	1	"	"	"	"	
Dichlorvos	ND	0.023	0.10	"	1	"	"	"	"	
Disulfoton	ND	0.031	0.050	"	1	"	"	"	"	
Ethoprop	ND	0.016	0.050	"	1	"	"	"	"	
Fensulfothion	ND	0.036	0.050	"	1	"	"	"	"	
Fenthion	ND	0.018	0.050	"	1	"	"	"	"	
Guthion	ND	0.027	0.10	"	1	"	"	"	"	
Malathion	ND	0.014	0.050	"	1	"	"	"	"	

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Organophosphorus Pesticides by EPA Method 8141A

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-9 (CZF0316-09) Water Sampled: 06/07/16 12:00 Received: 06/08/16 11:53										
Merphos	ND	0.021	0.050	µg/L	1	CZ04130	"	06/14/16	EPA 8141A	
Methyl parathion	ND	0.014	0.050	"	1	"	"	"	"	
Mevinphos	ND	0.033	0.050	"	1	"	"	"	"	
Phorate	ND	0.015	0.050	"	1	"	"	"	"	
Prothiofos	ND	0.0031	0.050	"	1	"	"	"	"	
Ronnel	ND	0.016	0.050	"	1	"	"	"	"	
Stirophos	ND	0.021	0.050	"	1	"	"	"	"	
Trichloronate	ND	0.020	0.050	"	1	"	"	"	"	
MW-10 (CZF0316-11) Water Sampled: 06/07/16 08:40 Received: 06/08/16 11:53										
Surrogate: EPN	*93 %*		*50-150*	µg/L		*CZ04130*	06/09/16	*06/14/16*	*EPA 8141A*	
Bolstar	ND	0.018	0.050	"	1	"	"	"	"	
Chlorpyrifos	ND	0.018	0.050	"	1	"	"	"	"	
Coumaphos	ND	0.017	0.10	"	1	"	"	"	"	
Demeton	ND	0.026	0.10	"	1	"	"	"	"	
Diazinon	ND	0.033	0.050	"	1	"	"	"	"	
Dichlorvos	ND	0.023	0.10	"	1	"	"	"	"	
Disulfoton	ND	0.031	0.050	"	1	"	"	"	"	
Ethoprop	ND	0.016	0.050	"	1	"	"	"	"	
Fensulfothion	ND	0.036	0.050	"	1	"	"	"	"	
Fenthion	ND	0.018	0.050	"	1	"	"	"	"	
Guthion	ND	0.027	0.10	"	1	"	"	"	"	
Malathion	ND	0.014	0.050	"	1	"	"	"	"	
Merphos	ND	0.021	0.050	"	1	"	"	"	"	
Methyl parathion	ND	0.014	0.050	"	1	"	"	"	"	
Mevinphos	ND	0.033	0.050	"	1	"	"	"	"	
Phorate	ND	0.015	0.050	"	1	"	"	"	"	
Prothiofos	ND	0.0031	0.050	"	1	"	"	"	"	
Ronnel	ND	0.016	0.050	"	1	"	"	"	"	
Stirophos	ND	0.021	0.050	"	1	"	"	"	"	
Trichloronate	ND	0.020	0.050	"	1	"	"	"	"	

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Organophosphorus Pesticides by EPA Method 8141A

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-11 (CZF0316-13) Water Sampled: 06/07/16 11:20 Received: 06/08/16 11:53										
Surrogate: EPN	*92 %*		*50-150*	µg/L		*CZ04130*	06/09/16	*06/14/16*	*EPA 8141A*	
Bolstar	ND	0.018	0.050	"	1	"	"	"	"	
Chlorpyrifos	ND	0.018	0.050	"	1	"	"	"	"	
Coumaphos	ND	0.017	0.10	"	1	"	"	"	"	
Demeton	ND	0.026	0.10	"	1	"	"	"	"	
Diazinon	ND	0.033	0.050	"	1	"	"	"	"	
Dichlorvos	ND	0.023	0.10	"	1	"	"	"	"	
Disulfoton	ND	0.031	0.050	"	1	"	"	"	"	
Ethoprop	ND	0.016	0.050	"	1	"	"	"	"	
Fensulfothion	ND	0.036	0.050	"	1	"	"	"	"	
Fenthion	ND	0.018	0.050	"	1	"	"	"	"	
Guthion	ND	0.027	0.10	"	1	"	"	"	"	
Malathion	ND	0.014	0.050	"	1	"	"	"	"	
Merphos	ND	0.021	0.050	"	1	"	"	"	"	
Methyl parathion	ND	0.014	0.050	"	1	"	"	"	"	
Mevinphos	ND	0.033	0.050	"	1	"	"	"	"	
Phorate	ND	0.015	0.050	"	1	"	"	"	"	
Prothiofos	ND	0.0031	0.050	"	1	"	"	"	"	
Ronnel	ND	0.016	0.050	"	1	"	"	"	"	
Stirophos	ND	0.021	0.050	"	1	"	"	"	"	
Trichloronate	ND	0.020	0.050	"	1	"	"	"	"	
MW-A (CZF0316-15) Water Sampled: 06/08/16 09:30 Received: 06/08/16 11:53										
Surrogate: EPN	*87 %*		*50-150*	µg/L		*CZ04130*	06/09/16	*06/14/16*	*EPA 8141A*	
Bolstar	ND	0.018	0.050	"	1	"	"	"	"	
Chlorpyrifos	ND	0.018	0.050	"	1	"	"	"	"	
Coumaphos	ND	0.017	0.10	"	1	"	"	"	"	
Demeton	ND	0.026	0.10	"	1	"	"	"	"	
Diazinon	ND	0.033	0.050	"	1	"	"	"	"	
Dichlorvos	ND	0.023	0.10	"	1	"	"	"	"	
Disulfoton	ND	0.031	0.050	"	1	"	"	"	"	
Ethoprop	ND	0.016	0.050	"	1	"	"	"	"	
Fensulfothion	ND	0.036	0.050	"	1	"	"	"	"	
Fenthion	ND	0.018	0.050	"	1	"	"	"	"	
Guthion	ND	0.027	0.10	"	1	"	"	"	"	
Malathion	ND	0.014	0.050	"	1	"	"	"	"	

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Organophosphorus Pesticides by EPA Method 8141A

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-A (CZF0316-15) Water Sampled: 06/08/16 09:30 Received: 06/08/16 11:53										
Merphos	ND	0.021	0.050	µg/L	1	CZ04130	"	06/14/16	EPA 8141A	
Methyl parathion	ND	0.014	0.050	"	1	"	"	"	"	
Mevinphos	ND	0.033	0.050	"	1	"	"	"	"	
Phorate	ND	0.015	0.050	"	1	"	"	"	"	
Prothiofos	ND	0.0031	0.050	"	1	"	"	"	"	
Ronnel	ND	0.016	0.050	"	1	"	"	"	"	
Stirophos	ND	0.021	0.050	"	1	"	"	"	"	
Trichloronate	ND	0.020	0.050	"	1	"	"	"	"	
MW-C (CZF0316-17) Water Sampled: 06/08/16 08:05 Received: 06/08/16 11:53										
Surrogate: EPN	*82 %*		*50-150*	µg/L		*CZ04130*	06/09/16	*06/14/16*	*EPA 8141A*	
Bolstar	ND	0.018	0.050	"	1	"	"	"	"	
Chlorpyrifos	ND	0.018	0.050	"	1	"	"	"	"	
Coumaphos	ND	0.017	0.10	"	1	"	"	"	"	
Demeton	ND	0.026	0.10	"	1	"	"	"	"	
Diazinon	ND	0.033	0.050	"	1	"	"	"	"	
Dichlorvos	ND	0.023	0.10	"	1	"	"	"	"	
Disulfoton	ND	0.031	0.050	"	1	"	"	"	"	
Ethoprop	ND	0.016	0.050	"	1	"	"	"	"	
Fensulfothion	ND	0.036	0.050	"	1	"	"	"	"	
Fenthion	ND	0.018	0.050	"	1	"	"	"	"	
Guthion	ND	0.027	0.10	"	1	"	"	"	"	
Malathion	ND	0.014	0.050	"	1	"	"	"	"	
Merphos	ND	0.021	0.050	"	1	"	"	"	"	
Methyl parathion	ND	0.014	0.050	"	1	"	"	"	"	
Mevinphos	ND	0.033	0.050	"	1	"	"	"	"	
Phorate	ND	0.015	0.050	"	1	"	"	"	"	
Prothiofos	ND	0.0031	0.050	"	1	"	"	"	"	
Ronnel	ND	0.016	0.050	"	1	"	"	"	"	
Stirophos	ND	0.021	0.050	"	1	"	"	"	"	
Trichloronate	ND	0.020	0.050	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Organophosphorus Pesticides by EPA Method 8141A

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
DUP2 (CZF0316-19) Water Sampled: 06/07/16 13:05 Received: 06/08/16 11:53										
Surrogate: EPN	*91 %*		*50-150*	µg/L		*CZ04130*	06/09/16	*06 14 16*	*EPA 8141A*	
Bolstar	ND	0.018	0.050	"	1	"	"	"	"	
Chlorpyrifos	ND	0.018	0.050	"	1	"	"	"	"	
Coumaphos	ND	0.017	0.10	"	1	"	"	"	"	
Demeton	ND	0.026	0.10	"	1	"	"	"	"	
Diazinon	ND	0.033	0.050	"	1	"	"	"	"	
Dichlorvos	ND	0.023	0.10	"	1	"	"	"	"	
Disulfoton	ND	0.031	0.050	"	1	"	"	"	"	
Ethoprop	ND	0.016	0.050	"	1	"	"	"	"	
Fensulfothion	ND	0.036	0.050	"	1	"	"	"	"	
Fenthion	ND	0.018	0.050	"	1	"	"	"	"	
Guthion	ND	0.027	0.10	"	1	"	"	"	"	
Malathion	ND	0.014	0.050	"	1	"	"	"	"	
Merphos	ND	0.021	0.050	"	1	"	"	"	"	
Methyl parathion	ND	0.014	0.050	"	1	"	"	"	"	
Mevinphos	ND	0.033	0.050	"	1	"	"	"	"	
Phorate	ND	0.015	0.050	"	1	"	"	"	"	
Prothiofos	ND	0.0031	0.050	"	1	"	"	"	"	
Ronnel	ND	0.016	0.050	"	1	"	"	"	"	
Stirophos	ND	0.021	0.050	"	1	"	"	"	"	
Trichloronate	ND	0.020	0.050	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
UM-3 (CZF0316-01) Water Sampled: 06/07/16 15:00 Received: 06/08/16 11:53										
Surrogate: 2,4,6-Tribromophenol	*87 %*		*10-123*	µg/L		*CZ04113*	06/09/16	*06/10/16*	*EPA 8270C*	
Surrogate: 2-Fluorobiphenyl	*79 %*		*43-116*	"		"	"	"	"	
Surrogate: 2-Fluorophenol	*58 %*		*21-110*	"		"	"	"	"	
Surrogate: Nitrobenzene-d5	*75 %*		*35-114*	"		"	"	"	"	
Surrogate: Phenol-d6	*37 %*		*10-110*	"		"	"	"	"	
Surrogate: Terphenyl-dl4	*80 %*		*33-141*	"		"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.94	10	"	1	"	"	"	"	
1,2-Dichlorobenzene	ND	1.1	10	"	1	"	"	"	"	
1,3-Dichlorobenzene	ND	1.2	10	"	1	"	"	"	"	
1,4-Dichlorobenzene	ND	1.1	10	"	1	"	"	"	"	
2,4,5-Trichlorophenol	ND	0.87	10	"	1	"	"	"	"	
2,4,6-Trichlorophenol	ND	0.96	10	"	1	"	"	"	"	
2,4-Dichlorophenol	ND	0.87	10	"	1	"	"	"	"	
2,4-Dimethylphenol	ND	4.0	10	"	1	"	"	"	"	
2,4-Dinitrophenol	ND	0.62	25	"	1	"	"	"	"	
2,4-Dinitrotoluene (2,4-DNT)	ND	0.81	10	"	1	"	"	"	"	
2,6-Dinitrotoluene (2,6-DNT)	ND	0.71	10	"	1	"	"	"	"	
2-Chloronaphthalene	ND	0.70	10	"	1	"	"	"	"	
2-Chlorophenol	ND	0.88	10	"	1	"	"	"	"	
2-Methylnaphthalene	ND	0.72	10	"	1	"	"	"	"	
2-Methylphenol	ND	1.6	10	"	1	"	"	"	"	
2-Nitroaniline	ND	0.61	25	"	1	"	"	"	"	
2-Nitrophenol	ND	0.94	10	"	1	"	"	"	"	
3 & 4-Methylphenol	ND	2.6	10	"	1	"	"	"	"	
3,3'-Dichlorobenzidine	ND	4.1	20	"	1	"	"	"	"	
3-Nitroaniline	ND	0.96	25	"	1	"	"	"	"	
4,6-Dinitro-2-methylphenol	ND	1.2	25	"	1	"	"	"	"	
4-Bromophenyl phenyl ether	ND	0.80	10	"	1	"	"	"	"	
4-Chloro-3-methylphenol	ND	0.94	10	"	1	"	"	"	"	
4-Chloroaniline	ND	1.8	10	"	1	"	"	"	"	
4-Chlorophenyl phenyl ether	ND	0.78	10	"	1	"	"	"	"	
4-Nitroaniline	ND	0.87	25	"	1	"	"	"	"	
4-Nitrophenol	ND	0.95	25	"	1	"	"	"	"	
Acenaphthene	ND	0.74	10	"	1	"	"	"	"	
Acenaphthylene	ND	0.63	10	"	1	"	"	"	"	

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
UM-3 (CZF0316-01) Water Sampled: 06/07/16 15:00 Received: 06/08/16 11:53										
Anthracene	ND	0.65	10	µg/L	1	CZ04113	"	06/10/16	EPA 8270C	
Benzo (a) anthracene	ND	1.7	10	"	1	"	"	"	"	
Benzo (a) pyrene	ND	2.1	10	"	1	"	"	"	"	
Benzo (b) fluoranthene	ND	3.3	10	"	1	"	"	"	"	
Benzo (g,h,i) perylene	ND	2.7	10	"	1	"	"	"	"	
Benzo (k) fluoranthene	ND	1.5	10	"	1	"	"	"	"	
Benzoic acid	ND	4.2	25	"	1	"	"	"	"	
Benzyl alcohol	ND	1.6	10	"	1	"	"	"	"	
Bis(2-chloroethoxy)methane	ND	0.67	10	"	1	"	"	"	"	
Bis(2-chloroethyl)ether	ND	0.66	10	"	1	"	"	"	"	
Bis(2-chloroisopropyl)ether	ND	0.54	10	"	1	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	1.1	10	"	1	"	"	"	"	
Butyl benzyl phthalate	ND	4.4	10	"	1	"	"	"	"	
Chrysene	ND	0.78	10	"	1	"	"	"	"	
Dibenz (a,h) anthracene	ND	2.4	10	"	1	"	"	"	"	
Dibenzofuran	ND	0.67	10	"	1	"	"	"	"	
Diethyl phthalate	ND	4.7	10	"	1	"	"	"	"	
Dimethyl phthalate	ND	4.2	10	"	1	"	"	"	"	
Di-n-butyl phthalate	ND	3.8	10	"	1	"	"	"	"	
Di-n-octyl phthalate	ND	3.4	10	"	1	"	"	"	"	
Fluoranthene	ND	0.66	10	"	1	"	"	"	"	
Fluorene	ND	0.67	10	"	1	"	"	"	"	
Hexachlorobenzene	ND	0.86	10	"	1	"	"	"	"	
Hexachlorobutadiene	ND	1.9	10	"	1	"	"	"	"	
Hexachlorocyclopentadiene	ND	0.55	10	"	1	"	"	"	"	
Hexachloroethane	ND	1.2	10	"	1	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	1.7	10	"	1	"	"	"	"	
Isophorone	ND	0.62	10	"	1	"	"	"	"	
Naphthalene	ND	0.70	10	"	1	"	"	"	"	
Nitrobenzene (NB)	ND	0.64	10	"	1	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	0.62	10	"	1	"	"	"	"	
N-Nitrosodiphenylamine	ND	0.93	10	"	1	"	"	"	"	
Pentachlorophenol	ND	1.8	25	"	1	"	"	"	"	
Phenanthrene	ND	0.59	10	"	1	"	"	"	"	
Phenol	ND	1.2	10	"	1	"	"	"	"	
Pyrene	ND	0.73	10	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-5 (CZF0316-03) Water Sampled: 06/07/16 09:40 Received: 06/08/16 11:53										
Surrogate: 2,4,6-Tribromophenol	*95 %*		*10-123*	µg/L		*CZ04113*	06/09/16	*06/10/16*	*EPA 8270C*	
Surrogate: 2-Fluorobiphenyl	*79 %*		*43-116*	"		"	"	"	"	
Surrogate: 2-Fluorophenol	*67 %*		*21-110*	"		"	"	"	"	
Surrogate: Nitrobenzene-d5	*75 %*		*35-114*	"		"	"	"	"	
Surrogate: Phenol-d6	*46 %*		*10-110*	"		"	"	"	"	
Surrogate: Terphenyl-dl4	*82 %*		*33-141*	"		"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.94	10	"	1	"	"	"	"	
1,2-Dichlorobenzene	ND	1.1	10	"	1	"	"	"	"	
1,3-Dichlorobenzene	ND	1.2	10	"	1	"	"	"	"	
1,4-Dichlorobenzene	ND	1.1	10	"	1	"	"	"	"	
2,4,5-Trichlorophenol	ND	0.87	10	"	1	"	"	"	"	
2,4,6-Trichlorophenol	ND	0.96	10	"	1	"	"	"	"	
2,4-Dichlorophenol	ND	0.87	10	"	1	"	"	"	"	
2,4-Dimethylphenol	ND	4.0	10	"	1	"	"	"	"	
2,4-Dinitrophenol	ND	0.62	25	"	1	"	"	"	"	
2,4-Dinitrotoluene (2,4-DNT)	ND	0.81	10	"	1	"	"	"	"	
2,6-Dinitrotoluene (2,6-DNT)	ND	0.71	10	"	1	"	"	"	"	
2-Chloronaphthalene	ND	0.70	10	"	1	"	"	"	"	
2-Chlorophenol	ND	0.88	10	"	1	"	"	"	"	
2-Methylnaphthalene	ND	0.72	10	"	1	"	"	"	"	
2-Methylphenol	ND	1.6	10	"	1	"	"	"	"	
2-Nitroaniline	ND	0.61	25	"	1	"	"	"	"	
2-Nitrophenol	ND	0.94	10	"	1	"	"	"	"	
3 & 4-Methylphenol	ND	2.6	10	"	1	"	"	"	"	
3,3'-Dichlorobenzidine	ND	4.1	20	"	1	"	"	"	"	
3-Nitroaniline	ND	0.96	25	"	1	"	"	"	"	
4,6-Dinitro-2-methylphenol	ND	1.2	25	"	1	"	"	"	"	
4-Bromophenyl phenyl ether	ND	0.80	10	"	1	"	"	"	"	
4-Chloro-3-methylphenol	ND	0.94	10	"	1	"	"	"	"	
4-Chloroaniline	ND	1.8	10	"	1	"	"	"	"	
4-Chlorophenyl phenyl ether	ND	0.78	10	"	1	"	"	"	"	
4-Nitroaniline	ND	0.87	25	"	1	"	"	"	"	
4-Nitrophenol	ND	0.95	25	"	1	"	"	"	"	
Acenaphthene	ND	0.74	10	"	1	"	"	"	"	
Acenaphthylene	ND	0.63	10	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-5 (CZF0316-03) Water Sampled: 06/07/16 09:40 Received: 06/08/16 11:53										
Anthracene	ND	0.65	10	µg/L	1	CZ04113	"	06/10/16	EPA 8270C	
Benzo (a) anthracene	ND	1.7	10	"	1	"	"	"	"	
Benzo (a) pyrene	ND	2.1	10	"	1	"	"	"	"	
Benzo (b) fluoranthene	ND	3.3	10	"	1	"	"	"	"	
Benzo (g,h,i) perylene	ND	2.7	10	"	1	"	"	"	"	
Benzo (k) fluoranthene	ND	1.5	10	"	1	"	"	"	"	
Benzoic acid	ND	4.2	25	"	1	"	"	"	"	
Benzyl alcohol	ND	1.6	10	"	1	"	"	"	"	
Bis(2-chloroethoxy)methane	ND	0.67	10	"	1	"	"	"	"	
Bis(2-chloroethyl)ether	ND	0.66	10	"	1	"	"	"	"	
Bis(2-chloroisopropyl)ether	ND	0.54	10	"	1	"	"	"	"	
Bis(2-ethylhexyl)phthalate	**1.3**	1.1	10	"	1	"	"	"	"	J
Butyl benzyl phthalate	ND	4.4	10	"	1	"	"	"	"	
Chrysene	ND	0.78	10	"	1	"	"	"	"	
Dibenz (a,h) anthracene	ND	2.4	10	"	1	"	"	"	"	
Dibenzofuran	ND	0.67	10	"	1	"	"	"	"	
Diethyl phthalate	ND	4.7	10	"	1	"	"	"	"	
Dimethyl phthalate	ND	4.2	10	"	1	"	"	"	"	
Di-n-butyl phthalate	ND	3.8	10	"	1	"	"	"	"	
Di-n-octyl phthalate	ND	3.4	10	"	1	"	"	"	"	
Fluoranthene	ND	0.66	10	"	1	"	"	"	"	
Fluorene	ND	0.67	10	"	1	"	"	"	"	
Hexachlorobenzene	ND	0.86	10	"	1	"	"	"	"	
Hexachlorobutadiene	ND	1.9	10	"	1	"	"	"	"	
Hexachlorocyclopentadiene	ND	0.55	10	"	1	"	"	"	"	
Hexachloroethane	ND	1.2	10	"	1	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	1.7	10	"	1	"	"	"	"	
Isophorone	ND	0.62	10	"	1	"	"	"	"	
Naphthalene	ND	0.70	10	"	1	"	"	"	"	
Nitrobenzene (NB)	ND	0.64	10	"	1	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	0.62	10	"	1	"	"	"	"	
N-Nitrosodiphenylamine	ND	0.93	10	"	1	"	"	"	"	
Pentachlorophenol	ND	1.8	25	"	1	"	"	"	"	
Phenanthrene	ND	0.59	10	"	1	"	"	"	"	
Phenol	ND	1.2	10	"	1	"	"	"	"	
Pyrene	ND	0.73	10	"	1	"	"	"	"	

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-6 (CZF0316-05) Water Sampled: 06/07/16 10:30 Received: 06/08/16 11:53										
Surrogate: 2,4,6-Tribromophenol	*100 %*		*10-123*	µg/L		*CZ04113*	06/09/16	*06/10/16*	*EPA 8270C*	
Surrogate: 2-Fluorobiphenyl	*82 %*		*43-116*	"		"	"	"	"	
Surrogate: 2-Fluorophenol	*66 %*		*21-110*	"		"	"	"	"	
Surrogate: Nitrobenzene-d5	*77 %*		*35-114*	"		"	"	"	"	
Surrogate: Phenol-d6	*43 %*		*10-110*	"		"	"	"	"	
Surrogate: Terphenyl-dl4	*84 %*		*33-141*	"		"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.94	10	"	1	"	"	"	"	
1,2-Dichlorobenzene	ND	1.1	10	"	1	"	"	"	"	
1,3-Dichlorobenzene	ND	1.2	10	"	1	"	"	"	"	
1,4-Dichlorobenzene	ND	1.1	10	"	1	"	"	"	"	
2,4,5-Trichlorophenol	ND	0.87	10	"	1	"	"	"	"	
2,4,6-Trichlorophenol	ND	0.96	10	"	1	"	"	"	"	
2,4-Dichlorophenol	ND	0.87	10	"	1	"	"	"	"	
2,4-Dimethylphenol	ND	4.0	10	"	1	"	"	"	"	
2,4-Dinitrophenol	ND	0.62	25	"	1	"	"	"	"	
2,4-Dinitrotoluene (2,4-DNT)	ND	0.81	10	"	1	"	"	"	"	
2,6-Dinitrotoluene (2,6-DNT)	ND	0.71	10	"	1	"	"	"	"	
2-Chloronaphthalene	ND	0.70	10	"	1	"	"	"	"	
2-Chlorophenol	ND	0.88	10	"	1	"	"	"	"	
2-Methylnaphthalene	ND	0.72	10	"	1	"	"	"	"	
2-Methylphenol	ND	1.6	10	"	1	"	"	"	"	
2-Nitroaniline	ND	0.61	25	"	1	"	"	"	"	
2-Nitrophenol	ND	0.94	10	"	1	"	"	"	"	
3 & 4-Methylphenol	ND	2.6	10	"	1	"	"	"	"	
3,3'-Dichlorobenzidine	ND	4.1	20	"	1	"	"	"	"	
3-Nitroaniline	ND	0.96	25	"	1	"	"	"	"	
4,6-Dinitro-2-methylphenol	ND	1.2	25	"	1	"	"	"	"	
4-Bromophenyl phenyl ether	ND	0.80	10	"	1	"	"	"	"	
4-Chloro-3-methylphenol	ND	0.94	10	"	1	"	"	"	"	
4-Chloroaniline	ND	1.8	10	"	1	"	"	"	"	
4-Chlorophenyl phenyl ether	ND	0.78	10	"	1	"	"	"	"	
4-Nitroaniline	ND	0.87	25	"	1	"	"	"	"	
4-Nitrophenol	ND	0.95	25	"	1	"	"	"	"	
Acenaphthene	ND	0.74	10	"	1	"	"	"	"	
Acenaphthylene	ND	0.63	10	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-6 (CZF0316-05) Water Sampled: 06/07/16 10:30 Received: 06/08/16 11:53										
Anthracene	ND	0.65	10	µg/L	1	CZ04113	"	06/10/16	EPA 8270C	
Benzo (a) anthracene	ND	1.7	10	"	1	"	"	"	"	
Benzo (a) pyrene	ND	2.1	10	"	1	"	"	"	"	
Benzo (b) fluoranthene	ND	3.3	10	"	1	"	"	"	"	
Benzo (g,h,i) perylene	ND	2.7	10	"	1	"	"	"	"	
Benzo (k) fluoranthene	ND	1.5	10	"	1	"	"	"	"	
Benzoic acid	ND	4.2	25	"	1	"	"	"	"	
Benzyl alcohol	ND	1.6	10	"	1	"	"	"	"	
Bis(2-chloroethoxy)methane	ND	0.67	10	"	1	"	"	"	"	
Bis(2-chloroethyl)ether	ND	0.66	10	"	1	"	"	"	"	
Bis(2-chloroisopropyl)ether	ND	0.54	10	"	1	"	"	"	"	
Bis(2-ethylhexyl)phthalate	**1.5**	1.1	10	"	1	"	"	"	"	J
Butyl benzyl phthalate	ND	4.4	10	"	1	"	"	"	"	
Chrysene	ND	0.78	10	"	1	"	"	"	"	
Dibenz (a,h) anthracene	ND	2.4	10	"	1	"	"	"	"	
Dibenzofuran	ND	0.67	10	"	1	"	"	"	"	
Diethyl phthalate	ND	4.7	10	"	1	"	"	"	"	
Dimethyl phthalate	ND	4.2	10	"	1	"	"	"	"	
Di-n-butyl phthalate	ND	3.8	10	"	1	"	"	"	"	
Di-n-octyl phthalate	ND	3.4	10	"	1	"	"	"	"	
Fluoranthene	ND	0.66	10	"	1	"	"	"	"	
Fluorene	ND	0.67	10	"	1	"	"	"	"	
Hexachlorobenzene	ND	0.86	10	"	1	"	"	"	"	
Hexachlorobutadiene	ND	1.9	10	"	1	"	"	"	"	
Hexachlorocyclopentadiene	ND	0.55	10	"	1	"	"	"	"	
Hexachloroethane	ND	1.2	10	"	1	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	1.7	10	"	1	"	"	"	"	
Isophorone	ND	0.62	10	"	1	"	"	"	"	
Naphthalene	ND	0.70	10	"	1	"	"	"	"	
Nitrobenzene (NB)	ND	0.64	10	"	1	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	0.62	10	"	1	"	"	"	"	
N-Nitrosodiphenylamine	ND	0.93	10	"	1	"	"	"	"	
Pentachlorophenol	ND	1.8	25	"	1	"	"	"	"	
Phenanthrene	ND	0.59	10	"	1	"	"	"	"	
Phenol	ND	1.2	10	"	1	"	"	"	"	
Pyrene	ND	0.73	10	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-7 (CZF0316-07) Water Sampled: 06/07/16 13:00 Received: 06/08/16 11:53										
Surrogate: 2,4,6-Tribromophenol	*73 %*		*10-123*	µg/L		*CZ04113*	06/09/16	*06/10/16*	*EPA 8270C*	
Surrogate: 2-Fluorobiphenyl	*82 %*		*43-116*	"		"	"	"	"	
Surrogate: 2-Fluorophenol	*51 %*		*21-110*	"		"	"	"	"	
Surrogate: Nitrobenzene-d5	*77 %*		*35-114*	"		"	"	"	"	
Surrogate: Phenol-d6	*33 %*		*10-110*	"		"	"	"	"	
Surrogate: Terphenyl-dl4	*121 %*		*33-141*	"		"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.94	10	"	1	"	"	"	"	
1,2-Dichlorobenzene	ND	1.1	10	"	1	"	"	"	"	
1,3-Dichlorobenzene	ND	1.2	10	"	1	"	"	"	"	
1,4-Dichlorobenzene	ND	1.1	10	"	1	"	"	"	"	
2,4,5-Trichlorophenol	ND	0.87	10	"	1	"	"	"	"	
2,4,6-Trichlorophenol	ND	0.96	10	"	1	"	"	"	"	
2,4-Dichlorophenol	ND	0.87	10	"	1	"	"	"	"	
2,4-Dimethylphenol	ND	4.0	10	"	1	"	"	"	"	
2,4-Dinitrophenol	ND	0.62	25	"	1	"	"	"	"	
2,4-Dinitrotoluene (2,4-DNT)	ND	0.81	10	"	1	"	"	"	"	
2,6-Dinitrotoluene (2,6-DNT)	ND	0.71	10	"	1	"	"	"	"	
2-Chloronaphthalene	ND	0.70	10	"	1	"	"	"	"	
2-Chlorophenol	ND	0.88	10	"	1	"	"	"	"	
2-Methylnaphthalene	ND	0.72	10	"	1	"	"	"	"	
2-Methylphenol	ND	1.6	10	"	1	"	"	"	"	
2-Nitroaniline	ND	0.61	25	"	1	"	"	"	"	
2-Nitrophenol	ND	0.94	10	"	1	"	"	"	"	
3 & 4-Methylphenol	ND	2.6	10	"	1	"	"	"	"	
3,3'-Dichlorobenzidine	ND	4.1	20	"	1	"	"	"	"	
3-Nitroaniline	ND	0.96	25	"	1	"	"	"	"	
4,6-Dinitro-2-methylphenol	ND	1.2	25	"	1	"	"	"	"	
4-Bromophenyl phenyl ether	ND	0.80	10	"	1	"	"	"	"	
4-Chloro-3-methylphenol	ND	0.94	10	"	1	"	"	"	"	
4-Chloroaniline	ND	1.8	10	"	1	"	"	"	"	
4-Chlorophenyl phenyl ether	ND	0.78	10	"	1	"	"	"	"	
4-Nitroaniline	ND	0.87	25	"	1	"	"	"	"	
4-Nitrophenol	ND	0.95	25	"	1	"	"	"	"	
Acenaphthene	ND	0.74	10	"	1	"	"	"	"	
Acenaphthylene	ND	0.63	10	"	1	"	"	"	"	

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-7 (CZF0316-07) Water Sampled: 06/07/16 13:00 Received: 06/08/16 11:53										
Anthracene	ND	0.65	10	µg/L	1	CZ04113	"	06/10/16	EPA 8270C	
Benzo (a) anthracene	ND	1.7	10	"	1	"	"	"	"	
Benzo (a) pyrene	ND	2.1	10	"	1	"	"	"	"	
Benzo (b) fluoranthene	ND	3.3	10	"	1	"	"	"	"	
Benzo (g,h,i) perylene	ND	2.7	10	"	1	"	"	"	"	
Benzo (k) fluoranthene	ND	1.5	10	"	1	"	"	"	"	
Benzoic acid	ND	4.2	25	"	1	"	"	"	"	
Benzyl alcohol	ND	1.6	10	"	1	"	"	"	"	
Bis(2-chloroethoxy)methane	ND	0.67	10	"	1	"	"	"	"	
Bis(2-chloroethyl)ether	ND	0.66	10	"	1	"	"	"	"	
Bis(2-chloroisopropyl)ether	ND	0.54	10	"	1	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	1.1	10	"	1	"	"	"	"	
Butyl benzyl phthalate	ND	4.4	10	"	1	"	"	"	"	
Chrysene	ND	0.78	10	"	1	"	"	"	"	
Dibenz (a,h) anthracene	ND	2.4	10	"	1	"	"	"	"	
Dibenzofuran	ND	0.67	10	"	1	"	"	"	"	
Diethyl phthalate	ND	4.7	10	"	1	"	"	"	"	
Dimethyl phthalate	ND	4.2	10	"	1	"	"	"	"	
Di-n-butyl phthalate	ND	3.8	10	"	1	"	"	"	"	
Di-n-octyl phthalate	ND	3.4	10	"	1	"	"	"	"	
Fluoranthene	ND	0.66	10	"	1	"	"	"	"	
Fluorene	ND	0.67	10	"	1	"	"	"	"	
Hexachlorobenzene	ND	0.86	10	"	1	"	"	"	"	
Hexachlorobutadiene	ND	1.9	10	"	1	"	"	"	"	
Hexachlorocyclopentadiene	ND	0.55	10	"	1	"	"	"	"	
Hexachloroethane	ND	1.2	10	"	1	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	1.7	10	"	1	"	"	"	"	
Isophorone	ND	0.62	10	"	1	"	"	"	"	
Naphthalene	ND	0.70	10	"	1	"	"	"	"	
Nitrobenzene (NB)	ND	0.64	10	"	1	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	0.62	10	"	1	"	"	"	"	
N-Nitrosodiphenylamine	ND	0.93	10	"	1	"	"	"	"	
Pentachlorophenol	ND	1.8	25	"	1	"	"	"	"	
Phenanthrene	ND	0.59	10	"	1	"	"	"	"	
Phenol	ND	1.2	10	"	1	"	"	"	"	
Pyrene	ND	0.73	10	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

06/29/16 15:59

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-9 (CZF0316-09) Water Sampled: 06/07/16 12:00 Received: 06/08/16 11:53										
Surrogate: 2,4,6-Tribromophenol	*100 %*		*10-123*	µg/L		*CZ04113*	06/09/16	*06/10/16*	*EPA 8270C*	
Surrogate: 2-Fluorobiphenyl	*80 %*		*43-116*	"		"	"	"	"	
Surrogate: 2-Fluorophenol	*61 %*		*21-110*	"		"	"	"	"	
Surrogate: Nitrobenzene-d5	*76 %*		*35-114*	"		"	"	"	"	
Surrogate: Phenol-d6	*40 %*		*10-110*	"		"	"	"	"	
Surrogate: Terphenyl-dl4	*84 %*		*33-141*	"		"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.94	10	"	1	"	"	"	"	
1,2-Dichlorobenzene	ND	1.1	10	"	1	"	"	"	"	
1,3-Dichlorobenzene	ND	1.2	10	"	1	"	"	"	"	
1,4-Dichlorobenzene	ND	1.1	10	"	1	"	"	"	"	
2,4,5-Trichlorophenol	ND	0.87	10	"	1	"	"	"	"	
2,4,6-Trichlorophenol	ND	0.96	10	"	1	"	"	"	"	
2,4-Dichlorophenol	ND	0.87	10	"	1	"	"	"	"	
2,4-Dimethylphenol	ND	4.0	10	"	1	"	"	"	"	
2,4-Dinitrophenol	ND	0.62	25	"	1	"	"	"	"	
2,4-Dinitrotoluene (2,4-DNT)	ND	0.81	10	"	1	"	"	"	"	
2,6-Dinitrotoluene (2,6-DNT)	ND	0.71	10	"	1	"	"	"	"	
2-Chloronaphthalene	ND	0.70	10	"	1	"	"	"	"	
2-Chlorophenol	ND	0.88	10	"	1	"	"	"	"	
2-Methylnaphthalene	ND	0.72	10	"	1	"	"	"	"	
2-Methylphenol	ND	1.6	10	"	1	"	"	"	"	
2-Nitroaniline	ND	0.61	25	"	1	"	"	"	"	
2-Nitrophenol	ND	0.94	10	"	1	"	"	"	"	
3 & 4-Methylphenol	ND	2.6	10	"	1	"	"	"	"	
3,3'-Dichlorobenzidine	ND	4.1	20	"	1	"	"	"	"	
3-Nitroaniline	ND	0.96	25	"	1	"	"	"	"	
4,6-Dinitro-2-methylphenol	ND	1.2	25	"	1	"	"	"	"	
4-Bromophenyl phenyl ether	ND	0.80	10	"	1	"	"	"	"	
4-Chloro-3-methylphenol	ND	0.94	10	"	1	"	"	"	"	
4-Chloroaniline	ND	1.8	10	"	1	"	"	"	"	
4-Chlorophenyl phenyl ether	ND	0.78	10	"	1	"	"	"	"	
4-Nitroaniline	ND	0.87	25	"	1	"	"	"	"	
4-Nitrophenol	ND	0.95	25	"	1	"	"	"	"	
Acenaphthene	ND	0.74	10	"	1	"	"	"	"	
Acenaphthylene	ND	0.63	10	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-9 (CZF0316-09) Water Sampled: 06/07/16 12:00 Received: 06/08/16 11:53										
Anthracene	ND	0.65	10	µg/L	1	CZ04113	"	06/10/16	EPA 8270C	
Benzo (a) anthracene	ND	1.7	10	"	1	"	"	"	"	
Benzo (a) pyrene	ND	2.1	10	"	1	"	"	"	"	
Benzo (b) fluoranthene	ND	3.3	10	"	1	"	"	"	"	
Benzo (g,h,i) perylene	ND	2.7	10	"	1	"	"	"	"	
Benzo (k) fluoranthene	ND	1.5	10	"	1	"	"	"	"	
Benzoic acid	ND	4.2	25	"	1	"	"	"	"	
Benzyl alcohol	ND	1.6	10	"	1	"	"	"	"	
Bis(2-chloroethoxy)methane	ND	0.67	10	"	1	"	"	"	"	
Bis(2-chloroethyl)ether	ND	0.66	10	"	1	"	"	"	"	
Bis(2-chloroisopropyl)ether	ND	0.54	10	"	1	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	1.1	10	"	1	"	"	"	"	
Butyl benzyl phthalate	ND	4.4	10	"	1	"	"	"	"	
Chrysene	ND	0.78	10	"	1	"	"	"	"	
Dibenz (a,h) anthracene	ND	2.4	10	"	1	"	"	"	"	
Dibenzofuran	ND	0.67	10	"	1	"	"	"	"	
Diethyl phthalate	ND	4.7	10	"	1	"	"	"	"	
Dimethyl phthalate	ND	4.2	10	"	1	"	"	"	"	
Di-n-butyl phthalate	ND	3.8	10	"	1	"	"	"	"	
Di-n-octyl phthalate	ND	3.4	10	"	1	"	"	"	"	
Fluoranthene	ND	0.66	10	"	1	"	"	"	"	
Fluorene	ND	0.67	10	"	1	"	"	"	"	
Hexachlorobenzene	ND	0.86	10	"	1	"	"	"	"	
Hexachlorobutadiene	ND	1.9	10	"	1	"	"	"	"	
Hexachlorocyclopentadiene	ND	0.55	10	"	1	"	"	"	"	
Hexachloroethane	ND	1.2	10	"	1	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	1.7	10	"	1	"	"	"	"	
Isophorone	ND	0.62	10	"	1	"	"	"	"	
Naphthalene	ND	0.70	10	"	1	"	"	"	"	
Nitrobenzene (NB)	ND	0.64	10	"	1	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	0.62	10	"	1	"	"	"	"	
N-Nitrosodiphenylamine	ND	0.93	10	"	1	"	"	"	"	
Pentachlorophenol	ND	1.8	25	"	1	"	"	"	"	
Phenanthrene	ND	0.59	10	"	1	"	"	"	"	
Phenol	ND	1.2	10	"	1	"	"	"	"	
Pyrene	ND	0.73	10	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-10 (CZF0316-11) Water Sampled: 06/07/16 08:40 Received: 06/08/16 11:53										
Surrogate: 2,4,6-Tribromophenol	*6 %*		*10-123*	µg/L		*CZ04113*	06/09/16	*06/10/16*	*EPA 8270C*	*QS-4*
Surrogate: 2-Fluorobiphenyl	*56 %*		*43-116*	"		"	"	"	"	
Surrogate: 2-Fluorophenol	*3 %*		*21-110*	"		"	"	"	"	*QS-4*
Surrogate: Nitrobenzene-d5	*73 %*		*35-114*	"		"	"	"	"	
Surrogate: Phenol-d6	*10 %*		*10-110*	"		"	"	"	"	
Surrogate: Terphenyl-dl4	*80 %*		*33-141*	"		"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.94	10	"	1	"	"	"	"	
1,2-Dichlorobenzene	ND	1.1	10	"	1	"	"	"	"	
1,3-Dichlorobenzene	ND	1.2	10	"	1	"	"	"	"	
1,4-Dichlorobenzene	ND	1.1	10	"	1	"	"	"	"	
2,4,5-Trichlorophenol	ND	0.87	10	"	1	"	"	"	"	
2,4,6-Trichlorophenol	ND	0.96	10	"	1	"	"	"	"	
2,4-Dichlorophenol	ND	0.87	10	"	1	"	"	"	"	
2,4-Dimethylphenol	ND	4.0	10	"	1	"	"	"	"	
2,4-Dinitrophenol	ND	0.62	25	"	1	"	"	"	"	
2,4-Dinitrotoluene (2,4-DNT)	ND	0.81	10	"	1	"	"	"	"	
2,6-Dinitrotoluene (2,6-DNT)	ND	0.71	10	"	1	"	"	"	"	
2-Chloronaphthalene	ND	0.70	10	"	1	"	"	"	"	
2-Chlorophenol	ND	0.88	10	"	1	"	"	"	"	
2-Methylnaphthalene	ND	0.72	10	"	1	"	"	"	"	
2-Methylphenol	ND	1.6	10	"	1	"	"	"	"	
2-Nitroaniline	ND	0.61	25	"	1	"	"	"	"	
2-Nitrophenol	ND	0.94	10	"	1	"	"	"	"	
3 & 4-Methylphenol	ND	2.6	10	"	1	"	"	"	"	
3,3'-Dichlorobenzidine	ND	4.1	20	"	1	"	"	"	"	
3-Nitroaniline	ND	0.96	25	"	1	"	"	"	"	
4,6-Dinitro-2-methylphenol	ND	1.2	25	"	1	"	"	"	"	
4-Bromophenyl phenyl ether	ND	0.80	10	"	1	"	"	"	"	
4-Chloro-3-methylphenol	ND	0.94	10	"	1	"	"	"	"	
4-Chloroaniline	ND	1.8	10	"	1	"	"	"	"	
4-Chlorophenyl phenyl ether	ND	0.78	10	"	1	"	"	"	"	
4-Nitroaniline	ND	0.87	25	"	1	"	"	"	"	
4-Nitrophenol	ND	0.95	25	"	1	"	"	"	"	
Acenaphthene	ND	0.74	10	"	1	"	"	"	"	
Acenaphthylene	ND	0.63	10	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-10 (CZF0316-11) Water Sampled: 06/07/16 08:40 Received: 06/08/16 11:53										
Anthracene	ND	0.65	10	µg/L	1	CZ04113	"	06/10/16	EPA 8270C	
Benzo (a) anthracene	ND	1.7	10	"	1	"	"	"	"	
Benzo (a) pyrene	ND	2.1	10	"	1	"	"	"	"	
Benzo (b) fluoranthene	ND	3.3	10	"	1	"	"	"	"	
Benzo (g,h,i) perylene	ND	2.7	10	"	1	"	"	"	"	
Benzo (k) fluoranthene	ND	1.5	10	"	1	"	"	"	"	
Benzoic acid	ND	4.2	25	"	1	"	"	"	"	
Benzyl alcohol	ND	1.6	10	"	1	"	"	"	"	
Bis(2-chloroethoxy)methane	ND	0.67	10	"	1	"	"	"	"	
Bis(2-chloroethyl)ether	ND	0.66	10	"	1	"	"	"	"	
Bis(2-chloroisopropyl)ether	ND	0.54	10	"	1	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	1.1	10	"	1	"	"	"	"	
Butyl benzyl phthalate	ND	4.4	10	"	1	"	"	"	"	
Chrysene	ND	0.78	10	"	1	"	"	"	"	
Dibenz (a,h) anthracene	ND	2.4	10	"	1	"	"	"	"	
Dibenzofuran	ND	0.67	10	"	1	"	"	"	"	
Diethyl phthalate	ND	4.7	10	"	1	"	"	"	"	
Dimethyl phthalate	ND	4.2	10	"	1	"	"	"	"	
Di-n-butyl phthalate	ND	3.8	10	"	1	"	"	"	"	
Di-n-octyl phthalate	ND	3.4	10	"	1	"	"	"	"	
Fluoranthene	ND	0.66	10	"	1	"	"	"	"	
Fluorene	ND	0.67	10	"	1	"	"	"	"	
Hexachlorobenzene	ND	0.86	10	"	1	"	"	"	"	
Hexachlorobutadiene	ND	1.9	10	"	1	"	"	"	"	
Hexachlorocyclopentadiene	ND	0.55	10	"	1	"	"	"	"	
Hexachloroethane	ND	1.2	10	"	1	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	1.7	10	"	1	"	"	"	"	
Isophorone	ND	0.62	10	"	1	"	"	"	"	
Naphthalene	ND	0.70	10	"	1	"	"	"	"	
Nitrobenzene (NB)	ND	0.64	10	"	1	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	0.62	10	"	1	"	"	"	"	
N-Nitrosodiphenylamine	ND	0.93	10	"	1	"	"	"	"	
Pentachlorophenol	ND	1.8	25	"	1	"	"	"	"	
Phenanthrene	ND	0.59	10	"	1	"	"	"	"	
Phenol	ND	1.2	10	"	1	"	"	"	"	
Pyrene	ND	0.73	10	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-11 (CZF0316-13) Water Sampled: 06/07/16 11:20 Received: 06/08/16 11:53										
Surrogate: 2,4,6-Tribromophenol	*11 %*		*10-123*	µg/L		*CZ04113*	06/09/16	*06 10 16*	*EPA 8270C*	
Surrogate: 2-Fluorobiphenyl	*82 %*		*43-116*	"		"	"	"	"	
Surrogate: 2-Fluorophenol	*3 %*		*21-110*	"		"	"	"	"	*QS-4*
Surrogate: Nitrobenzene-d5	*79 %*		*35-114*	"		"	"	"	"	
Surrogate: Phenol-d6	*17 %*		*10-110*	"		"	"	"	"	
Surrogate: Terphenyl-dl4	*63 %*		*33-141*	"		"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.94	10	"	1	"	"	"	"	
1,2-Dichlorobenzene	ND	1.1	10	"	1	"	"	"	"	
1,3-Dichlorobenzene	ND	1.2	10	"	1	"	"	"	"	
1,4-Dichlorobenzene	ND	1.1	10	"	1	"	"	"	"	
2,4,5-Trichlorophenol	ND	0.87	10	"	1	"	"	"	"	
2,4,6-Trichlorophenol	ND	0.96	10	"	1	"	"	"	"	
2,4-Dichlorophenol	ND	0.87	10	"	1	"	"	"	"	
2,4-Dimethylphenol	ND	4.0	10	"	1	"	"	"	"	
2,4-Dinitrophenol	ND	0.62	25	"	1	"	"	"	"	
2,4-Dinitrotoluene (2,4-DNT)	ND	0.81	10	"	1	"	"	"	"	
2,6-Dinitrotoluene (2,6-DNT)	ND	0.71	10	"	1	"	"	"	"	
2-Chloronaphthalene	ND	0.70	10	"	1	"	"	"	"	
2-Chlorophenol	ND	0.88	10	"	1	"	"	"	"	
2-Methylnaphthalene	ND	0.72	10	"	1	"	"	"	"	
2-Methylphenol	ND	1.6	10	"	1	"	"	"	"	
2-Nitroaniline	ND	0.61	25	"	1	"	"	"	"	
2-Nitrophenol	ND	0.94	10	"	1	"	"	"	"	
3 & 4-Methylphenol	ND	2.6	10	"	1	"	"	"	"	
3,3'-Dichlorobenzidine	ND	4.1	20	"	1	"	"	"	"	
3-Nitroaniline	ND	0.96	25	"	1	"	"	"	"	
4,6-Dinitro-2-methylphenol	ND	1.2	25	"	1	"	"	"	"	
4-Bromophenyl phenyl ether	ND	0.80	10	"	1	"	"	"	"	
4-Chloro-3-methylphenol	ND	0.94	10	"	1	"	"	"	"	
4-Chloroaniline	ND	1.8	10	"	1	"	"	"	"	
4-Chlorophenyl phenyl ether	ND	0.78	10	"	1	"	"	"	"	
4-Nitroaniline	ND	0.87	25	"	1	"	"	"	"	
4-Nitrophenol	ND	0.95	25	"	1	"	"	"	"	
Acenaphthene	ND	0.74	10	"	1	"	"	"	"	
Acenaphthylene	ND	0.63	10	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-11 (CZF0316-13) Water Sampled: 06/07/16 11:20 Received: 06/08/16 11:53										
Anthracene	ND	0.65	10	µg/L	1	CZ04113	"	06/10/16	EPA 8270C	
Benzo (a) anthracene	ND	1.7	10	"	1	"	"	"	"	
Benzo (a) pyrene	ND	2.1	10	"	1	"	"	"	"	
Benzo (b) fluoranthene	ND	3.3	10	"	1	"	"	"	"	
Benzo (g,h,i) perylene	ND	2.7	10	"	1	"	"	"	"	
Benzo (k) fluoranthene	ND	1.5	10	"	1	"	"	"	"	
Benzoic acid	ND	4.2	25	"	1	"	"	"	"	
Benzyl alcohol	ND	1.6	10	"	1	"	"	"	"	
Bis(2-chloroethoxy)methane	ND	0.67	10	"	1	"	"	"	"	
Bis(2-chloroethyl)ether	ND	0.66	10	"	1	"	"	"	"	
Bis(2-chloroisopropyl)ether	ND	0.54	10	"	1	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	1.1	10	"	1	"	"	"	"	
Butyl benzyl phthalate	ND	4.4	10	"	1	"	"	"	"	
Chrysene	ND	0.78	10	"	1	"	"	"	"	
Dibenz (a,h) anthracene	ND	2.4	10	"	1	"	"	"	"	
Dibenzofuran	ND	0.67	10	"	1	"	"	"	"	
Diethyl phthalate	ND	4.7	10	"	1	"	"	"	"	
Dimethyl phthalate	ND	4.2	10	"	1	"	"	"	"	
Di-n-butyl phthalate	ND	3.8	10	"	1	"	"	"	"	
Di-n-octyl phthalate	ND	3.4	10	"	1	"	"	"	"	
Fluoranthene	ND	0.66	10	"	1	"	"	"	"	
Fluorene	ND	0.67	10	"	1	"	"	"	"	
Hexachlorobenzene	ND	0.86	10	"	1	"	"	"	"	
Hexachlorobutadiene	ND	1.9	10	"	1	"	"	"	"	
Hexachlorocyclopentadiene	ND	0.55	10	"	1	"	"	"	"	
Hexachloroethane	ND	1.2	10	"	1	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	1.7	10	"	1	"	"	"	"	
Isophorone	ND	0.62	10	"	1	"	"	"	"	
Naphthalene	ND	0.70	10	"	1	"	"	"	"	
Nitrobenzene (NB)	ND	0.64	10	"	1	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	0.62	10	"	1	"	"	"	"	
N-Nitrosodiphenylamine	ND	0.93	10	"	1	"	"	"	"	
Pentachlorophenol	ND	1.8	25	"	1	"	"	"	"	
Phenanthrene	ND	0.59	10	"	1	"	"	"	"	
Phenol	ND	1.2	10	"	1	"	"	"	"	
Pyrene	ND	0.73	10	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-A (CZF0316-15) Water Sampled: 06/08/16 09:30 Received: 06/08/16 11:53										
Surrogate: 2,4,6-Tribromophenol	*95 %*		*10-123*	µg/L		*CZ04113*	06/09/16	*06/10/16*	*EPA 8270C*	
Surrogate: 2-Fluorobiphenyl	*83 %*		*43-116*	"		"	"	"	"	
Surrogate: 2-Fluorophenol	*59 %*		*21-110*	"		"	"	"	"	
Surrogate: Nitrobenzene-d5	*78 %*		*35-114*	"		"	"	"	"	
Surrogate: Phenol-d6	*37 %*		*10-110*	"		"	"	"	"	
Surrogate: Terphenyl-dl4	*85 %*		*33-141*	"		"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.94	10	"	1	"	"	"	"	
1,2-Dichlorobenzene	ND	1.1	10	"	1	"	"	"	"	
1,3-Dichlorobenzene	ND	1.2	10	"	1	"	"	"	"	
1,4-Dichlorobenzene	ND	1.1	10	"	1	"	"	"	"	
2,4,5-Trichlorophenol	ND	0.87	10	"	1	"	"	"	"	
2,4,6-Trichlorophenol	ND	0.96	10	"	1	"	"	"	"	
2,4-Dichlorophenol	ND	0.87	10	"	1	"	"	"	"	
2,4-Dimethylphenol	ND	4.0	10	"	1	"	"	"	"	
2,4-Dinitrophenol	ND	0.62	25	"	1	"	"	"	"	
2,4-Dinitrotoluene (2,4-DNT)	ND	0.81	10	"	1	"	"	"	"	
2,6-Dinitrotoluene (2,6-DNT)	ND	0.71	10	"	1	"	"	"	"	
2-Chloronaphthalene	ND	0.70	10	"	1	"	"	"	"	
2-Chlorophenol	ND	0.88	10	"	1	"	"	"	"	
2-Methylnaphthalene	ND	0.72	10	"	1	"	"	"	"	
2-Methylphenol	ND	1.6	10	"	1	"	"	"	"	
2-Nitroaniline	ND	0.61	25	"	1	"	"	"	"	
2-Nitrophenol	ND	0.94	10	"	1	"	"	"	"	
3 & 4-Methylphenol	ND	2.6	10	"	1	"	"	"	"	
3,3'-Dichlorobenzidine	ND	4.1	20	"	1	"	"	"	"	
3-Nitroaniline	ND	0.96	25	"	1	"	"	"	"	
4,6-Dinitro-2-methylphenol	ND	1.2	25	"	1	"	"	"	"	
4-Bromophenyl phenyl ether	ND	0.80	10	"	1	"	"	"	"	
4-Chloro-3-methylphenol	ND	0.94	10	"	1	"	"	"	"	
4-Chloroaniline	ND	1.8	10	"	1	"	"	"	"	
4-Chlorophenyl phenyl ether	ND	0.78	10	"	1	"	"	"	"	
4-Nitroaniline	ND	0.87	25	"	1	"	"	"	"	
4-Nitrophenol	ND	0.95	25	"	1	"	"	"	"	
Acenaphthene	ND	0.74	10	"	1	"	"	"	"	
Acenaphthylene	ND	0.63	10	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

06/29/16 15:59

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-A (CZF0316-15) Water Sampled: 06/08/16 09:30 Received: 06/08/16 11:53										
Anthracene	ND	0.65	10	µg/L	1	CZ04113	"	06/10/16	EPA 8270C	
Benzo (a) anthracene	ND	1.7	10	"	1	"	"	"	"	
Benzo (a) pyrene	ND	2.1	10	"	1	"	"	"	"	
Benzo (b) fluoranthene	ND	3.3	10	"	1	"	"	"	"	
Benzo (g,h,i) perylene	ND	2.7	10	"	1	"	"	"	"	
Benzo (k) fluoranthene	ND	1.5	10	"	1	"	"	"	"	
Benzoic acid	ND	4.2	25	"	1	"	"	"	"	
Benzyl alcohol	ND	1.6	10	"	1	"	"	"	"	
Bis(2-chloroethoxy)methane	ND	0.67	10	"	1	"	"	"	"	
Bis(2-chloroethyl)ether	ND	0.66	10	"	1	"	"	"	"	
Bis(2-chloroisopropyl)ether	ND	0.54	10	"	1	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	1.1	10	"	1	"	"	"	"	
Butyl benzyl phthalate	ND	4.4	10	"	1	"	"	"	"	
Chrysene	ND	0.78	10	"	1	"	"	"	"	
Dibenz (a,h) anthracene	ND	2.4	10	"	1	"	"	"	"	
Dibenzofuran	ND	0.67	10	"	1	"	"	"	"	
Diethyl phthalate	ND	4.7	10	"	1	"	"	"	"	
Dimethyl phthalate	ND	4.2	10	"	1	"	"	"	"	
Di-n-butyl phthalate	ND	3.8	10	"	1	"	"	"	"	
Di-n-octyl phthalate	ND	3.4	10	"	1	"	"	"	"	
Fluoranthene	ND	0.66	10	"	1	"	"	"	"	
Fluorene	ND	0.67	10	"	1	"	"	"	"	
Hexachlorobenzene	ND	0.86	10	"	1	"	"	"	"	
Hexachlorobutadiene	ND	1.9	10	"	1	"	"	"	"	
Hexachlorocyclopentadiene	ND	0.55	10	"	1	"	"	"	"	
Hexachloroethane	ND	1.2	10	"	1	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	1.7	10	"	1	"	"	"	"	
Isophorone	ND	0.62	10	"	1	"	"	"	"	
Naphthalene	ND	0.70	10	"	1	"	"	"	"	
Nitrobenzene (NB)	ND	0.64	10	"	1	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	0.62	10	"	1	"	"	"	"	
N-Nitrosodiphenylamine	ND	0.93	10	"	1	"	"	"	"	
Pentachlorophenol	ND	1.8	25	"	1	"	"	"	"	
Phenanthrene	ND	0.59	10	"	1	"	"	"	"	
Phenol	ND	1.2	10	"	1	"	"	"	"	
Pyrene	ND	0.73	10	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-C (CZF0316-17) Water Sampled: 06/08/16 08:05 Received: 06/08/16 11:53										
Surrogate: 2,4,6-Tribromophenol	*61 %*		*10-123*	µg/L		*CZ04113*	06/09/16	*06/10/16*	*EPA 8270C*	
Surrogate: 2-Fluorobiphenyl	*83 %*		*43-116*	"		"	"	"	"	
Surrogate: 2-Fluorophenol	*40 %*		*21-110*	"		"	"	"	"	
Surrogate: Nitrobenzene-d5	*81 %*		*35-114*	"		"	"	"	"	
Surrogate: Phenol-d6	*28 %*		*10-110*	"		"	"	"	"	
Surrogate: Terphenyl-dl4	*76 %*		*33-141*	"		"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.94	10	"	1	"	"	"	"	
1,2-Dichlorobenzene	ND	1.1	10	"	1	"	"	"	"	
1,3-Dichlorobenzene	ND	1.2	10	"	1	"	"	"	"	
1,4-Dichlorobenzene	ND	1.1	10	"	1	"	"	"	"	
2,4,5-Trichlorophenol	ND	0.87	10	"	1	"	"	"	"	
2,4,6-Trichlorophenol	ND	0.96	10	"	1	"	"	"	"	
2,4-Dichlorophenol	ND	0.87	10	"	1	"	"	"	"	
2,4-Dimethylphenol	ND	4.0	10	"	1	"	"	"	"	
2,4-Dinitrophenol	ND	0.62	25	"	1	"	"	"	"	
2,4-Dinitrotoluene (2,4-DNT)	ND	0.81	10	"	1	"	"	"	"	
2,6-Dinitrotoluene (2,6-DNT)	ND	0.71	10	"	1	"	"	"	"	
2-Chloronaphthalene	ND	0.70	10	"	1	"	"	"	"	
2-Chlorophenol	ND	0.88	10	"	1	"	"	"	"	
2-Methylnaphthalene	ND	0.72	10	"	1	"	"	"	"	
2-Methylphenol	ND	1.6	10	"	1	"	"	"	"	
2-Nitroaniline	ND	0.61	25	"	1	"	"	"	"	
2-Nitrophenol	ND	0.94	10	"	1	"	"	"	"	
3 & 4-Methylphenol	ND	2.6	10	"	1	"	"	"	"	
3,3'-Dichlorobenzidine	ND	4.1	20	"	1	"	"	"	"	
3-Nitroaniline	ND	0.96	25	"	1	"	"	"	"	
4,6-Dinitro-2-methylphenol	ND	1.2	25	"	1	"	"	"	"	
4-Bromophenyl phenyl ether	ND	0.80	10	"	1	"	"	"	"	
4-Chloro-3-methylphenol	ND	0.94	10	"	1	"	"	"	"	
4-Chloroaniline	ND	1.8	10	"	1	"	"	"	"	
4-Chlorophenyl phenyl ether	ND	0.78	10	"	1	"	"	"	"	
4-Nitroaniline	ND	0.87	25	"	1	"	"	"	"	
4-Nitrophenol	ND	0.95	25	"	1	"	"	"	"	
Acenaphthene	ND	0.74	10	"	1	"	"	"	"	
Acenaphthylene	ND	0.63	10	"	1	"	"	"	"	

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-C (CZF0316-17) Water Sampled: 06/08/16 08:05 Received: 06/08/16 11:53										
Anthracene	ND	0.65	10	µg/L	1	CZ04113	"	06/10/16	EPA 8270C	
Benzo (a) anthracene	ND	1.7	10	"	1	"	"	"	"	
Benzo (a) pyrene	ND	2.1	10	"	1	"	"	"	"	
Benzo (b) fluoranthene	ND	3.3	10	"	1	"	"	"	"	
Benzo (g,h,i) perylene	ND	2.7	10	"	1	"	"	"	"	
Benzo (k) fluoranthene	ND	1.5	10	"	1	"	"	"	"	
Benzoic acid	ND	4.2	25	"	1	"	"	"	"	
Benzyl alcohol	ND	1.6	10	"	1	"	"	"	"	
Bis(2-chloroethoxy)methane	ND	0.67	10	"	1	"	"	"	"	
Bis(2-chloroethyl)ether	ND	0.66	10	"	1	"	"	"	"	
Bis(2-chloroisopropyl)ether	ND	0.54	10	"	1	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	1.1	10	"	1	"	"	"	"	
Butyl benzyl phthalate	ND	4.4	10	"	1	"	"	"	"	
Chrysene	ND	0.78	10	"	1	"	"	"	"	
Dibenz (a,h) anthracene	ND	2.4	10	"	1	"	"	"	"	
Dibenzofuran	ND	0.67	10	"	1	"	"	"	"	
Diethyl phthalate	ND	4.7	10	"	1	"	"	"	"	
Dimethyl phthalate	ND	4.2	10	"	1	"	"	"	"	
Di-n-butyl phthalate	ND	3.8	10	"	1	"	"	"	"	
Di-n-octyl phthalate	ND	3.4	10	"	1	"	"	"	"	
Fluoranthene	ND	0.66	10	"	1	"	"	"	"	
Fluorene	ND	0.67	10	"	1	"	"	"	"	
Hexachlorobenzene	ND	0.86	10	"	1	"	"	"	"	
Hexachlorobutadiene	ND	1.9	10	"	1	"	"	"	"	
Hexachlorocyclopentadiene	ND	0.55	10	"	1	"	"	"	"	
Hexachloroethane	ND	1.2	10	"	1	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	1.7	10	"	1	"	"	"	"	
Isophorone	ND	0.62	10	"	1	"	"	"	"	
Naphthalene	ND	0.70	10	"	1	"	"	"	"	
Nitrobenzene (NB)	ND	0.64	10	"	1	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	0.62	10	"	1	"	"	"	"	
N-Nitrosodiphenylamine	ND	0.93	10	"	1	"	"	"	"	
Pentachlorophenol	ND	1.8	25	"	1	"	"	"	"	
Phenanthrene	ND	0.59	10	"	1	"	"	"	"	
Phenol	ND	1.2	10	"	1	"	"	"	"	
Pyrene	ND	0.73	10	"	1	"	"	"	"	

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
DUP2 (CZF0316-19) Water Sampled: 06/07/16 13:05 Received: 06/08/16 11:53										
Surrogate: 2,4,6-Tribromophenol	*63 %*		*10-123*	µg/L		*CZ04113*	06/09/16	*06/10/16*	*EPA 8270C*	
Surrogate: 2-Fluorobiphenyl	*84 %*		*43-116*	"		"	"	"	"	
Surrogate: 2-Fluorophenol	*55 %*		*21-110*	"		"	"	"	"	
Surrogate: Nitrobenzene-d5	*79 %*		*35-114*	"		"	"	"	"	
Surrogate: Phenol-d6	*36 %*		*10-110*	"		"	"	"	"	
Surrogate: Terphenyl-dl4	*85 %*		*33-141*	"		"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.94	10	"	1	"	"	"	"	
1,2-Dichlorobenzene	ND	1.1	10	"	1	"	"	"	"	
1,3-Dichlorobenzene	ND	1.2	10	"	1	"	"	"	"	
1,4-Dichlorobenzene	ND	1.1	10	"	1	"	"	"	"	
2,4,5-Trichlorophenol	ND	0.87	10	"	1	"	"	"	"	
2,4,6-Trichlorophenol	ND	0.96	10	"	1	"	"	"	"	
2,4-Dichlorophenol	ND	0.87	10	"	1	"	"	"	"	
2,4-Dimethylphenol	ND	4.0	10	"	1	"	"	"	"	
2,4-Dinitrophenol	ND	0.62	25	"	1	"	"	"	"	
2,4-Dinitrotoluene (2,4-DNT)	ND	0.81	10	"	1	"	"	"	"	
2,6-Dinitrotoluene (2,6-DNT)	ND	0.71	10	"	1	"	"	"	"	
2-Chloronaphthalene	ND	0.70	10	"	1	"	"	"	"	
2-Chlorophenol	ND	0.88	10	"	1	"	"	"	"	
2-Methylnaphthalene	ND	0.72	10	"	1	"	"	"	"	
2-Methylphenol	ND	1.6	10	"	1	"	"	"	"	
2-Nitroaniline	ND	0.61	25	"	1	"	"	"	"	
2-Nitrophenol	ND	0.94	10	"	1	"	"	"	"	
3 & 4-Methylphenol	ND	2.6	10	"	1	"	"	"	"	
3,3'-Dichlorobenzidine	ND	4.1	20	"	1	"	"	"	"	
3-Nitroaniline	ND	0.96	25	"	1	"	"	"	"	
4,6-Dinitro-2-methylphenol	ND	1.2	25	"	1	"	"	"	"	
4-Bromophenyl phenyl ether	ND	0.80	10	"	1	"	"	"	"	
4-Chloro-3-methylphenol	ND	0.94	10	"	1	"	"	"	"	
4-Chloroaniline	ND	1.8	10	"	1	"	"	"	"	
4-Chlorophenyl phenyl ether	ND	0.78	10	"	1	"	"	"	"	
4-Nitroaniline	ND	0.87	25	"	1	"	"	"	"	
4-Nitrophenol	ND	0.95	25	"	1	"	"	"	"	
Acenaphthene	ND	0.74	10	"	1	"	"	"	"	
Acenaphthylene	ND	0.63	10	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
DUP2 (CZF0316-19) Water Sampled: 06/07/16 13:05 Received: 06/08/16 11:53										
Anthracene	ND	0.65	10	µg/L	1	CZ04113	"	06/10/16	EPA 8270C	
Benzo (a) anthracene	ND	1.7	10	"	1	"	"	"	"	
Benzo (a) pyrene	ND	2.1	10	"	1	"	"	"	"	
Benzo (b) fluoranthene	ND	3.3	10	"	1	"	"	"	"	
Benzo (g,h,i) perylene	ND	2.7	10	"	1	"	"	"	"	
Benzo (k) fluoranthene	ND	1.5	10	"	1	"	"	"	"	
Benzoic acid	ND	4.2	25	"	1	"	"	"	"	
Benzyl alcohol	ND	1.6	10	"	1	"	"	"	"	
Bis(2-chloroethoxy)methane	ND	0.67	10	"	1	"	"	"	"	
Bis(2-chloroethyl)ether	ND	0.66	10	"	1	"	"	"	"	
Bis(2-chloroisopropyl)ether	ND	0.54	10	"	1	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	1.1	10	"	1	"	"	"	"	
Butyl benzyl phthalate	ND	4.4	10	"	1	"	"	"	"	
Chrysene	ND	0.78	10	"	1	"	"	"	"	
Dibenz (a,h) anthracene	ND	2.4	10	"	1	"	"	"	"	
Dibenzofuran	ND	0.67	10	"	1	"	"	"	"	
Diethyl phthalate	ND	4.7	10	"	1	"	"	"	"	
Dimethyl phthalate	ND	4.2	10	"	1	"	"	"	"	
Di-n-butyl phthalate	ND	3.8	10	"	1	"	"	"	"	
Di-n-octyl phthalate	ND	3.4	10	"	1	"	"	"	"	
Fluoranthene	ND	0.66	10	"	1	"	"	"	"	
Fluorene	ND	0.67	10	"	1	"	"	"	"	
Hexachlorobenzene	ND	0.86	10	"	1	"	"	"	"	
Hexachlorobutadiene	ND	1.9	10	"	1	"	"	"	"	
Hexachlorocyclopentadiene	ND	0.55	10	"	1	"	"	"	"	
Hexachloroethane	ND	1.2	10	"	1	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	1.7	10	"	1	"	"	"	"	
Isophorone	ND	0.62	10	"	1	"	"	"	"	
Naphthalene	ND	0.70	10	"	1	"	"	"	"	
Nitrobenzene (NB)	ND	0.64	10	"	1	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	0.62	10	"	1	"	"	"	"	
N-Nitrosodiphenylamine	ND	0.93	10	"	1	"	"	"	"	
Pentachlorophenol	ND	1.8	25	"	1	"	"	"	"	
Phenanthrene	ND	0.59	10	"	1	"	"	"	"	
Phenol	ND	1.2	10	"	1	"	"	"	"	
Pyrene	ND	0.73	10	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
UM-3 (CZF0316-01) Water Sampled: 06/07/16 15:00 Received: 06/08/16 11:53										
Surrogate: 1,2-Dichloroethane-d4	*117 %*		*66-135*	µg/L		*CZ04084*	06/08/16	*06 08 16*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene	*111 %*		*73-125*	"		"	"	"	"	
Surrogate: Toluene-d8	*76 %*		*72-125*	"		"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.17	0.50	"	1	"	"	"	"	
1,1,1-Trichloroethane	ND	0.095	0.50	"	1	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.19	0.50	"	1	"	"	"	"	
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.23	0.50	"	1	"	"	"	"	
1,1,2-Trichloroethane	ND	0.15	0.50	"	1	"	"	"	"	
1,1-Dichloroethane	ND	0.11	0.50	"	1	"	"	"	"	
1,1-Dichloroethene	ND	0.14	0.50	"	1	"	"	"	"	
1,1-Dichloropropene	ND	0.15	0.50	"	1	"	"	"	"	
1,2,3-Trichlorobenzene	ND	0.15	0.50	"	1	"	"	"	"	
1,2,3-Trichloropropane	ND	0.23	0.50	"	1	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.11	0.50	"	1	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.15	0.50	"	1	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	0.39	1.0	"	1	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.15	0.50	"	1	"	"	"	"	
1,2-Dichlorobenzene	ND	0.097	0.50	"	1	"	"	"	"	
1,2-Dichloroethane	ND	0.16	0.50	"	1	"	"	"	"	
1,2-Dichloropropane	ND	0.14	0.50	"	1	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.12	0.50	"	1	"	"	"	"	
1,3-Dichlorobenzene	ND	0.12	0.50	"	1	"	"	"	"	
1,3-Dichloropropane	ND	0.16	0.50	"	1	"	"	"	"	
1,4-Dichloro-2-butene	ND	1.0	1.0	"	1	"	"	"	"	
1,4-Dichlorobenzene	ND	0.16	0.50	"	1	"	"	"	"	
2,2-Dichloropropane	ND	0.27	0.50	"	1	"	"	"	"	
2-Butanone	ND	1.1	10	"	1	"	"	"	"	
2-Hexanone	ND	0.90	10	"	1	"	"	"	"	
4-Methyl-2-pentanone	ND	1.6	10	"	1	"	"	"	"	
Acetone	ND	1.0	10	"	1	"	"	"	"	
Acrylonitrile	ND	5.0	5.0	"	1	"	"	"	"	
Benzene	ND	0.11	0.50	"	1	"	"	"	"	
Bromobenzene	ND	0.13	0.50	"	1	"	"	"	"	
Bromochloromethane	ND	0.13	0.50	"	1	"	"	"	"	
Bromodichloromethane	ND	0.12	0.50	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
UM-3 (CZF0316-01) Water Sampled: 06/07/16 15:00 Received: 06/08/16 11:53										
Bromoform	ND	0.15	0.50	µg/L	1	CZ04084	"	06/08/16	EPA 8260B	
Bromomethane	ND	0.39	1.0	"	1	"	"	"	"	
Carbon disulfide	ND	0.13	0.50	"	1	"	"	"	"	
Carbon tetrachloride	ND	0.17	0.50	"	1	"	"	"	"	
Chlorobenzene	ND	0.082	0.50	"	1	"	"	"	"	
Chloroethane	ND	0.15	0.50	"	1	"	"	"	"	
Chloroform	ND	0.19	0.50	"	1	"	"	"	"	
Chloromethane	ND	0.056	1.0	"	1	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.15	0.50	"	1	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.14	0.50	"	1	"	"	"	"	
Dibromochloromethane	ND	0.14	0.50	"	1	"	"	"	"	
Dibromomethane	ND	0.25	0.50	"	1	"	"	"	"	
Dichlorodifluoromethane (Freon 12)	ND	0.14	1.0	"	1	"	"	"	"	
Ethylbenzene	ND	0.10	0.50	"	1	"	"	"	"	
Hexachlorobutadiene	ND	0.23	0.50	"	1	"	"	"	"	
Iodomethane	ND	1.0	1.0	"	1	"	"	"	"	
Isopropylbenzene	ND	0.11	0.50	"	1	"	"	"	"	
Methyl tert-butyl ether	ND	0.095	0.50	"	1	"	"	"	"	
Methylene chloride	ND	0.24	0.50	"	1	"	"	"	"	
Naphthalene	ND	0.21	0.50	"	1	"	"	"	"	
n-Butylbenzene	ND	0.10	0.50	"	1	"	"	"	"	
n-Propylbenzene	ND	0.13	0.50	"	1	"	"	"	"	
o-Chlorotoluene	ND	0.092	0.50	"	1	"	"	"	"	
p-Chlorotoluene	ND	0.11	0.50	"	1	"	"	"	"	
p-Isopropyltoluene	ND	0.14	0.50	"	1	"	"	"	"	
sec-Butylbenzene	ND	0.088	0.50	"	1	"	"	"	"	
Styrene	ND	0.10	0.50	"	1	"	"	"	"	
tert-Butylbenzene	ND	0.082	0.50	"	1	"	"	"	"	
Tetrachloroethene	ND	0.13	0.50	"	1	"	"	"	"	
Toluene	ND	0.11	0.50	"	1	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.15	0.50	"	1	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.18	0.50	"	1	"	"	"	"	
Trichloroethene	ND	0.063	0.50	"	1	"	"	"	"	
Trichlorofluoromethane	ND	0.14	0.50	"	1	"	"	"	"	
Vinyl acetate	ND	0.20	1.0	"	1	"	"	"	"	

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
UM-3 (CZF0316-01) Water Sampled: 06/07/16 15:00 Received: 06/08/16 11:53										
Vinyl chloride	ND	0.14	1.0	µg/L	1	CZ04084	"	06/08/16	EPA 8260B	
Xylenes (total)	ND	0.33	1.0	"	1	"	"	"	"	
MW-5 (CZF0316-03) Water Sampled: 06/07/16 09:40 Received: 06/08/16 11:53										
Surrogate: 1,2-Dichloroethane-d4	*118 %*		*66-135*	µg/L		*CZ04084*	06/08/16	*06/08/16*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene	*115 %*		*73-125*	"		"	"	"	"	
Surrogate: Toluene-d8	*77 %*		*72-125*	"		"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.17	0.50	"	1	"	"	"	"	
1,1,1-Trichloroethane	ND	0.095	0.50	"	1	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.19	0.50	"	1	"	"	"	"	
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.23	0.50	"	1	"	"	"	"	
1,1,2-Trichloroethane	ND	0.15	0.50	"	1	"	"	"	"	
1,1-Dichloroethane	ND	0.11	0.50	"	1	"	"	"	"	
1,1-Dichloroethene	ND	0.14	0.50	"	1	"	"	"	"	
1,1-Dichloropropene	ND	0.15	0.50	"	1	"	"	"	"	
1,2,3-Trichlorobenzene	ND	0.15	0.50	"	1	"	"	"	"	
1,2,3-Trichloropropane	ND	0.23	0.50	"	1	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.11	0.50	"	1	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.15	0.50	"	1	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	0.39	1.0	"	1	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.15	0.50	"	1	"	"	"	"	
1,2-Dichlorobenzene	ND	0.097	0.50	"	1	"	"	"	"	
1,2-Dichloroethane	ND	0.16	0.50	"	1	"	"	"	"	
1,2-Dichloropropane	ND	0.14	0.50	"	1	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.12	0.50	"	1	"	"	"	"	
1,3-Dichlorobenzene	ND	0.12	0.50	"	1	"	"	"	"	
1,3-Dichloropropane	ND	0.16	0.50	"	1	"	"	"	"	
1,4-Dichloro-2-butene	ND	1.0	1.0	"	1	"	"	"	"	
1,4-Dichlorobenzene	ND	0.16	0.50	"	1	"	"	"	"	
2,2-Dichloropropane	ND	0.27	0.50	"	1	"	"	"	"	
2-Butanone	ND	1.1	10	"	1	"	"	"	"	
2-Hexanone	ND	0.90	10	"	1	"	"	"	"	
4-Methyl-2-pentanone	ND	1.6	10	"	1	"	"	"	"	
Acetone	ND	1.0	10	"	1	"	"	"	"	
Acrylonitrile	ND	5.0	5.0	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-5 (CZF0316-03) Water Sampled: 06/07/16 09:40 Received: 06/08/16 11:53										
Benzene	ND	0.11	0.50	µg/L	1	CZ04084	"	06/08/16	EPA 8260B	
Bromobenzene	ND	0.13	0.50	"	1	"	"	"	"	
Bromochloromethane	ND	0.13	0.50	"	1	"	"	"	"	
Bromodichloromethane	ND	0.12	0.50	"	1	"	"	"	"	
Bromoform	ND	0.15	0.50	"	1	"	"	"	"	
Bromomethane	ND	0.39	1.0	"	1	"	"	"	"	
Carbon disulfide	ND	0.13	0.50	"	1	"	"	"	"	
Carbon tetrachloride	ND	0.17	0.50	"	1	"	"	"	"	
Chlorobenzene	ND	0.082	0.50	"	1	"	"	"	"	
Chloroethane	ND	0.15	0.50	"	1	"	"	"	"	
Chloroform	ND	0.19	0.50	"	1	"	"	"	"	
Chloromethane	ND	0.056	1.0	"	1	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.15	0.50	"	1	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.14	0.50	"	1	"	"	"	"	
Dibromochloromethane	ND	0.14	0.50	"	1	"	"	"	"	
Dibromomethane	ND	0.25	0.50	"	1	"	"	"	"	
Dichlorodifluoromethane (Freon 12)	ND	0.14	1.0	"	1	"	"	"	"	
Ethylbenzene	ND	0.10	0.50	"	1	"	"	"	"	
Hexachlorobutadiene	ND	0.23	0.50	"	1	"	"	"	"	
Iodomethane	ND	1.0	1.0	"	1	"	"	"	"	
Isopropylbenzene	ND	0.11	0.50	"	1	"	"	"	"	
Methyl tert-butyl ether	ND	0.095	0.50	"	1	"	"	"	"	
Methylene chloride	ND	0.24	0.50	"	1	"	"	"	"	
Naphthalene	ND	0.21	0.50	"	1	"	"	"	"	
n-Butylbenzene	ND	0.10	0.50	"	1	"	"	"	"	
n-Propylbenzene	ND	0.13	0.50	"	1	"	"	"	"	
o-Chlorotoluene	ND	0.092	0.50	"	1	"	"	"	"	
p-Chlorotoluene	ND	0.11	0.50	"	1	"	"	"	"	
p-Isopropyltoluene	ND	0.14	0.50	"	1	"	"	"	"	
sec-Butylbenzene	ND	0.088	0.50	"	1	"	"	"	"	
Styrene	ND	0.10	0.50	"	1	"	"	"	"	
tert-Butylbenzene	ND	0.082	0.50	"	1	"	"	"	"	
Tetrachloroethene	ND	0.13	0.50	"	1	"	"	"	"	
Toluene	ND	0.11	0.50	"	1	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.15	0.50	"	1	"	"	"	"	

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-5 (CZF0316-03) Water Sampled: 06/07/16 09:40 Received: 06/08/16 11:53										
trans-1,3-Dichloropropene	ND	0.18	0.50	µg/L	1	CZ04084	"	06/08/16	EPA 8260B	
Trichloroethene	ND	0.063	0.50	"	1	"	"	"	"	
Trichlorofluoromethane	ND	0.14	0.50	"	1	"	"	"	"	
Vinyl acetate	ND	0.20	1.0	"	1	"	"	"	"	
Vinyl chloride	ND	0.14	1.0	"	1	"	"	"	"	
Xylenes (total)	ND	0.33	1.0	"	1	"	"	"	"	
MW-6 (CZF0316-05) Water Sampled: 06/07/16 10:30 Received: 06/08/16 11:53										
Surrogate: 1,2-Dichloroethane-d4	*106 %*		*66-135*	µg/L		*CZ04084*	06/08/16	*06/08/16*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene	*115 %*		*73-125*	"		"	"	"	"	
Surrogate: Toluene-d8	*78 %*		*72-125*	"		"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.17	0.50	"	1	"	"	"	"	
1,1,1-Trichloroethane	ND	0.095	0.50	"	1	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.19	0.50	"	1	"	"	"	"	
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.23	0.50	"	1	"	"	"	"	
1,1,2-Trichloroethane	ND	0.15	0.50	"	1	"	"	"	"	
1,1-Dichloroethane	ND	0.11	0.50	"	1	"	"	"	"	
1,1-Dichloroethene	ND	0.14	0.50	"	1	"	"	"	"	
1,1-Dichloropropene	ND	0.15	0.50	"	1	"	"	"	"	
1,2,3-Trichlorobenzene	ND	0.15	0.50	"	1	"	"	"	"	
1,2,3-Trichloropropane	ND	0.23	0.50	"	1	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.11	0.50	"	1	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.15	0.50	"	1	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	0.39	1.0	"	1	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.15	0.50	"	1	"	"	"	"	
1,2-Dichlorobenzene	ND	0.097	0.50	"	1	"	"	"	"	
1,2-Dichloroethane	ND	0.16	0.50	"	1	"	"	"	"	
1,2-Dichloropropane	ND	0.14	0.50	"	1	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.12	0.50	"	1	"	"	"	"	
1,3-Dichlorobenzene	ND	0.12	0.50	"	1	"	"	"	"	
1,3-Dichloropropane	ND	0.16	0.50	"	1	"	"	"	"	
1,4-Dichloro-2-butene	ND	1.0	1.0	"	1	"	"	"	"	
1,4-Dichlorobenzene	ND	0.16	0.50	"	1	"	"	"	"	
2,2-Dichloropropane	ND	0.27	0.50	"	1	"	"	"	"	
2-Butanone	ND	1.1	10	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-6 (CZF0316-05) Water Sampled: 06/07/16 10:30 Received: 06/08/16 11:53										
2-Hexanone	ND	0.90	10	µg/L	1	CZ04084	"	06/08/16	EPA 8260B	
4-Methyl-2-pentanone	ND	1.6	10	"	1	"	"	"	"	
Acetone	ND	1.0	10	"	1	"	"	"	"	
Acrylonitrile	ND	5.0	5.0	"	1	"	"	"	"	
Benzene	ND	0.11	0.50	"	1	"	"	"	"	
Bromobenzene	ND	0.13	0.50	"	1	"	"	"	"	
Bromochloromethane	ND	0.13	0.50	"	1	"	"	"	"	
Bromodichloromethane	ND	0.12	0.50	"	1	"	"	"	"	
Bromoform	ND	0.15	0.50	"	1	"	"	"	"	
Bromomethane	ND	0.39	1.0	"	1	"	"	"	"	
Carbon disulfide	ND	0.13	0.50	"	1	"	"	"	"	
Carbon tetrachloride	ND	0.17	0.50	"	1	"	"	"	"	
Chlorobenzene	ND	0.082	0.50	"	1	"	"	"	"	
Chloroethane	ND	0.15	0.50	"	1	"	"	"	"	
Chloroform	ND	0.19	0.50	"	1	"	"	"	"	
Chloromethane	ND	0.056	1.0	"	1	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.15	0.50	"	1	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.14	0.50	"	1	"	"	"	"	
Dibromochloromethane	ND	0.14	0.50	"	1	"	"	"	"	
Dibromomethane	ND	0.25	0.50	"	1	"	"	"	"	
Dichlorodifluoromethane (Freon 12)	ND	0.14	1.0	"	1	"	"	"	"	
Ethylbenzene	ND	0.10	0.50	"	1	"	"	"	"	
Hexachlorobutadiene	ND	0.23	0.50	"	1	"	"	"	"	
Iodomethane	ND	1.0	1.0	"	1	"	"	"	"	
Isopropylbenzene	ND	0.11	0.50	"	1	"	"	"	"	
Methyl tert-butyl ether	ND	0.095	0.50	"	1	"	"	"	"	
Methylene chloride	ND	0.24	0.50	"	1	"	"	"	"	
Naphthalene	ND	0.21	0.50	"	1	"	"	"	"	
n-Butylbenzene	ND	0.10	0.50	"	1	"	"	"	"	
n-Propylbenzene	ND	0.13	0.50	"	1	"	"	"	"	
o-Chlorotoluene	ND	0.092	0.50	"	1	"	"	"	"	
p-Chlorotoluene	ND	0.11	0.50	"	1	"	"	"	"	
p-Isopropyltoluene	ND	0.14	0.50	"	1	"	"	"	"	
sec-Butylbenzene	ND	0.088	0.50	"	1	"	"	"	"	
Styrene	ND	0.10	0.50	"	1	"	"	"	"	

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-6 (CZF0316-05) Water Sampled: 06/07/16 10:30 Received: 06/08/16 11:53										
tert-Butylbenzene	ND	0.082	0.50	µg/L	1	CZ04084	"	06/08/16	EPA 8260B	
Tetrachloroethene	ND	0.13	0.50	"	1	"	"	"	"	
Toluene	ND	0.11	0.50	"	1	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.15	0.50	"	1	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.18	0.50	"	1	"	"	"	"	
Trichloroethene	ND	0.063	0.50	"	1	"	"	"	"	
Trichlorofluoromethane	ND	0.14	0.50	"	1	"	"	"	"	
Vinyl acetate	ND	0.20	1.0	"	1	"	"	"	"	
Vinyl chloride	ND	0.14	1.0	"	1	"	"	"	"	
Xylenes (total)	ND	0.33	1.0	"	1	"	"	"	"	
MW-7 (CZF0316-07) Water Sampled: 06/07/16 13:00 Received: 06/08/16 11:53										
Surrogate: 1,2-Dichloroethane-d4	*111 %*		*66-135*	µg/L		*CZ04084*	06/08/16	*06/08/16*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene	*118 %*		*73-125*	"		"	"	"	"	
Surrogate: Toluene-d8	*77 %*		*72-125*	"		"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.17	0.50	"	1	"	"	"	"	
1,1,1-Trichloroethane	ND	0.095	0.50	"	1	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.19	0.50	"	1	"	"	"	"	
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.23	0.50	"	1	"	"	"	"	
1,1,2-Trichloroethane	ND	0.15	0.50	"	1	"	"	"	"	
1,1-Dichloroethane	ND	0.11	0.50	"	1	"	"	"	"	
1,1-Dichloroethene	ND	0.14	0.50	"	1	"	"	"	"	
1,1-Dichloropropene	ND	0.15	0.50	"	1	"	"	"	"	
1,2,3-Trichlorobenzene	ND	0.15	0.50	"	1	"	"	"	"	
1,2,3-Trichloropropane	ND	0.23	0.50	"	1	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.11	0.50	"	1	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.15	0.50	"	1	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	0.39	1.0	"	1	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.15	0.50	"	1	"	"	"	"	
1,2-Dichlorobenzene	ND	0.097	0.50	"	1	"	"	"	"	
1,2-Dichloroethane	ND	0.16	0.50	"	1	"	"	"	"	
1,2-Dichloropropane	ND	0.14	0.50	"	1	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.12	0.50	"	1	"	"	"	"	
1,3-Dichlorobenzene	ND	0.12	0.50	"	1	"	"	"	"	
1,3-Dichloropropane	ND	0.16	0.50	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

06/29/16 15:59

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-7 (CZF0316-07) Water Sampled: 06/07/16 13:00 Received: 06/08/16 11:53										
1,4-Dichloro-2-butene	ND	1.0	1.0	µg/L	1	CZ04084	"	06/08/16	EPA 8260B	
1,4-Dichlorobenzene	ND	0.16	0.50	"	1	"	"	"	"	
2,2-Dichloropropane	ND	0.27	0.50	"	1	"	"	"	"	
2-Butanone	ND	1.1	10	"	1	"	"	"	"	
2-Hexanone	ND	0.90	10	"	1	"	"	"	"	
4-Methyl-2-pentanone	ND	1.6	10	"	1	"	"	"	"	
Acetone	ND	1.0	10	"	1	"	"	"	"	
Acrylonitrile	ND	5.0	5.0	"	1	"	"	"	"	
Benzene	ND	0.11	0.50	"	1	"	"	"	"	
Bromobenzene	ND	0.13	0.50	"	1	"	"	"	"	
Bromochloromethane	ND	0.13	0.50	"	1	"	"	"	"	
Bromodichloromethane	ND	0.12	0.50	"	1	"	"	"	"	
Bromoform	ND	0.15	0.50	"	1	"	"	"	"	
Bromomethane	ND	0.39	1.0	"	1	"	"	"	"	
Carbon disulfide	ND	0.13	0.50	"	1	"	"	"	"	
Carbon tetrachloride	ND	0.17	0.50	"	1	"	"	"	"	
Chlorobenzene	ND	0.082	0.50	"	1	"	"	"	"	
Chloroethane	ND	0.15	0.50	"	1	"	"	"	"	
Chloroform	ND	0.19	0.50	"	1	"	"	"	"	
Chloromethane	ND	0.056	1.0	"	1	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.15	0.50	"	1	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.14	0.50	"	1	"	"	"	"	
Dibromochloromethane	ND	0.14	0.50	"	1	"	"	"	"	
Dibromomethane	ND	0.25	0.50	"	1	"	"	"	"	
Dichlorodifluoromethane (Freon 12)	ND	0.14	1.0	"	1	"	"	"	"	
Ethylbenzene	ND	0.10	0.50	"	1	"	"	"	"	
Hexachlorobutadiene	ND	0.23	0.50	"	1	"	"	"	"	
Iodomethane	ND	1.0	1.0	"	1	"	"	"	"	
Isopropylbenzene	ND	0.11	0.50	"	1	"	"	"	"	
Methyl tert-butyl ether	ND	0.095	0.50	"	1	"	"	"	"	
Methylene chloride	ND	0.24	0.50	"	1	"	"	"	"	
Naphthalene	ND	0.21	0.50	"	1	"	"	"	"	
n-Butylbenzene	ND	0.10	0.50	"	1	"	"	"	"	
n-Propylbenzene	ND	0.13	0.50	"	1	"	"	"	"	
o-Chlorotoluene	ND	0.092	0.50	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-7 (CZF0316-07) Water Sampled: 06/07/16 13:00 Received: 06/08/16 11:53										
p-Chlorotoluene	ND	0.11	0.50	µg/L	1	CZ04084	"	06/08/16	EPA 8260B	
p-Isopropyltoluene	ND	0.14	0.50	"	1	"	"	"	"	
sec-Butylbenzene	ND	0.088	0.50	"	1	"	"	"	"	
Styrene	ND	0.10	0.50	"	1	"	"	"	"	
tert-Butylbenzene	ND	0.082	0.50	"	1	"	"	"	"	
Tetrachloroethene	ND	0.13	0.50	"	1	"	"	"	"	
Toluene	ND	0.11	0.50	"	1	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.15	0.50	"	1	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.18	0.50	"	1	"	"	"	"	
Trichloroethene	ND	0.063	0.50	"	1	"	"	"	"	
Trichlorofluoromethane	ND	0.14	0.50	"	1	"	"	"	"	
Vinyl acetate	ND	0.20	1.0	"	1	"	"	"	"	
Vinyl chloride	ND	0.14	1.0	"	1	"	"	"	"	
Xylenes (total)	ND	0.33	1.0	"	1	"	"	"	"	
MW-9 (CZF0316-09) Water Sampled: 06/07/16 12:00 Received: 06/08/16 11:53										
Surrogate: 1,2-Dichloroethane-d4	*110 %*		*66-135*	µg/L		*CZ04084*	06/08/16	*06/08/16*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene	*114 %*		*73-125*	"		"	"	"	"	
Surrogate: Toluene-d8	*79 %*		*72-125*	"		"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.17	0.50	"	1	"	"	"	"	
1,1,1-Trichloroethane	ND	0.095	0.50	"	1	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.19	0.50	"	1	"	"	"	"	
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.23	0.50	"	1	"	"	"	"	
1,1,2-Trichloroethane	ND	0.15	0.50	"	1	"	"	"	"	
1,1-Dichloroethane	ND	0.11	0.50	"	1	"	"	"	"	
1,1-Dichloroethene	ND	0.14	0.50	"	1	"	"	"	"	
1,1-Dichloropropene	ND	0.15	0.50	"	1	"	"	"	"	
1,2,3-Trichlorobenzene	ND	0.15	0.50	"	1	"	"	"	"	
1,2,3-Trichloropropane	ND	0.23	0.50	"	1	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.11	0.50	"	1	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.15	0.50	"	1	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	0.39	1.0	"	1	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.15	0.50	"	1	"	"	"	"	
1,2-Dichlorobenzene	ND	0.097	0.50	"	1	"	"	"	"	
1,2-Dichloroethane	ND	0.16	0.50	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-9 (CZF0316-09) Water Sampled: 06/07/16 12:00 Received: 06/08/16 11:53										
1,2-Dichloropropane	ND	0.14	0.50	µg/L	1	CZ04084	"	06/08/16	EPA 8260B	
1,3,5-Trimethylbenzene	ND	0.12	0.50	"	1	"	"	"	"	
1,3-Dichlorobenzene	ND	0.12	0.50	"	1	"	"	"	"	
1,3-Dichloropropane	ND	0.16	0.50	"	1	"	"	"	"	
1,4-Dichloro-2-butene	ND	1.0	1.0	"	1	"	"	"	"	
1,4-Dichlorobenzene	ND	0.16	0.50	"	1	"	"	"	"	
2,2-Dichloropropane	ND	0.27	0.50	"	1	"	"	"	"	
2-Butanone	ND	1.1	10	"	1	"	"	"	"	
2-Hexanone	ND	0.90	10	"	1	"	"	"	"	
4-Methyl-2-pentanone	ND	1.6	10	"	1	"	"	"	"	
Acetone	ND	1.0	10	"	1	"	"	"	"	
Acrylonitrile	ND	5.0	5.0	"	1	"	"	"	"	
Benzene	ND	0.11	0.50	"	1	"	"	"	"	
Bromobenzene	ND	0.13	0.50	"	1	"	"	"	"	
Bromochloromethane	ND	0.13	0.50	"	1	"	"	"	"	
Bromodichloromethane	ND	0.12	0.50	"	1	"	"	"	"	
Bromoform	ND	0.15	0.50	"	1	"	"	"	"	
Bromomethane	ND	0.39	1.0	"	1	"	"	"	"	
Carbon disulfide	ND	0.13	0.50	"	1	"	"	"	"	
Carbon tetrachloride	ND	0.17	0.50	"	1	"	"	"	"	
Chlorobenzene	ND	0.082	0.50	"	1	"	"	"	"	
Chloroethane	ND	0.15	0.50	"	1	"	"	"	"	
Chloroform	ND	0.19	0.50	"	1	"	"	"	"	
Chloromethane	ND	0.056	1.0	"	1	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.15	0.50	"	1	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.14	0.50	"	1	"	"	"	"	
Dibromochloromethane	ND	0.14	0.50	"	1	"	"	"	"	
Dibromomethane	ND	0.25	0.50	"	1	"	"	"	"	
Dichlorodifluoromethane (Freon 12)	ND	0.14	1.0	"	1	"	"	"	"	
Ethylbenzene	ND	0.10	0.50	"	1	"	"	"	"	
Hexachlorobutadiene	ND	0.23	0.50	"	1	"	"	"	"	
Iodomethane	ND	1.0	1.0	"	1	"	"	"	"	
Isopropylbenzene	ND	0.11	0.50	"	1	"	"	"	"	
Methyl tert-butyl ether	ND	0.095	0.50	"	1	"	"	"	"	
Methylene chloride	ND	0.24	0.50	"	1	"	"	"	"	

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-9 (CZF0316-09) Water Sampled: 06/07/16 12:00 Received: 06/08/16 11:53										
Naphthalene	ND	0.21	0.50	µg/L	1	CZ04084	"	06/08/16	EPA 8260B	
n-Butylbenzene	ND	0.10	0.50	"	1	"	"	"	"	
n-Propylbenzene	ND	0.13	0.50	"	1	"	"	"	"	
o-Chlorotoluene	ND	0.092	0.50	"	1	"	"	"	"	
p-Chlorotoluene	ND	0.11	0.50	"	1	"	"	"	"	
p-Isopropyltoluene	ND	0.14	0.50	"	1	"	"	"	"	
sec-Butylbenzene	ND	0.088	0.50	"	1	"	"	"	"	
Styrene	ND	0.10	0.50	"	1	"	"	"	"	
tert-Butylbenzene	ND	0.082	0.50	"	1	"	"	"	"	
Tetrachloroethene	ND	0.13	0.50	"	1	"	"	"	"	
Toluene	ND	0.11	0.50	"	1	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.15	0.50	"	1	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.18	0.50	"	1	"	"	"	"	
Trichloroethene	ND	0.063	0.50	"	1	"	"	"	"	
Trichlorofluoromethane	ND	0.14	0.50	"	1	"	"	"	"	
Vinyl acetate	ND	0.20	1.0	"	1	"	"	"	"	
Vinyl chloride	ND	0.14	1.0	"	1	"	"	"	"	
Xylenes (total)	ND	0.33	1.0	"	1	"	"	"	"	
MW-10 (CZF0316-11) Water Sampled: 06/07/16 08:40 Received: 06/08/16 11:53										
Surrogate: 1,2-Dichloroethane-d4	*98 %*		*66-135*	µg/L		*CZ04084*	06/08/16	*06/08/16*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene	*119 %*		*73-125*	"		"	"	"	"	
Surrogate: Toluene-d8	*76 %*		*72-125*	"		"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.17	0.50	"	1	"	"	"	"	
1,1,1-Trichloroethane	ND	0.095	0.50	"	1	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.19	0.50	"	1	"	"	"	"	
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.23	0.50	"	1	"	"	"	"	
1,1,2-Trichloroethane	ND	0.15	0.50	"	1	"	"	"	"	
1,1-Dichloroethane	ND	0.11	0.50	"	1	"	"	"	"	
1,1-Dichloroethene	ND	0.14	0.50	"	1	"	"	"	"	
1,1-Dichloropropene	ND	0.15	0.50	"	1	"	"	"	"	
1,2,3-Trichlorobenzene	ND	0.15	0.50	"	1	"	"	"	"	
1,2,3-Trichloropropane	ND	0.23	0.50	"	1	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.11	0.50	"	1	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.15	0.50	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-10 (CZF0316-11) Water Sampled: 06/07/16 08:40 Received: 06/08/16 11:53										
1,2-Dibromo-3-chloropropane	ND	0.39	1.0	µg/L	1	CZ04084	"	06/08/16	EPA 8260B	
1,2-Dibromoethane (EDB)	ND	0.15	0.50	"	1	"	"	"	"	
1,2-Dichlorobenzene	ND	0.097	0.50	"	1	"	"	"	"	
1,2-Dichloroethane	ND	0.16	0.50	"	1	"	"	"	"	
1,2-Dichloropropane	ND	0.14	0.50	"	1	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.12	0.50	"	1	"	"	"	"	
1,3-Dichlorobenzene	ND	0.12	0.50	"	1	"	"	"	"	
1,3-Dichloropropane	ND	0.16	0.50	"	1	"	"	"	"	
1,4-Dichloro-2-butene	ND	1.0	1.0	"	1	"	"	"	"	
1,4-Dichlorobenzene	ND	0.16	0.50	"	1	"	"	"	"	
2,2-Dichloropropane	ND	0.27	0.50	"	1	"	"	"	"	
2-Butanone	ND	1.1	10	"	1	"	"	"	"	
2-Hexanone	ND	0.90	10	"	1	"	"	"	"	
4-Methyl-2-pentanone	ND	1.6	10	"	1	"	"	"	"	
Acetone	ND	1.0	10	"	1	"	"	"	"	
Acrylonitrile	ND	5.0	5.0	"	1	"	"	"	"	
Benzene	ND	0.11	0.50	"	1	"	"	"	"	
Bromobenzene	ND	0.13	0.50	"	1	"	"	"	"	
Bromochloromethane	ND	0.13	0.50	"	1	"	"	"	"	
Bromodichloromethane	ND	0.12	0.50	"	1	"	"	"	"	
Bromoform	ND	0.15	0.50	"	1	"	"	"	"	
Bromomethane	ND	0.39	1.0	"	1	"	"	"	"	
Carbon disulfide	ND	0.13	0.50	"	1	"	"	"	"	
Carbon tetrachloride	ND	0.17	0.50	"	1	"	"	"	"	
Chlorobenzene	ND	0.082	0.50	"	1	"	"	"	"	
Chloroethane	ND	0.15	0.50	"	1	"	"	"	"	
Chloroform	ND	0.19	0.50	"	1	"	"	"	"	
Chloromethane	ND	0.056	1.0	"	1	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.15	0.50	"	1	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.14	0.50	"	1	"	"	"	"	
Dibromochloromethane	ND	0.14	0.50	"	1	"	"	"	"	
Dibromomethane	ND	0.25	0.50	"	1	"	"	"	"	
Dichlorodifluoromethane (Freon 12)	ND	0.14	1.0	"	1	"	"	"	"	
Ethylbenzene	ND	0.10	0.50	"	1	"	"	"	"	
Hexachlorobutadiene	ND	0.23	0.50	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-10 (CZF0316-11) Water Sampled: 06/07/16 08:40 Received: 06/08/16 11:53										
Iodomethane	ND	1.0	1.0	µg/L	1	CZ04084	"	06/08/16	EPA 8260B	
Isopropylbenzene	ND	0.11	0.50	"	1	"	"	"	"	
Methyl tert-butyl ether	ND	0.095	0.50	"	1	"	"	"	"	
Methylene chloride	ND	0.24	0.50	"	1	"	"	"	"	
Naphthalene	ND	0.21	0.50	"	1	"	"	"	"	
n-Butylbenzene	ND	0.10	0.50	"	1	"	"	"	"	
n-Propylbenzene	ND	0.13	0.50	"	1	"	"	"	"	
o-Chlorotoluene	ND	0.092	0.50	"	1	"	"	"	"	
p-Chlorotoluene	ND	0.11	0.50	"	1	"	"	"	"	
p-Isopropyltoluene	ND	0.14	0.50	"	1	"	"	"	"	
sec-Butylbenzene	ND	0.088	0.50	"	1	"	"	"	"	
Styrene	ND	0.10	0.50	"	1	"	"	"	"	
tert-Butylbenzene	ND	0.082	0.50	"	1	"	"	"	"	
Tetrachloroethene	ND	0.13	0.50	"	1	"	"	"	"	
Toluene	ND	0.11	0.50	"	1	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.15	0.50	"	1	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.18	0.50	"	1	"	"	"	"	
Trichloroethene	ND	0.063	0.50	"	1	"	"	"	"	
Trichlorofluoromethane	ND	0.14	0.50	"	1	"	"	"	"	
Vinyl acetate	ND	0.20	1.0	"	1	"	"	"	"	
Vinyl chloride	ND	0.14	1.0	"	1	"	"	"	"	
Xylenes (total)	ND	0.33	1.0	"	1	"	"	"	"	
MW-11 (CZF0316-13) Water Sampled: 06/07/16 11:20 Received: 06/08/16 11:53										
Surrogate: 1,2-Dichloroethane-d4	*99 %*		*66-135*	µg/L		*CZ04084*	06/08/16	*06/08/16*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene	*117 %*		*73-125*	"		"	"	"	"	
Surrogate: Toluene-d8	*79 %*		*72-125*	"		"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.17	0.50	"	1	"	"	"	"	
1,1,1-Trichloroethane	ND	0.095	0.50	"	1	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.19	0.50	"	1	"	"	"	"	
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.23	0.50	"	1	"	"	"	"	
1,1,2-Trichloroethane	ND	0.15	0.50	"	1	"	"	"	"	
1,1-Dichloroethane	ND	0.11	0.50	"	1	"	"	"	"	
1,1-Dichloroethene	ND	0.14	0.50	"	1	"	"	"	"	
1,1-Dichloropropene	ND	0.15	0.50	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-11 (CZF0316-13) Water Sampled: 06/07/16 11:20 Received: 06/08/16 11:53										
1,2,3-Trichlorobenzene	ND	0.15	0.50	µg/L	1	CZ04084	"	06/08/16	EPA 8260B	
1,2,3-Trichloropropane	ND	0.23	0.50	"	1	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.11	0.50	"	1	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.15	0.50	"	1	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	0.39	1.0	"	1	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.15	0.50	"	1	"	"	"	"	
1,2-Dichlorobenzene	ND	0.097	0.50	"	1	"	"	"	"	
1,2-Dichloroethane	ND	0.16	0.50	"	1	"	"	"	"	
1,2-Dichloropropane	ND	0.14	0.50	"	1	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.12	0.50	"	1	"	"	"	"	
1,3-Dichlorobenzene	ND	0.12	0.50	"	1	"	"	"	"	
1,3-Dichloropropane	ND	0.16	0.50	"	1	"	"	"	"	
1,4-Dichloro-2-butene	ND	1.0	1.0	"	1	"	"	"	"	
1,4-Dichlorobenzene	ND	0.16	0.50	"	1	"	"	"	"	
2,2-Dichloropropane	ND	0.27	0.50	"	1	"	"	"	"	
2-Butanone	ND	1.1	10	"	1	"	"	"	"	
2-Hexanone	ND	0.90	10	"	1	"	"	"	"	
4-Methyl-2-pentanone	ND	1.6	10	"	1	"	"	"	"	
Acetone	ND	1.0	10	"	1	"	"	"	"	
Acrylonitrile	ND	5.0	5.0	"	1	"	"	"	"	
Benzene	ND	0.11	0.50	"	1	"	"	"	"	
Bromobenzene	ND	0.13	0.50	"	1	"	"	"	"	
Bromochloromethane	ND	0.13	0.50	"	1	"	"	"	"	
Bromodichloromethane	ND	0.12	0.50	"	1	"	"	"	"	
Bromoform	ND	0.15	0.50	"	1	"	"	"	"	
Bromomethane	ND	0.39	1.0	"	1	"	"	"	"	
Carbon disulfide	ND	0.13	0.50	"	1	"	"	"	"	
Carbon tetrachloride	ND	0.17	0.50	"	1	"	"	"	"	
Chlorobenzene	ND	0.082	0.50	"	1	"	"	"	"	
Chloroethane	ND	0.15	0.50	"	1	"	"	"	"	
Chloroform	ND	0.19	0.50	"	1	"	"	"	"	
Chloromethane	ND	0.056	1.0	"	1	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.15	0.50	"	1	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.14	0.50	"	1	"	"	"	"	
Dibromochloromethane	ND	0.14	0.50	"	1	"	"	"	"	
Dibromomethane	ND	0.25	0.50	"	1	"	"	"	"	

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-11 (CZF0316-13) Water Sampled: 06/07/16 11:20 Received: 06/08/16 11:53										
Dichlorodifluoromethane (Freon 12)	ND	0.14	1.0	µg/L	1	CZ04084	"	06/08/16	EPA 8260B	
Ethylbenzene	ND	0.10	0.50	"	1	"	"	"	"	
Hexachlorobutadiene	ND	0.23	0.50	"	1	"	"	"	"	
Iodomethane	ND	1.0	1.0	"	1	"	"	"	"	
Isopropylbenzene	ND	0.11	0.50	"	1	"	"	"	"	
Methyl tert-butyl ether	ND	0.095	0.50	"	1	"	"	"	"	
Methylene chloride	ND	0.24	0.50	"	1	"	"	"	"	
Naphthalene	ND	0.21	0.50	"	1	"	"	"	"	
n-Butylbenzene	ND	0.10	0.50	"	1	"	"	"	"	
n-Propylbenzene	ND	0.13	0.50	"	1	"	"	"	"	
o-Chlorotoluene	ND	0.092	0.50	"	1	"	"	"	"	
p-Chlorotoluene	ND	0.11	0.50	"	1	"	"	"	"	
p-Isopropyltoluene	ND	0.14	0.50	"	1	"	"	"	"	
sec-Butylbenzene	ND	0.088	0.50	"	1	"	"	"	"	
Styrene	ND	0.10	0.50	"	1	"	"	"	"	
tert-Butylbenzene	ND	0.082	0.50	"	1	"	"	"	"	
Tetrachloroethene	ND	0.13	0.50	"	1	"	"	"	"	
Toluene	ND	0.11	0.50	"	1	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.15	0.50	"	1	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.18	0.50	"	1	"	"	"	"	
Trichloroethene	ND	0.063	0.50	"	1	"	"	"	"	
Trichlorofluoromethane	ND	0.14	0.50	"	1	"	"	"	"	
Vinyl acetate	ND	0.20	1.0	"	1	"	"	"	"	
Vinyl chloride	ND	0.14	1.0	"	1	"	"	"	"	
Xylenes (total)	ND	0.33	1.0	"	1	"	"	"	"	

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-A (CZF0316-15) Water Sampled: 06/08/16 09:30 Received: 06/08/16 11:53										
Surrogate: 1,2-Dichloroethane-d4	*100 %*		*66-135*	µg/L		*CZ04084*	06/08/16	*06/08/16*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene	*121 %*		*73-125*	"		"	"	"	"	
Surrogate: Toluene-d8	*79 %*		*72-125*	"		"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.17	0.50	"	1	"	"	"	"	
1,1,1-Trichloroethane	ND	0.095	0.50	"	1	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.19	0.50	"	1	"	"	"	"	
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.23	0.50	"	1	"	"	"	"	
1,1,2-Trichloroethane	ND	0.15	0.50	"	1	"	"	"	"	
1,1-Dichloroethane	ND	0.11	0.50	"	1	"	"	"	"	
1,1-Dichloroethene	ND	0.14	0.50	"	1	"	"	"	"	
1,1-Dichloropropene	ND	0.15	0.50	"	1	"	"	"	"	
1,2,3-Trichlorobenzene	ND	0.15	0.50	"	1	"	"	"	"	
1,2,3-Trichloropropane	ND	0.23	0.50	"	1	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.11	0.50	"	1	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.15	0.50	"	1	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	0.39	1.0	"	1	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.15	0.50	"	1	"	"	"	"	
1,2-Dichlorobenzene	ND	0.097	0.50	"	1	"	"	"	"	
1,2-Dichloroethane	ND	0.16	0.50	"	1	"	"	"	"	
1,2-Dichloropropane	ND	0.14	0.50	"	1	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.12	0.50	"	1	"	"	"	"	
1,3-Dichlorobenzene	ND	0.12	0.50	"	1	"	"	"	"	
1,3-Dichloropropane	ND	0.16	0.50	"	1	"	"	"	"	
1,4-Dichloro-2-butene	ND	1.0	1.0	"	1	"	"	"	"	
1,4-Dichlorobenzene	ND	0.16	0.50	"	1	"	"	"	"	
2,2-Dichloropropane	ND	0.27	0.50	"	1	"	"	"	"	
2-Butanone	ND	1.1	10	"	1	"	"	"	"	
2-Hexanone	ND	0.90	10	"	1	"	"	"	"	
4-Methyl-2-pentanone	ND	1.6	10	"	1	"	"	"	"	
Acetone	ND	1.0	10	"	1	"	"	"	"	
Acrylonitrile	ND	5.0	5.0	"	1	"	"	"	"	
Benzene	ND	0.11	0.50	"	1	"	"	"	"	
Bromobenzene	ND	0.13	0.50	"	1	"	"	"	"	
Bromochloromethane	ND	0.13	0.50	"	1	"	"	"	"	
Bromodichloromethane	ND	0.12	0.50	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-A (CZF0316-15) Water Sampled: 06/08/16 09:30 Received: 06/08/16 11:53										
Bromoform	ND	0.15	0.50	µg/L	1	CZ04084	"	06/08/16	EPA 8260B	
Bromomethane	ND	0.39	1.0	"	1	"	"	"	"	
Carbon disulfide	ND	0.13	0.50	"	1	"	"	"	"	
Carbon tetrachloride	ND	0.17	0.50	"	1	"	"	"	"	
Chlorobenzene	ND	0.082	0.50	"	1	"	"	"	"	
Chloroethane	ND	0.15	0.50	"	1	"	"	"	"	
Chloroform	ND	0.19	0.50	"	1	"	"	"	"	
Chloromethane	ND	0.056	1.0	"	1	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.15	0.50	"	1	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.14	0.50	"	1	"	"	"	"	
Dibromochloromethane	ND	0.14	0.50	"	1	"	"	"	"	
Dibromomethane	ND	0.25	0.50	"	1	"	"	"	"	
Dichlorodifluoromethane (Freon 12)	ND	0.14	1.0	"	1	"	"	"	"	
Ethylbenzene	ND	0.10	0.50	"	1	"	"	"	"	
Hexachlorobutadiene	ND	0.23	0.50	"	1	"	"	"	"	
Iodomethane	ND	1.0	1.0	"	1	"	"	"	"	
Isopropylbenzene	ND	0.11	0.50	"	1	"	"	"	"	
Methyl tert-butyl ether	ND	0.095	0.50	"	1	"	"	"	"	
Methylene chloride	ND	0.24	0.50	"	1	"	"	"	"	
Naphthalene	ND	0.21	0.50	"	1	"	"	"	"	
n-Butylbenzene	ND	0.10	0.50	"	1	"	"	"	"	
n-Propylbenzene	ND	0.13	0.50	"	1	"	"	"	"	
o-Chlorotoluene	ND	0.092	0.50	"	1	"	"	"	"	
p-Chlorotoluene	ND	0.11	0.50	"	1	"	"	"	"	
p-Isopropyltoluene	ND	0.14	0.50	"	1	"	"	"	"	
sec-Butylbenzene	ND	0.088	0.50	"	1	"	"	"	"	
Styrene	ND	0.10	0.50	"	1	"	"	"	"	
tert-Butylbenzene	ND	0.082	0.50	"	1	"	"	"	"	
Tetrachloroethene	ND	0.13	0.50	"	1	"	"	"	"	
Toluene	ND	0.11	0.50	"	1	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.15	0.50	"	1	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.18	0.50	"	1	"	"	"	"	
Trichloroethene	ND	0.063	0.50	"	1	"	"	"	"	
Trichlorofluoromethane	ND	0.14	0.50	"	1	"	"	"	"	
Vinyl acetate	ND	0.20	1.0	"	1	"	"	"	"	

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-A (CZF0316-15) Water Sampled: 06/08/16 09:30 Received: 06/08/16 11:53										
Vinyl chloride	ND	0.14	1.0	µg/L	1	CZ04084	"	06/08/16	EPA 8260B	
Xylenes (total)	ND	0.33	1.0	"	1	"	"	"	"	
MW-C (CZF0316-17) Water Sampled: 06/08/16 08:05 Received: 06/08/16 11:53										
Surrogate: 1,2-Dichloroethane-d4	*115 %*		*66-135*	µg/L		*CZ04084*	06/08/16	*06/08/16*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene	*119 %*		*73-125*	"		"	"	"	"	
Surrogate: Toluene-d8	*79 %*		*72-125*	"		"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.17	0.50	"	1	"	"	"	"	
1,1,1-Trichloroethane	ND	0.095	0.50	"	1	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.19	0.50	"	1	"	"	"	"	
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.23	0.50	"	1	"	"	"	"	
1,1,2-Trichloroethane	ND	0.15	0.50	"	1	"	"	"	"	
1,1-Dichloroethane	ND	0.11	0.50	"	1	"	"	"	"	
1,1-Dichloroethene	ND	0.14	0.50	"	1	"	"	"	"	
1,1-Dichloropropene	ND	0.15	0.50	"	1	"	"	"	"	
1,2,3-Trichlorobenzene	ND	0.15	0.50	"	1	"	"	"	"	
1,2,3-Trichloropropane	ND	0.23	0.50	"	1	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.11	0.50	"	1	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.15	0.50	"	1	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	0.39	1.0	"	1	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.15	0.50	"	1	"	"	"	"	
1,2-Dichlorobenzene	ND	0.097	0.50	"	1	"	"	"	"	
1,2-Dichloroethane	ND	0.16	0.50	"	1	"	"	"	"	
1,2-Dichloropropane	ND	0.14	0.50	"	1	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.12	0.50	"	1	"	"	"	"	
1,3-Dichlorobenzene	ND	0.12	0.50	"	1	"	"	"	"	
1,3-Dichloropropane	ND	0.16	0.50	"	1	"	"	"	"	
1,4-Dichloro-2-butene	ND	1.0	1.0	"	1	"	"	"	"	
1,4-Dichlorobenzene	ND	0.16	0.50	"	1	"	"	"	"	
2,2-Dichloropropane	ND	0.27	0.50	"	1	"	"	"	"	
2-Butanone	ND	1.1	10	"	1	"	"	"	"	
2-Hexanone	ND	0.90	10	"	1	"	"	"	"	
4-Methyl-2-pentanone	ND	1.6	10	"	1	"	"	"	"	
Acetone	ND	1.0	10	"	1	"	"	"	"	
Acrylonitrile	ND	5.0	5.0	"	1	"	"	"	"	

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-C (CZF0316-17) Water Sampled: 06/08/16 08:05 Received: 06/08/16 11:53										
Benzene	ND	0.11	0.50	µg/L	1	CZ04084	"	06/08/16	EPA 8260B	
Bromobenzene	ND	0.13	0.50	"	1	"	"	"	"	
Bromochloromethane	ND	0.13	0.50	"	1	"	"	"	"	
Bromodichloromethane	ND	0.12	0.50	"	1	"	"	"	"	
Bromoform	ND	0.15	0.50	"	1	"	"	"	"	
Bromomethane	ND	0.39	1.0	"	1	"	"	"	"	
Carbon disulfide	ND	0.13	0.50	"	1	"	"	"	"	
Carbon tetrachloride	ND	0.17	0.50	"	1	"	"	"	"	
Chlorobenzene	ND	0.082	0.50	"	1	"	"	"	"	
Chloroethane	ND	0.15	0.50	"	1	"	"	"	"	
Chloroform	ND	0.19	0.50	"	1	"	"	"	"	
Chloromethane	ND	0.056	1.0	"	1	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.15	0.50	"	1	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.14	0.50	"	1	"	"	"	"	
Dibromochloromethane	ND	0.14	0.50	"	1	"	"	"	"	
Dibromomethane	ND	0.25	0.50	"	1	"	"	"	"	
Dichlorodifluoromethane (Freon 12)	ND	0.14	1.0	"	1	"	"	"	"	
Ethylbenzene	ND	0.10	0.50	"	1	"	"	"	"	
Hexachlorobutadiene	ND	0.23	0.50	"	1	"	"	"	"	
Iodomethane	ND	1.0	1.0	"	1	"	"	"	"	
Isopropylbenzene	ND	0.11	0.50	"	1	"	"	"	"	
Methyl tert-butyl ether	ND	0.095	0.50	"	1	"	"	"	"	
Methylene chloride	ND	0.24	0.50	"	1	"	"	"	"	
Naphthalene	ND	0.21	0.50	"	1	"	"	"	"	
n-Butylbenzene	ND	0.10	0.50	"	1	"	"	"	"	
n-Propylbenzene	ND	0.13	0.50	"	1	"	"	"	"	
o-Chlorotoluene	ND	0.092	0.50	"	1	"	"	"	"	
p-Chlorotoluene	ND	0.11	0.50	"	1	"	"	"	"	
p-Isopropyltoluene	ND	0.14	0.50	"	1	"	"	"	"	
sec-Butylbenzene	ND	0.088	0.50	"	1	"	"	"	"	
Styrene	ND	0.10	0.50	"	1	"	"	"	"	
tert-Butylbenzene	ND	0.082	0.50	"	1	"	"	"	"	
Tetrachloroethene	ND	0.13	0.50	"	1	"	"	"	"	
Toluene	ND	0.11	0.50	"	1	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.15	0.50	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-C (CZF0316-17) Water Sampled: 06/08/16 08:05 Received: 06/08/16 11:53										
trans-1,3-Dichloropropene	ND	0.18	0.50	µg/L	1	CZ04084	"	06/08/16	EPA 8260B	
Trichloroethene	ND	0.063	0.50	"	1	"	"	"	"	
Trichlorofluoromethane	ND	0.14	0.50	"	1	"	"	"	"	
Vinyl acetate	ND	0.20	1.0	"	1	"	"	"	"	
Vinyl chloride	ND	0.14	1.0	"	1	"	"	"	"	
Xylenes (total)	ND	0.33	1.0	"	1	"	"	"	"	
DUP2 (CZF0316-19) Water Sampled: 06/07/16 13:05 Received: 06/08/16 11:53										
Surrogate: 1,2-Dichloroethane-d4	*101 %*		*66-135*	µg/L		*CZ04084*	06/08/16	*06/08/16*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene	*111 %*		*73-125*	"		"	"	"	"	
Surrogate: Toluene-d8	*77 %*		*72-125*	"		"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.17	0.50	"	1	"	"	"	"	
1,1,1-Trichloroethane	ND	0.095	0.50	"	1	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.19	0.50	"	1	"	"	"	"	
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.23	0.50	"	1	"	"	"	"	
1,1,2-Trichloroethane	ND	0.15	0.50	"	1	"	"	"	"	
1,1-Dichloroethane	ND	0.11	0.50	"	1	"	"	"	"	
1,1-Dichloroethene	ND	0.14	0.50	"	1	"	"	"	"	
1,1-Dichloropropene	ND	0.15	0.50	"	1	"	"	"	"	
1,2,3-Trichlorobenzene	ND	0.15	0.50	"	1	"	"	"	"	
1,2,3-Trichloropropane	ND	0.23	0.50	"	1	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.11	0.50	"	1	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.15	0.50	"	1	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	0.39	1.0	"	1	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.15	0.50	"	1	"	"	"	"	
1,2-Dichlorobenzene	ND	0.097	0.50	"	1	"	"	"	"	
1,2-Dichloroethane	ND	0.16	0.50	"	1	"	"	"	"	
1,2-Dichloropropane	ND	0.14	0.50	"	1	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.12	0.50	"	1	"	"	"	"	
1,3-Dichlorobenzene	ND	0.12	0.50	"	1	"	"	"	"	
1,3-Dichloropropane	ND	0.16	0.50	"	1	"	"	"	"	
1,4-Dichloro-2-butene	ND	1.0	1.0	"	1	"	"	"	"	
1,4-Dichlorobenzene	ND	0.16	0.50	"	1	"	"	"	"	
2,2-Dichloropropane	ND	0.27	0.50	"	1	"	"	"	"	
2-Butanone	ND	1.1	10	"	1	"	"	"	"	

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
DUP2 (CZF0316-19) Water Sampled: 06/07/16 13:05 Received: 06/08/16 11:53										
2-Hexanone	ND	0.90	10	µg/L	1	CZ04084	"	06/08/16	EPA 8260B	
4-Methyl-2-pentanone	ND	1.6	10	"	1	"	"	"	"	
Acetone	ND	1.0	10	"	1	"	"	"	"	
Acrylonitrile	ND	5.0	5.0	"	1	"	"	"	"	
Benzene	ND	0.11	0.50	"	1	"	"	"	"	
Bromobenzene	ND	0.13	0.50	"	1	"	"	"	"	
Bromochloromethane	ND	0.13	0.50	"	1	"	"	"	"	
Bromodichloromethane	ND	0.12	0.50	"	1	"	"	"	"	
Bromoform	ND	0.15	0.50	"	1	"	"	"	"	
Bromomethane	ND	0.39	1.0	"	1	"	"	"	"	
Carbon disulfide	ND	0.13	0.50	"	1	"	"	"	"	
Carbon tetrachloride	ND	0.17	0.50	"	1	"	"	"	"	
Chlorobenzene	ND	0.082	0.50	"	1	"	"	"	"	
Chloroethane	ND	0.15	0.50	"	1	"	"	"	"	
Chloroform	ND	0.19	0.50	"	1	"	"	"	"	
Chloromethane	ND	0.056	1.0	"	1	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.15	0.50	"	1	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.14	0.50	"	1	"	"	"	"	
Dibromochloromethane	ND	0.14	0.50	"	1	"	"	"	"	
Dibromomethane	ND	0.25	0.50	"	1	"	"	"	"	
Dichlorodifluoromethane (Freon 12)	ND	0.14	1.0	"	1	"	"	"	"	
Ethylbenzene	ND	0.10	0.50	"	1	"	"	"	"	
Hexachlorobutadiene	ND	0.23	0.50	"	1	"	"	"	"	
Iodomethane	ND	1.0	1.0	"	1	"	"	"	"	
Isopropylbenzene	ND	0.11	0.50	"	1	"	"	"	"	
Methyl tert-butyl ether	ND	0.095	0.50	"	1	"	"	"	"	
Methylene chloride	ND	0.24	0.50	"	1	"	"	"	"	
Naphthalene	ND	0.21	0.50	"	1	"	"	"	"	
n-Butylbenzene	ND	0.10	0.50	"	1	"	"	"	"	
n-Propylbenzene	ND	0.13	0.50	"	1	"	"	"	"	
o-Chlorotoluene	ND	0.092	0.50	"	1	"	"	"	"	
p-Chlorotoluene	ND	0.11	0.50	"	1	"	"	"	"	
p-Isopropyltoluene	ND	0.14	0.50	"	1	"	"	"	"	
sec-Butylbenzene	ND	0.088	0.50	"	1	"	"	"	"	
Styrene	ND	0.10	0.50	"	1	"	"	"	"	

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2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
DUP2 (CZF0316-19) Water Sampled: 06/07/16 13:05 Received: 06/08/16 11:53										
tert-Butylbenzene	ND	0.082	0.50	µg/L	1	CZ04084	"	06/08/16	EPA 8260B	
Tetrachloroethene	ND	0.13	0.50	"	1	"	"	"	"	
Toluene	ND	0.11	0.50	"	1	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.15	0.50	"	1	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.18	0.50	"	1	"	"	"	"	
Trichloroethene	ND	0.063	0.50	"	1	"	"	"	"	
Trichlorofluoromethane	ND	0.14	0.50	"	1	"	"	"	"	
Vinyl acetate	ND	0.20	1.0	"	1	"	"	"	"	
Vinyl chloride	ND	0.14	1.0	"	1	"	"	"	"	
Xylenes (total)	ND	0.33	1.0	"	1	"	"	"	"	

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Chlorinated Herbicides by EPA Method 8151A - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ04155 - EPA 8151A											
Blank (CZ04155-BLK1)					Prepared: 06/10/16 Analyzed: 06/14/16						
Surrogate: 2,4-DCAA	*2.73*			*µg/L*	*2.50*		*109*	*50-150*			
2,4,5-T	ND	0.040	0.50	"							
2,4,5-TP (Silvex)	ND	0.0070	0.20	"							
2,4-D (2,4-Dichlorophenoxyacetic acid)	ND	0.061	1.0	"							
2,4-DB	ND	0.22	2.0	"							
Dalapon	ND	0.084	2.0	"							
Dicamba	ND	0.093	1.0	"							
Dichloroprop	ND	0.040	2.0	"							
Dinoseb	ND	0.055	1.0	"							
MCPA	ND	0.73	250	"							
MCPP	ND	1.6	250	"							
Pentachlorophenol	ND	0.011	0.20	"							
LCS (CZ04155-BS1)					Prepared: 06/10/16 Analyzed: 06/14/16						
Surrogate: 2,4-DCAA	*3.49*			*µg/L*	*2.50*		*140*	*50-150*			
Dicamba	1.24	0.093	1.0	"	1.25		99	50-150			
Dichloroprop	1.50	0.040	2.0	"	1.25		120	50-150			J
LCS Dup (CZ04155-BSD1)					Prepared: 06/10/16 Analyzed: 06/14/16						
Surrogate: 2,4-DCAA	*2.60*			*µg/L*	*2.50*		*104*	*50-150*			
Dicamba	1.68	0.093	1.0	"	1.25		134	50-150	30	30	
Dichloroprop	1.78	0.040	2.0	"	1.25		142	50-150	17	30	J

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ04080 - General Preparation											
Blank (CZ04080-BLK1)					Prepared & Analyzed: 06/08/16						
Chloride	ND	0.026	0.50	mg/L							
Nitrate as N	ND	0.053	0.40	"							
Sulfate as SO4	ND	0.038	0.50	"							
LCS (CZ04080-BS1)					Prepared & Analyzed: 06/08/16						
Chloride	4.91	0.026	0.50	mg/L	5.00		98	80-120			
Nitrate as N	0.493	0.053	0.40	"	0.451		109	80-120			
Sulfate as SO4	5.28	0.038	0.50	"	5.00		106	80-120			
LCS Dup (CZ04080-BSD1)					Prepared & Analyzed: 06/08/16						
Chloride	4.88	0.026	0.50	mg/L	5.00		98	80-120	0.6	20	
Nitrate as N	0.491	0.053	0.40	"	0.451		109	80-120	0.4	20	
Sulfate as SO4	5.26	0.038	0.50	"	5.00		105	80-120	0.2	20	
Matrix Spike (CZ04080-MS1)		**Source: CZF0316-19**			Prepared: 06/08/16 Analyzed: 06/09/16						
Chloride	6.25	0.026	0.50	mg/L	5.00	2.01	85	80-120			
Nitrate as N	0.491	0.053	0.40	"	0.451	ND	109	80-120			
Sulfate as SO4	28.9	0.038	0.50	"	5.00	24.5	89	80-120			
Matrix Spike Dup (CZ04080-MSD1)		**Source: CZF0316-19**			Prepared: 06/08/16 Analyzed: 06/09/16						
Chloride	6.27	0.026	0.50	mg/L	5.00	2.01	85	80-120	0.2	20	
Nitrate as N	0.489	0.053	0.40	"	0.451	ND	108	80-120	0.4	20	
Sulfate as SO4	29.0	0.038	0.50	"	5.00	24.5	91	80-120	0.3	20	
Batch CZ04086 - General Prep											
Blank (CZ04086-BLK1)					Prepared: 06/09/16 Analyzed: 06/10/16						
Total Organic Carbon	ND	0.54	1.0	mg/L							

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ04086 - General Prep											
LCS (CZ04086-BS1)					Prepared: 06/09/16 Analyzed: 06/10/16						
Total Organic Carbon	9.29	0.54	1.0	mg/L	10.0		93	75-125			
LCS Dup (CZ04086-BSD1)					Prepared: 06/09/16 Analyzed: 06/10/16						
Total Organic Carbon	10.1	0.54	1.0	mg/L	10.0		101	75-125	9	25	
Matrix Spike (CZ04086-MS1)		**Source: CZF0329-05**			Prepared: 06/09/16 Analyzed: 06/10/16						
Total Organic Carbon	22.3	0.54	1.0	mg/L	10.0	9.96	123	75-125			
Matrix Spike Dup (CZ04086-MSD1)		**Source: CZF0329-05**			Prepared: 06/09/16 Analyzed: 06/10/16						
Total Organic Carbon	23.0	0.54	1.0	mg/L	10.0	9.96	130	75-125	3	25	QM-7
Batch CZ04122 - General Preparation											
Blank (CZ04122-BLK1)					Prepared & Analyzed: 06/09/16						
Sulfide, Dissolved	ND	0.84	1.0	mg/L							
LCS (CZ04122-BS1)					Prepared & Analyzed: 06/09/16						
Sulfide, Dissolved	12.8	0.84	1.0	mg/L	13.3		96	80-120			
LCS Dup (CZ04122-BSD1)					Prepared & Analyzed: 06/09/16						
Sulfide, Dissolved	12.8	0.84	1.0	mg/L	13.3		96	80-120	0	20	
Batch CZ04145 - General Preparation											
Blank (CZ04145-BLK1)					Prepared: 06/10/16 Analyzed: 06/13/16						
Total Dissolved Solids	ND	10	10	mg/L							

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2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ04145 - General Preparation											
Duplicate (CZ04145-DUP1)		**Source: CZF0316-01**			Prepared: 06/10/16 Analyzed: 06/13/16						
Total Dissolved Solids	302	10	10	mg/L		287			5	20	
Batch CZ04150 - General Prep											
Blank (CZ04150-BLK1)					Prepared & Analyzed: 06/10/16						
Cyanide (dissolved)	ND	0.0012	0.0050	mg/L							
LCS (CZ04150-BS1)					Prepared & Analyzed: 06/10/16						
Cyanide (dissolved)	0.103	0.0012	0.0050	mg/L	0.100		103	75-125			
LCS Dup (CZ04150-BSD1)					Prepared & Analyzed: 06/10/16						
Cyanide (dissolved)	0.0976	0.0012	0.0050	mg/L	0.100		98	75-125	5	25	
Matrix Spike (CZ04150-MS1)		**Source: CZF0320-01**			Prepared & Analyzed: 06/10/16						
Cyanide (dissolved)	0.0883	0.0012	0.0050	mg/L	0.100	ND	88	75-125			
Matrix Spike Dup (CZ04150-MSD1)		**Source: CZF0320-01**			Prepared & Analyzed: 06/10/16						
Cyanide (dissolved)	0.0942	0.0012	0.0050	mg/L	0.100	ND	94	75-125	6	25	
Batch CZ04156 - General Preparation											
Blank (CZ04156-BLK1)					Prepared & Analyzed: 06/10/16						
Bicarbonate as CaCO3	ND	0.50	5.0	mg/L							
Carbonate as CaCO3	ND	0.50	5.0	"							
Hydroxide as CaCO3	ND	0.50	5.0	"							
Total Alkalinity	ND	1.0	5.0	"							

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2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ04156 - General Preparation											
Duplicate (CZ04156-DUP1)		**Source: CZF0316-01**			Prepared & Analyzed: 06/10/16						
Bicarbonate as CaCO3	213	0.50	5.0	mg/L		213			0.2	20	
Carbonate as CaCO3	ND	0.50	5.0	"		ND				20	
Hydroxide as CaCO3	ND	0.50	5.0	"		ND				20	
Total Alkalinity	213	1.0	5.0	"		213			0.2	20	

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2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Metals (Dissolved) by EPA 200 Series Methods - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ04163 - EPA 200 Series											
Blank (CZ04163-BLK1)					Prepared: 06/10/16 Analyzed: 06/13/16						
Mercury	ND	1.0	1.0	µg/L							
LCS (CZ04163-BS1)					Prepared: 06/10/16 Analyzed: 06/13/16						
Mercury	5.54	1.0	1.0	µg/L	5.00		111	85-115			
Matrix Spike (CZ04163-MS1)		**Source: CZF0316-02**			Prepared: 06/10/16 Analyzed: 06/13/16						
Mercury	6.00	1.0	2.0	µg/L	5.00	ND	120	70-130			
Matrix Spike (CZ04163-MS2)		**Source: CZF0317-02**			Prepared: 06/10/16 Analyzed: 06/13/16						
Mercury	6.46	1.0	1.0	µg/L	5.00	ND	129	70-130			
Batch CZ04180 - 6010A/No Digestion											
Blank (CZ04180-BLK1)					Prepared & Analyzed: 06/13/16						
Aluminum	ND	27	50	µg/L							
Barium	ND	0.91	20	"							
Beryllium	ND	0.43	5.0	"							
Cadmium	ND	2.8	10	"							
Calcium	ND	14	1000	"							
Chromium	ND	9.9	10	"							
Cobalt	ND	7.6	20	"							
Copper	ND	3.2	10	"							
Iron	ND	6.8	100	"							
Magnesium	ND	26	1000	"							
Manganese	ND	0.92	20	"							
Nickel	ND	14	20	"							
Potassium	ND	180	1000	"							
Silver	ND	2.9	10	"							
Sodium	ND	17	1000	"							
Tin	ND	18	100	"							
Zinc	ND	9.3	20	"							

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Metals (Dissolved) by EPA 200 Series Methods - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ04180 - 6010A/No Digestion											
LCS (CZ04180-BS1)					Prepared & Analyzed: 06/13/16						
Aluminum	5110	27	50	µg/L	5000		102	85-115			
Barium	1140	0.91	20	"	1000		114	85-115			
Beryllium	1110	0.43	5.0	"	1000		111	85-115			
Cadmium	1140	2.8	10	"	1000		114	85-115			
Calcium	5170	14	1000	"	5000		103	85-115			
Chromium	1120	9.9	10	"	1000		112	85-115			
Cobalt	1100	7.6	20	"	1000		110	85-115			
Copper	1120	3.2	10	"	1000		112	85-115			
Iron	1040	6.8	100	"	1000		104	85-115			
Magnesium	5160	26	1000	"	5000		103	85-115			
Manganese	1150	0.92	20	"	1000		115	85-115			
Nickel	1110	14	20	"	1000		111	85-115			
Potassium	5560	180	1000	"	5000		111	85-115			
Silver	1250	2.9	10	"	1000		125	85-115			QM-1
Sodium	5320	17	1000	"	5000		106	85-115			
Tin	1080	18	100	"	1000		108	85-115			
Zinc	1130	9.3	20	"	1000		113	85-115			
Matrix Spike (CZ04180-MS1)		**Source: CZF0316-02**			Prepared & Analyzed: 06/13/16						
Aluminum	4950	27	50	µg/L	5000	ND	99	70-130			
Barium	1070	0.91	20	"	1000	64.9	100	70-130			
Beryllium	1060	0.43	5.0	"	1000	ND	106	70-130			
Cadmium	1060	2.8	10	"	1000	ND	106	70-130			
Calcium	36700	14	1000	"	5000	31900	96	70-130			
Chromium	1050	9.9	10	"	1000	ND	105	70-130			
Cobalt	994	7.6	20	"	1000	ND	99	70-130			
Copper	1020	3.2	10	"	1000	ND	102	70-130			
Iron	1080	6.8	100	"	1000	68.8	101	70-130			
Magnesium	19200	26	1000	"	5000	14600	91	70-130			
Manganese	1160	0.92	20	"	1000	119	104	70-130			
Nickel	964	14	20	"	1000	ND	96	70-130			
Potassium	6800	180	1000	"	5000	1780	100	70-130			
Silver	1000	2.9	10	"	1000	ND	100	70-130			
Sodium	69800	17	1000	"	5000	65000	95	70-130			
Tin	982	18	100	"	1000	ND	98	70-130			
Zinc	1070	9.3	20	"	1000	ND	107	70-130			

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Metals (Dissolved) by EPA 200 Series Methods - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ04180 - 6010A/No Digestion											
Matrix Spike (CZ04180-MS2)		**Source: CZF0266-01**			Prepared & Analyzed: 06/13/16						
Aluminum	5220	27	50	µg/L	5000	ND	104	70-130			
Barium	1120	0.91	20	"	1000	13.5	111	70-130			
Beryllium	1090	0.43	5.0	"	1000	ND	109	70-130			
Cadmium	1150	2.8	10	"	1000	ND	115	70-130			
Calcium	42000	14	1000	"	5000	38200	76	70-130			
Chromium	1150	9.9	10	"	1000	ND	115	70-130			
Cobalt	1070	7.6	20	"	1000	ND	107	70-130			
Copper	1100	3.2	10	"	1000	ND	110	70-130			
Iron	1020	6.8	100	"	1000	ND	102	70-130			
Magnesium	16000	26	1000	"	5000	11500	91	70-130			
Manganese	1080	0.92	20	"	1000	2.69	108	70-130			
Nickel	1060	14	20	"	1000	ND	106	70-130			
Potassium	6220	180	1000	"	5000	ND	124	70-130			
Silver	793	2.9	10	"	1000	ND	79	70-130			
Sodium	13100	17	1000	"	5000	7800	105	70-130			
Tin	926	18	100	"	1000	ND	93	70-130			
Zinc	1170	9.3	20	"	1000	34.6	113	70-130			
Batch CZ04209 - EPA 200 Series											
Blank (CZ04209-BLK1)					Prepared: 06/13/16 Analyzed: 06/14/16						
Antimony	ND	0.57	6.0	µg/L							
Arsenic	ND	0.27	2.0	"							
Lead	0.260	0.23	5.0	"							J
Selenium	ND	1.1	5.0	"							
Thallium	0.400	0.11	1.0	"							J
Vanadium	ND	0.44	3.0	"							

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Metals (Dissolved) by EPA 200 Series Methods - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ04209 - EPA 200 Series											
LCS (CZ04209-BS1)					Prepared: 06/13/16 Analyzed: 06/14/16						
Antimony	103	0.57	6.0	µg/L	100		103	85-115			
Arsenic	101	0.27	2.0	"	100		101	85-115			
Lead	99.5	0.23	5.0	"	100		99	85-115			
Selenium	101	1.1	5.0	"	100		101	85-115			
Thallium	98.7	0.11	1.0	"	100		99	85-115			
Vanadium	102	0.44	3.0	"	100		102	85-115			
Matrix Spike (CZ04209-MS1)		**Source: CZF0316-02**			Prepared: 06/13/16 Analyzed: 06/14/16						
Antimony	102	0.57	6.0	µg/L	100	ND	102	70-130			
Arsenic	132	0.27	2.0	"	100	4.76	127	70-130			
Lead	121	0.23	5.0	"	100	ND	121	70-130			
Selenium	143	1.1	5.0	"	100	ND	143	70-130			QM-7
Thallium	119	0.11	1.0	"	100	0.400	119	70-130			
Vanadium	115	0.44	3.0	"	100	ND	115	70-130			
Matrix Spike (CZ04209-MS2)		**Source: CZF0317-02**			Prepared: 06/13/16 Analyzed: 06/14/16						
Antimony	108	0.57	6.0	µg/L	100	ND	108	70-130			
Arsenic	941	0.27	2.0	"	100	798	144	70-130			QM-7
Lead	115	0.23	5.0	"	100	ND	115	70-130			
Selenium	164	1.1	5.0	"	100	ND	164	70-130			QM-7
Thallium	113	0.11	1.0	"	100	ND	113	70-130			
Vanadium	118	0.44	3.0	"	100	ND	118	70-130			

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Organophosphorus Pesticides by EPA Method 8141A - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ04130 - EPA 3510B GCNV											
Blank (CZ04130-BLK1)					Prepared: 06/09/16 Analyzed: 06/14/16						
Surrogate: EPN	*2.41*			*µg/L*	*2.50*		*97*	*50-150*			
Bolstar	ND	0.018	0.050	"							
Chlorpyrifos	ND	0.018	0.050	"							
Coumaphos	ND	0.017	0.10	"							
Demeton	ND	0.026	0.10	"							
Diazinon	ND	0.033	0.050	"							
Dichlorvos	ND	0.023	0.10	"							
Disulfoton	ND	0.031	0.050	"							
Ethoprop	ND	0.016	0.050	"							
Fensulfothion	ND	0.036	0.050	"							
Fenthion	ND	0.018	0.050	"							
Guthion	ND	0.027	0.10	"							
Malathion	ND	0.014	0.050	"							
Merphos	ND	0.021	0.050	"							
Methyl parathion	ND	0.014	0.050	"							
Mevinphos	ND	0.033	0.050	"							
Phorate	ND	0.015	0.050	"							
Prothiofos	ND	0.0031	0.050	"							
Ronnel	ND	0.016	0.050	"							
Stirophos	ND	0.021	0.050	"							
Trichloronate	ND	0.020	0.050	"							
LCS (CZ04130-BS1)					Prepared: 06/09/16 Analyzed: 06/14/16						
Surrogate: EPN	*1.64*			*µg/L*	*2.50*		*66*	*50-150*			
Methyl parathion	0.0873	0.014	0.050	"	0.125		70	50-150			
Ronnel	0.0678	0.016	0.050	"	0.125		54	50-150			
Stirophos	0.0973	0.021	0.050	"	0.125		78	50-150			
Trichloronate	0.0774	0.020	0.050	"	0.125		62	50-150			

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Organophosphorus Pesticides by EPA Method 8141A - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ04130 - EPA 3510B GCNV											
LCS Dup (CZ04130-BSD1)					Prepared: 06/09/16 Analyzed: 06/14/16						
Surrogate: EPN	*2.25*			*µg/L*	*2.50*		*90*	*50-150*			
Methyl parathion	0.110	0.014	0.050	"	0.125		88	50-150	23	30	
Ronnel	0.0834	0.016	0.050	"	0.125		67	50-150	21	30	
Stirophos	0.131	0.021	0.050	"	0.125		105	50-150	30	30	
Trichloronate	0.105	0.020	0.050	"	0.125		84	50-150	30	30	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Semivolatile Organic Compounds by EPA Method 8270C - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ04113 - EPA 3510B GCMS											
Blank (CZ04113-BLK1)					Prepared: 06/09/16 Analyzed: 06/10/16						
Surrogate: 2,4,6-Tribromophenol	*36.7*			*µg/L*	*40.0*		*92*	*10-123*			
Surrogate: 2-Fluorobiphenyl	*32.2*			*"*	*40.0*		*80*	*43-116*			
Surrogate: 2-Fluorophenol	*23.4*			*"*	*40.0*		*59*	*21-110*			
Surrogate: Nitrobenzene-d5	*30.3*			*"*	*40.0*		*76*	*35-114*			
Surrogate: Phenol-d6	*15.7*			*"*	*40.0*		*39*	*10-110*			
Surrogate: Terphenyl-dl4	*34.2*			*"*	*40.0*		*85*	*33-141*			
1,2,4-Trichlorobenzene	ND	0.94	10	"							
1,2-Dichlorobenzene	ND	1.1	10	"							
1,3-Dichlorobenzene	ND	1.2	10	"							
1,4-Dichlorobenzene	ND	1.1	10	"							
2,4,5-Trichlorophenol	ND	0.87	10	"							
2,4,6-Trichlorophenol	ND	0.96	10	"							
2,4-Dichlorophenol	ND	0.87	10	"							
2,4-Dimethylphenol	ND	4.0	10	"							
2,4-Dinitrophenol	ND	0.62	25	"							
2,4-Dinitrotoluene (2,4-DNT)	ND	0.81	10	"							
2,6-Dinitrotoluene (2,6-DNT)	ND	0.71	10	"							
2-Chloronaphthalene	ND	0.70	10	"							
2-Chlorophenol	ND	0.88	10	"							
2-Methylnaphthalene	ND	0.72	10	"							
2-Methylphenol	ND	1.6	10	"							
2-Nitroaniline	ND	0.61	25	"							
2-Nitrophenol	ND	0.94	10	"							
3 & 4-Methylphenol	ND	2.6	10	"							
3,3'-Dichlorobenzidine	ND	4.1	20	"							
3-Nitroaniline	ND	0.96	25	"							
4,6-Dinitro-2-methylphenol	ND	1.2	25	"							
4-Bromophenyl phenyl ether	ND	0.80	10	"							
4-Chloro-3-methylphenol	ND	0.94	10	"							
4-Chloroaniline	ND	1.8	10	"							
4-Chlorophenyl phenyl ether	ND	0.78	10	"							
4-Nitroaniline	ND	0.87	25	"							
4-Nitrophenol	ND	0.95	25	"							
Acenaphthene	ND	0.74	10	"							
Acenaphthylene	ND	0.63	10	"							

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Semivolatile Organic Compounds by EPA Method 8270C - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ04113 - EPA 3510B GCMS											
Blank (CZ04113-BLK1)					Prepared: 06/09/16 Analyzed: 06/10/16						
Anthracene	ND	0.65	10	µg/L							
Benzo (a) anthracene	ND	1.7	10	"							
Benzo (a) pyrene	ND	2.1	10	"							
Benzo (b) fluoranthene	ND	3.3	10	"							
Benzo (g,h,i) perylene	ND	2.7	10	"							
Benzo (k) fluoranthene	ND	1.5	10	"							
Benzoic acid	ND	4.2	25	"							
Benzyl alcohol	ND	1.6	10	"							
Bis(2-chloroethoxy)methane	ND	0.67	10	"							
Bis(2-chloroethyl)ether	ND	0.66	10	"							
Bis(2-chloroisopropyl)ether	ND	0.54	10	"							
Bis(2-ethylhexyl)phthalate	ND	1.1	10	"							
Butyl benzyl phthalate	ND	4.4	10	"							
Chrysene	ND	0.78	10	"							
Dibenz (a,h) anthracene	ND	2.4	10	"							
Dibenzofuran	ND	0.67	10	"							
Diethyl phthalate	ND	4.7	10	"							
Dimethyl phthalate	ND	4.2	10	"							
Di-n-butyl phthalate	ND	3.8	10	"							
Di-n-octyl phthalate	ND	3.4	10	"							
Fluoranthene	ND	0.66	10	"							
Fluorene	ND	0.67	10	"							
Hexachlorobenzene	ND	0.86	10	"							
Hexachlorobutadiene	ND	1.9	10	"							
Hexachlorocyclopentadiene	ND	0.55	10	"							
Hexachloroethane	ND	1.2	10	"							
Indeno (1,2,3-cd) pyrene	ND	1.7	10	"							
Isophorone	ND	0.62	10	"							
Naphthalene	ND	0.70	10	"							
Nitrobenzene (NB)	ND	0.64	10	"							
N-Nitrosodi-n-propylamine	ND	0.62	10	"							
N-Nitrosodiphenylamine	ND	0.93	10	"							
Pentachlorophenol	ND	1.8	25	"							
Phenanthrene	ND	0.59	10	"							
Phenol	ND	1.2	10	"							
Pyrene	ND	0.73	10	"							

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Semivolatile Organic Compounds by EPA Method 8270C - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ04113 - EPA 3510B GCMS											
LCS (CZ04113-BS1)					Prepared: 06/09/16 Analyzed: 06/10/16						
Surrogate: 2,4,6-Tribromophenol	*39.0*			*µg/L*	*40.0*		*98*	*10-123*			
Surrogate: 2-Fluorobiphenyl	*44.0*			*"*	*40.0*		*110*	*43-116*			
Surrogate: 2-Fluorophenol	*35.7*			*"*	*40.0*		*89*	*21-110*			
Surrogate: Nitrobenzene-d5	*35.0*			*"*	*40.0*		*87*	*35-114*			
Surrogate: Phenol-d6	*17.6*			*"*	*40.0*		*44*	*10-110*			
Surrogate: Terphenyl-dl4	*35.1*			*"*	*40.0*		*88*	*33-141*			
1,2,4-Trichlorobenzene	21.1	0.94	10	"	40.0		53	39-118			
1,4-Dichlorobenzene	26.1	1.1	10	"	40.0		65	36-117			
2,4-Dinitrotoluene (2,4-DNT)	31.2	0.81	10	"	40.0		78	24-116			
2-Chlorophenol	30.1	0.88	10	"	40.0		75	23-134			
4-Chloro-3-methylphenol	33.7	0.94	10	"	40.0		84	23-117			
4-Nitrophenol	19.5	0.95	25	"	40.0		49	10-108			J
Acenaphthene	29.5	0.74	10	"	40.0		74	46-118			
N-Nitrosodi-n-propylamine	29.0	0.62	10	"	40.0		73	41-126			
Pentachlorophenol	39.4	1.8	25	"	40.0		99	10-113			
Phenol	16.2	1.2	10	"	40.0		40	5-112			
Pyrene	29.9	0.73	10	"	40.0		75	26-127			
LCS Dup (CZ04113-BSD1)					Prepared: 06/09/16 Analyzed: 06/10/16						
Surrogate: 2,4,6-Tribromophenol	*26.2*			*µg/L*	*40.0*		*66*	*10-123*			
Surrogate: 2-Fluorobiphenyl	*34.6*			*"*	*40.0*		*86*	*43-116*			
Surrogate: 2-Fluorophenol	*27.8*			*"*	*40.0*		*69*	*21-110*			
Surrogate: Nitrobenzene-d5	*32.5*			*"*	*40.0*		*81*	*35-114*			
Surrogate: Phenol-d6	*19.2*			*"*	*40.0*		*48*	*10-110*			
Surrogate: Terphenyl-dl4	*37.0*			*"*	*40.0*		*93*	*33-141*			
1,2,4-Trichlorobenzene	24.2	0.94	10	"	40.0		60	39-118	13	28	
1,4-Dichlorobenzene	28.2	1.1	10	"	40.0		71	36-117	8	28	
2,4-Dinitrotoluene (2,4-DNT)	33.9	0.81	10	"	40.0		85	24-116	8	38	
2-Chlorophenol	32.5	0.88	10	"	40.0		81	23-134	8	40	
4-Chloro-3-methylphenol	34.1	0.94	10	"	40.0		85	23-117	1	42	
4-Nitrophenol	22.2	0.95	25	"	40.0		55	10-108	13	45	J
Acenaphthene	32.1	0.74	10	"	40.0		80	46-118	9	31	
N-Nitrosodi-n-propylamine	30.5	0.62	10	"	40.0		76	41-126	5	38	
Pentachlorophenol	28.9	1.8	25	"	40.0		72	10-113	31	45	
Phenol	18.1	1.2	10	"	40.0		45	5-112	11	42	
Pyrene	33.1	0.73	10	"	40.0		83	26-127	10	31	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Semivolatile Organic Compounds by EPA Method 8270C - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch CZ04113 - EPA 3510B GCMS

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Volatile Organic Compounds by EPA Method 8260B - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ04084 - EPA 5030 Water MS											
Blank (CZ04084-BLK1)				Prepared & Analyzed: 06/08/16							
Surrogate: 1,2-Dichloroethane-d4	*11.4*			*µg/L*	*10.0*		*114*	*66-135*			
Surrogate: 4-Bromofluorobenzene	*11.4*			*"*	*10.0*		*114*	*73-125*			
Surrogate: Toluene-d8	*8.04*			*"*	*10.0*		*80*	*72-125*			
1,1,1,2-Tetrachloroethane	ND	0.17	0.50	"							
1,1,1-Trichloroethane	ND	0.095	0.50	"							
1,1,2,2-Tetrachloroethane	ND	0.19	0.50	"							
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.23	0.50	"							
1,1,2-Trichloroethane	ND	0.15	0.50	"							
1,1-Dichloroethane	ND	0.11	0.50	"							
1,1-Dichloroethene	ND	0.14	0.50	"							
1,1-Dichloropropene	ND	0.15	0.50	"							
1,2,3-Trichlorobenzene	ND	0.15	0.50	"							
1,2,3-Trichloropropane	ND	0.23	0.50	"							
1,2,4-Trichlorobenzene	ND	0.11	0.50	"							
1,2,4-Trimethylbenzene	ND	0.15	0.50	"							
1,2-Dibromo-3-chloropropane	ND	0.39	1.0	"							
1,2-Dibromoethane (EDB)	ND	0.15	0.50	"							
1,2-Dichlorobenzene	ND	0.097	0.50	"							
1,2-Dichloroethane	ND	0.16	0.50	"							
1,2-Dichloropropane	ND	0.14	0.50	"							
1,3,5-Trimethylbenzene	ND	0.12	0.50	"							
1,3-Dichlorobenzene	ND	0.12	0.50	"							
1,3-Dichloropropane	ND	0.16	0.50	"							
1,4-Dichloro-2-butene	ND	1.0	1.0	"							
1,4-Dichlorobenzene	ND	0.16	0.50	"							
2,2-Dichloropropane	ND	0.27	0.50	"							
2-Butanone	ND	1.1	10	"							
2-Hexanone	ND	0.90	10	"							
4-Methyl-2-pentanone	ND	1.6	10	"							
Acetone	ND	1.0	10	"							
Acrylonitrile	ND	5.0	5.0	"							
Benzene	ND	0.11	0.50	"							
Bromobenzene	ND	0.13	0.50	"							
Bromochloromethane	ND	0.13	0.50	"							
Bromodichloromethane	ND	0.12	0.50	"							

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Volatile Organic Compounds by EPA Method 8260B - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ04084 - EPA 5030 Water MS											
Blank (CZ04084-BLK1)					Prepared & Analyzed: 06/08/16						
Bromoform	ND	0.15	0.50	µg/L							
Bromomethane	ND	0.39	1.0	"							
Carbon disulfide	ND	0.13	0.50	"							
Carbon tetrachloride	ND	0.17	0.50	"							
Chlorobenzene	ND	0.082	0.50	"							
Chloroethane	ND	0.15	0.50	"							
Chloroform	ND	0.19	0.50	"							
Chloromethane	ND	0.056	1.0	"							
cis-1,2-Dichloroethene	ND	0.15	0.50	"							
cis-1,3-Dichloropropene	ND	0.14	0.50	"							
Dibromochloromethane	ND	0.14	0.50	"							
Dibromomethane	ND	0.25	0.50	"							
Dichlorodifluoromethane (Freon 12)	ND	0.14	1.0	"							
Ethylbenzene	ND	0.10	0.50	"							
Hexachlorobutadiene	ND	0.23	0.50	"							
Iodomethane	ND	1.0	1.0	"							
Isopropylbenzene	ND	0.11	0.50	"							
Methyl tert-butyl ether	ND	0.095	0.50	"							
Methylene chloride	ND	0.24	0.50	"							
Naphthalene	ND	0.21	0.50	"							
n-Butylbenzene	ND	0.10	0.50	"							
n-Propylbenzene	ND	0.13	0.50	"							
o-Chlorotoluene	ND	0.092	0.50	"							
p-Chlorotoluene	ND	0.11	0.50	"							
p-Isopropyltoluene	ND	0.14	0.50	"							
sec-Butylbenzene	ND	0.088	0.50	"							
Styrene	ND	0.10	0.50	"							
tert-Butylbenzene	ND	0.082	0.50	"							
Tetrachloroethene	ND	0.13	0.50	"							
Toluene	ND	0.11	0.50	"							
trans-1,2-Dichloroethene	ND	0.15	0.50	"							
trans-1,3-Dichloropropene	ND	0.18	0.50	"							
Trichloroethene	ND	0.063	0.50	"							
Trichlorofluoromethane	ND	0.14	0.50	"							
Vinyl acetate	ND	0.20	1.0	"							
Vinyl chloride	ND	0.14	1.0	"							

CALIFORNIA LABORATORY SERVICES

06/29/16 15:59

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Volatile Organic Compounds by EPA Method 8260B - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ04084 - EPA 5030 Water MS											
Blank (CZ04084-BLK1)					Prepared & Analyzed: 06/08/16						
Xylenes (total)	ND	0.33	1.0	µg/L							
LCS (CZ04084-BS1)					Prepared & Analyzed: 06/08/16						
Surrogate: 1,2-Dichloroethane-d4	*9.08*			*µg/L*	*10.0*		*91*	*66-135*			
Surrogate: 4-Bromofluorobenzene	*9.64*			*"*	*10.0*		*96*	*73-125*			
Surrogate: Toluene-d8	*10.5*			*"*	*10.0*		*105*	*72-125*			
1,1-Dichloroethene	18.2	0.14	0.50	"	20.0		91	42-150			
Benzene	20.7	0.11	0.50	"	20.0		103	60-135			
Chlorobenzene	20.7	0.082	0.50	"	20.0		104	60-133			
Toluene	20.9	0.11	0.50	"	20.0		105	60-137			
Trichloroethene	19.6	0.063	0.50	"	20.0		98	62-140			
LCS Dup (CZ04084-BSD1)					Prepared & Analyzed: 06/08/16						
Surrogate: 1,2-Dichloroethane-d4	*8.42*			*µg/L*	*10.0*		*84*	*66-135*			
Surrogate: 4-Bromofluorobenzene	*12.4*			*"*	*10.0*		*124*	*73-125*			
Surrogate: Toluene-d8	*10.2*			*"*	*10.0*		*102*	*72-125*			
1,1-Dichloroethene	16.3	0.14	0.50	"	20.0		82	42-150	11	25	
Benzene	19.7	0.11	0.50	"	20.0		99	60-135	5	25	
Chlorobenzene	19.9	0.082	0.50	"	20.0		99	60-133	4	25	
Toluene	19.6	0.11	0.50	"	20.0		98	60-137	7	25	
Trichloroethene	19.3	0.063	0.50	"	20.0		96	62-140	1	25	

CALIFORNIA LABORATORY SERVICES

06/29/16 15:59

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0316**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Notes and Definitions

QS-4	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
QM-7	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.
QM-1	The spike recovery was outside acceptance limits for the LCS or LCSD. The batch was accepted based on acceptable MS/MSD recoveries & RPD's.
J	Detected but below the Reporting Limit; therefore, result is an estimated concentration.
Hg	It was analyzed by ICP/MS (EPA method 200.8) due to that the mercury analyzer is down.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit (or method detection limit when specified)
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

This is a "MDL Report", thus if the report denotes an "ND" for a particular analyte, it should be noted that the analyte was not detected at or above the MDL.

CALIFORNIA LABORATORY SERVICES

06/29/16 15:59

El Dorado County Environmental 2850 Fairlane Court, Building C Placerville CA, 95667	Project: Union Mine Disposal Facility Project Number: [none] Project Manager: Greg Stanton	**CLS Work Order #: CZF0316** COC #:

CZF0316

CLS Laboratories
3249 Fitzgerald Road, Rancho Cordova, CA
Phone: (916) 638-7301

CHAIN OF CUSTODY/ANALYSIS REQUEST FORM

Lab Login# Date 6/8/16 Page 1 of 1

Union Mine Disposal Facility

Report to: Robert Lauritzen
El Dorado County Environmental Management
2850 Fairlane Court, Bldg C
Placerville, CA 95667
Office: (530)-621-5130
Fax: (530) 626-7130

Analysis Requested

Sample ID	Date	Time	Lab ID	Sample Matrix	# of Containers	Dis-As Fe,Ca Mg K Na (HNO3)	VOC & TOC (HCL)	Bicarb/Carb Alkalinity (NP)	Nitrate-N SO4/Cl/TDS (NP)	Dissolved Inorganics (HNO3)	Sulfide (Zn-Acetate)	SVOC 8270C (NP)	Chlorinated Herbicides (NP)	Organophosphorus Pesticides (NP)	Cyanide (NaOH)	Comments
UM-3	6/7/16	1500		water	12	x	x	x	x	x	x	x	x	x	x	
MW-5		0940		water	12	x	x	x	x	x	x	x	x	x	x	
MW-6		1030		water	12	x	x	x	x	x	x	x	x	x	x	
MW-7		1300		water	12	x	x	x	x	x	x	x	x	x	x	
MW-9		1200		water	12	x	x	x	x	x	x	x	x	x	x	
MW-10		0840		water	12	x	x	x	x	x	x	x	x	x	x	
MW-11		1120		water	12	x	x	x	x	x	x	x	x	x	x	
MW-A	6/8/16	~~0800~~ 0930		water	12	x	x	x	x	x	x	x	x	x	x	
MW-C	6/8/16	0805		water	12	x	x	x	x	x	x	x	x	x	x	
DUP2	6/7/16	1305		water	12	x	x	x	x	x	x	x	x	x	x	

Relinquished by Signature: [signature]	Recieved by Signature: [signature]
Printed Name: Robert Lauritzen	Printed Name: GABRIELLE COMMAU
El Dorado County Date/Time: 6/8/16 1153	Date/Time: 6-8-16 1153 (0.8°)

TAT Requirements
X Standard (5 days)
X txt file needed

Report Requirements
___ I Routine Report
___ II Report includes DUP,MS MSD, as required
___ III Data Validation Report
X RWQCB (MDLs/PQLs/Trace#)

Additional Info
Metals Field Filtered: yes ✓
Dissolved Metals-As, Fe, Ca, Mg, K, Na
Nitrate as Nitrogen
dissolved inorganics-Al, Sb, Ba, Be, Cd, Cr, Co, Cu, Pb, Mn, Hg, Ni, Se, Ag, Tl, Sn, Va, Zn

Invoice Greg Stanton, EDCEM
Address: 2850 Fairlane Ct. Bldg C, Placerville, CA, 95667
Contract # 037-C-0607-BOS

MW-A Time = 0930

CALIFORNIA LABORATORY SERVICES

3249 Fitzgerald Road Rancho Cordova, CA 95742

29 June 2016

CLS Work Order #: CZF0901

COC #:

Greg Stanton

El Dorado County Environmental

2850 Fairlane Court, Building C

Placerville, CA 95667

Project Name: Union Mine Disposal Facility

Enclosed are the results of analyses for samples received by the laboratory on 06/22/16 10:03. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness. Any comments and exceptions are addressed below as well as under the Notes and Definitions section.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

James Liang, Ph.D.
Laboratory Director

CA DOHS ELAP Accreditation/Registration number 1233

California Laboratory Services

06/29/16 14:15

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0901**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-5 (CZF0901-01) Water Sampled: 06/22/16 08:40 Received: 06/22/16 10:03										
Surrogate: 2,4,6-Tribromophenol	*96 %*		*10-123*	µg/L		*CZ04526*	06/24/16	*06/27/16*	*EPA 8270C*	
Surrogate: 2-Fluorobiphenyl	*75 %*		*43-116*	"		"	"	"	"	
Surrogate: 2-Fluorophenol	*72 %*		*21-110*	"		"	"	"	"	
Surrogate: Nitrobenzene-d5	*78 %*		*35-114*	"		"	"	"	"	
Surrogate: Phenol-d6	*43 %*		*10-110*	"		"	"	"	"	
Surrogate: Terphenyl-dl4	*85 %*		*33-141*	"		"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.94	10	"	1	"	"	"	"	
1,2-Dichlorobenzene	ND	1.1	10	"	1	"	"	"	"	
1,3-Dichlorobenzene	ND	1.2	10	"	1	"	"	"	"	
1,4-Dichlorobenzene	ND	1.1	10	"	1	"	"	"	"	
2,4,5-Trichlorophenol	ND	0.87	10	"	1	"	"	"	"	
2,4,6-Trichlorophenol	ND	0.96	10	"	1	"	"	"	"	
2,4-Dichlorophenol	ND	0.87	10	"	1	"	"	"	"	QC-2H
2,4-Dimethylphenol	ND	4.0	10	"	1	"	"	"	"	
2,4-Dinitrophenol	ND	0.62	25	"	1	"	"	"	"	
2,4-Dinitrotoluene (2,4-DNT)	ND	0.81	10	"	1	"	"	"	"	
2,6-Dinitrotoluene (2,6-DNT)	ND	0.71	10	"	1	"	"	"	"	
2-Chloronaphthalene	ND	0.70	10	"	1	"	"	"	"	
2-Chlorophenol	ND	0.88	10	"	1	"	"	"	"	QC-2H
2-Methylnaphthalene	ND	0.72	10	"	1	"	"	"	"	
2-Methylphenol	ND	1.6	10	"	1	"	"	"	"	
2-Nitroaniline	ND	0.61	25	"	1	"	"	"	"	
2-Nitrophenol	ND	0.94	10	"	1	"	"	"	"	
3 & 4-Methylphenol	ND	2.6	10	"	1	"	"	"	"	QC-2H
3,3'-Dichlorobenzidine	ND	4.1	20	"	1	"	"	"	"	
3-Nitroaniline	ND	0.96	25	"	1	"	"	"	"	
4,6-Dinitro-2-methylphenol	ND	1.2	25	"	1	"	"	"	"	
4-Bromophenyl phenyl ether	ND	0.80	10	"	1	"	"	"	"	
4-Chloro-3-methylphenol	ND	0.94	10	"	1	"	"	"	"	
4-Chloroaniline	ND	1.8	10	"	1	"	"	"	"	QC-2H
4-Chlorophenyl phenyl ether	ND	0.78	10	"	1	"	"	"	"	
4-Nitroaniline	ND	0.87	25	"	1	"	"	"	"	
4-Nitrophenol	ND	0.95	25	"	1	"	"	"	"	
Acenaphthene	ND	0.74	10	"	1	"	"	"	"	
Acenaphthylene	ND	0.63	10	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

06/29/16 14:15

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0901**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-5 (CZF0901-01) Water Sampled: 06/22/16 08:40 Received: 06/22/16 10:03										
Anthracene	ND	0.65	10	µg/L	1	CZ04526	"	06/27/16	EPA 8270C	
Benzo (a) anthracene	ND	1.7	10	"	1	"	"	"	"	
Benzo (a) pyrene	ND	2.1	10	"	1	"	"	"	"	
Benzo (b) fluoranthene	ND	3.3	10	"	1	"	"	"	"	
Benzo (g,h,i) perylene	ND	2.7	10	"	1	"	"	"	"	
Benzo (k) fluoranthene	ND	1.5	10	"	1	"	"	"	"	
Benzoic acid	ND	4.2	25	"	1	"	"	"	"	QC-2H
Benzyl alcohol	ND	1.6	10	"	1	"	"	"	"	QC-2H
Bis(2-chloroethoxy)methane	ND	0.67	10	"	1	"	"	"	"	
Bis(2-chloroethyl)ether	ND	0.66	10	"	1	"	"	"	"	QC-2H
Bis(2-chloroisopropyl)ether	ND	0.54	10	"	1	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	1.1	10	"	1	"	"	"	"	
Butyl benzyl phthalate	ND	4.4	10	"	1	"	"	"	"	
Chrysene	ND	0.78	10	"	1	"	"	"	"	
Dibenz (a,h) anthracene	ND	2.4	10	"	1	"	"	"	"	
Dibenzofuran	ND	0.67	10	"	1	"	"	"	"	
Diethyl phthalate	ND	4.7	10	"	1	"	"	"	"	
Dimethyl phthalate	ND	4.2	10	"	1	"	"	"	"	
Di-n-butyl phthalate	ND	3.8	10	"	1	"	"	"	"	
Di-n-octyl phthalate	ND	3.4	10	"	1	"	"	"	"	
Fluoranthene	ND	0.66	10	"	1	"	"	"	"	
Fluorene	ND	0.67	10	"	1	"	"	"	"	
Hexachlorobenzene	ND	0.86	10	"	1	"	"	"	"	
Hexachlorobutadiene	ND	1.9	10	"	1	"	"	"	"	
Hexachlorocyclopentadiene	ND	0.55	10	"	1	"	"	"	"	
Hexachloroethane	ND	1.2	10	"	1	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	1.7	10	"	1	"	"	"	"	
Isophorone	ND	0.62	10	"	1	"	"	"	"	
Naphthalene	ND	0.70	10	"	1	"	"	"	"	
Nitrobenzene (NB)	ND	0.64	10	"	1	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	0.62	10	"	1	"	"	"	"	
N-Nitrosodiphenylamine	ND	0.93	10	"	1	"	"	"	"	
Pentachlorophenol	ND	1.8	25	"	1	"	"	"	"	QC-2H
Phenanthrene	ND	0.59	10	"	1	"	"	"	"	
Phenol	ND	1.2	10	"	1	"	"	"	"	QC-2H
Pyrene	ND	0.73	10	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

06/29/16 14:15

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0901**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-6 (CZF0901-02) Water Sampled: 06/22/16 09:00 Received: 06/22/16 10:03										
Surrogate: 2,4,6-Tribromophenol	*92 %*		*10-123*	µg/L		*CZ04526*	06/24/16	*06/28/16*	*EPA 8270C*	
Surrogate: 2-Fluorobiphenyl	*73 %*		*43-116*	"		"	"	"	"	
Surrogate: 2-Fluorophenol	*72 %*		*21-110*	"		"	"	"	"	
Surrogate: Nitrobenzene-d5	*79 %*		*35-114*	"		"	"	"	"	
Surrogate: Phenol-d6	*44 %*		*10-110*	"		"	"	"	"	
Surrogate: Terphenyl-dl4	*80 %*		*33-141*	"		"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.94	10	"	1	"	"	"	"	
1,2-Dichlorobenzene	ND	1.1	10	"	1	"	"	"	"	
1,3-Dichlorobenzene	ND	1.2	10	"	1	"	"	"	"	
1,4-Dichlorobenzene	ND	1.1	10	"	1	"	"	"	"	
2,4,5-Trichlorophenol	ND	0.87	10	"	1	"	"	"	"	
2,4,6-Trichlorophenol	ND	0.96	10	"	1	"	"	"	"	
2,4-Dichlorophenol	ND	0.87	10	"	1	"	"	"	"	QC-2H
2,4-Dimethylphenol	ND	4.0	10	"	1	"	"	"	"	
2,4-Dinitrophenol	ND	0.62	25	"	1	"	"	"	"	
2,4-Dinitrotoluene (2,4-DNT)	ND	0.81	10	"	1	"	"	"	"	
2,6-Dinitrotoluene (2,6-DNT)	ND	0.71	10	"	1	"	"	"	"	
2-Chloronaphthalene	ND	0.70	10	"	1	"	"	"	"	
2-Chlorophenol	ND	0.88	10	"	1	"	"	"	"	QC-2H
2-Methylnaphthalene	ND	0.72	10	"	1	"	"	"	"	
2-Methylphenol	ND	1.6	10	"	1	"	"	"	"	
2-Nitroaniline	ND	0.61	25	"	1	"	"	"	"	
2-Nitrophenol	ND	0.94	10	"	1	"	"	"	"	
3 & 4-Methylphenol	ND	2.6	10	"	1	"	"	"	"	QC-2H
3,3'-Dichlorobenzidine	ND	4.1	20	"	1	"	"	"	"	
3-Nitroaniline	ND	0.96	25	"	1	"	"	"	"	
4,6-Dinitro-2-methylphenol	ND	1.2	25	"	1	"	"	"	"	
4-Bromophenyl phenyl ether	ND	0.80	10	"	1	"	"	"	"	
4-Chloro-3-methylphenol	ND	0.94	10	"	1	"	"	"	"	
4-Chloroaniline	ND	1.8	10	"	1	"	"	"	"	QC-2H
4-Chlorophenyl phenyl ether	ND	0.78	10	"	1	"	"	"	"	
4-Nitroaniline	ND	0.87	25	"	1	"	"	"	"	
4-Nitrophenol	ND	0.95	25	"	1	"	"	"	"	
Acenaphthene	ND	0.74	10	"	1	"	"	"	"	
Acenaphthylene	ND	0.63	10	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

06/29/16 14:15

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0901**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-6 (CZF0901-02) Water Sampled: 06/22/16 09:00 Received: 06/22/16 10:03										
Anthracene	ND	0.65	10	µg/L	1	CZ04526	"	06/28/16	EPA 8270C	
Benzo (a) anthracene	ND	1.7	10	"	1	"	"	"	"	
Benzo (a) pyrene	ND	2.1	10	"	1	"	"	"	"	
Benzo (b) fluoranthene	ND	3.3	10	"	1	"	"	"	"	
Benzo (g,h,i) perylene	ND	2.7	10	"	1	"	"	"	"	
Benzo (k) fluoranthene	ND	1.5	10	"	1	"	"	"	"	
Benzoic acid	ND	4.2	25	"	1	"	"	"	"	QC-2H
Benzyl alcohol	ND	1.6	10	"	1	"	"	"	"	QC-2H
Bis(2-chloroethoxy)methane	ND	0.67	10	"	1	"	"	"	"	
Bis(2-chloroethyl)ether	ND	0.66	10	"	1	"	"	"	"	QC-2H
Bis(2-chloroisopropyl)ether	ND	0.54	10	"	1	"	"	"	"	
Bis(2-ethylhexyl)phthalate	**1.2**	1.1	10	"	1	"	"	"	"	J
Butyl benzyl phthalate	ND	4.4	10	"	1	"	"	"	"	
Chrysene	ND	0.78	10	"	1	"	"	"	"	
Dibenz (a,h) anthracene	ND	2.4	10	"	1	"	"	"	"	
Dibenzofuran	ND	0.67	10	"	1	"	"	"	"	
Diethyl phthalate	ND	4.7	10	"	1	"	"	"	"	
Dimethyl phthalate	ND	4.2	10	"	1	"	"	"	"	
Di-n-butyl phthalate	ND	3.8	10	"	1	"	"	"	"	
Di-n-octyl phthalate	ND	3.4	10	"	1	"	"	"	"	
Fluoranthene	ND	0.66	10	"	1	"	"	"	"	
Fluorene	ND	0.67	10	"	1	"	"	"	"	
Hexachlorobenzene	ND	0.86	10	"	1	"	"	"	"	
Hexachlorobutadiene	ND	1.9	10	"	1	"	"	"	"	
Hexachlorocyclopentadiene	ND	0.55	10	"	1	"	"	"	"	
Hexachloroethane	ND	1.2	10	"	1	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	1.7	10	"	1	"	"	"	"	
Isophorone	ND	0.62	10	"	1	"	"	"	"	
Naphthalene	ND	0.70	10	"	1	"	"	"	"	
Nitrobenzene (NB)	ND	0.64	10	"	1	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	0.62	10	"	1	"	"	"	"	
N-Nitrosodiphenylamine	ND	0.93	10	"	1	"	"	"	"	
Pentachlorophenol	ND	1.8	25	"	1	"	"	"	"	QC-2H
Phenanthrene	ND	0.59	10	"	1	"	"	"	"	
Phenol	ND	1.2	10	"	1	"	"	"	"	QC-2H
Pyrene	ND	0.73	10	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

06/29/16 14:15

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0901**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Semivolatile Organic Compounds by EPA Method 8270C - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ04526 - EPA 3510B GCMS											
Blank (CZ04526-BLK1)				Prepared: 06/24/16 Analyzed: 06/27/16							
Surrogate: 2,4,6-Tribromophenol	*40.9*			*µg/L*	*40.0*		*102*	*10-123*			
Surrogate: 2-Fluorobiphenyl	*32.3*			*"*	*40.0*		*81*	*43-116*			
Surrogate: 2-Fluorophenol	*34.6*			*"*	*40.0*		*86*	*21-110*			
Surrogate: Nitrobenzene-d5	*33.4*			*"*	*40.0*		*83*	*35-114*			
Surrogate: Phenol-d6	*22.7*			*"*	*40.0*		*57*	*10-110*			
Surrogate: Terphenyl-dl4	*38.2*			*"*	*40.0*		*95*	*33-141*			
1,2,4-Trichlorobenzene	ND	0.94	10	"							
1,2-Dichlorobenzene	ND	1.1	10	"							
1,3-Dichlorobenzene	ND	1.2	10	"							
1,4-Dichlorobenzene	ND	1.1	10	"							
2,4,5-Trichlorophenol	ND	0.87	10	"							
2,4,6-Trichlorophenol	ND	0.96	10	"							
2,4-Dichlorophenol	ND	0.87	10	"							
2,4-Dimethylphenol	ND	4.0	10	"							
2,4-Dinitrophenol	ND	0.62	25	"							
2,4-Dinitrotoluene (2,4-DNT)	ND	0.81	10	"							
2,6-Dinitrotoluene (2,6-DNT)	ND	0.71	10	"							
2-Chloronaphthalene	ND	0.70	10	"							
2-Chlorophenol	ND	0.88	10	"							
2-Methylnaphthalene	ND	0.72	10	"							
2-Methylphenol	ND	1.6	10	"							
2-Nitroaniline	ND	0.61	25	"							
2-Nitrophenol	ND	0.94	10	"							
3 & 4-Methylphenol	ND	2.6	10	"							
3,3'-Dichlorobenzidine	ND	4.1	20	"							
3-Nitroaniline	ND	0.96	25	"							
4,6-Dinitro-2-methylphenol	ND	1.2	25	"							
4-Bromophenyl phenyl ether	ND	0.80	10	"							
4-Chloro-3-methylphenol	ND	0.94	10	"							
4-Chloroaniline	ND	1.8	10	"							
4-Chlorophenyl phenyl ether	ND	0.78	10	"							
4-Nitroaniline	ND	0.87	25	"							
4-Nitrophenol	ND	0.95	25	"							
Acenaphthene	ND	0.74	10	"							
Acenaphthylene	ND	0.63	10	"							

CALIFORNIA LABORATORY SERVICES

06/29/16 14:15

El Dorado County Environmental	Project: Union Mine Disposal Facility	CLS Work Order #: CZF0901
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Semivolatile Organic Compounds by EPA Method 8270C - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ04526 - EPA 3510B GCMS											
Blank (CZ04526-BLK1)					Prepared: 06/24/16 Analyzed: 06/27/16						
Anthracene	ND	0.65	10	µg/L							
Benzo (a) anthracene	ND	1.7	10	"							
Benzo (a) pyrene	ND	2.1	10	"							
Benzo (b) fluoranthene	ND	3.3	10	"							
Benzo (g,h,i) perylene	ND	2.7	10	"							
Benzo (k) fluoranthene	ND	1.5	10	"							
Benzoic acid	ND	4.2	25	"							
Benzyl alcohol	ND	1.6	10	"							
Bis(2-chloroethoxy)methane	ND	0.67	10	"							
Bis(2-chloroethyl)ether	ND	0.66	10	"							
Bis(2-chloroisopropyl)ether	ND	0.54	10	"							
Bis(2-ethylhexyl)phthalate	ND	1.1	10	"							
Butyl benzyl phthalate	ND	4.4	10	"							
Chrysene	ND	0.78	10	"							
Dibenz (a,h) anthracene	ND	2.4	10	"							
Dibenzofuran	ND	0.67	10	"							
Diethyl phthalate	ND	4.7	10	"							
Dimethyl phthalate	ND	4.2	10	"							
Di-n-butyl phthalate	ND	3.8	10	"							
Di-n-octyl phthalate	ND	3.4	10	"							
Fluoranthene	ND	0.66	10	"							
Fluorene	ND	0.67	10	"							
Hexachlorobenzene	ND	0.86	10	"							
Hexachlorobutadiene	ND	1.9	10	"							
Hexachlorocyclopentadiene	ND	0.55	10	"							
Hexachloroethane	ND	1.2	10	"							
Indeno (1,2,3-cd) pyrene	ND	1.7	10	"							
Isophorone	ND	0.62	10	"							
Naphthalene	ND	0.70	10	"							
Nitrobenzene (NB)	ND	0.64	10	"							
N-Nitrosodi-n-propylamine	ND	0.62	10	"							
N-Nitrosodiphenylamine	ND	0.93	10	"							
Pentachlorophenol	ND	1.8	25	"							
Phenanthrene	ND	0.59	10	"							
Phenol	ND	1.2	10	"							
Pyrene	ND	0.73	10	"							

CALIFORNIA LABORATORY SERVICES

06/29/16 14:15

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0901**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Semivolatile Organic Compounds by EPA Method 8270C - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ04526 - EPA 3510B GCMS											
LCS (CZ04526-BS1)					Prepared: 06/24/16 Analyzed: 06/27/16						
Surrogate: 2,4,6-Tribromophenol	*40.3*			*µg/L*	*40.0*		*101*	*10-123*			
Surrogate: 2-Fluorobiphenyl	*30.8*			*"*	*40.0*		*77*	*43-116*			
Surrogate: 2-Fluorophenol	*35.8*			*"*	*40.0*		*89*	*21-110*			
Surrogate: Nitrobenzene-d5	*33.2*			*"*	*40.0*		*83*	*35-114*			
Surrogate: Phenol-d6	*24.4*			*"*	*40.0*		*61*	*10-110*			
Surrogate: Terphenyl-dl4	*35.7*			*"*	*40.0*		*89*	*33-141*			
1,2,4-Trichlorobenzene	25.9	0.94	10	"	40.0		65	39-118			
1,4-Dichlorobenzene	26.3	1.1	10	"	40.0		66	36-117			
2,4-Dinitrotoluene (2,4-DNT)	33.3	0.81	10	"	40.0		83	24-116			
2-Chlorophenol	36.7	0.88	10	"	40.0		92	23-134			
4-Chloro-3-methylphenol	32.0	0.94	10	"	40.0		80	23-117			
4-Nitrophenol	17.7	0.95	25	"	40.0		44	10-108			J
Acenaphthene	33.2	0.74	10	"	40.0		83	46-118			
N-Nitrosodi-n-propylamine	30.5	0.62	10	"	40.0		76	41-126			
Pentachlorophenol	40.4	1.8	25	"	40.0		101	10-113			
Phenol	24.4	1.2	10	"	40.0		61	5-112			
Pyrene	31.9	0.73	10	"	40.0		80	26-127			
LCS Dup (CZ04526-BSD1)					Prepared: 06/24/16 Analyzed: 06/27/16						
Surrogate: 2,4,6-Tribromophenol	*30.0*			*µg/L*	*40.0*		*75*	*10-123*			
Surrogate: 2-Fluorobiphenyl	*31.7*			*"*	*40.0*		*79*	*43-116*			
Surrogate: 2-Fluorophenol	*35.8*			*"*	*40.0*		*89*	*21-110*			
Surrogate: Nitrobenzene-d5	*35.0*			*"*	*40.0*		*88*	*35-114*			
Surrogate: Phenol-d6	*23.6*			*"*	*40.0*		*59*	*10-110*			
Surrogate: Terphenyl-dl4	*38.9*			*"*	*40.0*		*97*	*33-141*			
1,2,4-Trichlorobenzene	26.8	0.94	10	"	40.0		67	39-118	3	28	
1,4-Dichlorobenzene	27.1	1.1	10	"	40.0		68	36-117	3	28	
2,4-Dinitrotoluene (2,4-DNT)	35.0	0.81	10	"	40.0		88	24-116	5	38	
2-Chlorophenol	39.3	0.88	10	"	40.0		98	23-134	7	40	
4-Chloro-3-methylphenol	34.2	0.94	10	"	40.0		86	23-117	7	42	
4-Nitrophenol	17.4	0.95	25	"	40.0		44	10-108	2	45	J
Acenaphthene	35.5	0.74	10	"	40.0		89	46-118	7	31	
N-Nitrosodi-n-propylamine	32.7	0.62	10	"	40.0		82	41-126	7	38	
Pentachlorophenol	34.1	1.8	25	"	40.0		85	10-113	17	45	
Phenol	24.3	1.2	10	"	40.0		61	5-112	0.5	42	
Pyrene	36.0	0.73	10	"	40.0		90	26-127	12	31	

CALIFORNIA LABORATORY SERVICES

06/29/16 14:15

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0901**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Semivolatile Organic Compounds by EPA Method 8270C - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch CZ04526 - EPA 3510B GCMS

CALIFORNIA LABORATORY SERVICES

06/29/16 14:15

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF0901**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Notes and Definitions

QC-2H	The recovery of one CCV was greater than the acceptance limit. However, all analytes in the associated samples were ND; therefore a reanalysis was not performed.
J	Detected but below the Reporting Limit; therefore, result is an estimated concentration.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit (or method detection limit when specified)
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

This is a "MDL Report", thus if the report denotes an "ND" for a particular analyte, it should be noted that the analyte was not detected at or above the MDL.

CZF0901

CLS Laboratories

3249 Fitzgerald Road, Rancho Cordova, CA
Phone (916) 638-7301

CHAIN OF CUSTODY/ANALYSIS REQUEST FORM

Lab Login# Date 6/22/16 Page 1 of 1

Union Mine Disposal Facility

Report to: Robert Lauritzen
El Dorado County Environmental Management
2850 Fairlane Court, Bldg C
Placerville CA 95667
Office (530) 621-5130
Fax (530) 626-7130

Analysis Requested

Sample ID	Date	Time	Lab ID	Sample Matrix	# of Containers		...	pH (SM4500)	...	Comments
MW-5	6/22/16	0840		water	1			x		
MW-6	6/22/16	0900		water	1			x		

Relinquished by Signature *Robert Lauritzen* Printed Name Robert Lauritzen El Dorado County Date/Time 6/22/16	Received by Signature [illegible] Printed Name [illegible] Date/Time [illegible]	**TAT Requirements** X Standard (5 days) X txt file needed
		Report Requirements __ I Routine Report __ II Report includes DUP MS MSD, as required __ III Data Validation Report X RWQCB (MDLs/PQLs/Trace#)

Additional Info:

~~Metals/Cyanide/Sulfate Field Filtered - yes~~
~~Dissolved Metals As, Fe, Ca, Mg, K, Na~~ RL
~~Nitrate as Nitrogen~~
~~dissolved inorganics Al, Sb, Ba, Be, Cd, Cr, Co, Cu, Pb, Mn, Hg, Ni, Se, Ag, Tl, Sn, V, Zn~~

Invoice Greg Stanton, EDCEM
Address 2850 Fairlane Ct. Bldg C, Placerville, CA 95667
Contract # 037-C1499 BOS

Appendix C

Time-Series Graphs
Of
Water Quality
Data

2016

Union Mine

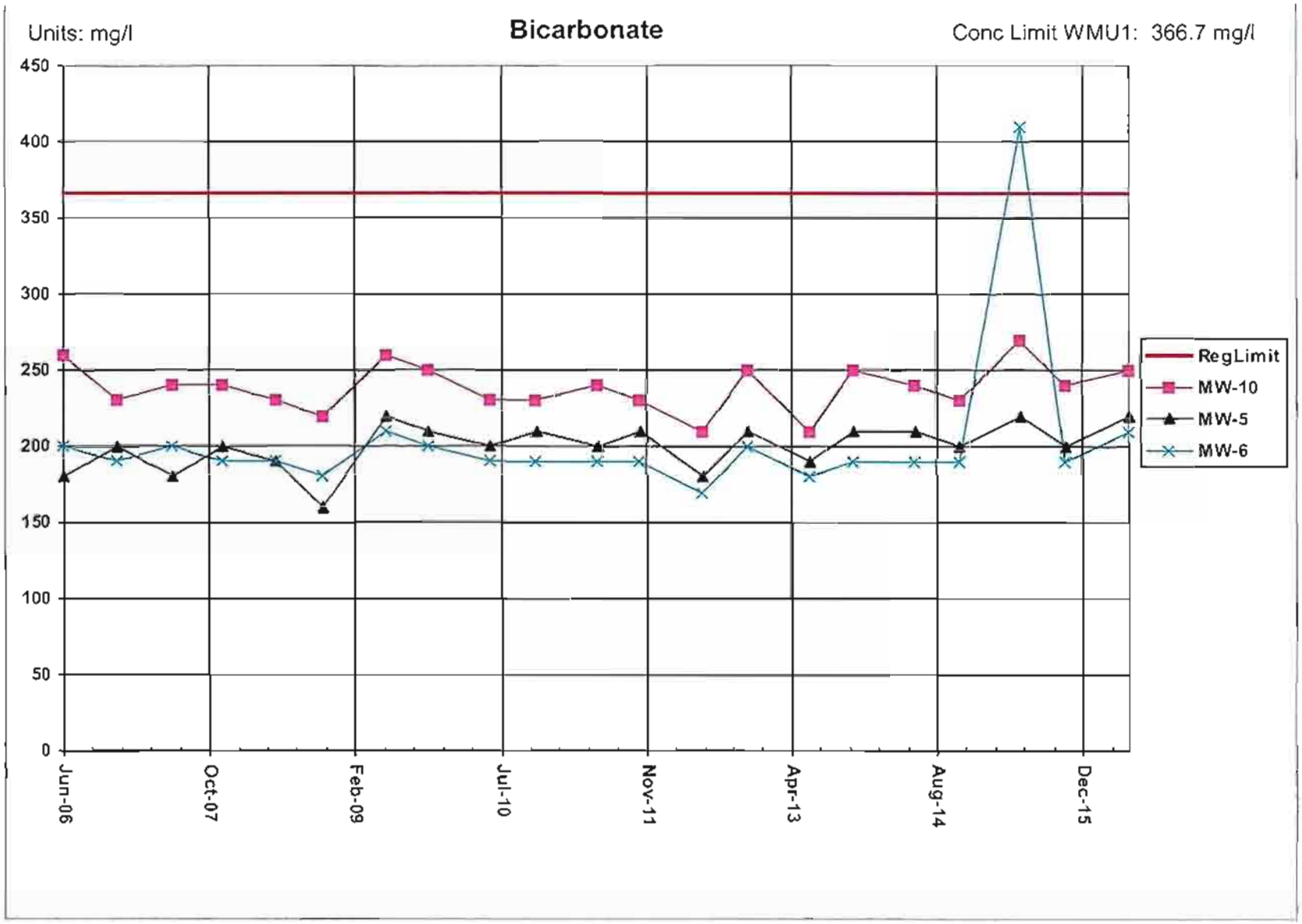
WMU-1

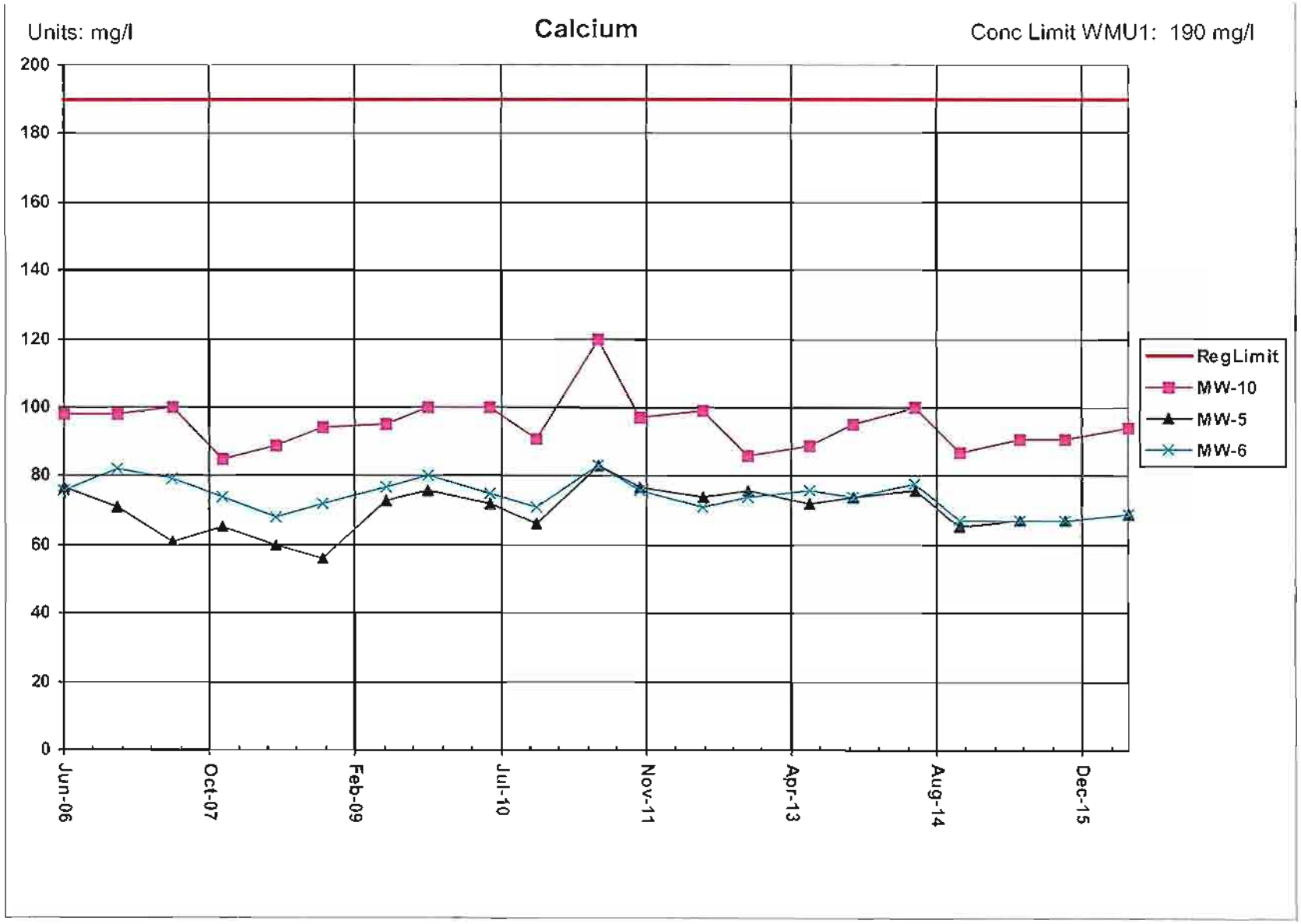
Landfill Wells

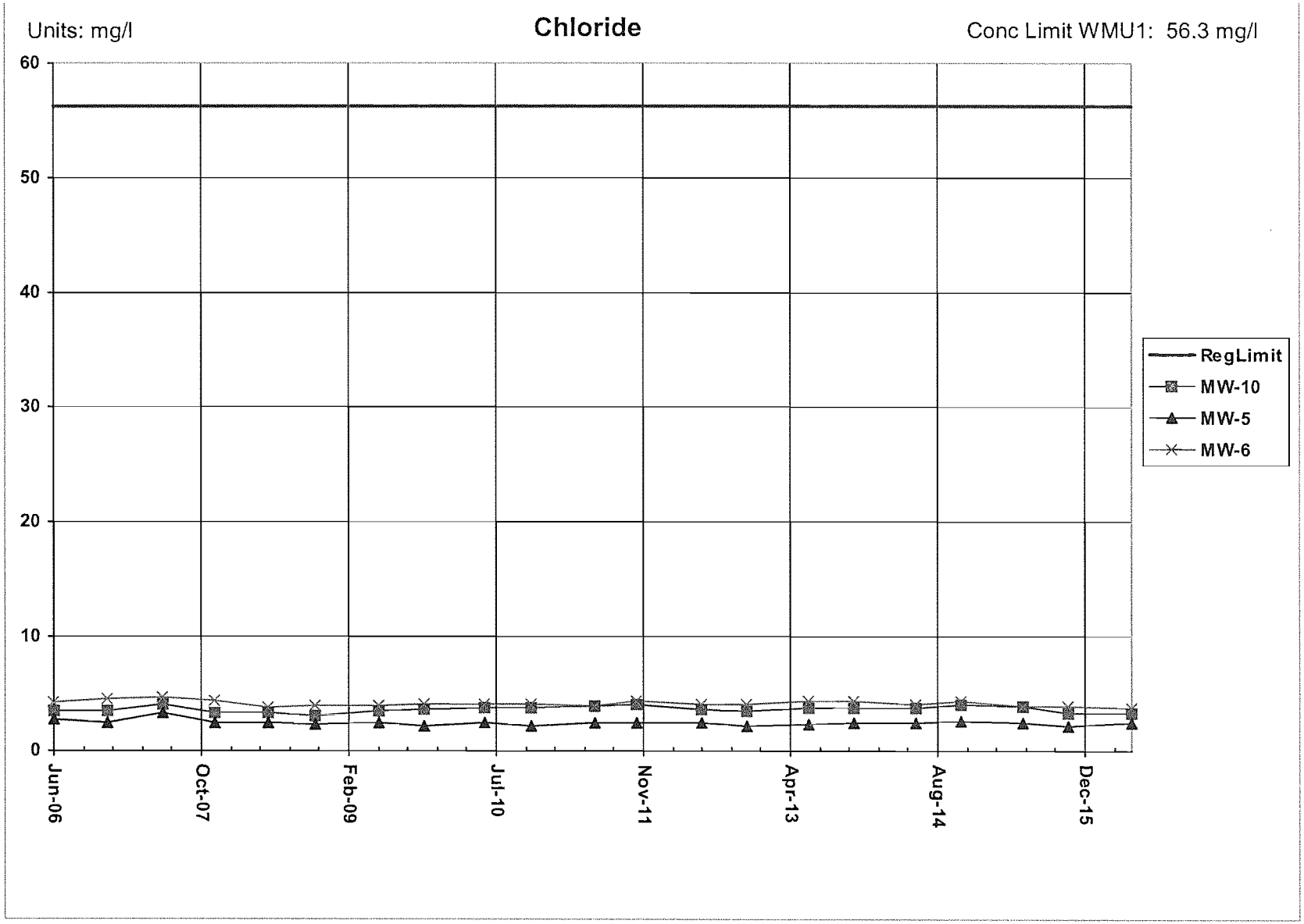
Time vs. Concentration Graphs

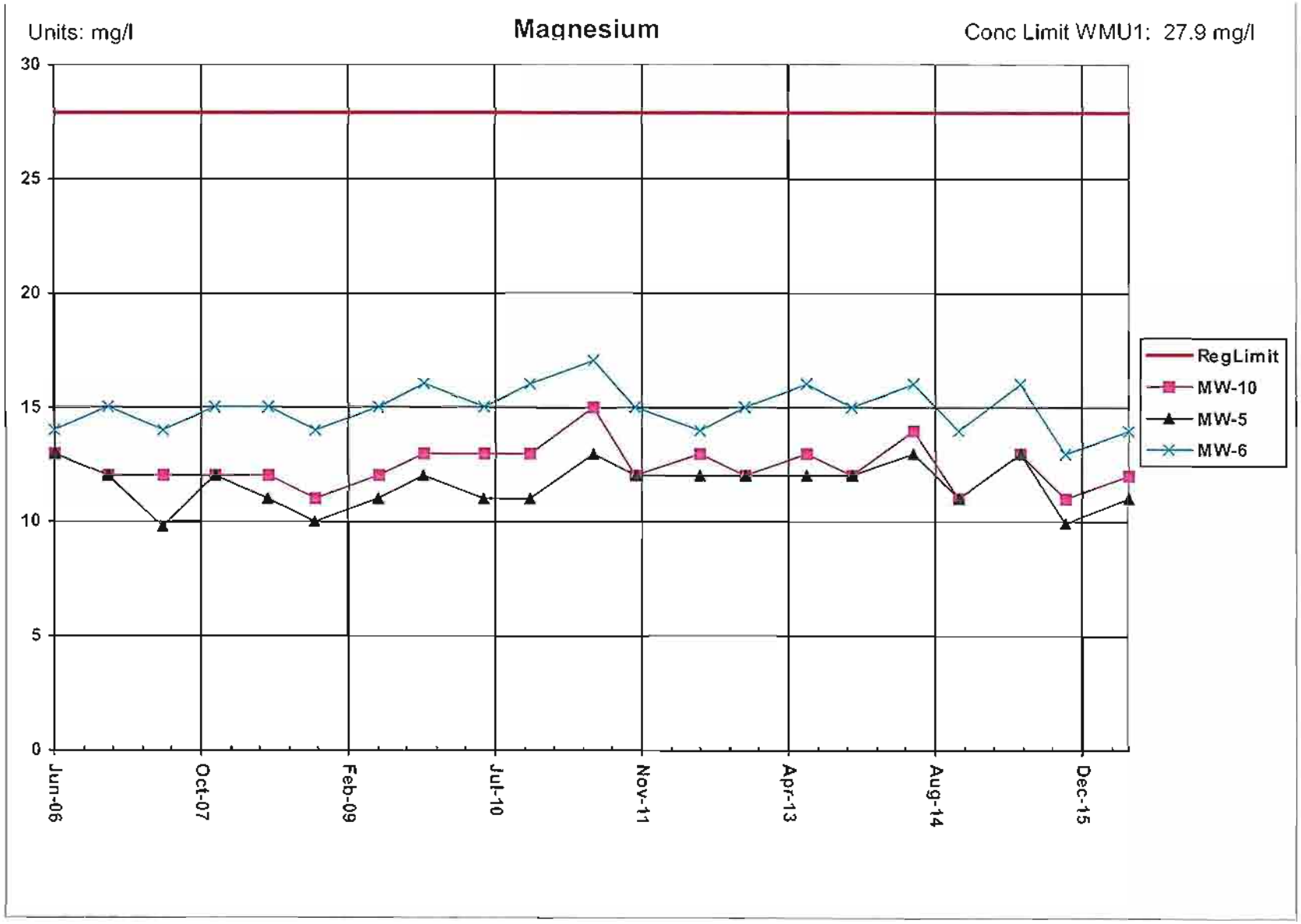
Union Mine

Background Wells

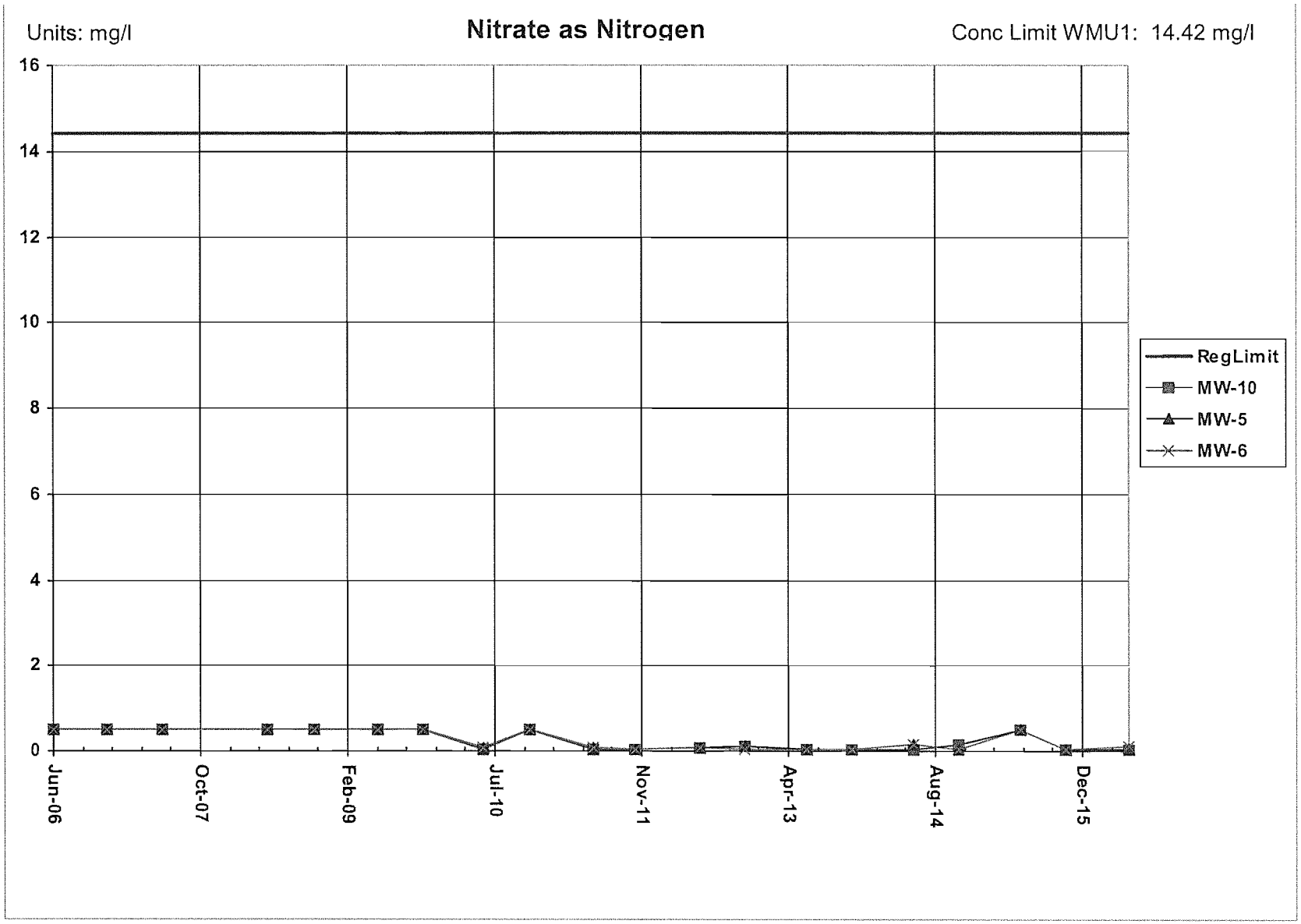

Units: mg/l
Bicarbonate
Conc Limit WMU1: 366.7 mg/l
450
400
350
300
250
200
150
100
50
0
Jun-06
Oct-07
Feb-09
Jul-10
Nov-11
Apr-13
Aug-14
Dec-15
RegLimit
MW-10
MW-5
MW-6

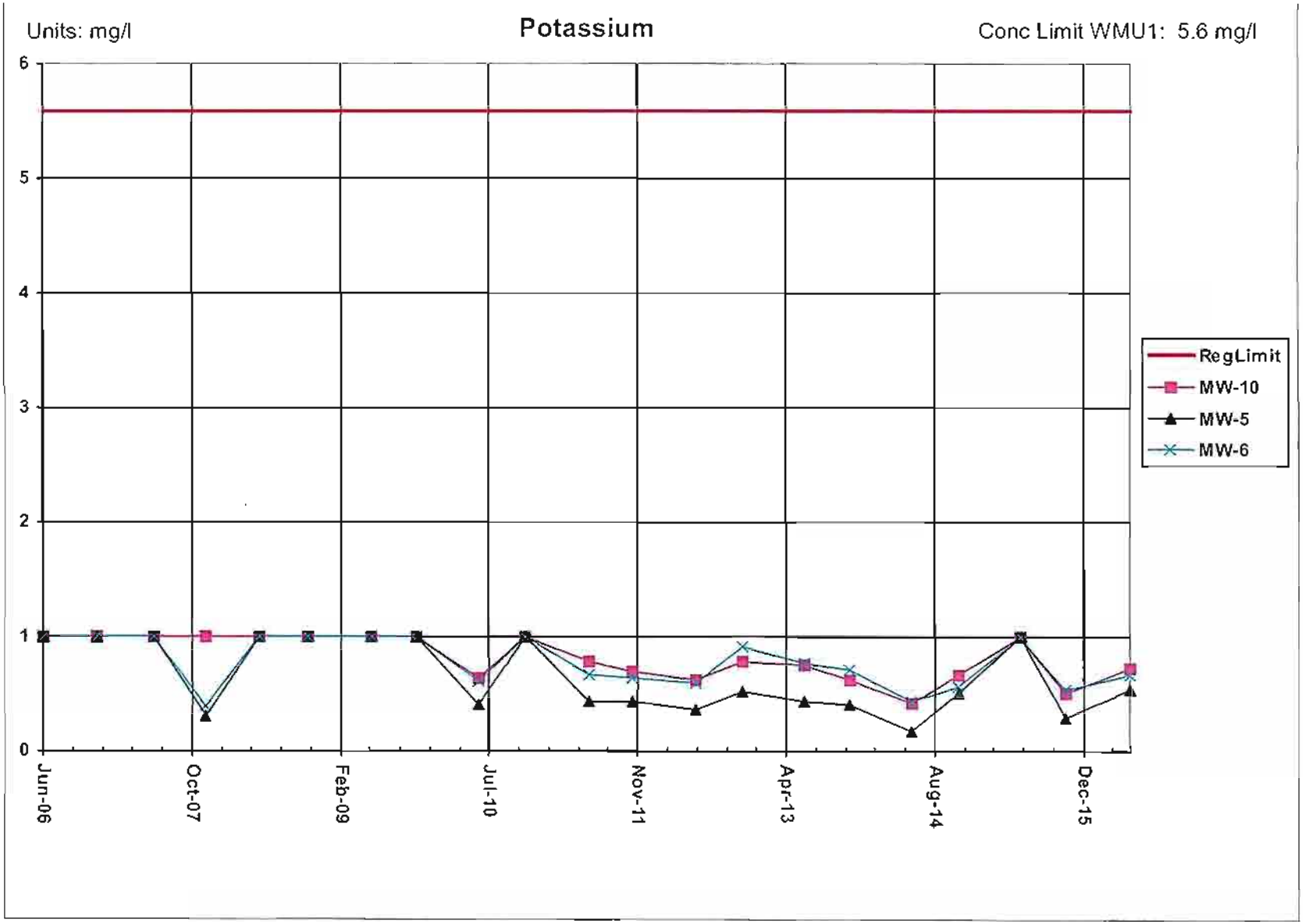

Units: mg/l
Calcium
Conc Limit WMU1: 190 mg/l
200
180
160
140
120
100
80
60
40
20
0
Jun-06
Oct-07
Feb-09
Jul-10
Nov-11
Apr-13
Aug-14
Dec-15
RegLimit
MW-10
MW-5
MW-6

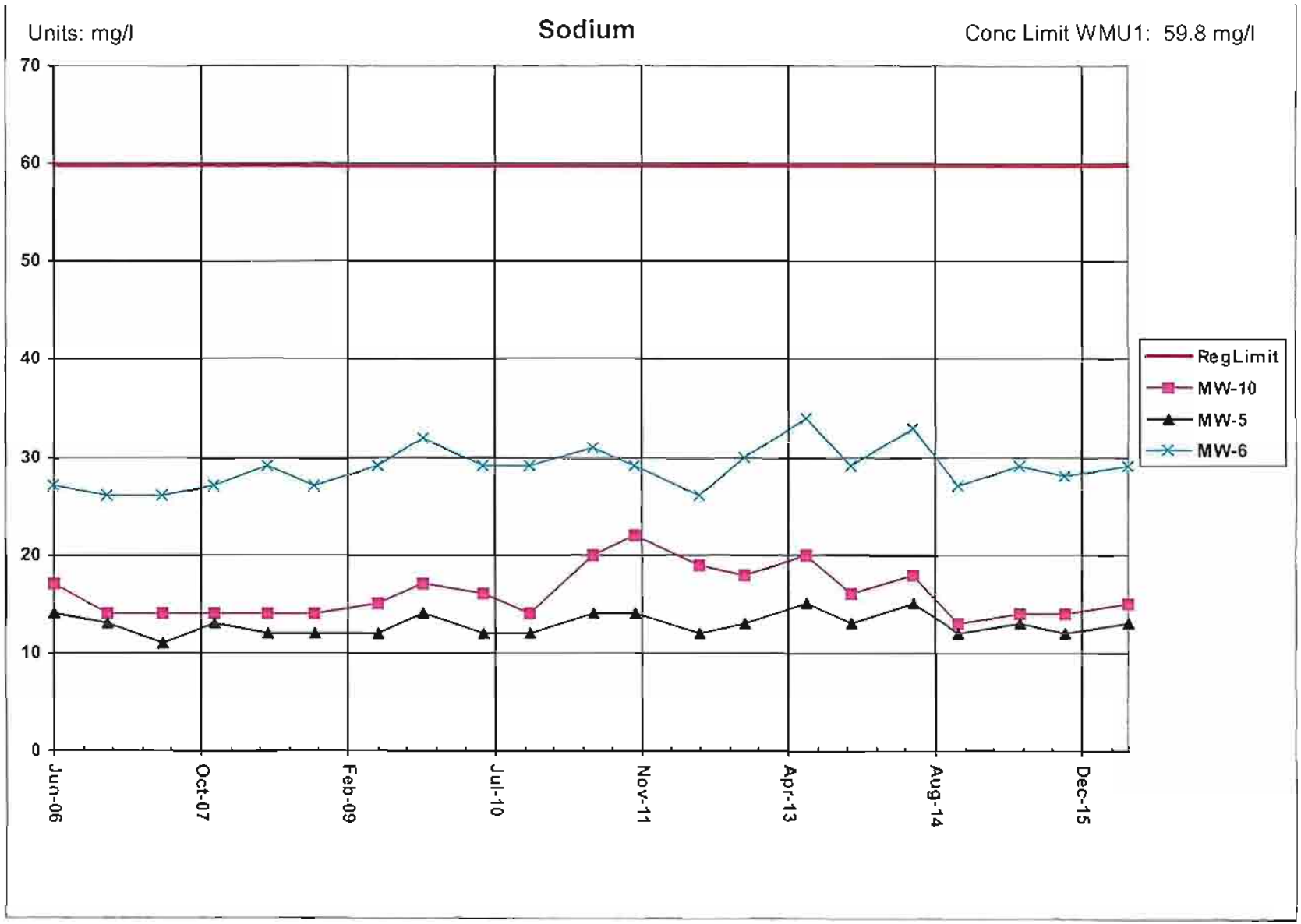

Units: mg/l
Chloride
Conc Limit WMU1: 56.3 mg/l
60
50
40
30
20
10
0
Jun-06
Oct-07
Feb-09
Jul-10
Nov-11
Apr-13
Aug-14
Dec-15
RegLimit
MW-10
MW-5
MW-6

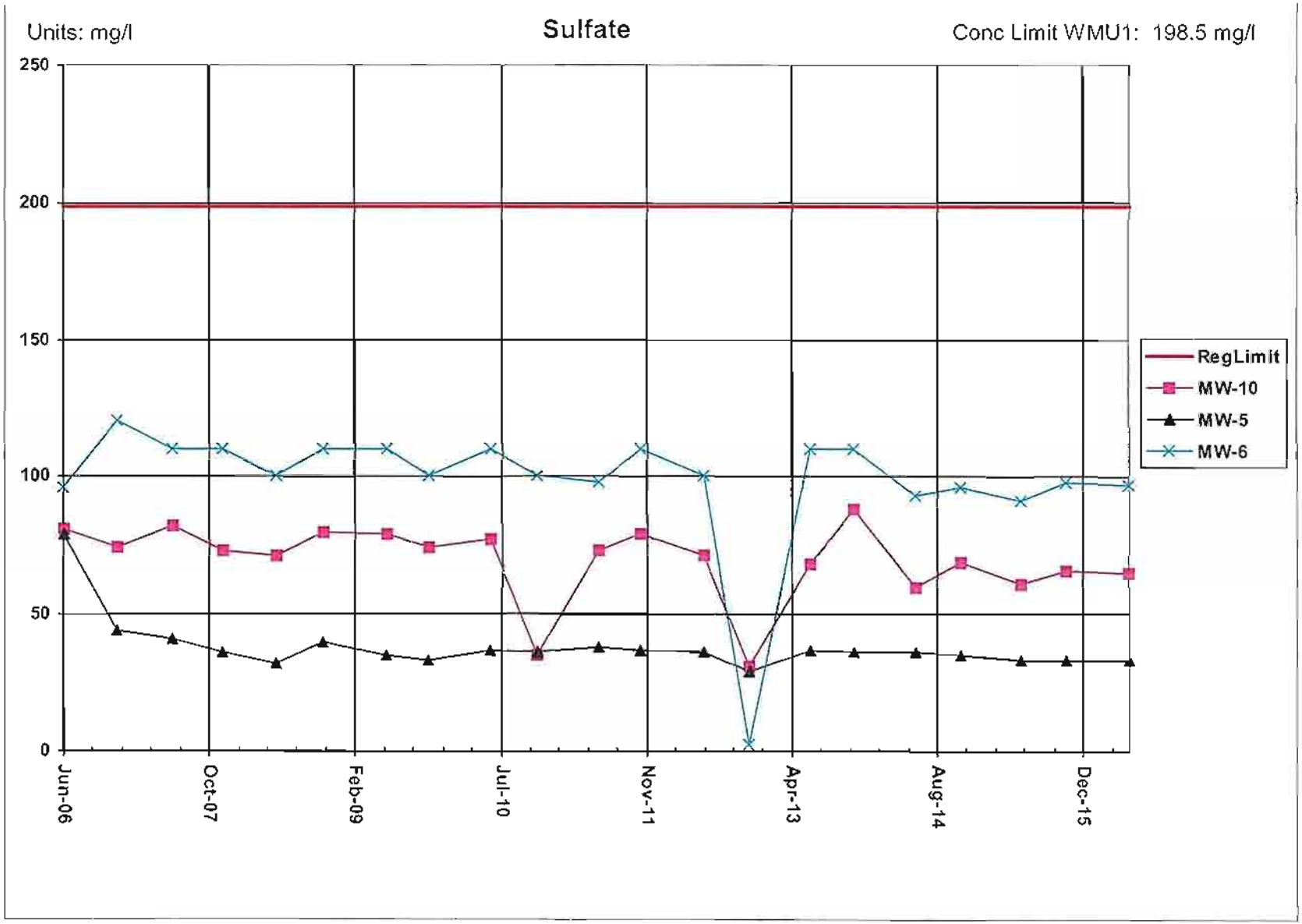

Units: mg/l
Magnesium
Conc Limit WMU1: 27.9 mg/l
30
25
20
15
10
5
0
Jun-06
Oct-07
Feb-09
Jul-10
Nov-11
Apr-13
Aug-14
Dec-15
RegLimit
MW-10
MW-5
MW-6

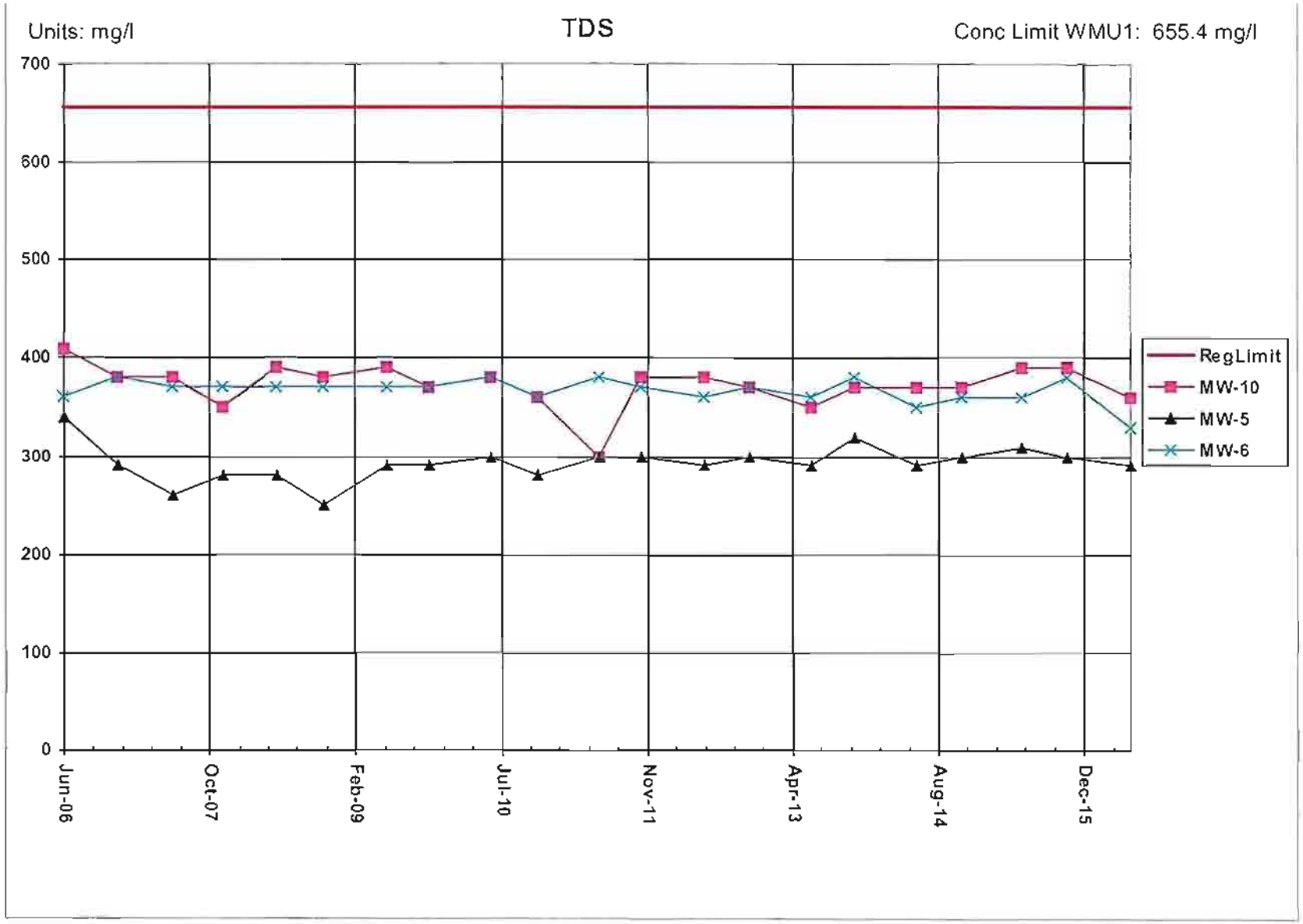

Units: mg/l
Manganese
Conc Limit WMU1: 2925 mg/l
3500
3000
2500
2000
1500
1000
500
0
Jun-06
Oct-07
Feb-09
Jul-10
Nov-11
Apr-13
Aug-14
Dec-15
RegLimit
MW-10
MW-5
MW-6


Units: mg/l
Nitrate as Nitrogen
Conc Limit WMU1: 14.42 mg/l
16
14
12
10
8
6
4
2
0
Jun-06
Oct-07
Feb-09
Jul-10
Nov-11
Apr-13
Aug-14
Dec-15
RegLimit
MW-10
MW-5
MW-6


Units: mg/l
Potassium
Conc Limit WMU1: 5.6 mg/l
6
5
4
3
2
1
0
Jun-06
Oct-07
Feb-09
Jul-10
Nov-11
Apr-13
Aug-14
Dec-15
RegLimit
MW-10
MW-5
MW-6


Units: mg/l
Sodium
Conc Limit WMU1: 59.8 mg/l
70
60
50
40
30
20
10
0
Jun-06
Oct-07
Feb-09
Jul-10
Nov-11
Apr-13
Aug-14
Dec-15
RegLimit
MW-10
MW-5
MW-6


Units: mg/l
Sulfate
Conc Limit WMU1: 198.5 mg/l
250
200
150
100
50
0
Jun-06
Oct-07
Feb-09
Jul-10
Nov-11
Apr-13
Aug-14
Dec-15
RegLimit
MW-10
MW-5
MW-6


Units: mg/l
TDS
Conc Limit WMU1: 655.4 mg/l
700
600
500
400
300
200
100
0
Jun-06
Oct-07
Feb-09
Jul-10
Nov-11
Apr-13
Aug-14
Dec-15
RegLimit
MW-10
MW-5
MW-6

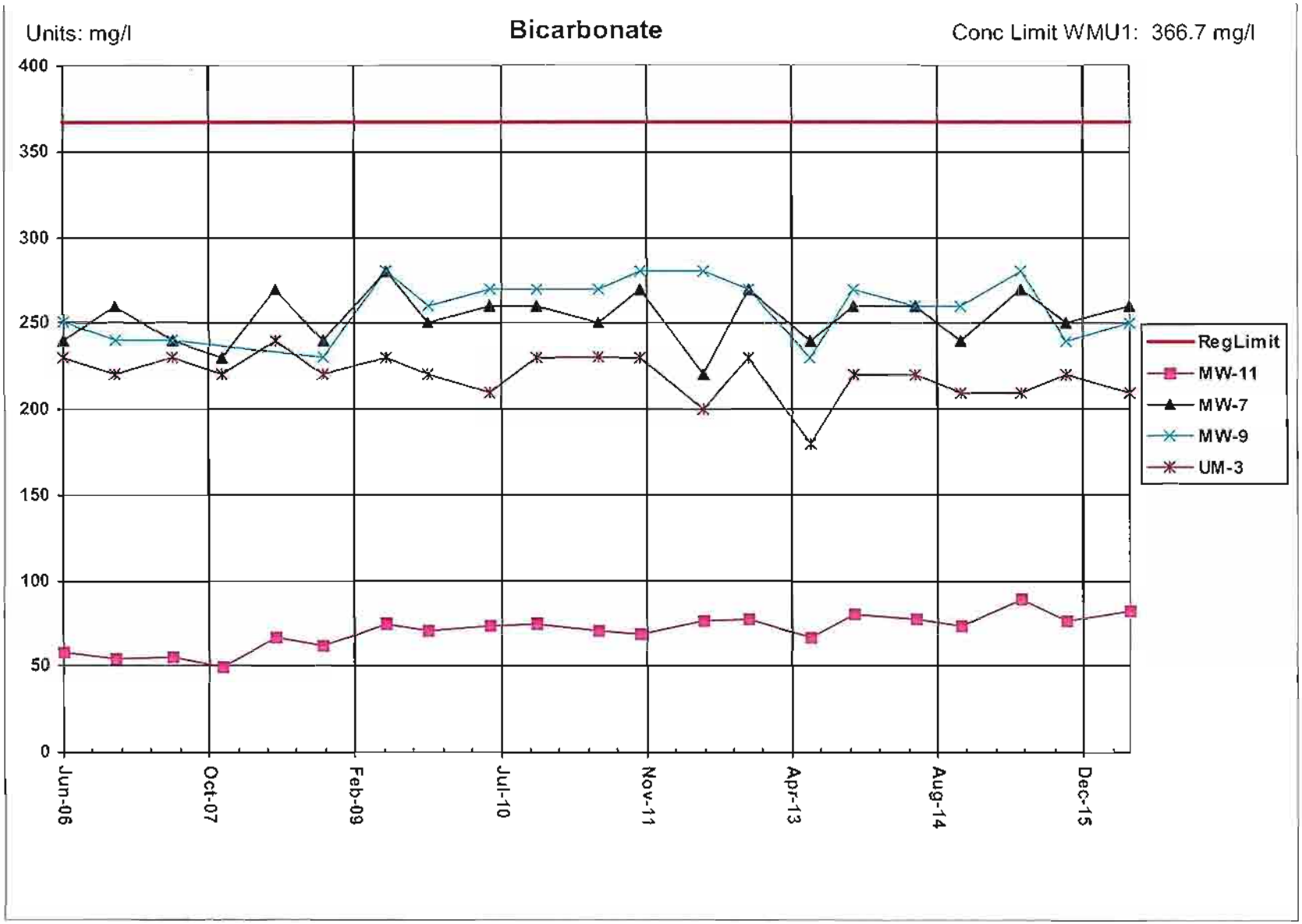
WMU-1

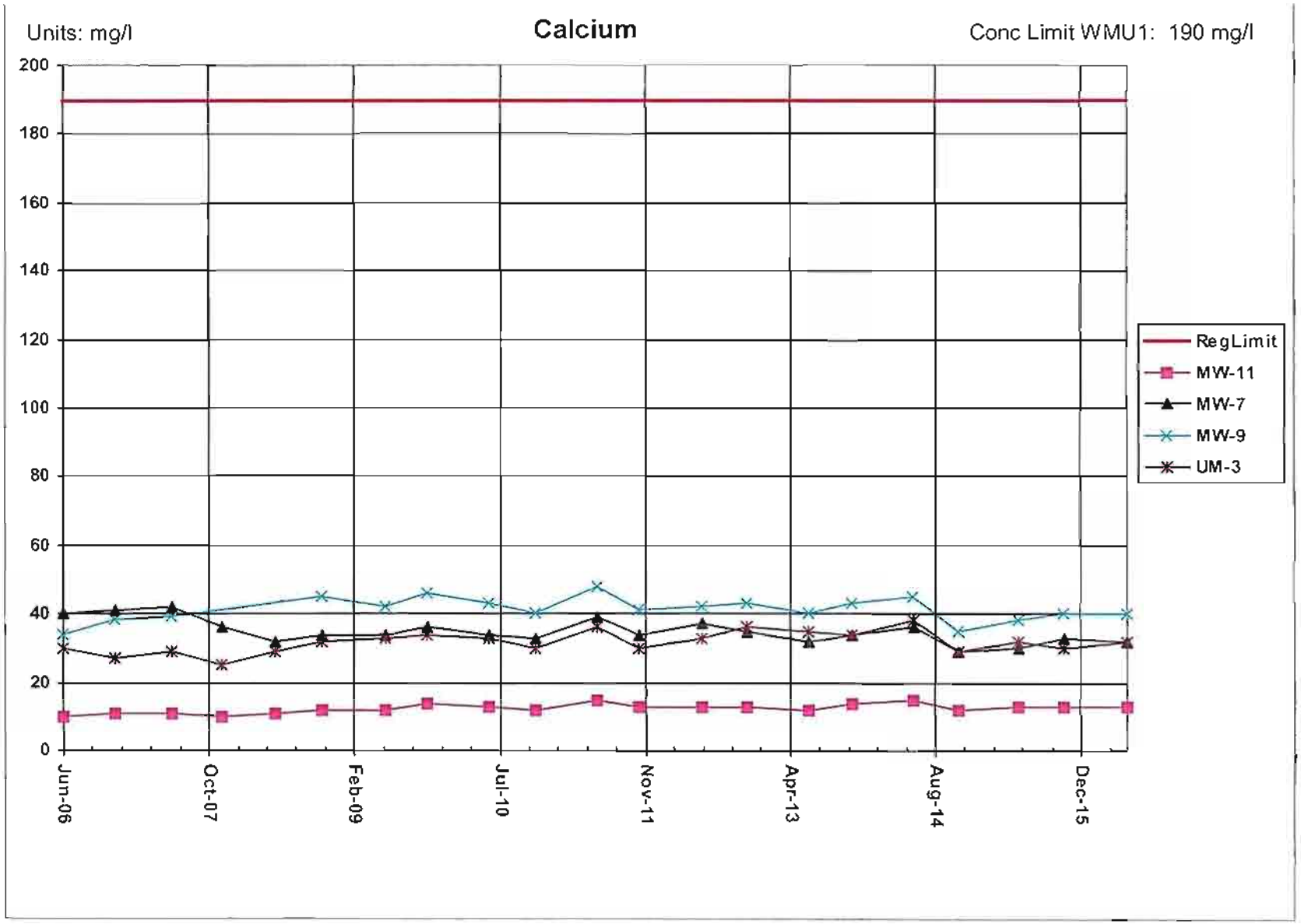
Landfill Wells

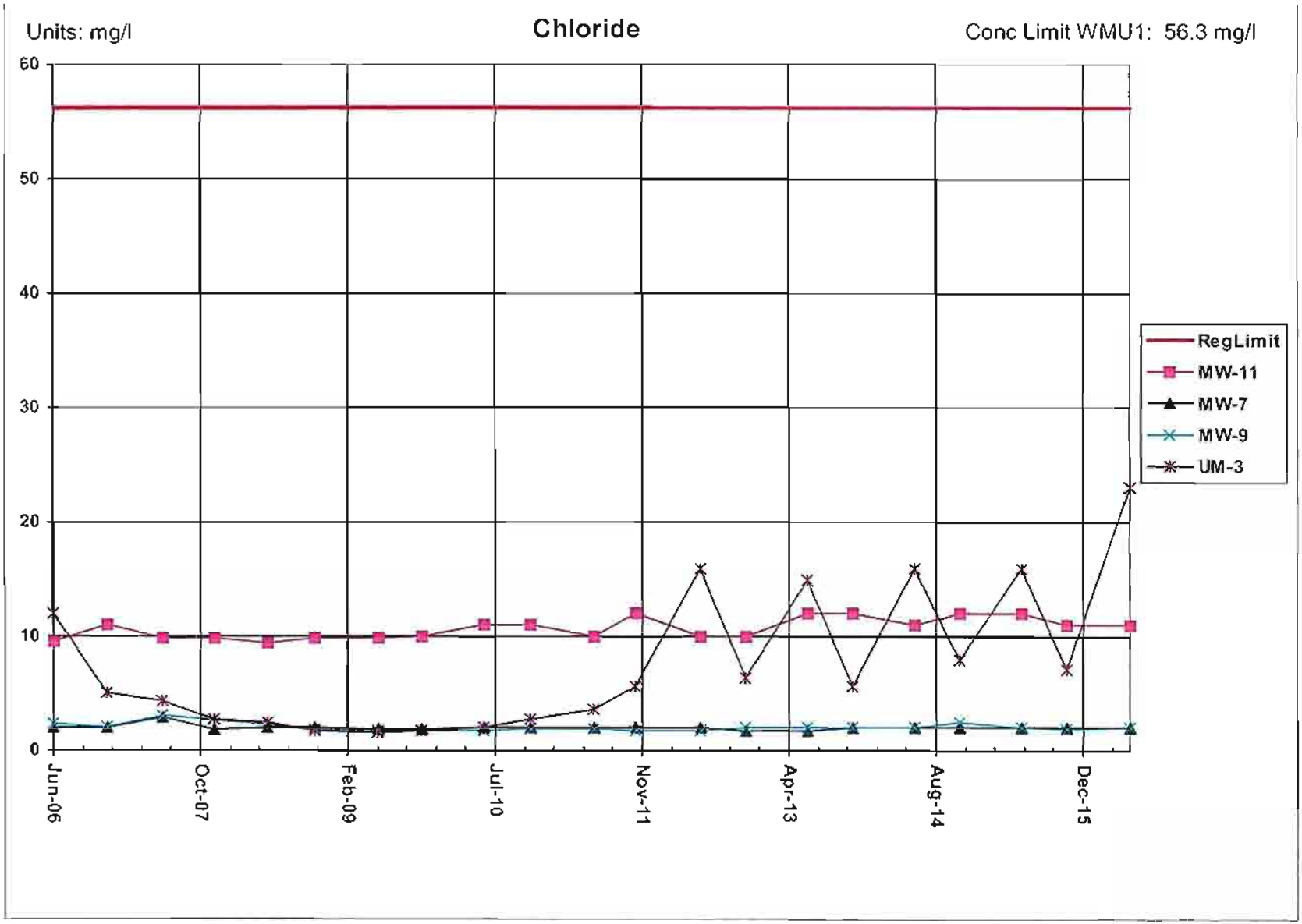
Time vs. Concentration Graphs

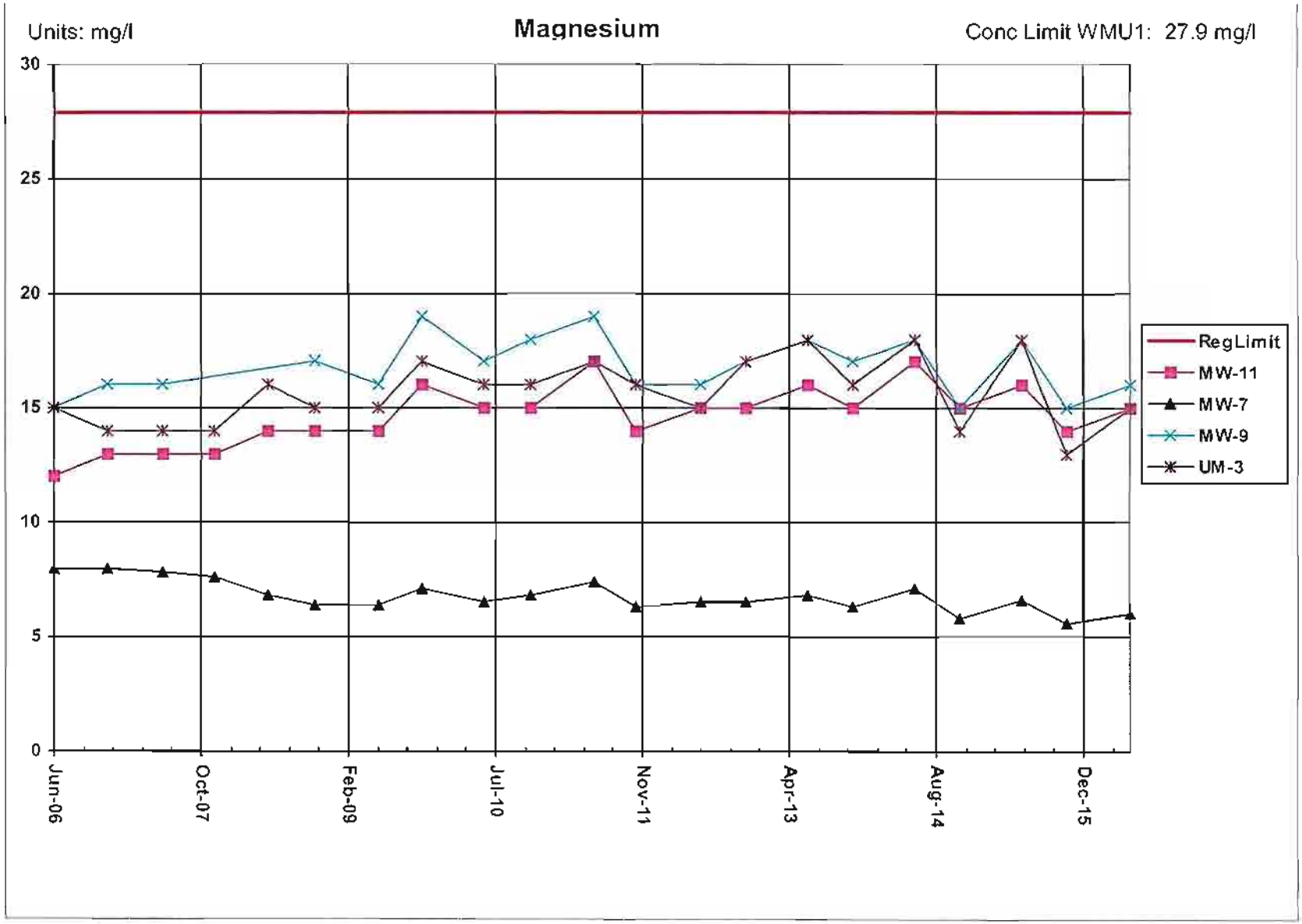
Union Mine

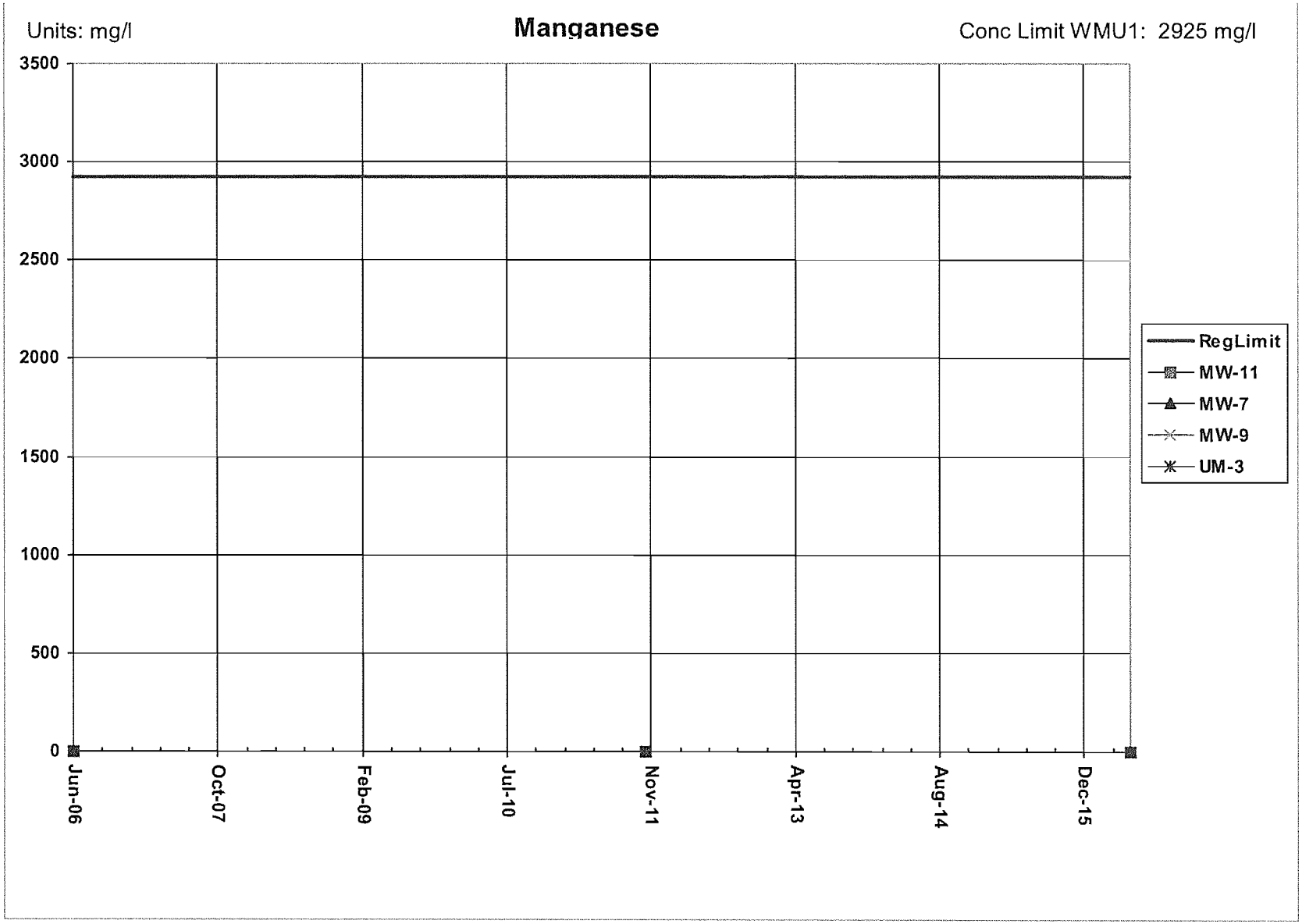
Compliance Wells

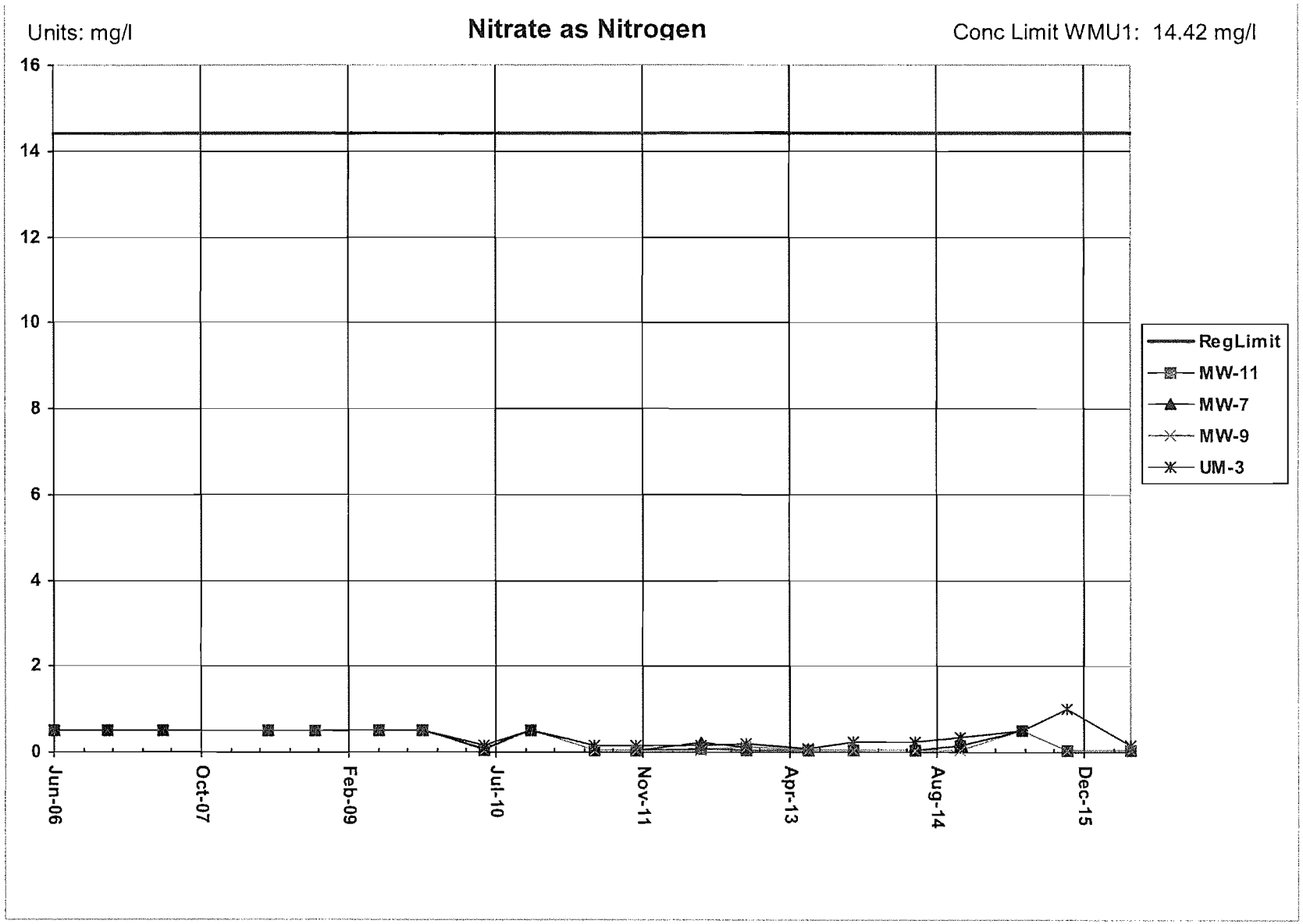

Units: mg/l
Bicarbonate
Conc Limit WMU1: 366.7 mg/l
400
350
300
250
200
150
100
50
0
Jun-06
Oct-07
Feb-09
Jul-10
Nov-11
Apr-13
Aug-14
Dec-15
RegLimit
MW-11
MW-7
MW-9
UM-3

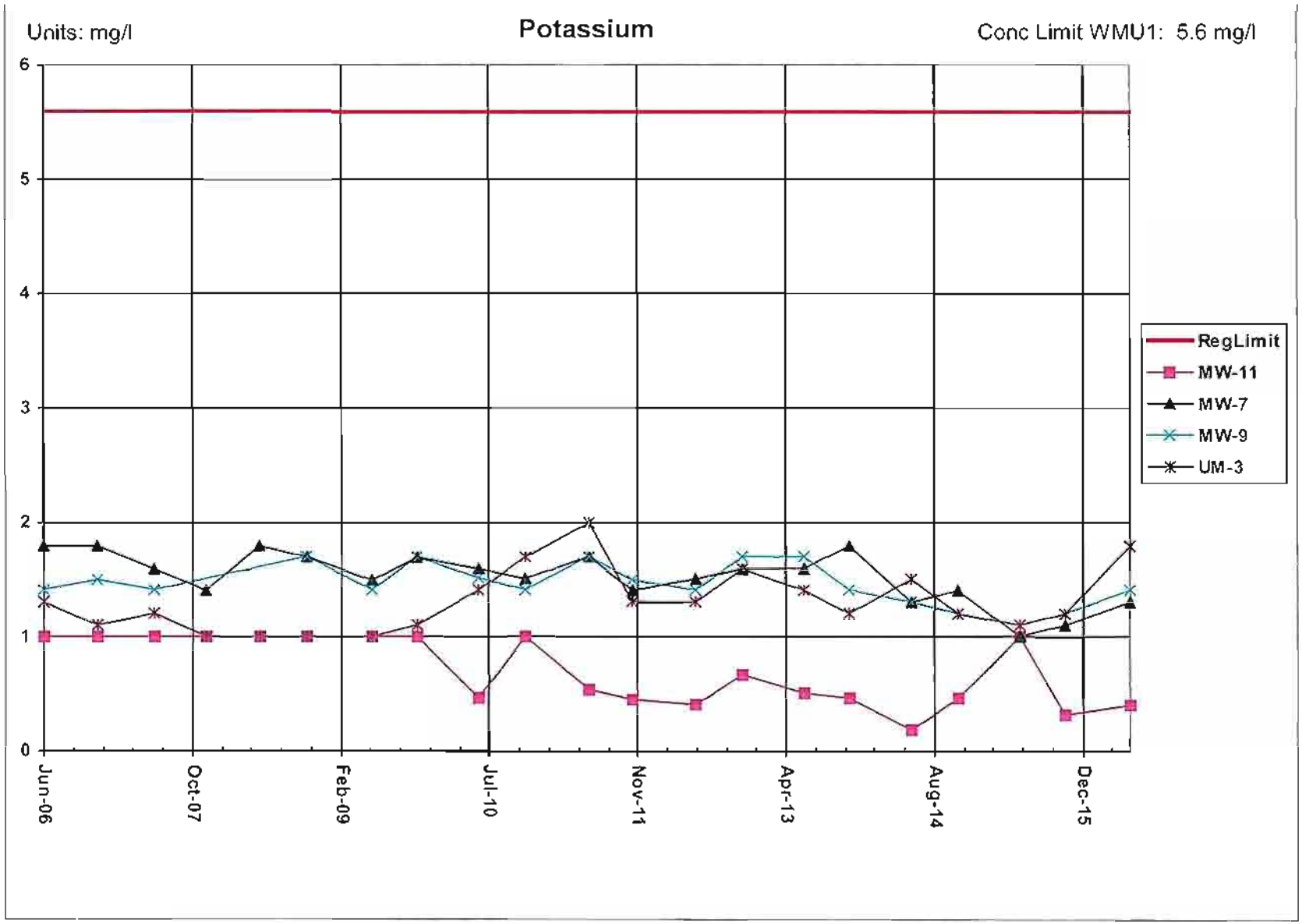

Units: mg/l
Calcium
Conc Limit WMU1: 190 mg/l
200
180
160
140
120
100
80
60
40
20
0
Jun-06
Oct-07
Feb-09
Jul-10
Nov-11
Apr-13
Aug-14
Dec-15
RegLimit
MW-11
MW-7
MW-9
UM-3

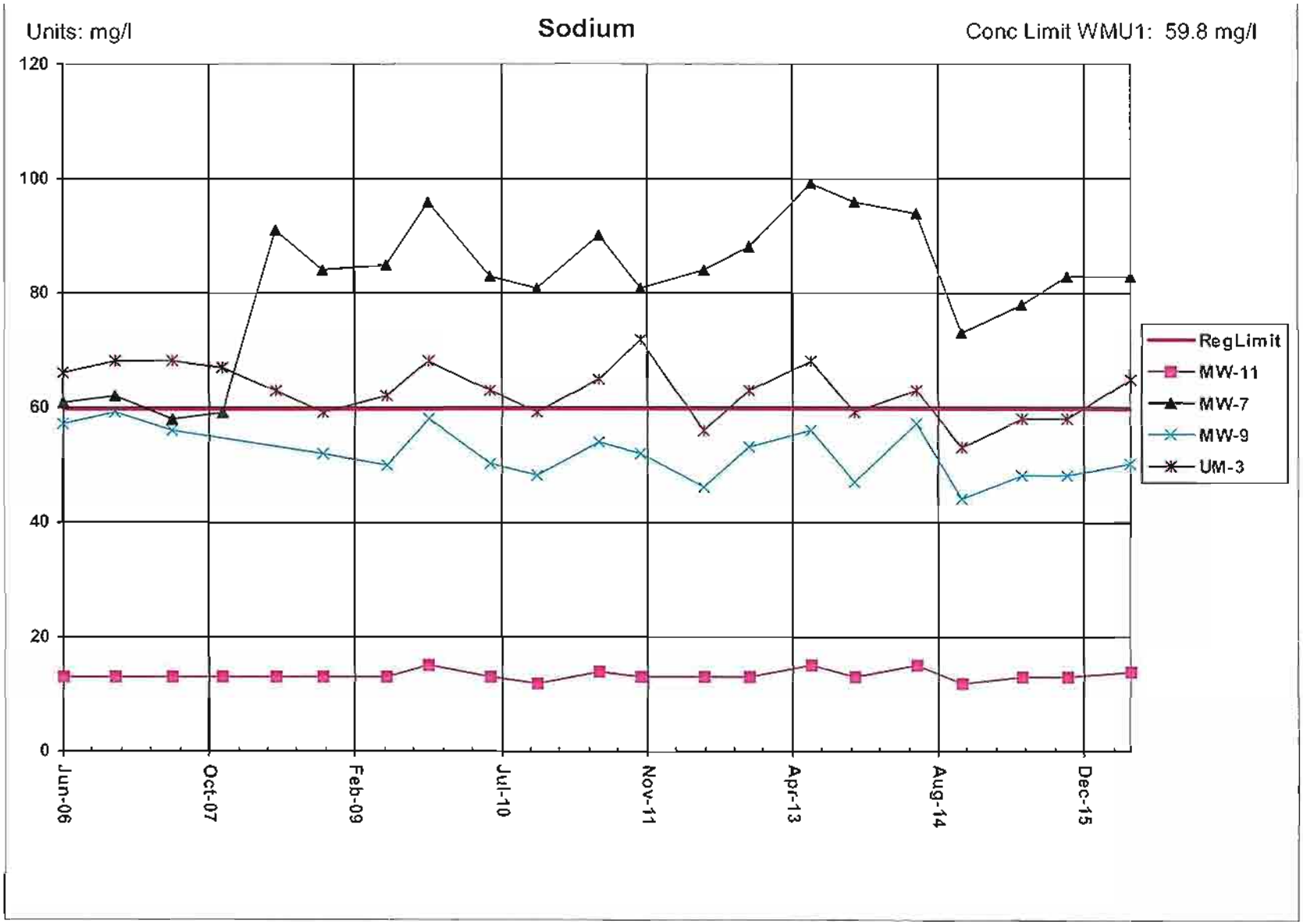

Units: mg/l
Chloride
Conc Limit WMU1: 56.3 mg/l
60
50
40
30
20
10
0
Jun-06
Oct-07
Feb-09
Jul-10
Nov-11
Apr-13
Aug-14
Dec-15
RegLimit
MW-11
MW-7
MW-9
UM-3

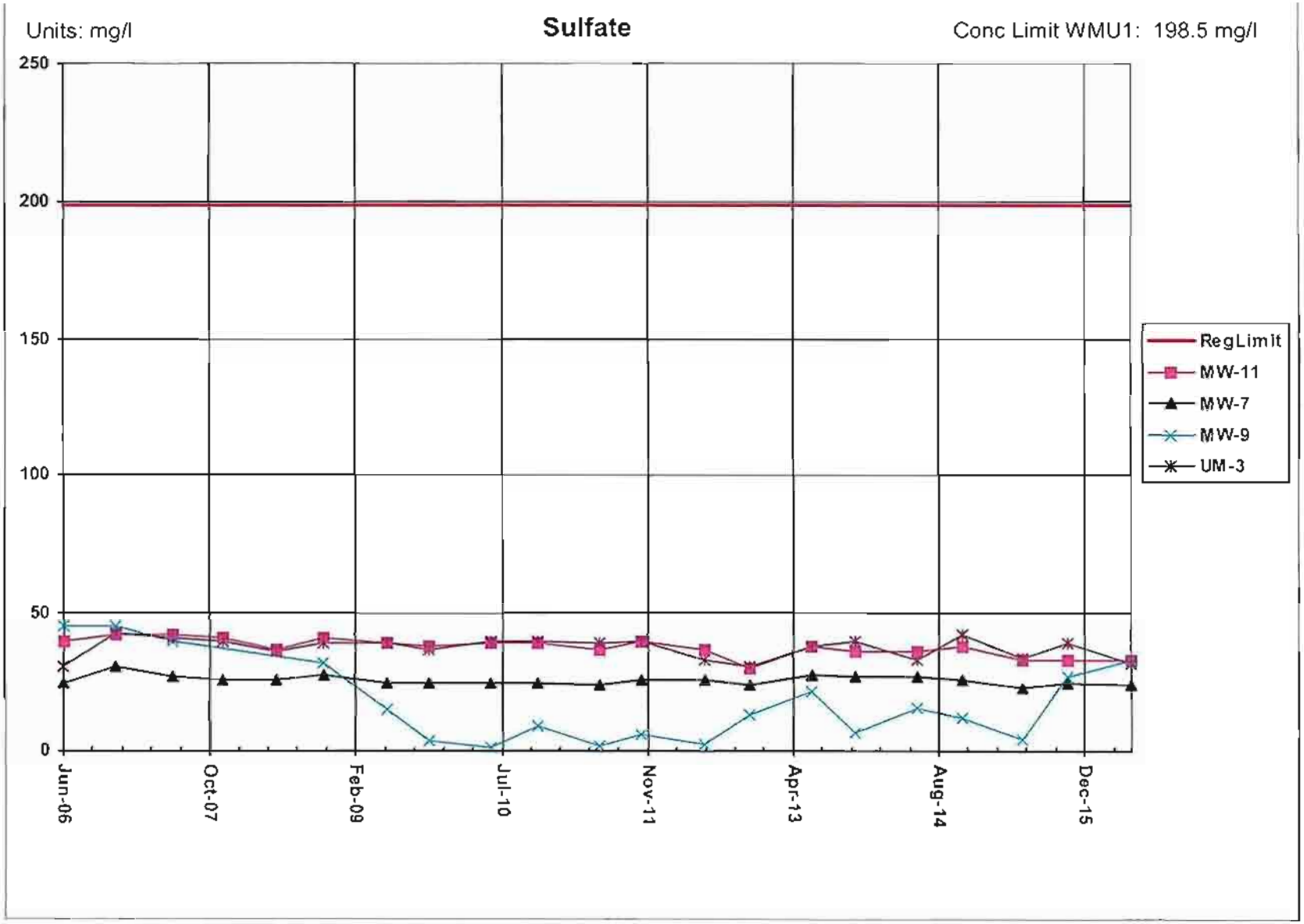

Units: mg/l
Magnesium
Conc Limit WMU1: 27.9 mg/l
30
25
20
15
10
5
0
Jun-06
Oct-07
Feb-09
Jul-10
Nov-11
Apr-13
Aug-14
Dec-15
RegLimit
MW-11
MW-7
MW-9
UM-3

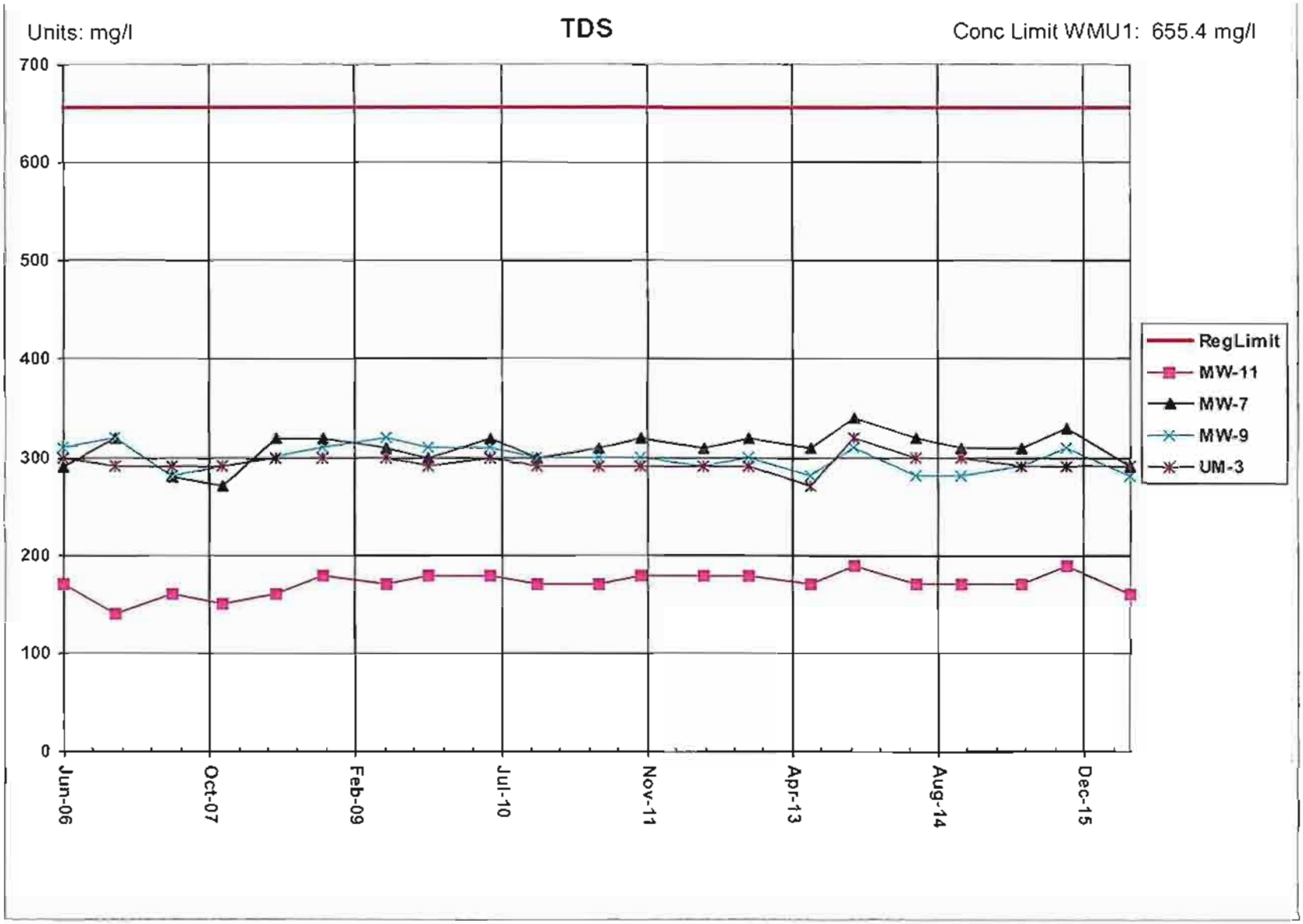

Units: mg/l
Manganese
Conc Limit WMU1: 2925 mg/l
3500
3000
2500
2000
1500
1000
500
0
Jun-06
Oct-07
Feb-09
Jul-10
Nov-11
Apr-13
Aug-14
Dec-15
RegLimit
MW-11
MW-7
MW-9
UM-3

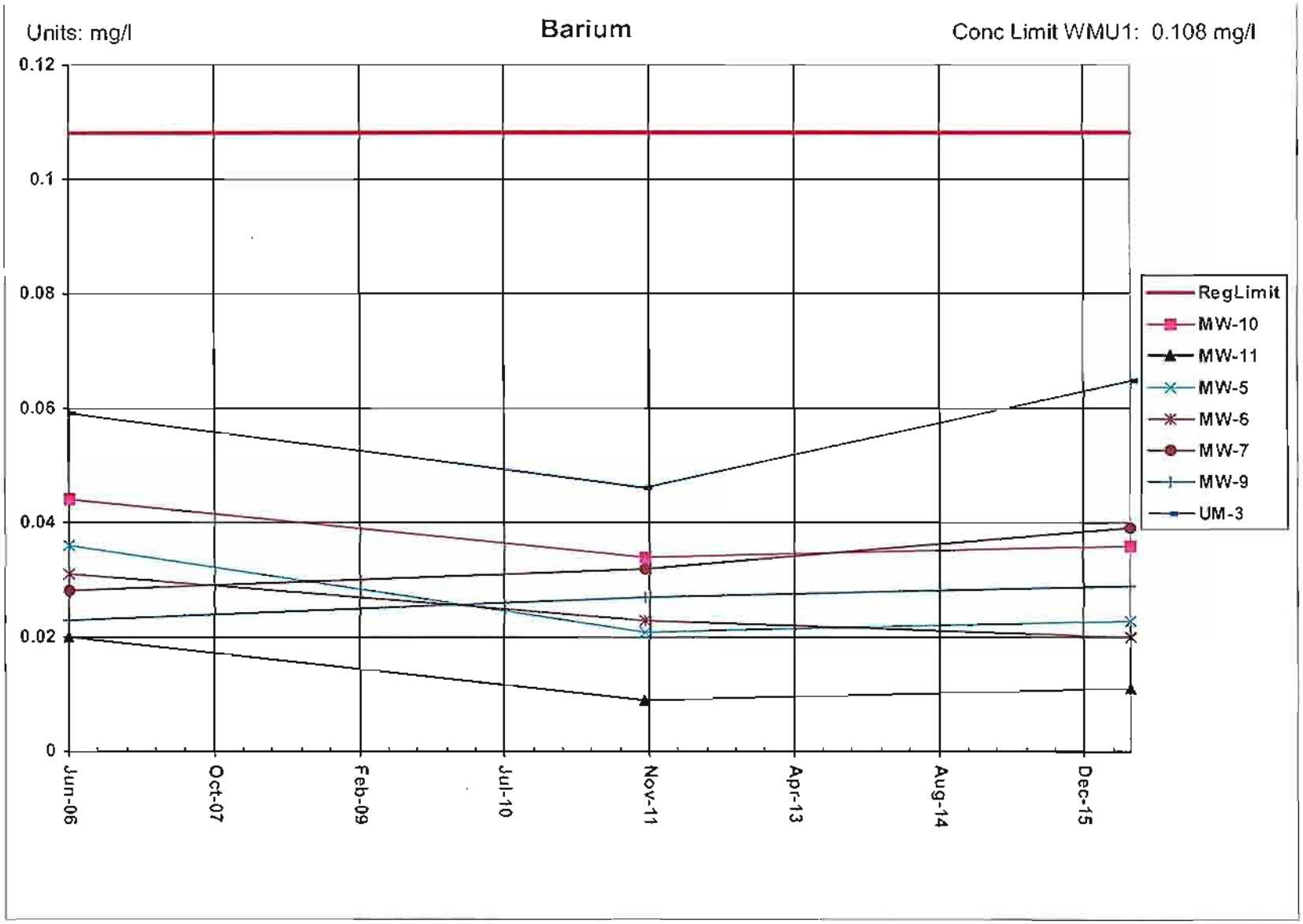

Units: mg/l
Nitrate as Nitrogen
Conc Limit WMU1: 14.42 mg/l
16
14
12
10
8
6
4
2
0
Jun-06
Oct-07
Feb-09
Jul-10
Nov-11
Apr-13
Aug-14
Dec-15
RegLimit
MW-11
MW-7
MW-9
UM-3


Units: mg/l
Potassium
Conc Limit WMU1: 5.6 mg/l
6
5
4
3
2
1
0
Jun-06
Oct-07
Feb-09
Jul-10
Nov-11
Apr-13
Aug-14
Dec-15
RegLimit
MW-11
MW-7
MW-9
UM-3


Units: mg/l
Sodium
Conc Limit WMU1: 59.8 mg/l
120
100
80
60
40
20
0
Jun-06
Oct-07
Feb-09
Jul-10
Nov-11
Apr-13
Aug-14
Dec-15
RegLimit
MW-11
MW-7
MW-9
UM-3


Units: mg/l
Sulfate
Conc Limit WMU1: 198.5 mg/l
250
200
150
100
50
0
Jun-06
Oct-07
Feb-09
Jul-10
Nov-11
Apr-13
Aug-14
Dec-15
RegLimit
MW-11
MW-7
MW-9
UM-3


Units: mg/l
TDS
Conc Limit WMU1: 655.4 mg/l
700
600
500
400
300
200
100
0
Jun-06
Oct-07
Feb-09
Jul-10
Nov-11
Apr-13
Aug-14
Dec-15
RegLimit
MW-11
MW-7
MW-9
UM-3

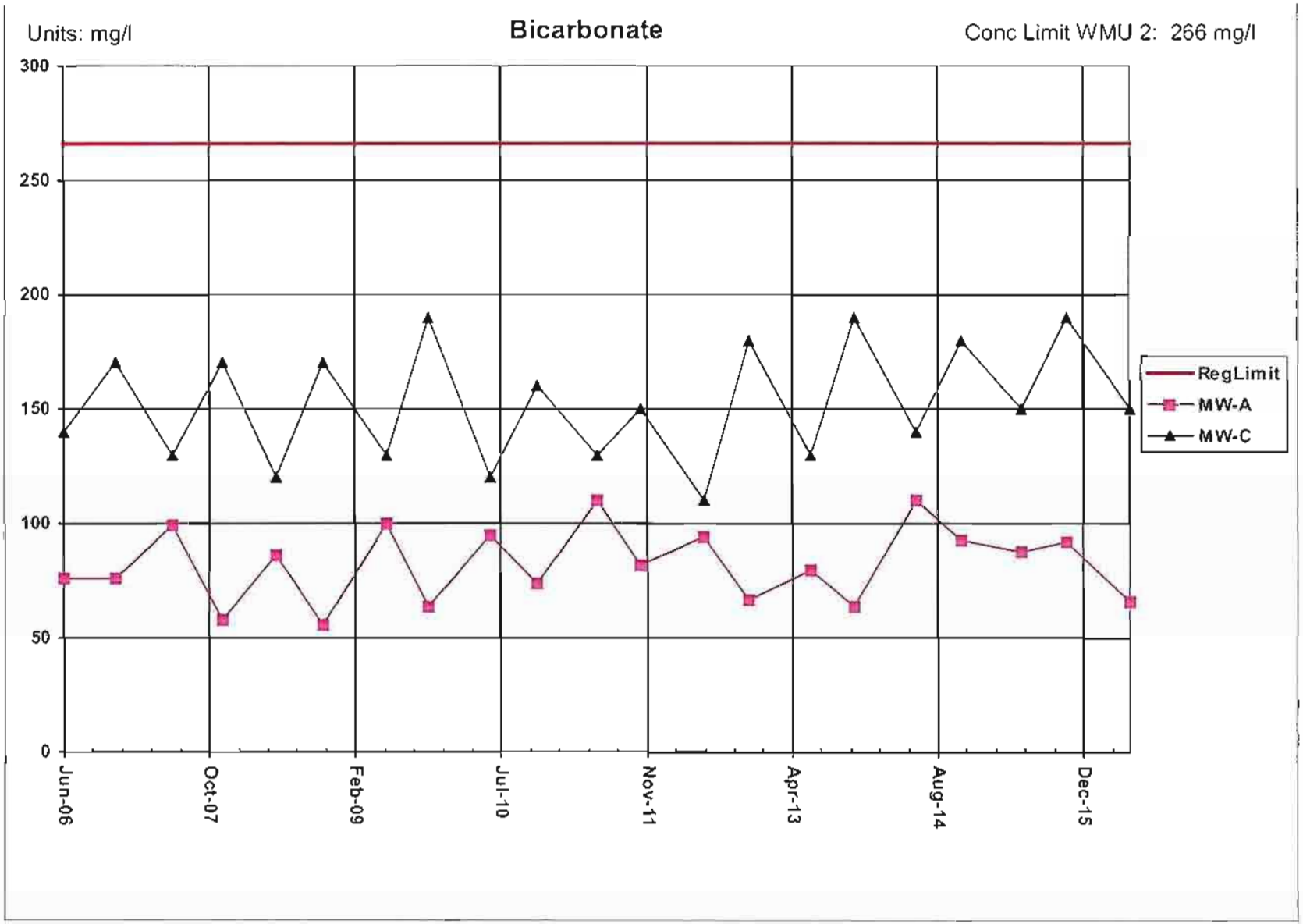

Units: mg/l
Barium
Conc Limit WMU1: 0.108 mg/l
0.12
0.1
0.08
0.06
0.04
0.02
0
Jun-06
Oct-07
Feb-09
Jul-10
Nov-11
Apr-13
Aug-14
Dec-15
RegLimit
MW-10
MW-11
MW-5
MW-6
MW-7
MW-9
UM-3

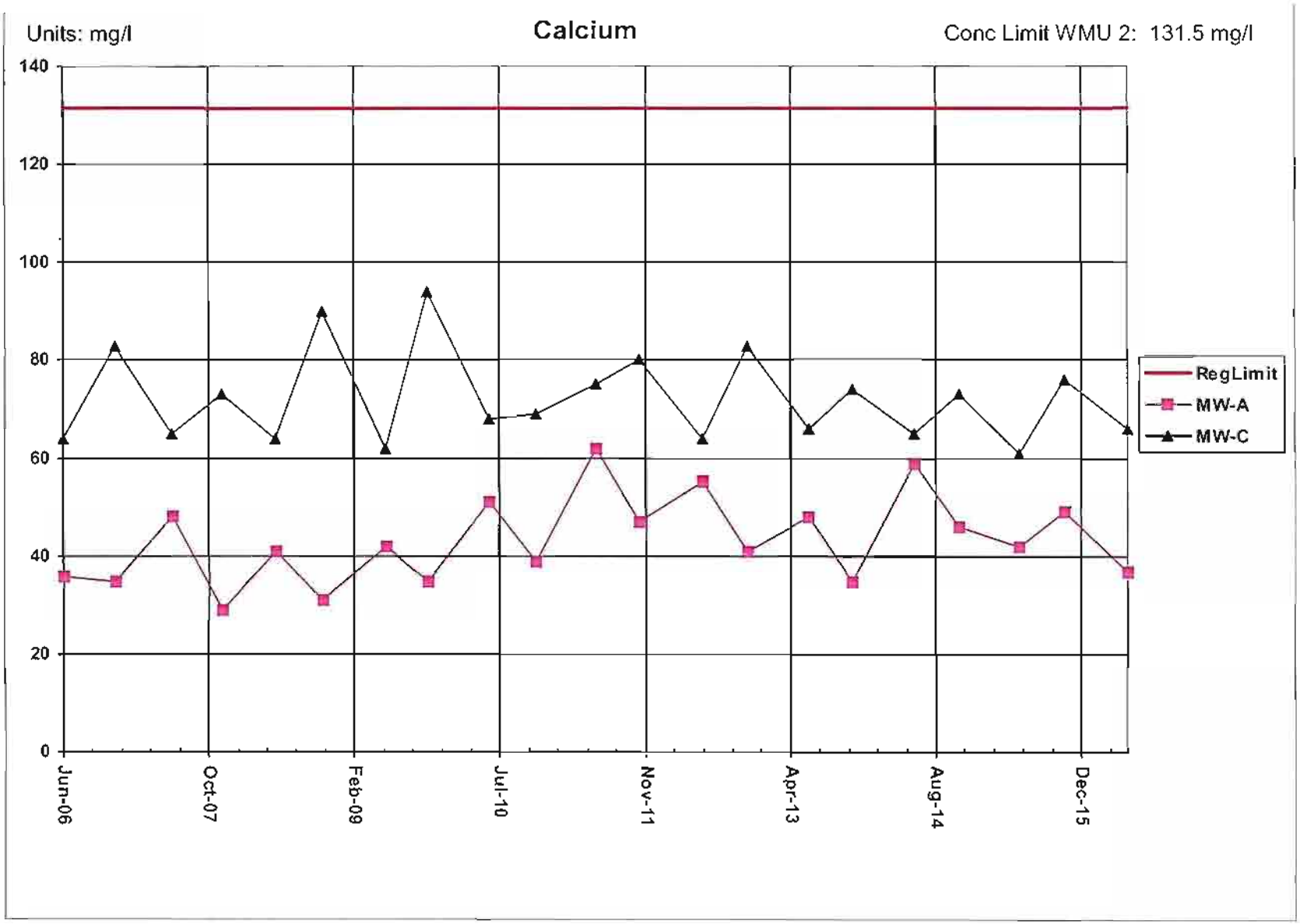
WMU-2

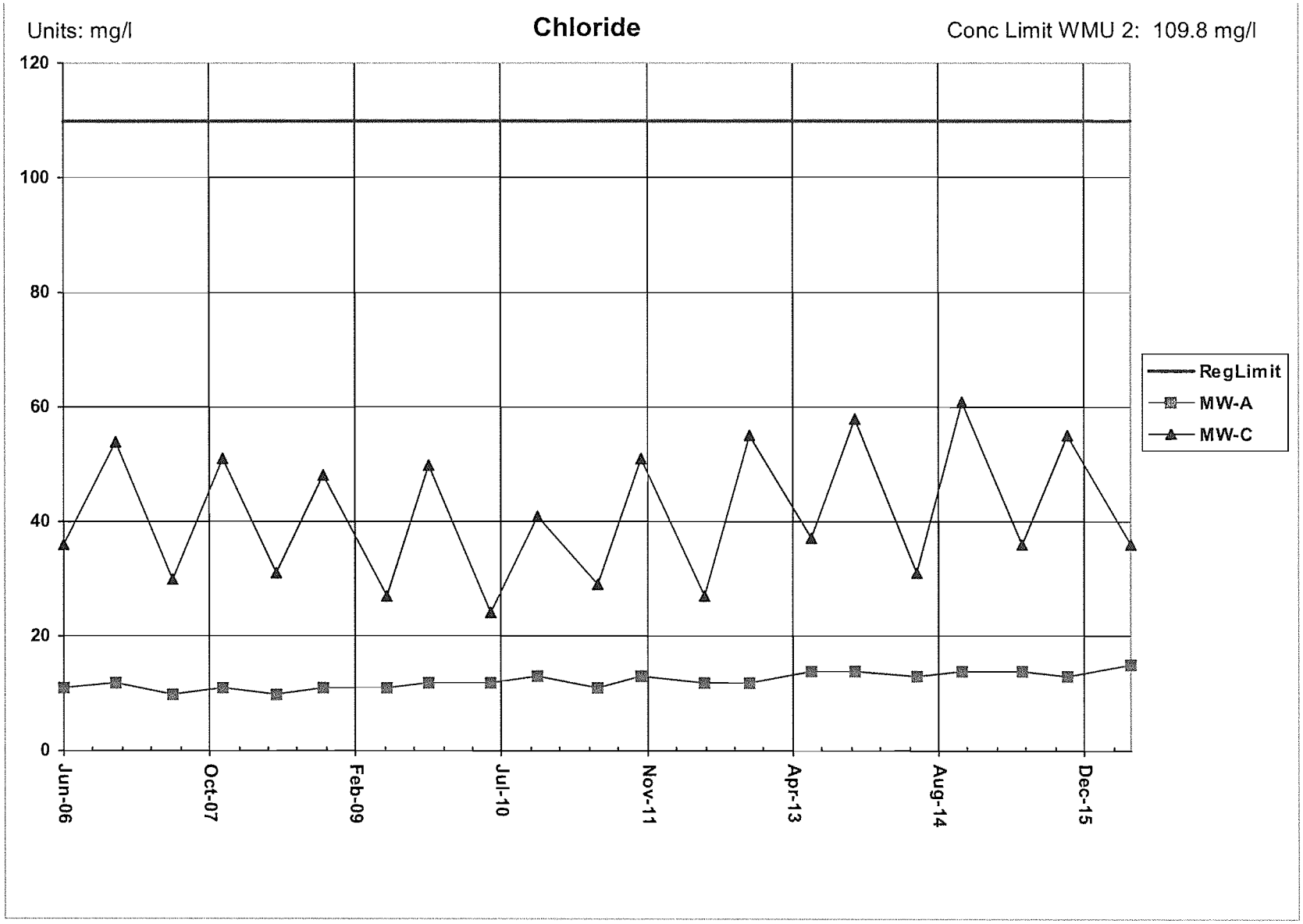
Landfill Wells

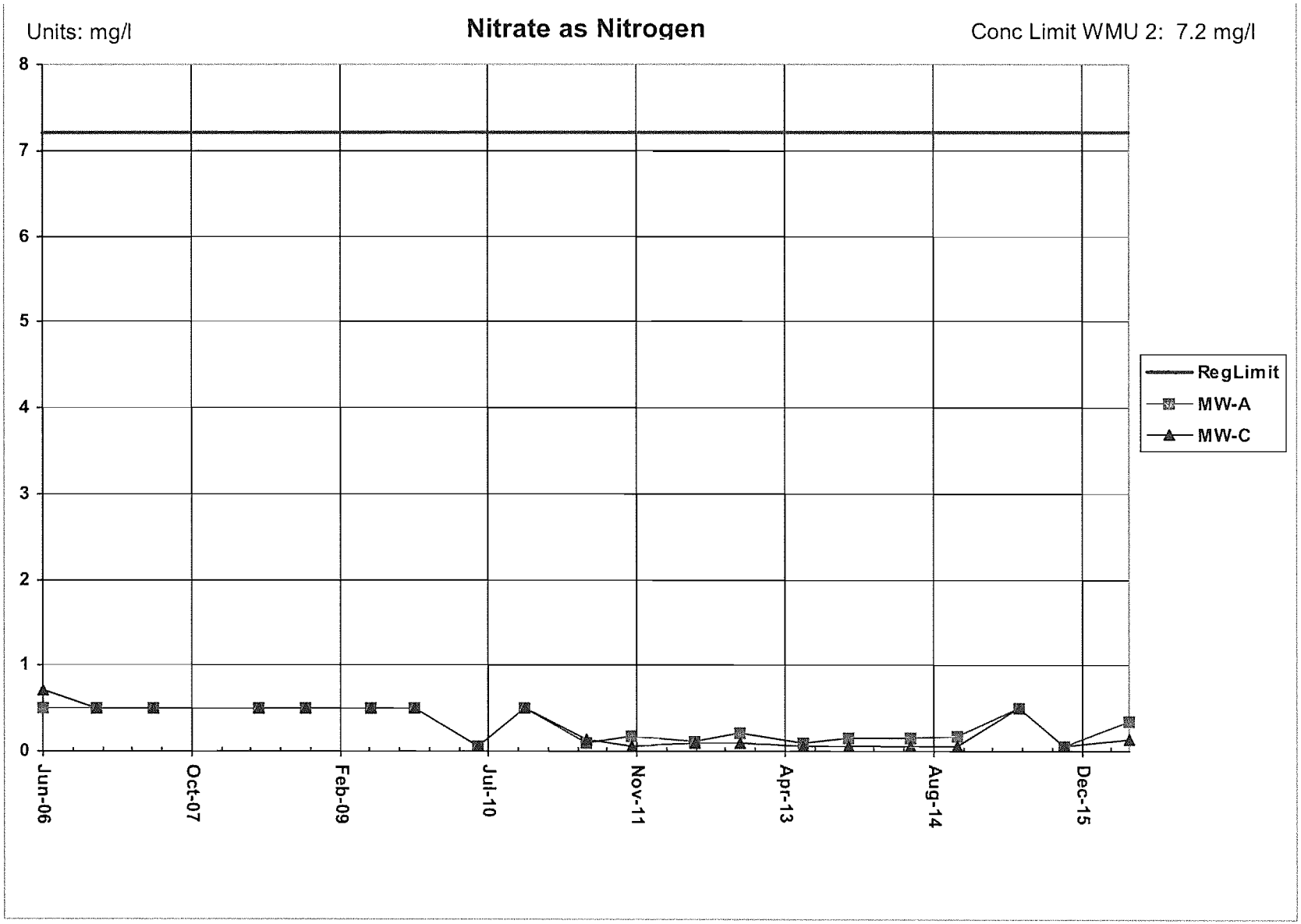
Time vs. Concentration Graphs

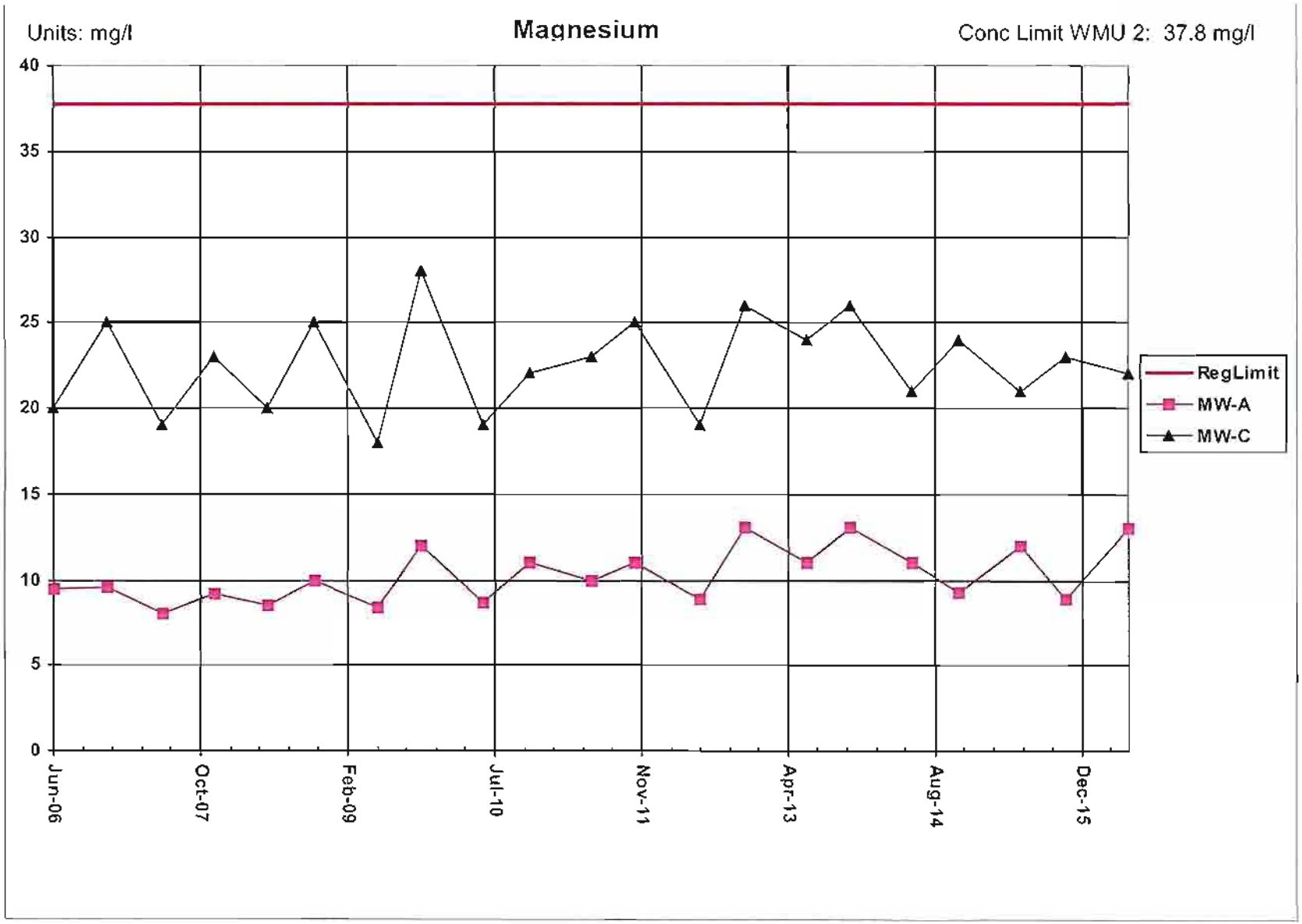
Union Mine

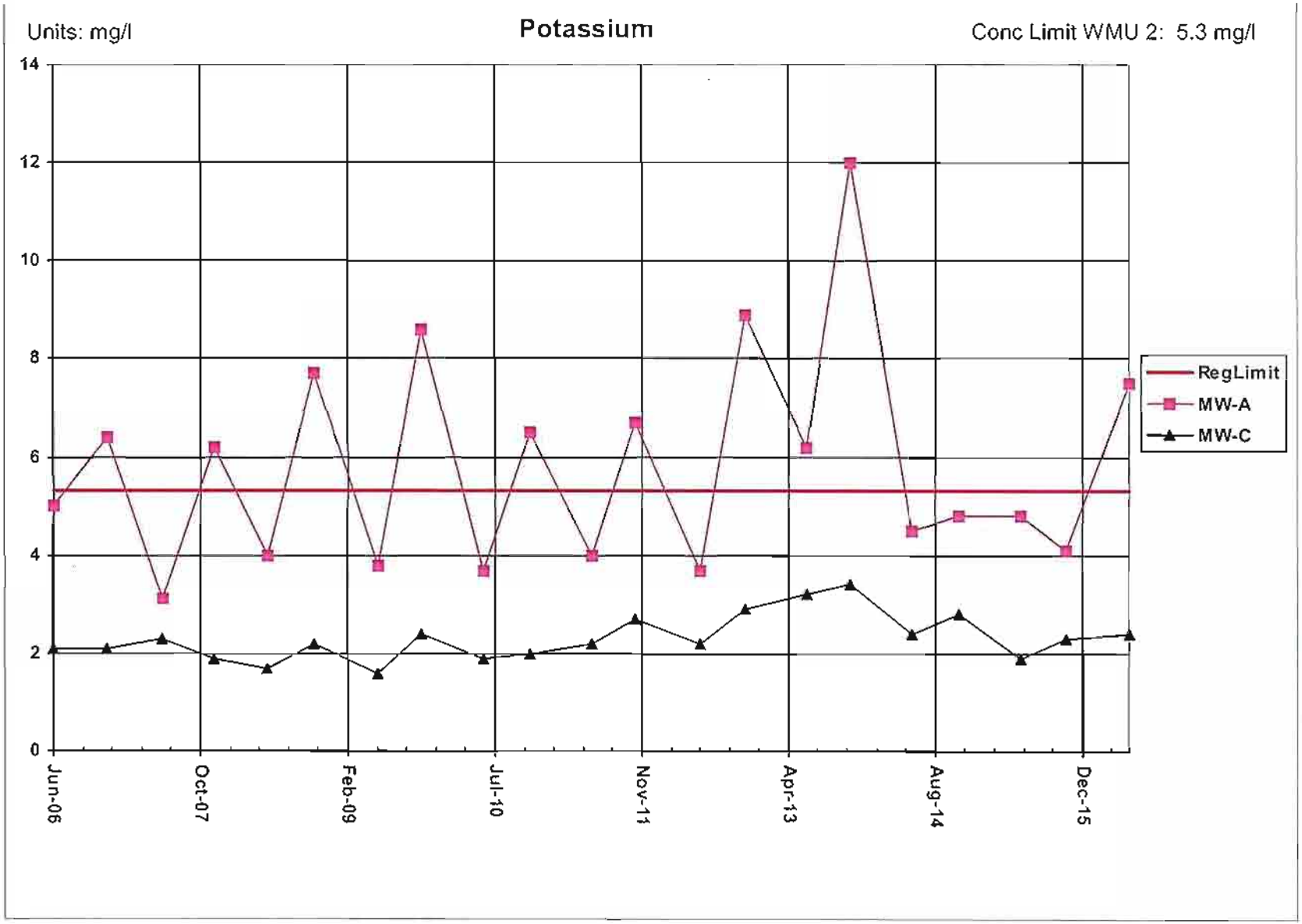

Units: mg/l
Bicarbonate
Conc Limit WMU 2: 266 mg/l
300
250
200
150
100
50
0
Jun-06
Oct-07
Feb-09
Jul-10
Nov-11
Apr-13
Aug-14
Dec-15
RegLimit
MW-A
MW-C

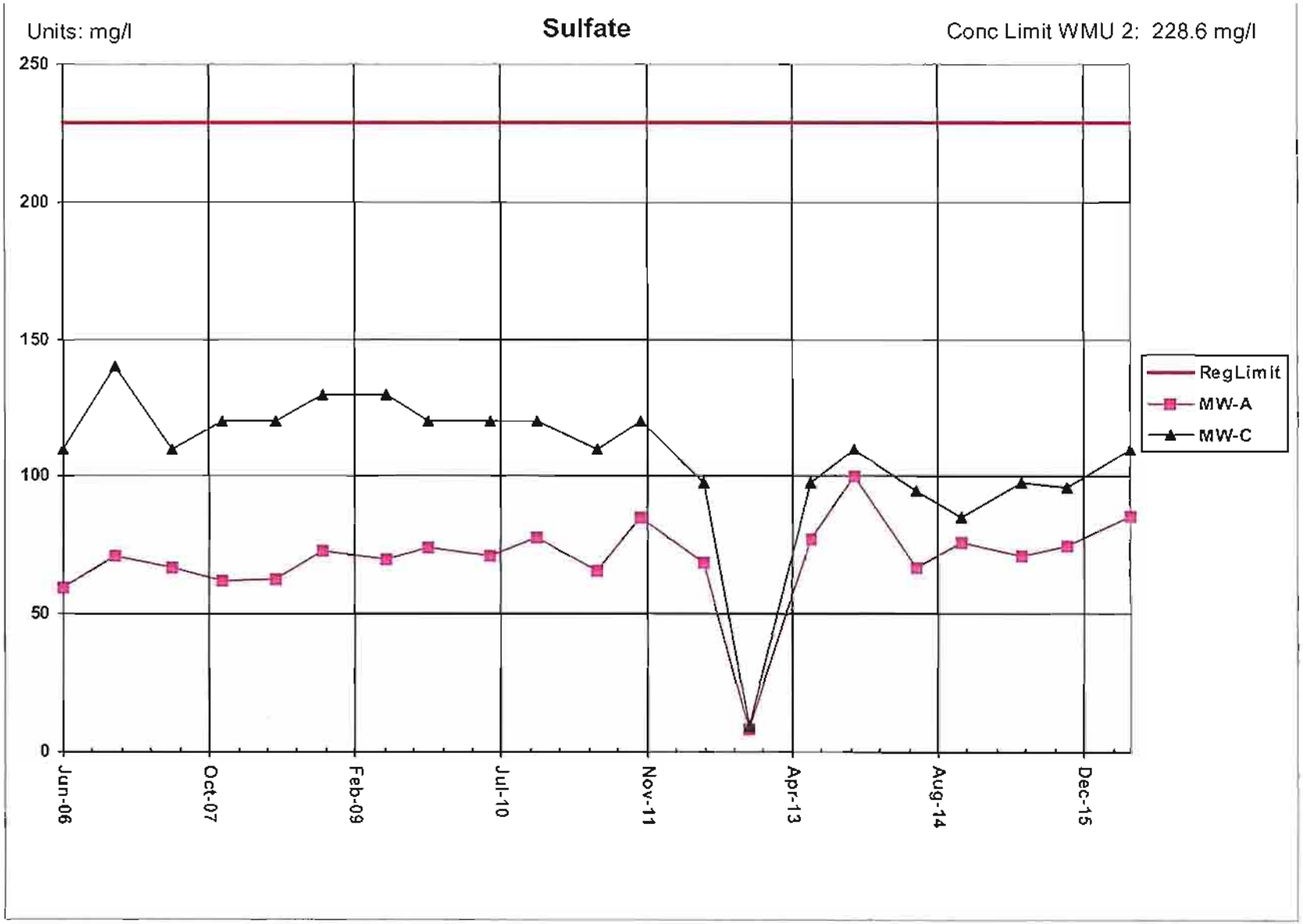

Units: mg/l
Calcium
Conc Limit WMU 2: 131.5 mg/l
140
120
100
80
60
40
20
0
Jun-06
Oct-07
Feb-09
Jul-10
Nov-11
Apr-13
Aug-14
Dec-15
RegLimit
MW-A
MW-C

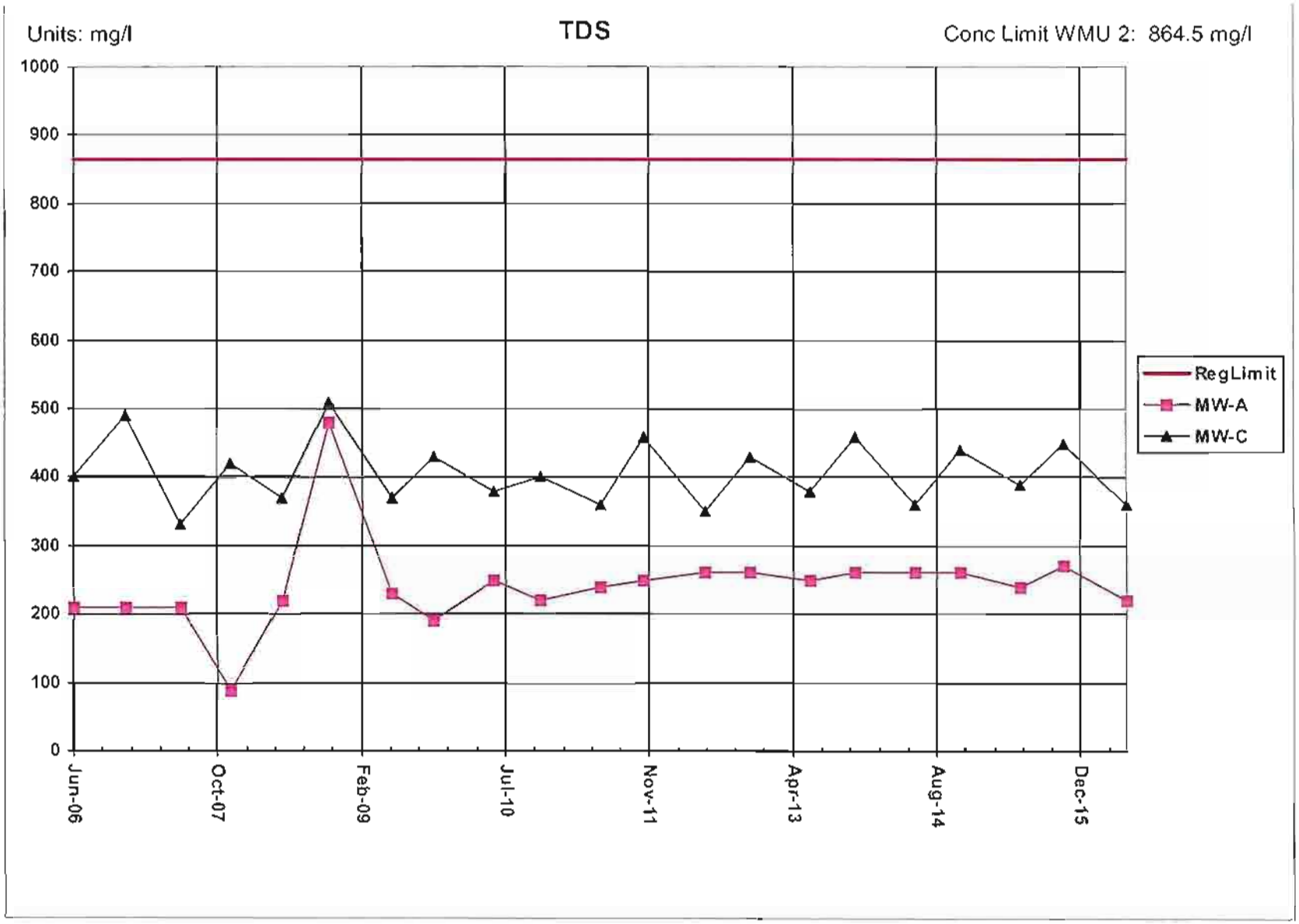

Units: mg/l
Chloride
Conc Limit WMU 2: 109.8 mg/l
120
100
80
60
40
20
0
Jun-06
Oct-07
Feb-09
Jul-10
Nov-11
Apr-13
Aug-14
Dec-15
RegLimit
MW-A
MW-C

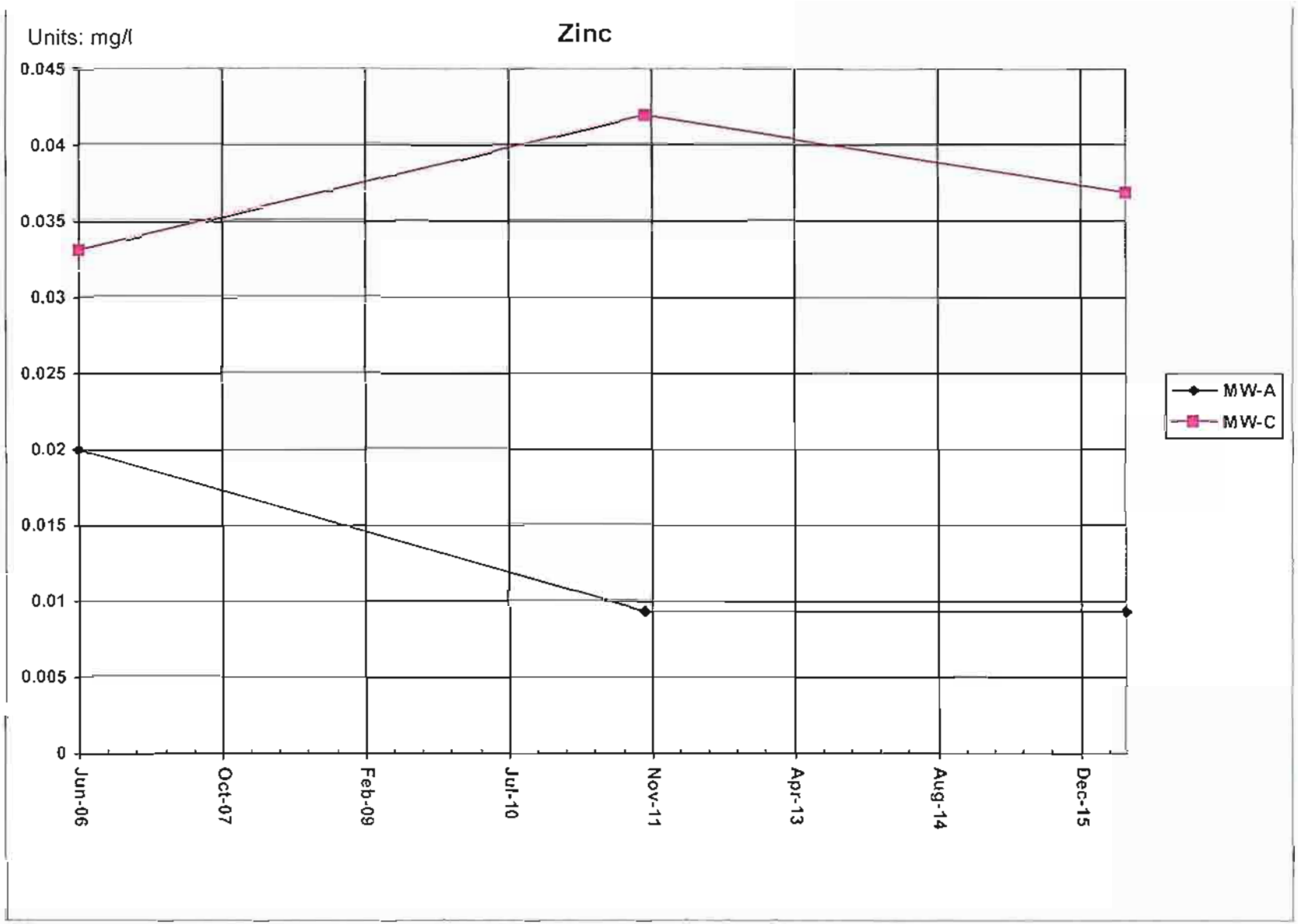

Units: mg/l
Nitrate as Nitrogen
Conc Limit WMU 2: 7.2 mg/l
8
7
6
5
4
3
2
1
0
Jun-06
Oct-07
Feb-09
Jul-10
Nov-11
Apr-13
Aug-14
Dec-15
RegLimit
MW-A
MW-C


Units: mg/l
Magnesium
Conc Limit WMU 2: 37.8 mg/l
40
35
30
25
20
15
10
5
0
Jun-06
Oct-07
Feb-09
Jul-10
Nov-11
Apr-13
Aug-14
Dec-15
RegLimit
MW-A
MW-C


Units: mg/l
Potassium
Conc Limit WMU 2: 5.3 mg/l
14
12
10
8
6
4
2
0
Jun-06
Oct-07
Feb-09
Jul-10
Nov-11
Apr-13
Aug-14
Dec-15
RegLimit
MW-A
MW-C


Units: mg/l
Sulfate
Conc Limit WMU 2: 228.6 mg/l
250
200
150
100
50
0
Jun-06
Oct-07
Feb-09
Jul-10
Nov-11
Apr-13
Aug-14
Dec-15
RegLimit
MW-A
MW-C

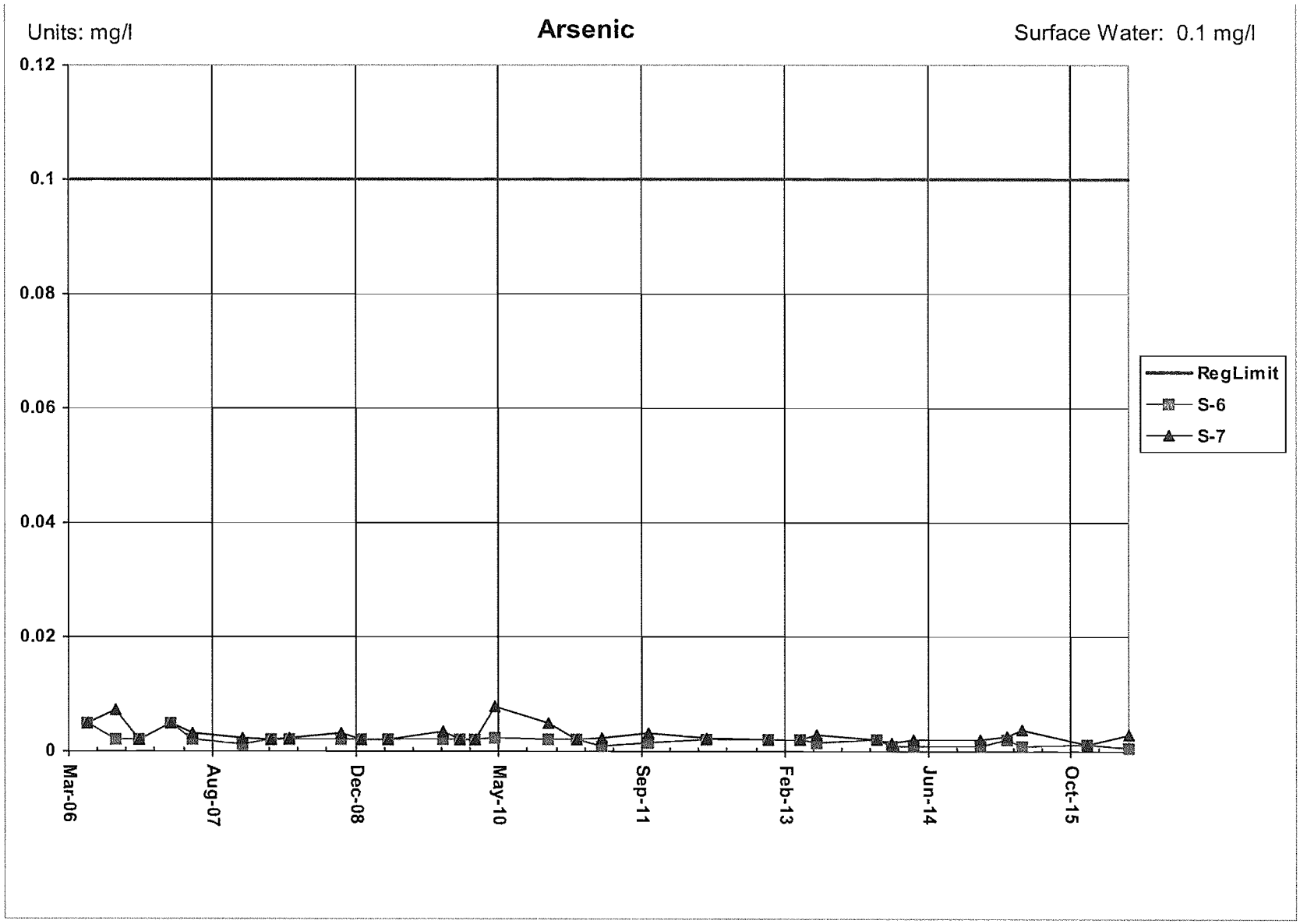

Units: mg/l
TDS
Conc Limit WMU 2: 864.5 mg/l
1000
900
800
700
600
500
400
300
200
100
0
Jun-06
Oct-07
Feb-09
Jul-10
Nov-11
Apr-13
Aug-14
Dec-15
RegLimit
MW-A
MW-C

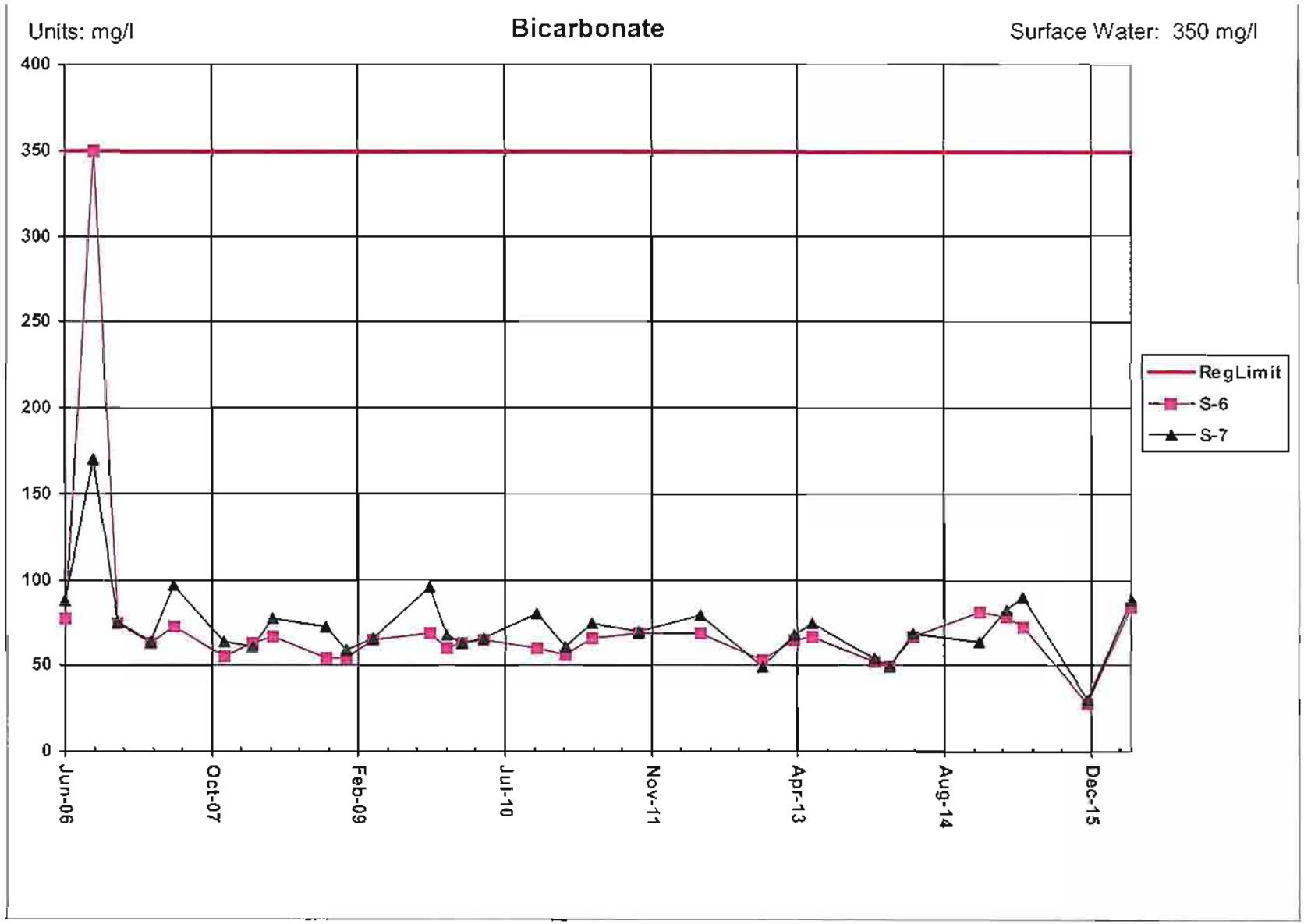

Zinc
Units: mg/l
0.045
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
Jun-06
Oct-07
Feb-09
Jul-10
Nov-11
Apr-13
Aug-14
Dec-15
MW-A
MW-C

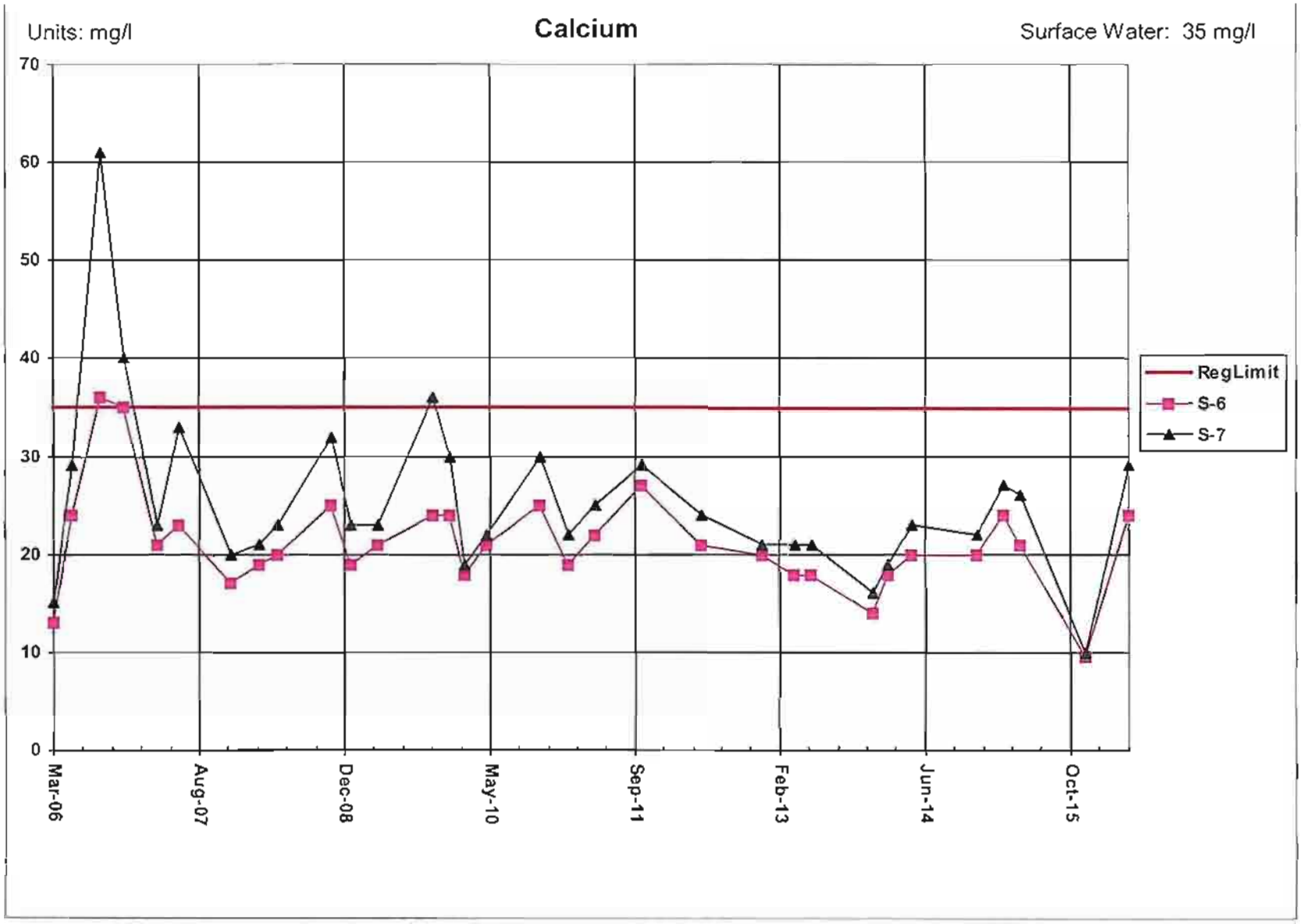

Units: mg/l
Manganese
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Jun-06
Oct-07
Feb-09
Jul-10
Nov-11
Apr-13
Aug-14
Dec-15
MW-A
MW-C

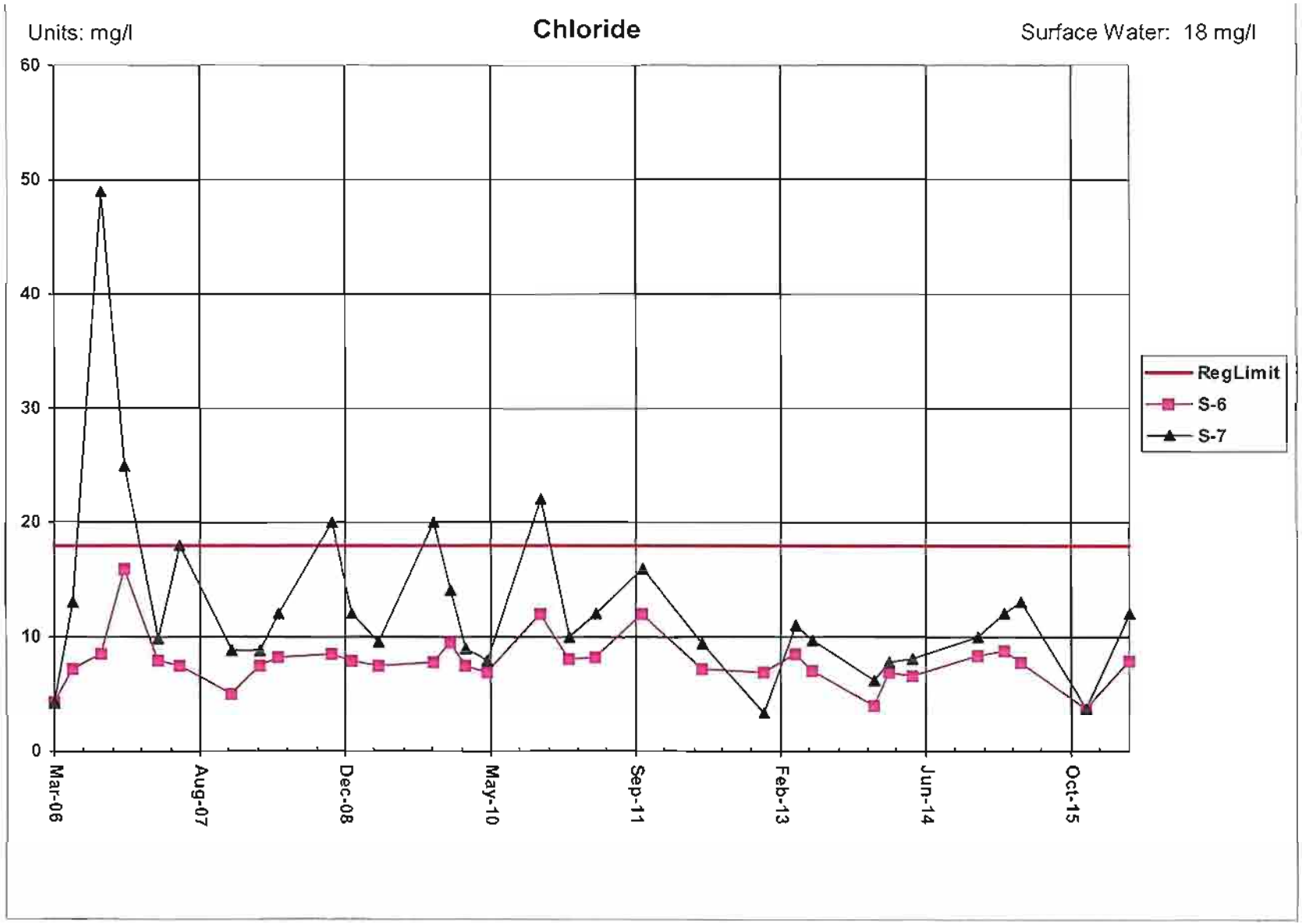
Surface Water
Time vs. Concentration Graphs

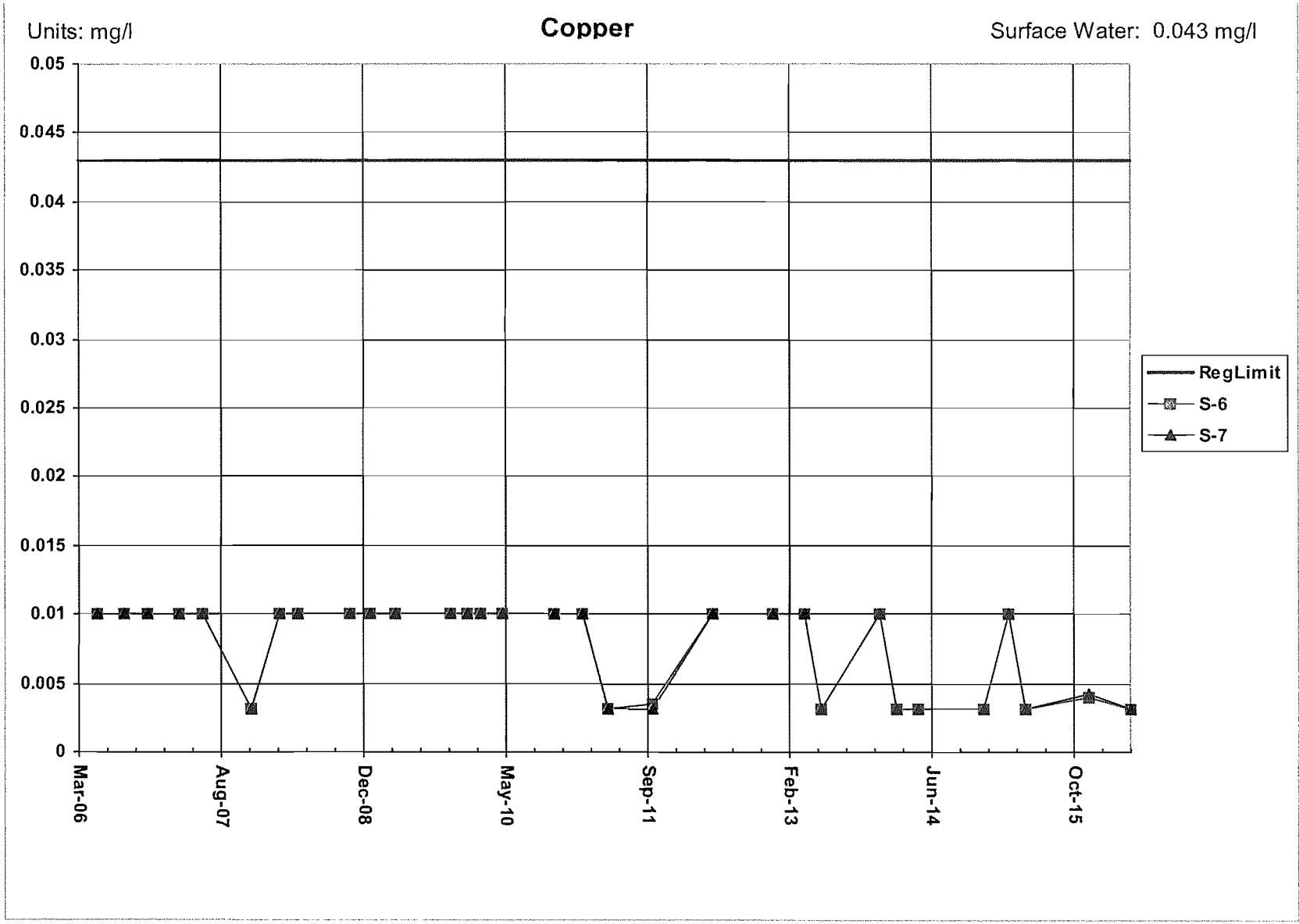
Union Mine

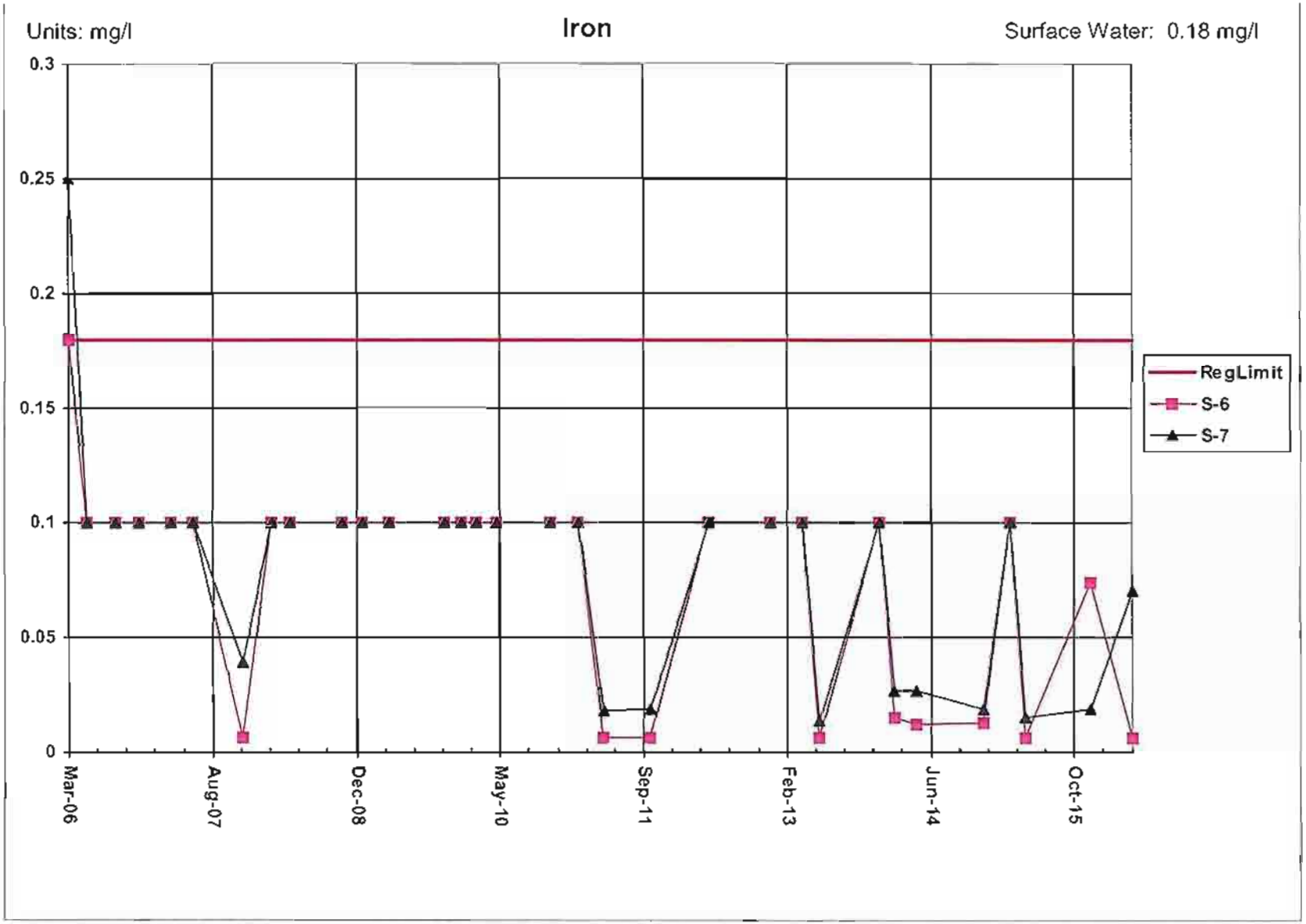

Units: mg/l
Arsenic
Surface Water: 0.1 mg/l
0.12
0.1
0.08
0.06
0.04
0.02
0
Mar-06
Aug-07
Dec-08
May-10
Sep-11
Feb-13
Jun-14
Oct-15
RegLimit
S-6
S-7

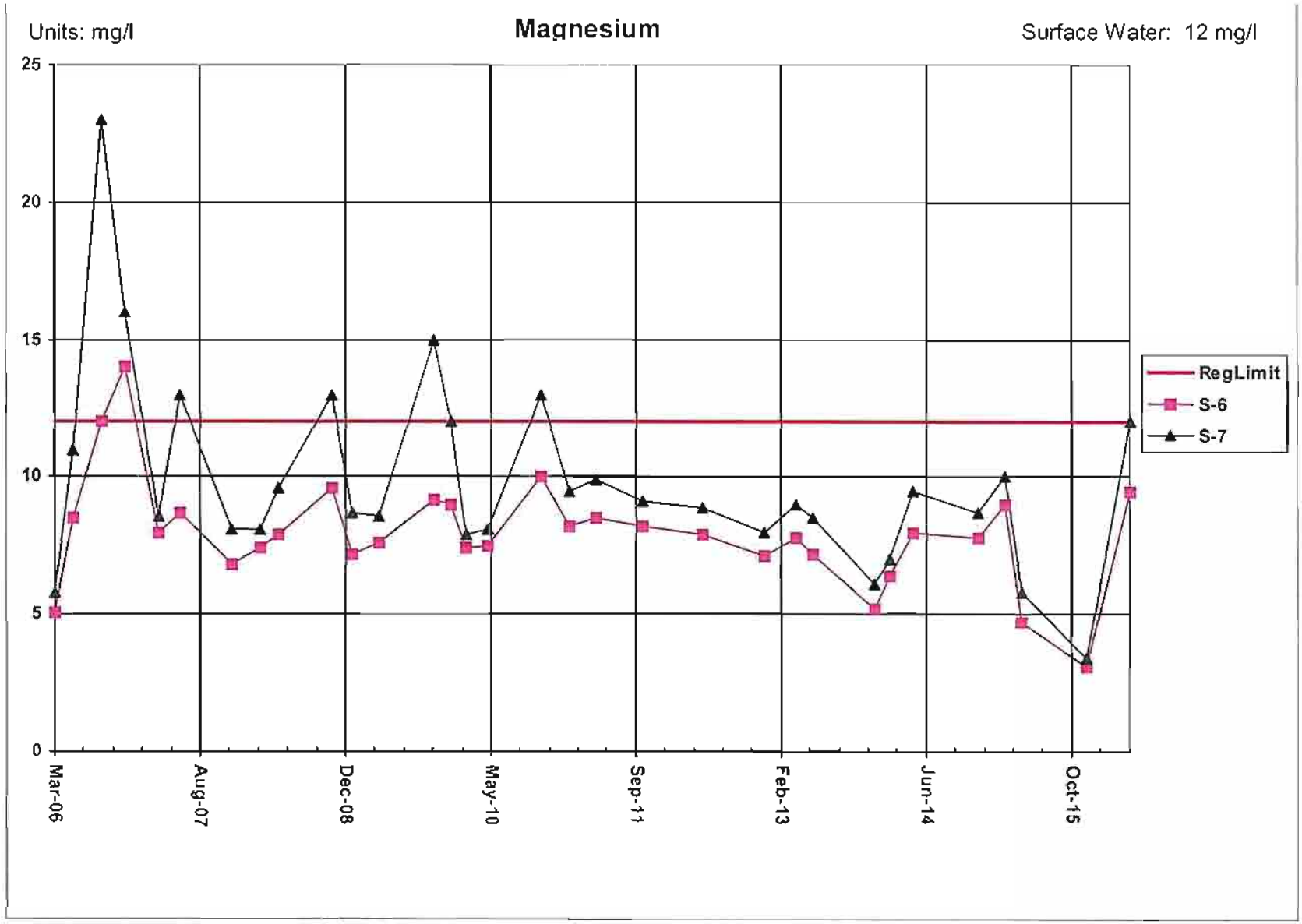

Units: mg/l
Bicarbonate
Surface Water: 350 mg/l
400
350
300
250
200
150
100
50
0
Jun-06
Oct-07
Feb-09
Jul-10
Nov-11
Apr-13
Aug-14
Dec-15
RegLimit
S-6
S-7

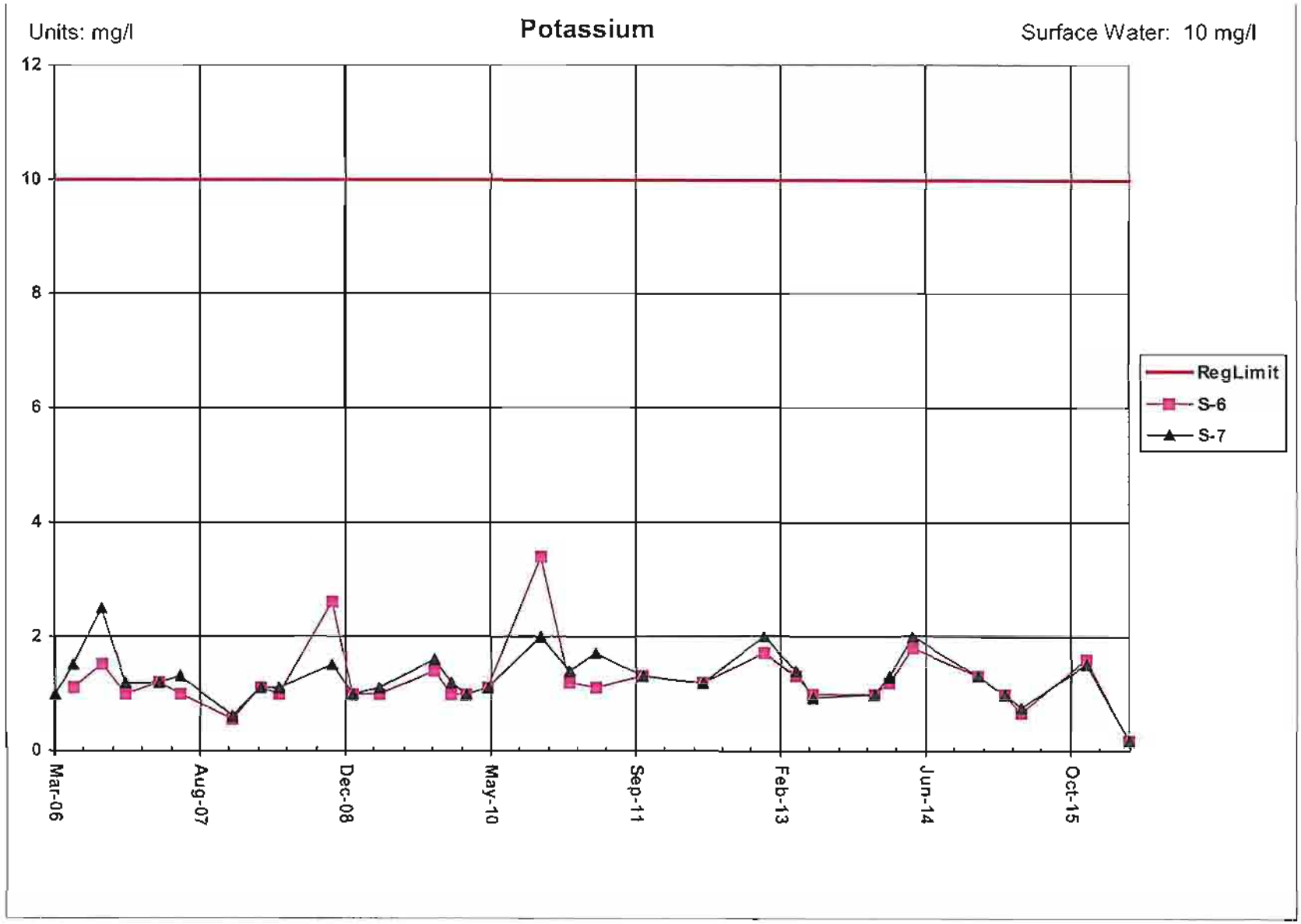

Units: mg/l
Calcium
Surface Water: 35 mg/l
70
60
50
40
30
20
10
0
Mar-06
Aug-07
Dec-08
May-10
Sep-11
Feb-13
Jun-14
Oct-15
RegLimit
S-6
S-7

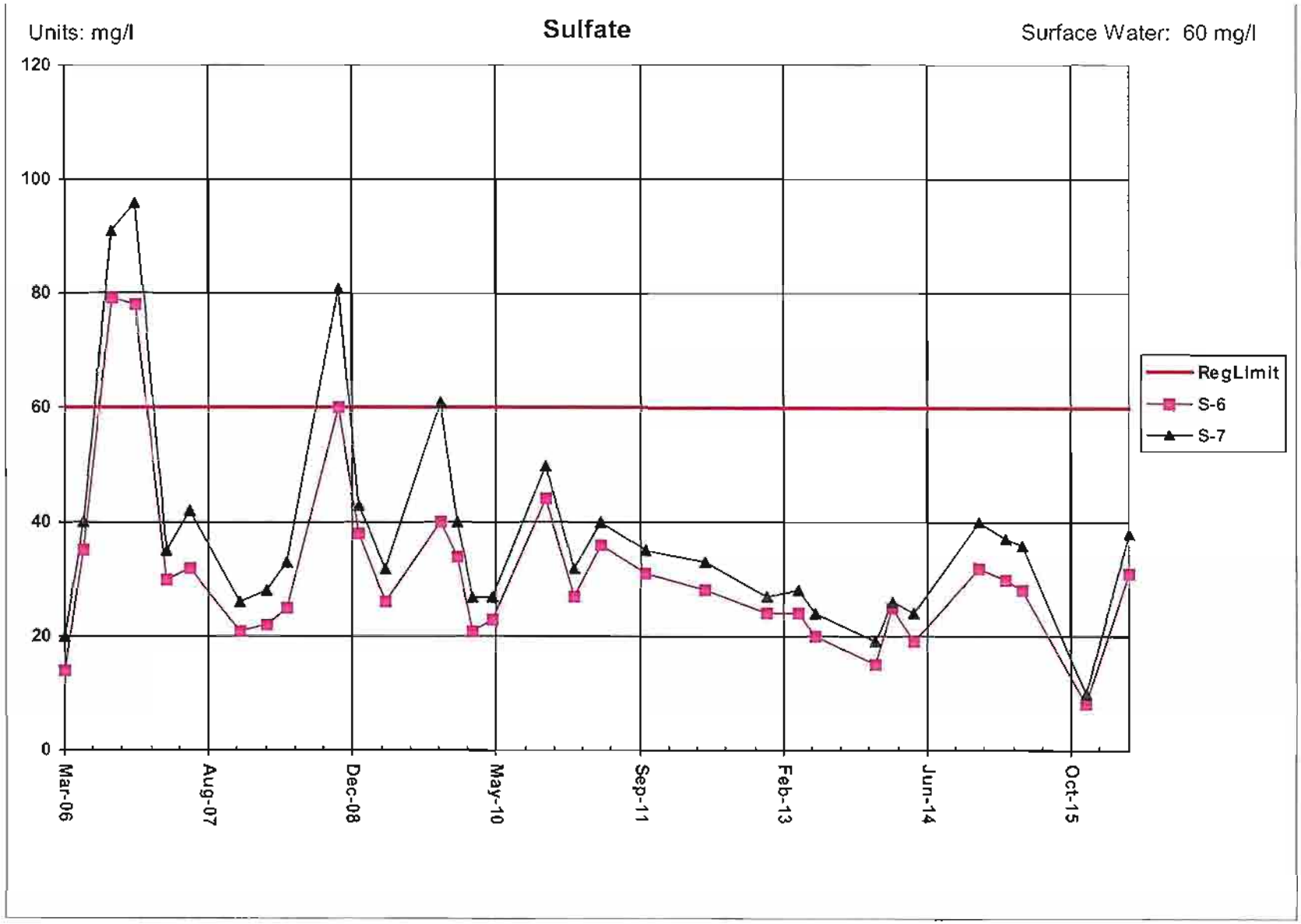

Units: mg/l
Chloride
Surface Water: 18 mg/l
60
50
40
30
20
10
0
Mar-06
Aug-07
Dec-08
May-10
Sep-11
Feb-13
Jun-14
Oct-15
RegLimit
S-6
S-7

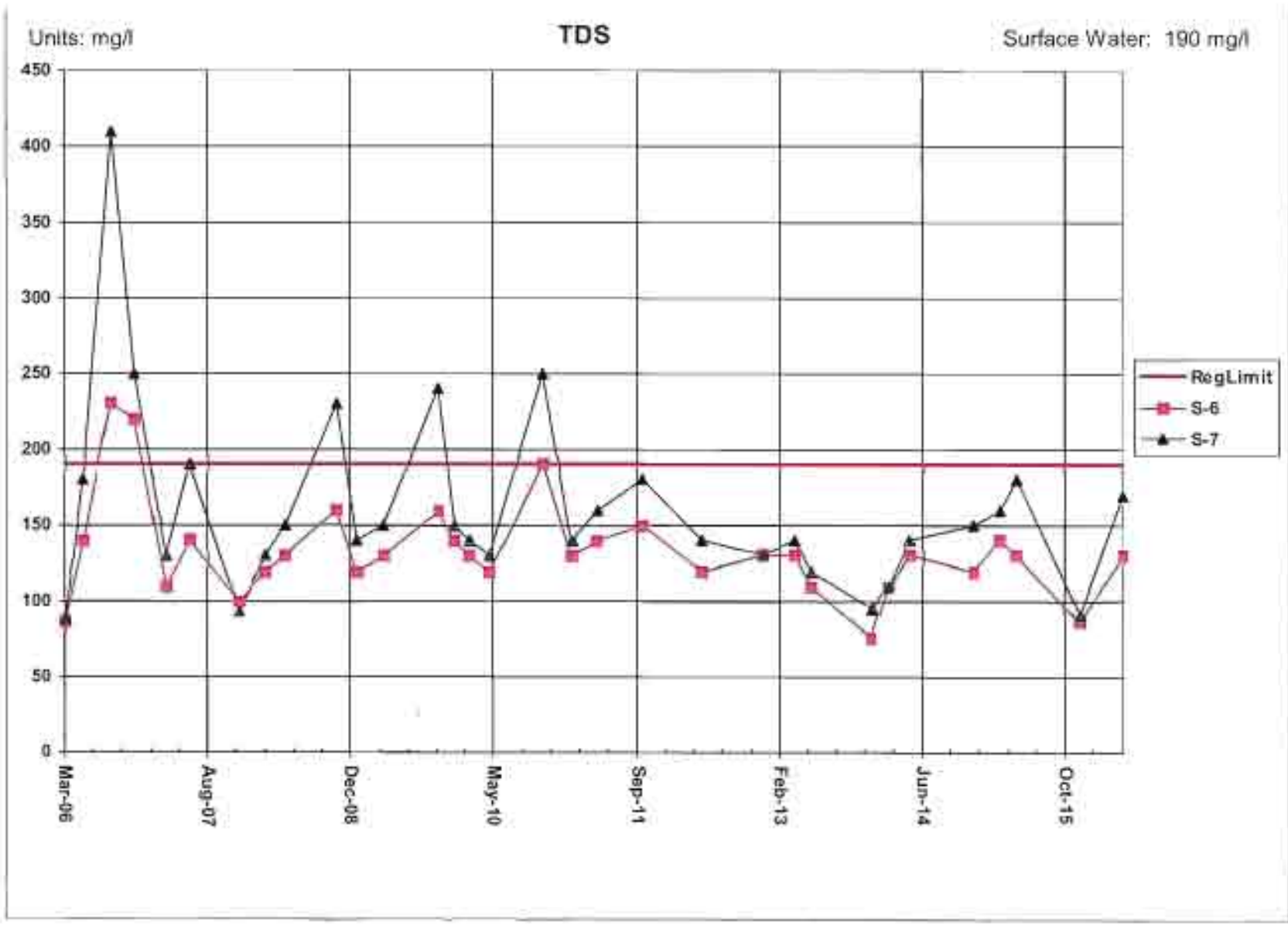

Units: mg/l
Copper
Surface Water: 0.043 mg/l
0.05
0.045
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
Mar-06
Aug-07
Dec-08
May-10
Sep-11
Feb-13
Jun-14
Oct-15
RegLimit
S-6
S-7

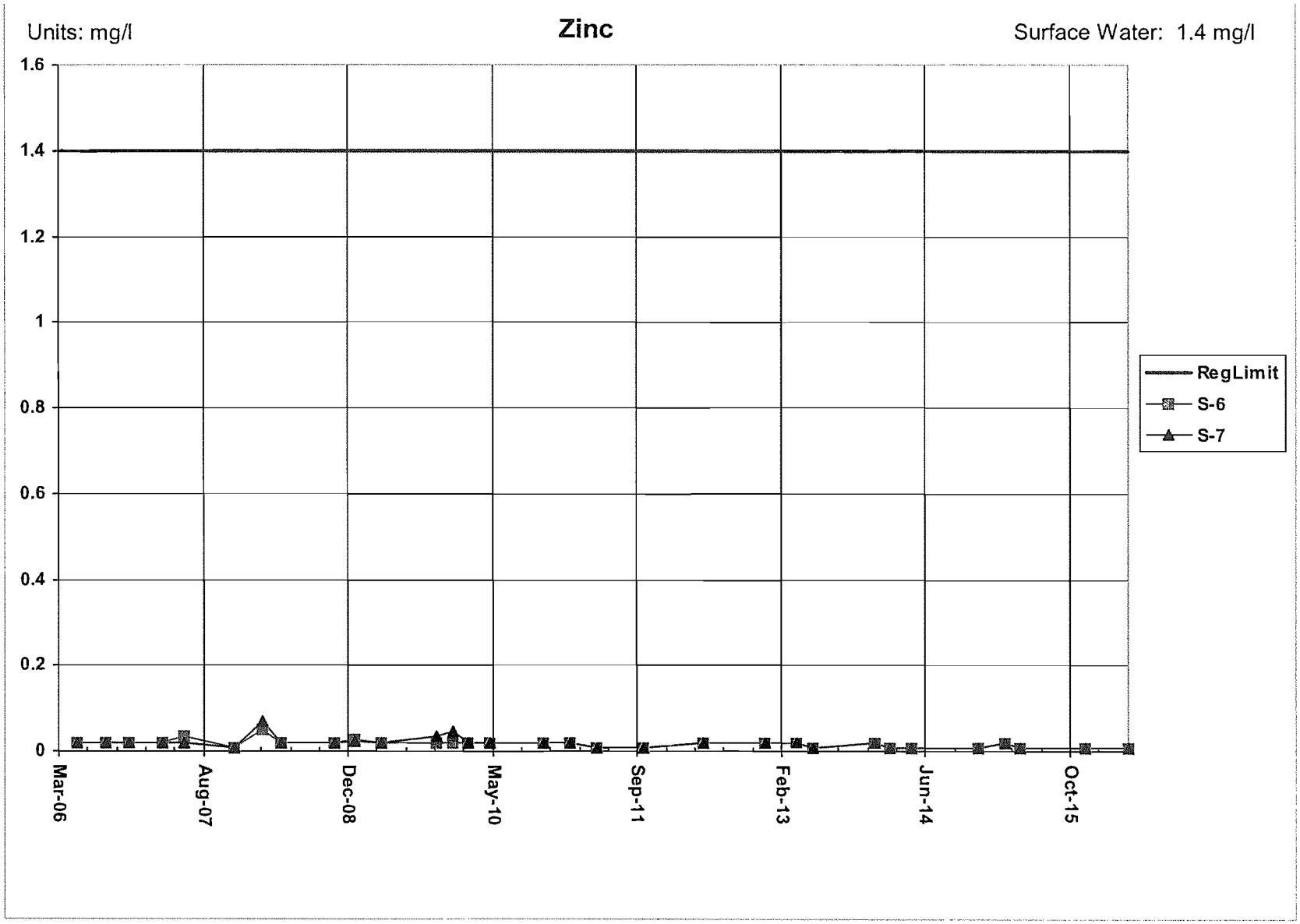

Units: mg/l
Iron
Surface Water: 0.18 mg/l
0.3
0.25
0.2
0.15
0.1
0.05
0
Mar-06
Aug-07
Dec-08
May-10
Sep-11
Feb-13
Jun-14
Oct-15
RegLimit
S-6
S-7

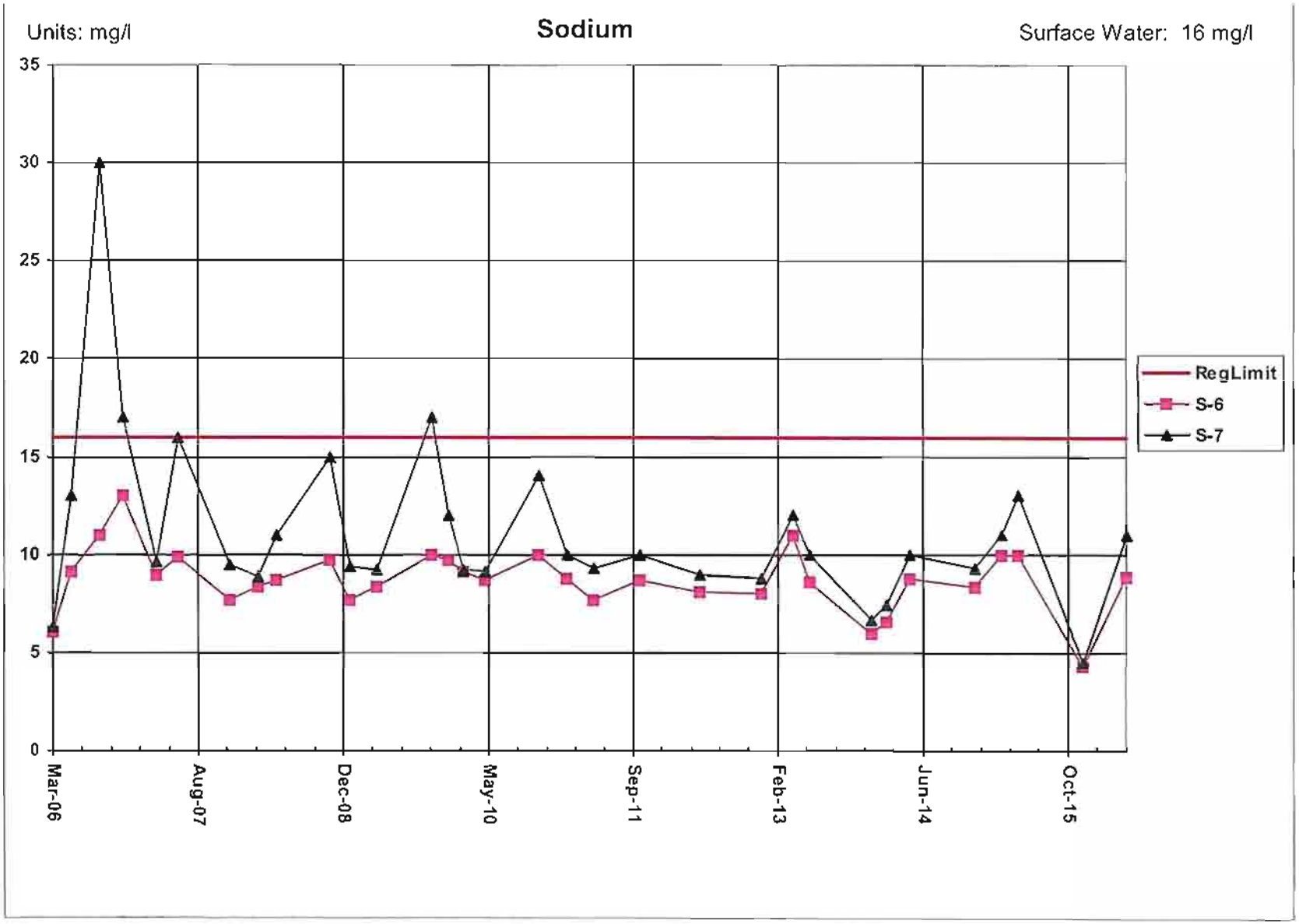

Units: mg/l
Magnesium
Surface Water: 12 mg/l
25
20
15
10
5
0
Mar-06
Aug-07
Dec-08
May-10
Sep-11
Feb-13
Jun-14
Oct-15
RegLimit
S-6
S-7

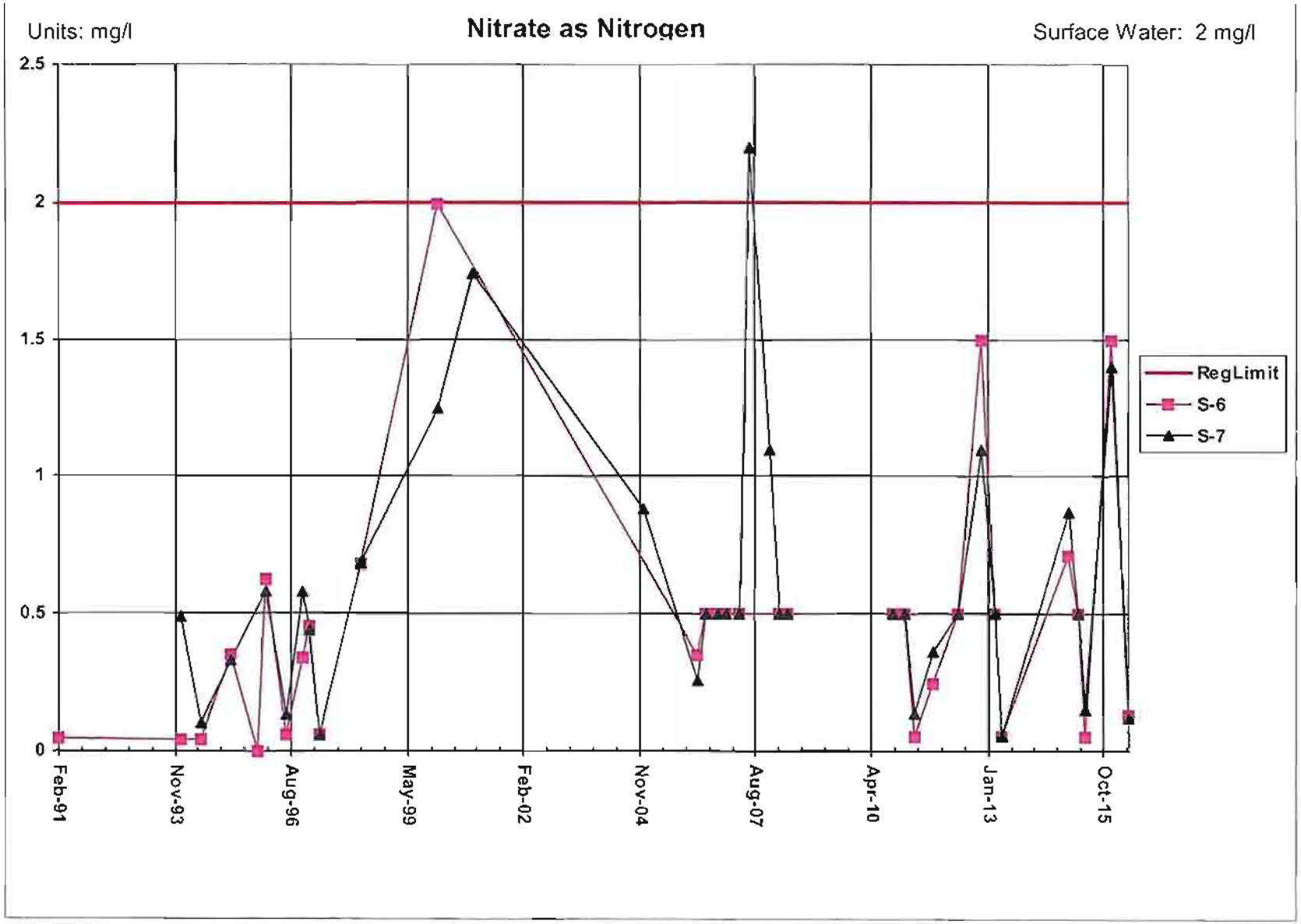

Units: mg/l
Potassium
Surface Water: 10 mg/l
12
10
8
6
4
2
0
Mar-06
Aug-07
Dec-08
May-10
Sep-11
Feb-13
Jun-14
Oct-15
RegLimit
S-6
S-7

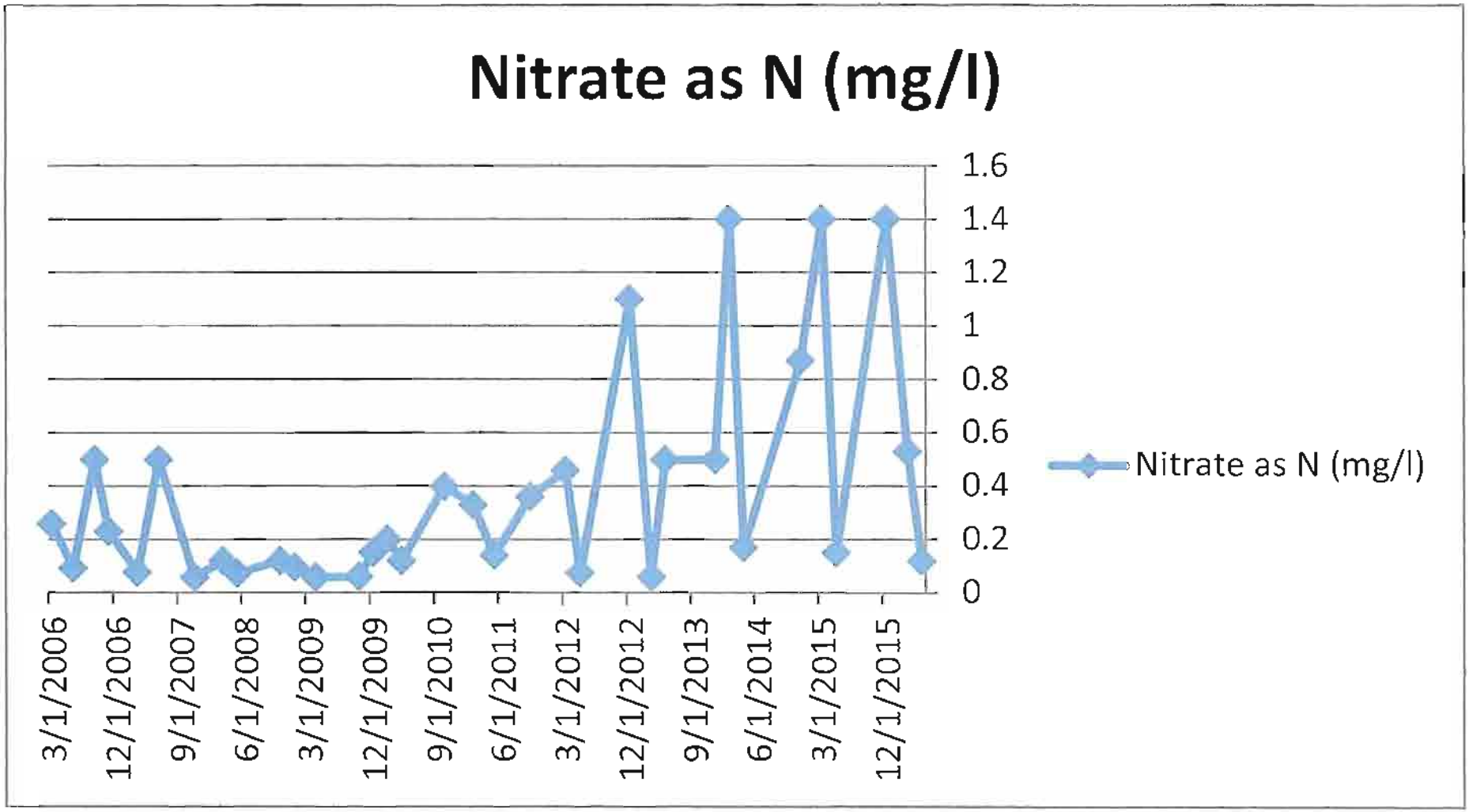

Units: mg/l
Sulfate
Surface Water: 60 mg/l
120
100
80
60
40
20
0
Mar-06
Aug-07
Dec-08
May-10
Sep-11
Feb-13
Jun-14
Oct-15
RegLimit
S-6
S-7


Units: mg/l
TDS
Surface Water: 190 mg/l
450
400
350
300
250
200
150
100
50
0
Mar-06
Aug-07
Dec-08
May-10
Sep-11
Feb-13
Jun-14
Oct-15
RegLimit
S-6
S-7


Units: mg/l
Zinc
Surface Water: 1.4 mg/l
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Mar-06
Aug-07
Dec-08
May-10
Sep-11
Feb-13
Jun-14
Oct-15
RegLimit
S-6
S-7


Units: mg/l
Sodium
Surface Water: 16 mg/l
35
30
25
20
15
10
5
0
Mar-06
Aug-07
Dec-08
May-10
Sep-11
Feb-13
Jun-14
Oct-15
RegLimit
S-6
S-7


Units: mg/l
Nitrate as Nitrogen
Surface Water: 2 mg/l
2.5
2
1.5
1
0.5
0
Feb-91
Nov-93
Aug-96
May-99
Feb-02
Nov-04
Aug-07
Apr-10
Jan-13
Oct-15
RegLimit
S-6
S-7


Nitrate as N (mg/l)
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
3/1/2006
12/1/2006
9/1/2007
6/1/2008
3/1/2009
12/1/2009
9/1/2010
6/1/2011
3/1/2012
12/1/2012
9/1/2013
6/1/2014
3/1/2015
12/1/2015
Nitrate as N (mg/l)

Appendix D

Statistical Analysis of Background Data

Spring

2016

Union Mine

Appendix D

Statistical Analysis of Background Data and Development of Site Concentration Limits PROUCL version 5.0

Robert A. Lauritzen
June 2016

METHODS

For each Monitoring Parameter and Constituent of Concern, statistical analysis of the background data and calculation of Concentration Limits were performed according to the following general procedures:

1. Uncensored background data are analyzed using EPA's ProUCL 5.0 Background threshold values (BTV)

2. Generate general statistical information including standard deviation, skewness, kurtosis, and goodness of fit for normal, lognormal, gamma distributions and nonparametric tests for are provided.

3. Use appropriate nonparametric test statistic calculated by ProUCL using all detects and non-detects (if applicable) to determine concentration limit for each constituent.

4. Results of each constituent for each dataset (WMU-1, WMU-2 and Surface Water) are attached in this appendix.

Additional Statistical Information using ProUCL 5.0

- Additional dataset information provided includes number of: observations, detects, non-detects, minimum and maximum, etc. provided for each constituent evaluation in all datasets.

- ProUCL notes whether or not a specific dataset follows a particular distribution at the 95% significance level. The majority of datasets at Union Mine do not follow normal, lognormal and/or gamma distributions therefore nonparametric methods were used.

- Use of nonparametric 95% Chebyshev UPL test statistic considered the appropriate test statistic.

WMU-1 Background Data

ProUCL 5.0 indicates that WMU-1 background data do not have normal, lognormal or gamma distributions at the 5% significance level. Since the constituents analyzed in the WMU-1 dataset do not follow a discernable distribution at the 5% significance level, non-parametric statistical methods in ProUCL were evaluated. The 95% Chebyshev UPL was considered appropriate since the confidence coefficient (CC) was below 0.95 indicating that insufficient coverage at the 95% significance level was likely to result if a UTL was used. Chebyshev's 95% UPL will provide sufficient coverage and greatly reduce the risk of false positives in compliance wells for WMU-1 data.

Future statistical analyses of the WMU-1 dataset should consider using the nonparametric 95% upper simultaneous limit (USL) due to the uncertainty whether or not background wells are truly representative of background conditions in a subsurface environment at the former gold mine with significant hydrothermal alteration which greatly affects monitoring parameter concentrations. Background wells are located outside the area of former gold mine activities.

Additional information and technical guidance can be found at the following EPA website:
http://www.epa.gov/osp/hstl/tsc/software.htm

Monitoring Parameters – WMU-1

TDS
Uncensored dataset consisted of 164 values ranging from a minimum of 18 to a maximum of 790. Second largest value was 580. Data are not normal, gamma or lognormal at 5% significance level. Use of Non-parametric Upper Limits for Background Threshold Values with a Confidence Coefficient (CC) achieved UTL is 0.917 which is less than the 0.95 required for full coverage and prevent false positives, therefore use of Chebyshev 95% UPL is indicated. Chebyshev's 95% UPL was 655.4 mg/l for the Concentration Limit.

Bicarbonate
Uncensored dataset consisted of 63 values ranging from a minimum of 160 to a maximum of 410. Second largest value was 270. Data are not normal, gamma or lognormal at 5% significance level. Use of Non-parametric Upper Limits for Background Threshold Values with a Confidence Coefficient (CC) achieved UTL is 0.83 which is less than the 0.95 required for full coverage and prevent false positives, therefore use of Chebyshev 95% UPL is indicated. Chebyshev's 95% UPL was 366.7 mg/l for the Concentration Limit.

Hydroxide
There are no detections of hydroxide in groundwater therefore the Concentration Limit is set at the detection limit of 5.0 mg/l.

Carbonate
There are no detections of carbonate in groundwater therefore the Concentration Limit is set at the detection limit of 5.0 mg/l.

Alkalinity
Alkalinity concentrations are linked directly to bicarbonate concentrations (no hydroxide or carbonate) therefore the Concentration Limit is set as 366.7 mg/l.

Chloride
Uncensored dataset consisted of 165 values ranging from a minimum of 1 to a maximum of 110. Second largest value was 97. Data are not normal, gamma or lognormal at 5% significance level. Use of Non-parametric Upper Limits for Background Threshold Values with a Confidence Coefficient (CC) achieved UTL is 0.919 which is less than the 0.95 required for full coverage and prevent false positives, therefore use of Chebyshev 95% UPL is indicated. Chebyshev's 95% UPL was 56.3 mg/l for the Concentration Limit.

Nitrate as N
Uncensored dataset consisted of 148 values ranging from a minimum of 0.03 to a maximum of 39. Number of detects was 41 and number of non-detects 107. Data are not normal, gamma or lognormal at 5% significance level. Use of Non-parametric Upper Limits for Background Threshold Values with a Confidence Coefficient (CC) achieved UTL is 0.867 which is less than the 0.95 required for full coverage and prevent false positives, therefore use of Chebyshev 95% UPL is indicated. Chebyshev's 95% UPL was 14.42 mg/l for the Concentration Limit.

Sulfate
Uncensored dataset consisted of 161 values ranging from a minimum of 2.6 to a maximum of 170. Second largest value was 150. Data are not normal, gamma or lognormal at 5% significance level. Use of Non-parametric Upper Limits for Background Threshold Values with a Confidence Coefficient (CC) achieved UTL is 0.909 which is less than the 0.95 required for full coverage and prevent false positives, therefore use of Chebyshev 95% UPL is indicated. Chebyshev's 95% UPL was 198.5 mg/l for the Concentration Limit.

Calcium
Uncensored dataset consisted of 119 values ranging from a minimum of 34 to a maximum of 230. Second largest value was 180. Data are not normal, gamma or lognormal at 5% significance level. Use of Non-parametric Upper Limits for Background Threshold Values with a Confidence Coefficient (CC) achieved UTL is 0.851 which is less than the 0.95 required for full coverage and prevent false positives, therefore use of Chebyshev 95% UPL is indicated. Chebyshev's 95% UPL was 190 mg/l for the Concentration Limit.

Magnesium
Uncensored dataset consisted of 119 values ranging from a minimum of 5.7 to a maximum of 29. Second largest value was 28. Data are not normal, gamma or lognormal at 5% significance level. Use of Non-parametric Upper Limits for Background Threshold Values with a Confidence Coefficient (CC) achieved UTL is 0.851 which is less than the 0.95 required for full coverage and prevent false positives, therefore use of Chebyshev 95% UPL is indicated. Chebyshev's 95% UPL was 27.9 mg/l for the Concentration Limit.

Potassium
Uncensored dataset consisted of 14 values ranging from a minimum of 0.28 to a maximum of 8. Number of detects was 78 and number of non-detects 36. Data are not normal, gamma or lognormal at 5% significance level. Use of Non-parametric Upper Limits for Background Threshold Values with a Confidence Coefficient (CC) achieved UTL is 0.827which is less than the 0.95 required for full coverage to prevent false positives, therefore use of Chebyshev 95% UPL is indicated. Chebyshev's 95% UPL was 5.56 mg/l for the Concentration Limit.

Sodium
Uncensored dataset consisted of 125 values ranging from a minimum of 4.7 to a maximum of 64. Second largest value was 49. Data are not normal, gamma or lognormal at 5% significance level. Use of Non-parametric Upper Limits for Background Threshold Values with a Confidence Coefficient (CC) achieved UTL is 0.876 which is less than the 0.95 required for full coverage and prevent false positives, therefore use of Chebyshev 95% UPL is indicated. Chebyshev's 95% UPL was 59.8 mg/l for the Concentration Limit.

Arsenic
No Concentration Limit required as per permit.

Iron
No Concentration Limit required as per permit.

WMU-2 Background Data

Background data consists of lab results combined from one background well MWC (and former background well MWB) is a relatively shallow screened monitoring well. Uncensored background data are combined into one dataset for WMU-2 with the following distributions at the 5% significance level: four data subsets do not follow a discernable distribution and are non-parametric, four have normal distributions and one has a lognormal distribution. Non-parametric methods were followed for the entire data set because the majority of the datasets indicated a non-parametric distribution at the 5% significance level. In addition, the confidence coefficient (CC) achieved for using nonparametric UTL values was below 0.95 for all constituents indicating that insufficient coverage was likely to result in using a UTL and the 95% Chebyshev UPL is more appropriate. Chebyshev's 95% UPL will provide sufficient coverage and greatly reduce the risk of false positives for WMU-2 data.

Monitoring Parameters – WMU-2

TDS
Uncensored dataset consisted of 38 values ranging from a minimum of 180 to a maximum of 510. Data are normal at 5% significance level, however because the majority of constituents in this dataset are not normal, gamma or lognormal at the 5% significance level non-parametric methods were utilized. Use of Non-parametric Upper Limits for Background Threshold Values with a Confidence Coefficient (CC) achieved UTL is 0.858 which is less than the 0.95 required for full coverage and prevent false positives, therefore use of Chebyshev 95% UPL is indicated. Chebyshev's 95% UPL was 864.5 mg/l for the Concentration Limit.

Bicarbonate
Uncensored dataset consisted of 21 values ranging from a minimum of 110 to a maximum of 190. Data are normal, gamma and lognormal at 5% significance level, however because the majority of constituents in this dataset are not normal, gamma or lognormal at the 5% significance level non-parametric methods were utilized. Use of Non-parametric Upper Limits for Background Threshold Values with a Confidence Coefficient (CC) achieved UTL is 0.659 which is less than the 0.95 required for full coverage and prevent false positives, therefore use of Chebyshev 95% UPL is indicated. Chebyshev's 95% UPL was 266 mg/l for the Concentration Limit.

Hydroxide
There are no detections of hydroxide in groundwater therefore the Concentration Limit is set at the detection limit of 5.0 mg/l.

Carbonate
There are no detections of carbonate in groundwater therefore the Concentration Limit is set at the detection limit of 5.0 mg/l.

Alkalinity
Alkalinity concentrations are linked directly to bicarbonate concentrations (no hydroxide or carbonate) therefore the Concentration Limit is set as 266 mg/l.

Chloride
Uncensored dataset consisted of 38 values ranging from a minimum of 11 to a maximum of 65. Second largest value was 63. Data are not normal, gamma or lognormal at 5% significance level. Use of Non-parametric Upper Limits for Background Threshold Values with a Confidence Coefficient (CC) achieved UTL is 0.858 which is less than the 0.95 required for full coverage and prevent false positives, therefore use of Chebyshev 95% UPL is indicated. Chebyshev's 95% UPL was 109.8 mg/l for the Concentration Limit.

Nitrate as N
Uncensored dataset consisted of 36 values ranging from a minimum of 0.066 to a maximum of 9.262. Data are lognormal at 5% significance level, however because the majority of constituents in this dataset are not normal, gamma or lognormal at the 5% significance level non-parametric methods were utilized. Use of Non-parametric Upper Limits for Background Threshold Values with a Confidence Coefficient (CC) achieved UTL is 0.842 which is less than the 0.95 required for full coverage and prevent false positives, therefore use of Chebyshev 95% UPL is indicated. Chebyshev's 95% UPL was 7.2 mg/l for the Concentration Limit.

Sulfate
Uncensored dataset consisted of 38 values ranging from a minimum of 9.4 to a maximum of 150. Second largest value was 140. Data are not normal, gamma or lognormal at 5% significance level. Use of Non-parametric Upper Limits for Background Threshold Values with a Confidence Coefficient (CC) achieved UTL is 0.858 which is less than the 0.95 required for full coverage and prevent false positives, therefore use of Chebyshev 95% UPL is indicated. Chebyshev's 95% UPL was 228.6 mg/l for the Concentration Limit.

Calcium
Uncensored dataset consisted of 39 values ranging from a minimum of 36 to a maximum of 94. Second largest value was 90. Data are not normal, gamma or lognormal at 5% significance level. Use of Non-parametric Upper Limits for Background Threshold Values with a Confidence Coefficient (CC) achieved UTL is 0.865 which is less than the 0.95 required for full coverage and prevent false positives, therefore use of Chebyshev 95% UPL is indicated. Chebyshev's 95% UPL was 131.5 mg/l for the Concentration Limit.

Magnesium
Uncensored dataset consisted of 38 values ranging from a minimum of 8.1 to a maximum of 28. Second largest value was 26. Data are not normal, gamma or lognormal at 5% significance level. Use of Non-parametric Upper Limits for Background Threshold

Values with a Confidence Coefficient (CC) achieved UTL is 0.858 which is less than the 0.95 required for full coverage and prevent false positives, therefore use of Chebyshev 95% UPL is indicated. Chebyshev's 95% UPL was 37.82 mg/l for the Concentration Limit.

Sodium
Uncensored dataset consisted of 38 values ranging from a minimum of 9.9 to a maximum of 37. Data are normal at 5% significance level, however because the majority of constituents in this dataset are not normal, gamma or lognormal at the 5% significance level non-parametric methods were utilized. Use of Non-parametric Upper Limits for Background Threshold Values with a Confidence Coefficient (CC) achieved UTL is 0.858 which is less than the 0.95 required for full coverage and prevent false positives, therefore use of Chebyshev 95% UPL is indicated. Chebyshev's 95% UPL was 54.99 mg/l for the Concentration Limit.

Potassium
Uncensored dataset consisted of 38 values ranging from a minimum of 1.6 to a maximum of 4.0. Data are normal at 5% significance level, however because the majority of constituents in this dataset are not normal, gamma or lognormal at the 5% significance level non-parametric methods were utilized. Use of Non-parametric Upper Limits for Background Threshold Values with a Confidence Coefficient (CC) achieved UTL is 0.858 which is less than the 0.95 required for full coverage and prevent false positives, therefore use of Chebyshev 95% UPL is indicated. Chebyshev's 95% UPL was 5.278 mg/l for the Concentration Limit.

Arsenic
No Concentration Limit required as per permit.

Iron
No Concentration Limit required as per permit

Surface Water Background Data

Background data consists of lab results combined from one background well as defined in the Union Mine permit. Monitoring point S-6 is a located approximately 100 yards upstream from the Union Mine outfall into Martinez Creek. Uncensored background data have the following distributions at the 5% significance level: eight (8) data subsets do not follow a discernable distribution and are non-parametric, one (1) has a normal distribution, four (4) have a gamma distribution and three (3) have a lognormal distribution. Non-parametric methods were followed for the entire data set because the majority of the datasets indicated a non-parametric distribution at the 5% significance level. In addition, the confidence coefficient (CC) achieved for using nonparametric UTL values was below 0.95 for all constituents indicating that insufficient coverage was likely to result in using a UTL and the 95% Chebyshev UPL is more appropriate. Chebyshev's 95% UPL will provide sufficient coverage and greatly reduce the risk of false positives in surface water data.

Monitoring Parameters – Surface Water

TSS
Uncensored dataset consisted of 10460 values ranging from a minimum of 4 to a maximum of 72. Data are gamma and lognormal at 5% significance level, however because the majority of constituents in this dataset are not normal, gamma or lognormal at the 5% significance level non-parametric methods were utilized. Use of Non-parametric Upper Limits for Background Threshold Values with a Confidence Coefficient (CC) achieved UTL is 0.808 which is less than the 0.95 required for full coverage and prevent false positives, therefore use of Chebyshev 95% UPL is indicated. Chebyshev's 95% UPL was 44.79 mg/l for the Concentration Limit.

TDS
Uncensored dataset consisted of 104 values ranging from a minimum of 57 to a maximum of 230. Data are lognormal at 5% significance level, however because the majority of constituents in this dataset are not normal, gamma or lognormal at the 5% significance level non-parametric methods were utilized. Use of Non-parametric Upper Limits for Background Threshold Values with a Confidence Coefficient (CC) achieved UTL is 0.897 which is less than the 0.95 required for full coverage and prevent false positives, therefore use of Chebyshev 95% UPL is indicated. Chebyshev's 95% UPL was 240.1 mg/l for the Concentration Limit.

Bicarbonate
Uncensored dataset consisted of 33 values ranging from a minimum of 28 to a maximum of 350. Second largest value was 84. Data are not normal, gamma or lognormal at 5% significance level. Use of Non-parametric Upper Limits for Background Threshold Values with a Confidence Coefficient (CC) achieved UTL is 0.0.816 which is less than the 0.95 required for full coverage and prevent false positives, therefore use of

Chebyshev 95% UPL is indicated. Chebyshev's 95% UPL was 298.7 mg/l for the Concentration Limit.

Hydroxide
There are no detections of hydroxide in groundwater therefore the Concentration Limit is set at the detection limit of 5.0 mg/l.

Carbonate
There are no detections of carbonate in groundwater therefore the Concentration Limit is set at the detection limit of 5.0 mg/l.

Alkalinity
Alkalinity concentrations are linked directly to bicarbonate concentrations (no hydroxide or carbonate) therefore the Concentration Limit is set as 298.7 mg/l.

Chloride
Uncensored dataset consisted of 106 values ranging from a minimum of 2.7 to a maximum of 106. Data are not normal, gamma or lognormal at 5% significance level. Use of Non-parametric Upper Limits for Background Threshold Values with a Confidence Coefficient (CC) achieved UTL is 0.904 which is less than the 0.95 required for full coverage and prevent false positives, therefore use of Chebyshev 95% UPL is indicated. Chebyshev's 95% UPL was 52.3 mg/l for the Concentration Limit.

Nitrate as N
Uncensored dataset consisted of 83 values ranging from a minimum of 0.04 to a maximum of 3.0. Data are lognormal at 5% significance level, however because the majority of constituents in this dataset are not normal, gamma or lognormal at the 5% significance level non-parametric methods were utilized. Use of Non-parametric Upper Limits for Background Threshold Values with a Confidence Coefficient (CC) achieved UTL is 0.791 which is less than the 0.95 required for full coverage and prevent false positives, therefore use of Chebyshev 95% UPL is indicated. Chebyshev's 95% UPL was 2.51 mg/l for the Concentration Limit.

Sulfate
Uncensored dataset consisted of 104 values ranging from a minimum of 0.39 to a maximum of 79. Data are not normal, gamma or lognormal at 5% significance level. Use of Non-parametric Upper Limits for Background Threshold Values with a Confidence Coefficient (CC) achieved UTL is 0.897 which is less than the 0.95 required for full coverage and prevent false positives, therefore use of Chebyshev 95% UPL is indicated. Chebyshev's 95% UPL was 76.86 mg/l for the Concentration Limit.

Calcium
Uncensored dataset consisted of 84 values ranging from a minimum of 9.6 to a maximum of 46. Data are lognormal at 5% significance level, however because the majority of constituents in this dataset are not normal, gamma or lognormal at the 5% significance level non-parametric methods were utilized. Use of Non-parametric Upper Limits for

Background Threshold Values with a Confidence Coefficient (CC) achieved UTL is 0.797 which is less than the 0.95 required for full coverage and prevent false positives, therefore use of Chebyshev 95% UPL is indicated. Chebyshev's 95% UPL was 42.93 mg/l for the Concentration Limit.

Magnesium
Uncensored dataset consisted of 90 values ranging from a minimum of 3.1 to a maximum of 17. Data are gamma and lognormal at 5% significance level, however because the majority of constituents in this dataset are not normal, gamma or lognormal at the 5% significance level non-parametric methods were utilized. Use of Non-parametric Upper Limits for Background Threshold Values with a Confidence Coefficient (CC) achieved UTL is 0.834 which is less than the 0.95 required for full coverage and prevent false positives, therefore use of Chebyshev 95% UPL is indicated. Chebyshev's 95% UPL was 17.18 mg/l for the Concentration Limit.

Sodium
Uncensored dataset consisted of 89 values ranging from a minimum of 4.3 to a maximum of 58. Data are not normal, gamma or lognormal at 5% significance level. Use of Non-parametric Upper Limits for Background Threshold Values with a Confidence Coefficient (CC) achieved UTL is 0828 which is less than the 0.95 required for full coverage and prevent false positives, therefore use of Chebyshev 95% UPL is indicated. Chebyshev's 95% UPL was 33.27 mg/l for the Concentration Limit.

Potassium
Uncensored dataset consisted of 62 values ranging from a minimum of 0.55 to a maximum of 22. Data are not normal, gamma or lognormal at 5% significance level. Use of Non-parametric Upper Limits for Background Threshold Values with a Confidence Coefficient (CC) achieved UTL is 0.823 which is less than the 0.95 required for full coverage and prevent false positives, therefore use of Chebyshev 95% UPL is indicated. Chebyshev's 95% UPL was 13.8 mg/l for the Concentration Limit.

Arsenic
Uncensored dataset consisted of 64 values ranging from a minimum of 0.0005 to a maximum of 0.082. Data are not normal, gamma or lognormal at 5% significance level. Use of Non-parametric Upper Limits for Background Threshold Values with a Confidence Coefficient (CC) achieved UTL is 0.836 which is less than the 0.95 required for full coverage and prevent false positives, therefore use of Chebyshev 95% UPL is indicated. Chebyshev's 95% UPL was 0.052 mg/l for the Concentration Limit.

Iron
Uncensored dataset consisted of 84 values ranging from a minimum of 0.0078 to a maximum of 0.3. Data are gamma and lognormal at 5% significance level, however because the majority of constituents in this dataset are not normal, gamma or lognormal at the 5% significance level non-parametric methods were utilized. Use of Non-parametric Upper Limits for Background Threshold Values with a Confidence Coefficient (CC) achieved UTL is 0.797 which is less than the 0.95 required for full

coverage and prevent false positives, therefore use of Chebyshev 95% UPL is indicated. Chebyshev's 95% UPL was 0.217 mg/l for the Concentration Limit.

Copper
Uncensored dataset consisted of 61 values ranging from a minimum of 0.0035 to a maximum of 0.78. Data are gamma and lognormal at 5% significance level, however because the majority of constituents in this dataset are not normal, gamma or lognormal at the 5% significance level non-parametric methods were utilized. Use of Non-parametric Upper Limits for Background Threshold Values with a Confidence Coefficient (CC) achieved UTL is 0.816 which is less than the 0.95 required for full coverage and prevent false positives, therefore use of Chebyshev 95% UPL is indicated. Chebyshev's 95% UPL was 0.451 mg/l for the Concentration Limit.

Zinc
Uncensored dataset consisted of 62 values ranging from a minimum of 0.0096 to a maximum of 2.2. Data are not normal, gamma or lognormal at 5% significance level. Use of Non-parametric Upper Limits for Background Threshold Values with a Confidence Coefficient (CC) achieved UTL is 0.823 which is less than the 0.95 required for full coverage and prevent false positives, therefore use of Chebyshev 95% UPL is indicated. Chebyshev's 95% UPL was 1.495 mg/l for the Concentration Limit.

WMU-1 ANALYSIS – Spring 2016

Contaminants of Concern

Aluminum
Background wells have a total of 18 out of 19 laboratory analyses for aluminum that are a below laboratory detection limits. Therefore, the concentration limit is set at the most recent laboratory detection limit of 50 µg/l.

Antimony
Background wells have a total of 20 out of 22 laboratory analyses for antimony that are below laboratory detection limits. Therefore, the concentration limit is set at the most recent laboratory detection limit of 6 µg/l.

Barium
Background wells have 15 detects out of a total of 16 laboratory analyses for barium. Therefore, the concentration limit is set at the nonparametric 95% Chebyshev UPL of 108 µg/l.

Beryllium
Background wells have a total of 19 out of 22 laboratory analyses for beryllium that are below laboratory detection limits. Therefore, the concentration limit is set at the most recent laboratory detection limit of 5 µg/l.

Cadmium
Background wells have a total of 22 laboratory analyses for cadmium that are all below laboratory detection limits. Therefore, the concentration limit is set at the most recent laboratory detection limit of 10 µg/l.

Chromium
Background wells have a total of 22 laboratory analyses for chromium that are all below laboratory detection limits. Therefore, the concentration limit is set at the most recent laboratory detection limit of 10 µg/l.

Cobalt
Background wells have a total of 19 laboratory analyses for cobalt that are all below laboratory detection limits. Therefore, the concentration limit is set at the most recent laboratory detection limit of 50 µg/l.

Copper
Background wells have a total 19 out of 22 laboratory analyses for copper that are below laboratory detection limits. Therefore, the concentration limit is set at the most recent laboratory detection limit of 10 µg/l.

Lead
Background wells have a total of 20 out of 22 laboratory analyses for lead that are below laboratory detection limits. Therefore, the concentration limit is set at the most recent laboratory detection limit of 5 µg/l.

Manganese
Background wells have 26 detects out of a total of 27 laboratory analyses for manganese. Therefore, the concentration limit at the nonparametric 95% Chebyshev UPL of 2,925µg/l.

Mercury
Background wells have a total of 22 out of 22 laboratory analyses for mercury that are all below laboratory detection limits. Therefore, the concentration limit is set at the most recent laboratory detection limit of 1.0 µg/l.

Nickel
Background wells have three detections out of a total of 22 laboratory analyses for nickel. Therefore, the concentration limit is set at the detection level of 20 µg/l.

Selenium
Background wells have a total of 22 laboratory analyses for selenium that are all below laboratory detection limits. Therefore, the concentration limit is set at the most recent laboratory detection limit of 5 µg/l.

Silver
Background wells have a total of 22 laboratory analyses for silver that are all below laboratory detection limits. Therefore, the concentration limit is set at the most recent laboratory detection limit of 10 µg/l.

Thallium
Background wells have a total of 19 laboratory analyses for thallium that are all below laboratory detection limits. Therefore, the concentration limit is set at the most recent laboratory detection limit of 1.0 µg/l.

Tin
Background wells have a total of 15 out of 19 laboratory analyses for tin that are below laboratory detection limits. Therefore, the concentration limit is set at the most recent laboratory detection limit of 100 µg/l.

Vanadium
Background wells have a total of 19 laboratory analyses for vanadium that are all below laboratory detection limits. Therefore, the concentration limit is set at the most recent laboratory detection limit of 3 µg/l.

Zinc
Background wells have two detects out of a total of 19 laboratory analyses for zinc. Therefore, the concentration limit is set at the highest detectable background concentration of 51µg/l.

Cyanide
Background wells have a total of 11 out of 12 laboratory analyses for cyanide that are below laboratory detection limits. Therefore, the concentration limit is set at the only detection at of 0.005 mg/l.

Sulfide
Background wells have 4 detectable values out of a total of 16 laboratory analyses for sulfide. Therefore, the concentration limit is set at the nonparametric 95% Chebyshev UPL of 4.6 mg/l.

Total Organic Carbon
Background wells have 7 detectable values out of a total of 16 laboratory analyses for total organic carbon. Therefore, the concentration limit is set at the the nonparametric 95% Chebyshev UPL of 7.4 mg/l.

WMU-2 ANALYSIS – Spring 2016

Contaminants of Concern

Aluminum
Background well has a total of 8 laboratory analyses for aluminum that are all below laboratory detection limits. Therefore, the concentration limit is set at the most recent laboratory detection limit of 50 µg/l.

Antimony
Background well has a total of 9 laboratory analyses for antimony that are all below laboratory detection limits. Therefore, the concentration limit is set at the most recent laboratory detection limit of 6 µg/l.

Barium
Background well has 6 detects out of a total of 9 laboratory analyses for barium. Therefore, the concentration limit is set at the 95% Chebyshev UPL of 33.4 µg/l.

Beryllium
Background well has a total of 9 laboratory analyses for beryllium that are all below laboratory detection limits. Therefore, the concentration limit is set at the most recent laboratory detection limit of 5 µg/l.

Cadmium
Background well has a total of 9 laboratory analyses for cadmium that are all below laboratory detection limits. Therefore, the concentration limit is set at the most recent laboratory detection limit of 10 µg/l.

Chromium
Background well has a total of 9 laboratory analyses for chromium above laboratory detection limits that are all below laboratory detection limits. Therefore, the concentration limit is set at the most recent laboratory detection limit of 10 µg/l.

Cobalt
Background well has 2 detects out of a total of 9 laboratory analyses for cobalt above laboratory detection limits. Therefore, the concentration limit is set at the most recent laboratory detection limit of 20 µg/l.

Copper
Background well has three out of a total 11 of laboratory analyses for copper that are above laboratory detection limits. Therefore, the concentration limit is set at the most recent laboratory detection limit of 10 µg/l. Note: need a minimum of five detects for meaningful statistics.

Lead
Background well has a total of 9 laboratory analyses for lead that are all below laboratory detection limits. Therefore, the concentration limit is set at the most recent laboratory detection limit of 5 µg/l.

Manganese
Background well a total of 8 laboratory analyses for manganese above laboratory detection limits. Therefore, the concentration limit is set at the 95% Chebyshev UPL concentration of 2,532 µg/l.

Mercury
Background well has a total of 9 laboratory analyses for mercury that are all below laboratory detection limits. Therefore, the concentration limit is set at the most recent laboratory detection limit of 0.2 µg/l.

Nickel
Background well has five detections out of a total of 9 laboratory analyses for nickel above laboratory detection limits. Therefore, the concentration limit is set at the 95% Chebyshev UPL concentration of 51.5 µg/l.

Selenium
Background well has a total of 3 detects out of 9 laboratory analyses for selenium above laboratory detection limits. Therefore, the concentration limit is set at the most recent laboratory detection limit of 5 µg/l. Note: need a minimum of five detects for meaningful statistics.

Silver
Background well has a total of 9 laboratory analyses for silver that are all below laboratory detection limits. Therefore, the concentration limit is set at the most recent laboratory detection limit of 10 µg/l.

Thallium
Background well has a total of 9 laboratory analyses for thallium that are all below laboratory detection limits. Therefore, the concentration limit is set at the most recent laboratory detection limit of 1 µg/l.

Tin
Background well has 2 detects out of a total of 9 laboratory analyses for tin above laboratory detection limits. Therefore, the concentration limit is set at the most recent laboratory detection limit of 100 µg/l.

Vanadium
Background wells have a total of 9 laboratory analyses for vanadium that are all below laboratory detection limits. Therefore, the concentration limit is set at the most recent laboratory detection limit of 3 µg/l.

Zinc
Background well has 4 detects out of a total of 11 laboratory analyses for zinc above laboratory detection limits. Therefore, the concentration limit is set at the highest detectable background concentration of 42 µg/l. Note: need a minimum of five detects for meaningful statistics.

Cyanide
Background well has a total of 6 laboratory analyses for cyanide that are all below laboratory detection limits. Therefore, the concentration limit is set at the most recent laboratory detection limit of 0.005 mg/l.

Sulfide
Background well has one (1) detectable value out of a total of 7 laboratory analyses for sulfide above laboratory detection limits. Therefore, the concentration limit is set at the highest detectable background concentration of 2.4 mg/l.

Total Organic Carbon
Background well has 3 detectable values out of 3 laboratory analyses for total organic carbon above laboratory detection limits. Therefore, the concentration limit is set at the highest detectable background concentration of 4.7 mg/l. Note: need a minimum of five detects for meaningful statistics.

Surface Water Analysis – Spring 2016

Contaminants of Concern

Aluminum
Background sample S-6 has no detections above the reporting limit of aluminum therefore the concentration limit is set at the method reporting limit of 50 µg/l.

Antimony
Background sample S-6 has no detections above the reporting limit of antimony therefore the concentration limit is set at the method reporting limit of 6.0 µg/l.

Barium
Barium has only three detections; therefore the concentration limit is set at the highest value of 27.0 µg/l.

Beryllium
Background sample S-6 has no detections above the reporting limit of beryllium therefore the concentration limit is set at the method reporting limit of 5.0 µg/l.

Cadmium
Background sample S-6 has no detections of cadmium therefore the concentration limit is set at the method reporting limit of 10 µg/l.

Chromium
Background sample S-6 has no detections of chromium therefore the concentration limit is set at the method reporting limit of 10 µg/l.

Cobalt
Background sample S-6 has no detections of cobalt therefore the concentration limit is set at the most recent detection level of 20 µg/l.

Copper
Background sample S-6 has no detections above the reporting limit of copper therefore the concentration limit is set at the method reporting limit of 10 µg/l.

Lead
Background sample S-6 has no detections of lead therefore the concentration limit is set at the method reporting limit of 5 µg/l.

Manganese
Background sample S-6 has had 10 detections and 21 non-detects going back to 1989 for a total of 31 analyses. The most appropriate concentration limit is set at the nonparametric 95% UTL with 95% coverage which is 90 µg/l.

Mercury
Background sample S-6 has one detection above the reporting limit of 0.5 µg/l, therefore the concentration limit is set at the method reporting limit of 0.5 µg/l.

Nickel
Background sample S-6 has no detections above the reporting limit of nickel therefore the concentration limit is set at the method reporting limit of 20 µg/l.

Selenium
Background sample S-6 has no detections of selenium therefore the concentration limit is set at the method reporting limit of 5 µg/l.

Silver
Background sample S-6 has no detections of silver therefore the concentration limit is set at the method reporting limit of 10 µg/l.

Thallium
Background sample S-6 has no detections of thallium therefore the concentration limit is set at the method reporting limit of 1.0 µg/l.

Tin
Background sample S-6 has no detections above the reporting limit of tin therefore the concentration limit is set at the method reporting limit of 100 µg/l.

Vanadium
Background sample S-6 has three detections above the MDL but below the reporting limit therefore the concentration is set at the highest value above the MDL of 3.5 µg/l.

Cyanide
Background sample S-6 has no detections of cyanide therefore the concentration limit is set at the method reporting limit of 0.005 mg/l.

Sulfide
Three recorded sulfide analyses have been done for S-6 with only one value, 2.0 mg/l above laboratory method detection limits; therefore, the concentration limit is set at the highest and only value of 2.0 mg/l.

Total Organic Carbon
Only two values are recorded for background sample S-6; 1.8 mg/l, 5.0 mg/l and 5.8 mg/l. The concentration limit is set at the highest value of 5.8 mg/l until additional analyses are performed.

WMU-1

Landfill

Background Wells

2016

Union Mine

Background Statistics for Uncensored Full Data Sets

User Selected Options	
Date/Time of Computation	6/23/2016 7:59:30 AM
From File	H:\My Documents\Projects\Union Mine\aa-statistics-historical\WMU1-GW-hist.xlsx
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
New or Future K Observations	1
Number of Bootstrap Operations	2000

TDS

General Statistics

Total Number of Observations	164	Number of Distinct Observations	47
Minimum	18	First Quartile	300
Second Largest	580	Median	350
Maximum	790	Third Quartile	380
Mean	350.3	SD	69.8
Coefficient of Variation	0.199	Skewness	1.269
Mean of logged Data	5.832	SD of logged Data	0.284

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.857	d2max (for USL)	3.371

Normal GOF Test

Shapiro Wilk Test Statistic	0.88	Normal GOF Test
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.138	Lilliefors GOF Test
5% Lilliefors Critical Value	0.0692	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	479.9	90% Percentile (z)	439.7
	95% UPL (t)	466.1	95% Percentile (z)	465.1
	95% USL	585.5	99% Percentile (z)	512.6

Gamma GOF Test

A-D Test Statistic	6.572	Anderson-Darling Gamma GOF Test
5% A-D Critical Value	0.751	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.144	Kolmogrov-Smirnoff Gamma GOF Test
5% K-S Critical Value	0.0728	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	18.86	k star (bias corrected MLE)	18.52
Theta hat (MLE)	18.57	Theta star (bias corrected MLE)	18.92
nu hat (MLE)	6185	nu star (bias corrected)	6073
MLE Mean (bias corrected)	350.3	MLE Sd (bias corrected)	81.4

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	490.9	90% Percentile	457.8
95% Hawkins Wixley (HW) Approx. Gamma UPL	499.7	95% Percentile	494

53		95% WH Approx. Gamma UTL with		95% Coverage	515.7					99% Percentile	566.8	
54		95% HW Approx. Gamma UTL with		95% Coverage	521.3							
55				95% WH USL	679.7					95% HW USL	710.5	
56												
57					Lognormal GOF Test							
58				Shapiro Wilk Test Statistic	0.599			Shapiro Wilk Lognormal GOF Test				
59				5% Shapiro Wilk P Value	0			Data Not Lognormal at 5% Significance Level				
60				Lilliefors Test Statistic	0.189			Lilliefors Lognormal GOF Test				
61				5% Lilliefors Critical Value	0.0892			Data Not Lognormal at 5% Significance Level				
62					Data Not Lognormal at 5% Significance Level							
63												
64					Background Statistics assuming Lognormal Distribution							
65		95% UTL with		95% Coverage	578.3					90% Percentile (z)	491	
66				95% UPL (t)	546.6					95% Percentile (z)	544.4	
67				95% USL	880.5					99% Percentile (z)	660.8	
68												
69					Nonparametric Distribution Free Background Statistics							
70					Data do not follow a Discernible Distribution (0.05)							
71												
72					Nonparametric Upper Limits for Background Threshold Values							
73				Order of Statistic, r	160			95% UTL with	95% Coverage		470	
74				Approximate f	1.584			Confidence Coefficient (CC) achieved by UTL			0.917	
75		95% Percentile Bootstrap UTL with		95% Coverage	467.3			95% BCA Bootstrap UTL with	95% Coverage		450.2	
76				95% UPL	447.5				90% Percentile		408.5	
77				90% Chebyshev UPL	560.3				95% Percentile		440	
78				95% Chebyshev UPL	655.4				99% Percentile		567.4	
79				95% USL	790							
80												
81					Note: The use of USL to estimate a BTV is recommended only when the data set represents a background							
82					data set free of outliers and consists of observations collected from clean unimpacted locations.							
83					The use of USL tends to provide a balance between false positives and false negatives provided the data							
84					represents a background data set and when many onsite observations need to be compared with the BTV.							
85												

Background Statistics for Uncensored Full Data Sets

User Selected Options	
Date/Time of Computation	6/23/2016 7:56:02 AM
From File	H:\My Documents\Projects\Union Mine\aa-statistics-historical\WMU1-GW-hist.xlsx
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
New or Future K Observations	1
Number of Bootstrap Operations	2000

Bicarbonate

General Statistics

Total Number of Observations	63	Number of Distinct Observations	13
Minimum	160	First Quartile	190
Second Largest	270	Median	210
Maximum	410	Third Quartile	230
Mean	213.5	SD	34.88
Coefficient of Variation	0.163	Skewness	2.99
Mean of logged Data	5.353	SD of logged Data	0.142

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.007	d2max (for USL)	3.045

Normal GOF Test

Shapiro Wilk Test Statistic	0.783	Normal GOF Test
5% Shapiro Wilk P Value	2.367E-12	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.175	Lilliefors GOF Test
5% Lilliefors Critical Value	0.112	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	283.5	90% Percentile (z)	258.2
	95% UPL (t)	272.2	95% Percentile (z)	270.9
	95% USL	319.7	99% Percentile (z)	294.6

Gamma GOF Test

A-D Test Statistic	1.66	Anderson-Darling Gamma GOF Test
5% A-D Critical Value	0.748	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.16	Kolmogrov-Smirnoff Gamma GOF Test
5% K-S Critical Value	0.112	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	46.71	k star (bias corrected MLE)	44.5
Theta hat (MLE)	4.57	Theta star (bias corrected MLE)	4.798
nu hat (MLE)	5886	nu star (bias corrected)	5607
MLE Mean (bias corrected)	213.5	MLE Sd (bias corrected)	32

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	269.1	90% Percentile	255.4
95% Hawkins Wixley (HW) Approx. Gamma UPL	268.8	95% Percentile	268.7

53			95% WH Approx. Gamma UTL with	95% Coverage	281.1					99% Percentile	294.9	
54			95% HW Approx. Gamma UTL with	95% Coverage	281							
55				95% WH USL	322.2					95% HW USL	322.8	
56												
57					Lognormal GOF Test							
58				Shapiro Wilk Test Statistic	0.895			Shapiro Wilk Lognormal GOF Test				
59				5% Shapiro Wilk P Value	1.0579E-5			Data Not Lognormal at 5% Significance Level				
60				Lilliefors Test Statistic	0.151			Lilliefors Lognormal GOF Test				
61				5% Lilliefors Critical Value	0.112			Data Not Lognormal at 5% Significance Level				
62					Data Not Lognormal at 5% Significance Level							
63												
64					Background Statistics assuming Lognormal Distribution							
65			95% UTL with	95% Coverage	280.7					90% Percentile (z)	253.3	
66				95% UPL (t)	268.1					95% Percentile (z)	286.7	
67				95% USL	325.2					99% Percentile (z)	293.7	
68												
69					Nonparametric Distribution Free Background Statistics							
70					Data do not follow a Discernible Distribution (0.05)							
71												
72					Nonparametric Upper Limits for Background Threshold Values							
73				Order of Statistic, r	62				95% UTL with	95% Coverage	270	
74				Approximate f	1.632				Confidence Coefficient (CC) achieved by UTL		0.83	
75			95% Percentile Bootstrap UTL with	95% Coverage	269				95% BCA Bootstrap UTL with	95% Coverage	250	
76				95% UPL	258					90% Percentile	250	
77				90% Chebyshev UPL	319					95% Percentile	250	
78				95% Chebyshev UPL	366.7					99% Percentile	323.2	
79				95% USL	416							
80												
81					Note: The use of USL to estimate a BTV is recommended only when the data set represents a background							
82					data set free of outliers and consists of observations collected from clean unimpacted locations.							
83					The use of USL tends to provide a balance between false positives and false negatives provided the data							
84					represents a background data set and when many onsite observations need to be compared with the BTV.							
85												

Background Statistics for Uncensored Full Data Sets

User Selected Options	
Date/Time of Computation	6/22/2016 4:06:20 PM
From File	H:\My Documents\Projects\Union Minelaa-statistics-historical\WMU1-GW-hist.xlsx
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
New or Future K Observations	1
Number of Bootstrap Operations	2000

Chloride

General Statistics

Total Number of Observations	165	Number of Distinct Observations	64
Minimum	1	First Quartile	3.06
Second Largest	97	Median	3.9
Maximum	110	Third Quartile	5
Mean	5.84	SD	11.55
Coefficient of Variation	1.977	Skewness	7.713
Mean of logged Data	1.419	SD of logged Data	0.602

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.857	d2max (for USL)	3.373

Normal GOF Test

Shapiro Wilk Test Statistic	0.269	Normal GOF Test
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.402	Lilliefors GOF Test
5% Lilliefors Critical Value	0.069	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	27.28	90% Percentile (z)	20.64
	95% UPL (t)	25	95% Percentile (z)	24.83
	95% USL	44.79	99% Percentile (z)	32.7

Gamma GOF Test

A-D Test Statistic	20.25	Anderson-Darling Gamma GOF Test
5% A-D Critical Value	0.77	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.303	Kolmogrov-Smirnoff Gamma GOF Test
5% K-S Critical Value	0.074	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.593	k star (bias corrected MLE)	1.568
Theta hat (MLE)	3.667	Theta star (bias corrected MLE)	3.725
nu hat (MLE)	525.5	nu star (bias corrected)	517.3
MLE Mean (bias corrected)	5.84	MLE Sd (bias corrected)	4.664

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	13.69	90% Percentile	12.04
95% Hawkins Wixley (HW) Approx. Gamma UPL	12.89	95% Percentile	14.99

53	95% WH Approx. Gamma UTL with			95% Coverage	15.28					99% Percentile	21.63	
54	95% HW Approx. Gamma UTL with			95% Coverage	14.41							
55				95% WH USL	31.72					95% HW USL	31.02	
56												
57					Lognormal GOF Test							
58				Shapiro Wilk Test Statistic	0.796			Shapiro Wilk Lognormal GOF Test				
59				5% Shapiro Wilk P Value	0			Data Not Lognormal at 5% Significance Level				
60				Lilliefors Test Statistic	0.196			Lilliefors Lognormal GOF Test				
61				5% Lilliefors Critical Value	0.069			Data Not Lognormal at 5% Significance Level				
62					Data Not Lognormal at 5% Significance Level							
63												
64					Background Statistics assuming Lognormal Distribution							
65			95% UTL with	95% Coverage	12.63					90% Percentile (z)	8.937	
66				95% UPL (t)	11.22					95% Percentile (z)	11.12	
67				95% USL	31.47					99% Percentile (z)	16.76	
68												
69					Nonparametric Distribution Free Background Statistics							
70					Data do not follow a Discernible Distribution (0.05)							
71												
72					Nonparametric Upper Limits for Background Threshold Values							
73				Order of Statistic, r	161				95% UTL with	95% Coverage	21	
74				Approximate f	1.695			Confidence Coefficient (CC) achieved by UTL			0.919	
75	95% Percentile Bootstrap UTL with			95% Coverage	20			95% BCA Bootstrap UTL with		95% Coverage	20	
76				95% UPL	13.4					90% Percentile	5.812	
77				90% Chebyshev UPL	40.58					95% Percentile	11.8	
78				95% Chebyshev UPL	56.32					99% Percentile	54.76	
79				95% USL	110							
80												
81	Note: The use of USL to estimate a BTV is recommended only when the data set represents a background											
82	data set free of outliers and consists of observations collected from clean unimpacted locations.											
83	The use of USL tends to provide a balance between false positives and false negatives provided the data											
84	represents a background data set and when many onsite observations need to be compared with the BTV.											
85												

Background Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	6/28/2016 9:22:41 AM
From File	WMU1-GW-hist_a.xls
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
fferent or Future K Observations	1
Number of Bootstrap Operations	2000

Nitrate

General Statistics

Total Number of Observations	148	Number of Missing Observations	0
Number of Distinct Observations	38		
Number of Detects	41	Number of Non-Detects	107
Number of Distinct Detects	31	Number of Distinct Non-Detects	9
Minimum Detect	0.03	Minimum Non-Detect	0.03
Maximum Detect	39	Maximum Non-Detect	2
Variance Detected	36.99	Percent Non-Detects	72.3%
Mean Detected	1.251	SD Detected	6.082
Mean of Detected Logged Data	-1.955	SD of Detected Logged Data	1.374

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.869	d2max (for USL)	3.339

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.207	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.941	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.455	Lilliefors GOF Test
5% Lilliefors Critical Value	0.138	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

Mean	0.391	SD	3.207
95% UTL95% Coverage	6.386	95% KM UPL (t)	5.717
90% KM Percentile (z)	4.501	95% KM Percentile (z)	5.666
99% KM Percentile (z)	7.851	95% KM USL	11.1

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.531	SD	3.209
95% UTL95% Coverage	6.531	95% UPL (t)	5.861
90% Percentile (z)	4.644	95% Percentile (z)	5.81
99% Percentile (z)	7.997	95% USL	11.25

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	9.105	Anderson-Darling GOF Test
5% A-D Critical Value	0.855	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.384	Kolmogrov-Smirnoff GOF
5% K-S Critical Value	0.15	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

53											
54					Gamma Statistics on Detected Data Only						
55				k hat (MLE)	0.314			k star (bias corrected MLE)	0.307		
56				Theta hat (MLE)	3.982			Theta star (bias corrected MLE)	4.069		
57				nu hat (MLE)	25.76			nu star (bias corrected)	25.21		
58				MLE Mean (bias corrected)	1.251						
59				MLE Sd (bias corrected)	2.256			95% Percentile of Chisquare (2k)	2.79		
60											
61					Gamma ROS Statistics using Imputed Non-Detects						
62					GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs						
63					GROS may not be used when kstar of detected data is small such as < 0.1						
64					For such situations, GROS method tends to yield inflated values of UCLs and BTVs						
65					For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates						
66				Minimum	0.01			Mean	0.519		
67				Maximum	39			Median	0.01		
68				SD	3.278			CV	6.314		
69				k hat (MLE)	0.253			k star (bias corrected MLE)	0.253		
70				Theta hat (MLE)	2.05			Theta star (bias corrected MLE)	2.055		
71				nu hat (MLE)	74.96			nu star (bias corrected)	74.77		
72				MLE Mean (bias corrected)	0.519			MLE Sd (bias corrected)	1.033		
73				95% Percentile of Chisquare (2k)	2.438			90% Percentile	1.557		
74				95% Percentile	2.505			99% Percentile	5.025		
75					The following statistics are computed using Gamma ROS Statistics on Imputed Data						
76					Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods						
77					WH	HW				WH	HW
78	95% Approx. Gamma UTL with 95% Coverage				1.573	1.316		95% Approx. Gamma UPL		1.253	1.02
79				95% Gamma USL	5.451	5.573					
80											
81					The following statistics are computed using gamma distribution and KM estimates						
82					Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods						
83				k hat (KM)	0.0149				nu hat (KM)	4.396	
84					WH	HW				WH	HW
85	95% Approx. Gamma UTL with 95% Coverage				0.981	0.751		95% Approx. Gamma UPL		0.807	0.615
86				95% Gamma USL	2.95	2.46					
87											
88					Lognormal GOF Test on Detected Observations Only						
89				Shapiro Wilk Test Statistic	0.725			Shapiro Wilk GOF Test			
90				5% Shapiro Wilk Critical Value	0.941			Data Not Lognormal at 5% Significance Level			
91				Lilliefors Test Statistic	0.245			Lilliefors GOF Test			
92				5% Lilliefors Critical Value	0.138			Data Not Lognormal at 5% Significance Level			
93					Data Not Lognormal at 5% Significance Level						
94											
95					Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects						
96				Mean in Original Scale	0.387			Mean in Log Scale	-3.424		
97				SD in Original Scale	3.219			SD in Log Scale	1.727		
98				95% UTL95% Coverage	0.822			95% BCA UTL95% Coverage	1.352		
99				95% Bootstrap (%) UTL95% Coverage	0.627			95% UPL (t)	0.573		
100				90% Percentile (z)	0.298			95% Percentile (z)	0.558		
101				99% Percentile (z)	1.809			95% USL	10.39		
102											
103					Background DL/2 Statistics Assuming Lognormal Distribution						
104				Mean in Original Scale	0.531			Mean in Log Scale	-2.031		

105				SD in Original Scale	3.209					SD in Log Scale	1.426	
106				95% UTL95% Coverage	1.888					95% UPL (t)	1.402	
107				90% Percentile (z)	0.816					95% Percentile (z)	1.37	
108				99% Percentile (z)	3.621					95% USL	15.34	
109				DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.								
110												
111				Nonparametric Distribution Free Background Statistics								
112				Data do not follow a Discernible Distribution (0.05)								
113												
114				Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)								
115				Order of Statistic, r	144					95% UTL with95% Coverage	2	
116				Approximate f	1.516					Confidence Coefficient (CC) achieved by UTL	0.887	
117				95% UPL	1.44					95% USL	39	
118				95% KM Chebyshev UPL	14.42							
119												
120				Note: The use of USL to estimate a BTV is recommended only when the data set represents a background								
121				data set free of outliers and consists of observations collected from clean unimpacted locations.								
122				The use of USL tends to provide a balance between false positives and false negatives provided the data								
123				represents a background data set and when many onsite observations need to be compared with the BTV.								
124												

Background Statistics for Uncensored Full Data Sets

User Selected Options	
Date/Time of Computation	6/23/2016 7:57:40 AM
From File	H:\My Documents\Projects\Union Mine\aa-statistics-historical\WMU1-GW-hist.xlsx
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
New or Future K Observations	1
Number of Bootstrap Operations	2000

Sulfate

General Statistics

Total Number of Observations	161	Number of Distinct Observations	78
Minimum	2.6	First Quartile	37.5
Second Largest	150	Median	74
Maximum	170	Third Quartile	89
Mean	69.02	SD	29.6
Coefficient of Variation	0.429	Skewness	0.248
Mean of logged Data	4.118	SD of logged Data	0.54

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.859	d2max (for USL)	3.365

Normal GOF Test

Shapiro Wilk Test Statistic	0.937	Normal GOF Test
5% Shapiro Wilk P Value	9.0316E-8	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.147	Lilliefors GOF Test
5% Lilliefors Critical Value	0.0698	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	124.1	90% Percentile (z)	107
	95% UPL (t)	118.1	95% Percentile (z)	117.7
	95% USL	168.6	99% Percentile (z)	137.9

Gamma GOF Test

A-D Test Statistic	4.928	Anderson-Darling Gamma GOF Test
5% A-D Critical Value	0.756	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.145	Kolmogrov-Smirnoff Gamma GOF Test
5% K-S Critical Value	0.0739	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	4.471	k star (bias corrected MLE)	4.392
Theta hat (MLE)	15.44	Theta star (bias corrected MLE)	15.72
nu hat (MLE)	1440	nu star (bias corrected)	1414
MLE Mean (bias corrected)	69.02	MLE Sd (bias corrected)	32.94

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	130.6	90% Percentile	113.2
95% Hawkins Wixley (HW) Approx. Gamma UPL	133.9	95% Percentile	130.6

53			95% WH Approx. Gamma UTL with	95% Coverage	140.8					99% Percentile	167.6	
54			95% HW Approx. Gamma UTL with	95% Coverage	145.2							
55				95% WH USL	235					95% HW USL	254.8	
56												
57					Lognormal GOF Test							
58				Shapiro Wilk Test Statistic	0.861		Shapiro Wilk Lognormal GOF Test					
59				5% Shapiro Wilk P Value	0		Data Not Lognormal at 5% Significance Level					
60				Lilliefors Test Statistic	0.164		Lilliefors Lognormal GOF Test					
61				5% Lilliefors Critical Value	0.0698		Data Not Lognormal at 5% Significance Level					
62					Data Not Lognormal at 5% Significance Level							
63												
64					Background Statistics assuming Lognormal Distribution							
65			95% UTL with	95% Coverage	167.8					90% Percentile (z)	122.8	
66				95% UPL (t)	150.7					95% Percentile (z)	149.5	
67				95% USL	378.7					99% Percentile (z)	216	
68												
69					Nonparametric Distribution Free Background Statistics							
70					Data do not follow a Discernible Distribution (0.05)							
71												
72					Nonparametric Upper Limits for Background Threshold Values							
73				Order of Statistic, r	157					95% UTL with	95% Coverage	123
74				Approximate f	1.653					Confidence Coefficient (CC) achieved by UTL		0.909
75			95% Percentile Bootstrap UTL with	95% Coverage	123					95% BCA Bootstrap UTL with	95% Coverage	101
76				95% UPL	110						90% Percentile	102
77				90% Chebyshev UPL	158.1						95% Percentile	110
78				95% Chebyshev UPL	198.5						99% Percentile	138
79				95% USL	170							
80												
81					Note: The use of USL to estimate a BTV is recommended only when the data set represents a background							
82					data set free of outliers and consists of observations collected from clean unimpacted locations.							
83					The use of USL tends to provide a balance between false positives and false negatives provided the data							
84					represents a background data set and when many onsite observations need to be compared with the BTV.							
85												

Background Statistics for Uncensored Full Data Sets

User Selected Options	
Date/Time of Computation	6/23/2016 7:56:42 AM
From File	H:\My Documents\Projects\Union Mine\aa-statistics-historical\WMU1-GW-hist.xlsx
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
New or Future K Observations	1
Number of Bootstrap Operations	2000

Calcium

General Statistics

Total Number of Observations	119	Number of Distinct Observations	62
Minimum	34	First Quartile	67
Second Largest	180	Median	73
Maximum	230	Third Quartile	91
Mean	79.17	SD	25.33
Coefficient of Variation	0.32	Skewness	2.552
Mean of logged Data	4.331	SD of logged Data	0.28

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.898	d2max (for USL)	3.268

Normal GOF Test

Shapiro Wilk Test Statistic	0.819	Normal GOF Test
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.173	Lilliefors GOF Test
5% Lilliefors Critical Value	0.0812	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	127.2	90% Percentile (z)	111.6
	95% UPL (t)	121.3	95% Percentile (z)	120.8
	95% USL	161.9	99% Percentile (z)	138.1

Gamma GOF Test

A-D Test Statistic	2.715	Anderson-Darling Gamma GOF Test
5% A-D Critical Value	0.751	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.14	Kolmogrov-Smirnoff Gamma GOF Test
5% K-S Critical Value	0.0845	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	12.37	k star (bias corrected MLE)	12.07
Theta hat (MLE)	6.398	Theta star (bias corrected MLE)	6.561
nu hat (MLE)	2945	nu star (bias corrected)	2872
MLE Mean (bias corrected)	79.17	MLE Sd (bias corrected)	22.79

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	120	90% Percentile	109.4
95% Hawkins Wixley (HW) Approx. Gamma UPL	120.2	95% Percentile	120

53			95% WH Approx. Gamma UTL with	95% Coverage	127.1					99% Percentile	141.6	
54			95% HW Approx. Gamma UTL with	95% Coverage	127.5							
55				95% WH USL	174.3					95% HW USL	177.3	
56												
57					Lognormal GOF Test							
58				Shapiro Wilk Test Statistic	0.945				Shapiro Wilk Lognormal GOF Test			
59				5% Shapiro Wilk P Value	1.5915E-4				Data Not Lognormal at 5% Significance Level			
60				Lilliefors Test Statistic	0.12				Lilliefors Lognormal GOF Test			
61				5% Lilliefors Critical Value	0.0812				Data Not Lognormal at 5% Significance Level			
62					Data Not Lognormal at 5% Significance Level							
63												
64					Background Statistics assuming Lognormal Distribution							
65			95% UTL with	95% Coverage	123.3					90% Percentile (z)	108.8	
66				95% UPL (t)	121.1					95% Percentile (z)	120.5	
67				95% USL	189.7					99% Percentile (z)	145.8	
68												
69					Nonparametric Distribution Free Background Statistics							
70					Data do not follow a Discernible Distribution (0.05)							
71												
72					Nonparametric Upper Limits for Background Threshold Values							
73				Order of Statistic, r	116				95% UTL with	95% Coverage	140	
74				Approximate f	1.526				Confidence Coefficient (CC) achieved by UTL		0.851	
75			95% Percentile Bootstrap UTL with	95% Coverage	141				95% BCA Bootstrap UTL with	95% Coverage	140	
76				95% UPL	114					90% Percentile	100	
77				80% Chebyshev UPL	155.5					95% Percentile	112.2	
78				95% Chebyshev UPL	190					99% Percentile	174.8	
79				95% USL	230							
80												
81					Note: The use of USL to estimate a BTV is recommended only when the data set represents a background							
82					data set free of outliers and consists of observations collected from clean unimpacted locations.							
83					The use of USL tends to provide a balance between false positives and false negatives provided the data							
84					represents a background data set and when many onsite observations need to be compared with the BTV.							
85												

Background Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	6/28/2016 9:12:25 AM
From File	WMU1-GW-hist_g.xls
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
ifferent or Future K Observations	1
Number of Bootstrap Operations	2000

Potassium

General Statistics

Total Number of Observations	114	Number of Missing Observations	0
Number of Distinct Observations	51		
Number of Detects	78	Number of Non-Detects	36
Number of Distinct Detects	48	Number of Distinct Non-Detects	4
Minimum Detect	0.28	Minimum Non-Detect	0.3
Maximum Detect	8	Maximum Non-Detect	2
Variance Detected	1.735	Percent Non-Detects	31.58%
Mean Detected	0.868	SD Detected	1.317
Mean of Detected Logged Data	-0.482	SD of Detected Logged Data	0.821

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.904	d2max (for USL)	3.254

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.365	Normal GOF Test on Detected Observations Only
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.437	Lilliefors GOF Test
5% Lilliefors Critical Value	0.1	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

Mean	0.743	SD	1.101
95% UTL95% Coverage	2.84	95% KM UPL (t)	2.577
90% KM Percentile (z)	2.154	95% KM Percentile (z)	2.554
99% KM Percentile (z)	3.305	95% KM USL	4.326

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.789	SD	1.11
95% UTL95% Coverage	2.902	95% UPL (t)	2.638
90% Percentile (z)	2.212	95% Percentile (z)	2.615
99% Percentile (z)	3.371	95% USL	4.4

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	12.7	Anderson-Darling GOF Test
5% A-D Critical Value	0.768	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.357	Kolmogrov-Smirnoff GOF
5% K-S Critical Value	0.103	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

53											
54					Gamma Statistics on Detected Data Only						
55				k hat (MLE)	1.618				k star (bias corrected MLE)	1.564	
56				Theta hat (MLE)	0.536				Theta star (bias corrected MLE)	0.555	
57				nu hat (MLE)	252.4				nu star (bias corrected)	244	
58				MLE Mean (bias corrected)	0.868						
59				MLE Sd (bias corrected)	0.694				95% Percentile of Chisquare (2k)	8.036	
60											
61					Gamma ROS Statistics using Imputed Non-Detects						
62					GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs						
63					GROS may not be used when kstar of detected data is small such as < 0.1						
64					For such situations, GROS method tends to yield inflated values of UCLs and BTVs						
65					For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates						
66				Minimum	0.01				Mean	0.722	
67				Maximum	8				Median	0.53	
68				SD	1.151				CV	1.595	
69				k hat (MLE)	0.779				k star (bias corrected MLE)	0.765	
70				Theta hat (MLE)	0.926				Theta star (bias corrected MLE)	0.944	
71				nu hat (MLE)	177.7				nu star (bias corrected)	174.4	
72				MLE Mean (bias corrected)	0.722				MLE Sd (bias corrected)	0.825	
73				95% Percentile of Chisquare (2k)	5.043				90% Percentile	1.774	
74				95% Percentile	2.379				99% Percentile	3.814	
75					The following statistics are computed using Gamma ROS Statistics on Imputed Data						
76					Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods						
77					WH	HW				WH	HW
78	95% Approx. Gamma UTL with 95% Coverage				2.638	2.888			95% Approx. Gamma UPL	2.226	2.379
79				95% Gamma USL	5.953	7.46					
80											
81					The following statistics are computed using gamma distribution and KM estimates						
82					Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods						
83					k hat (KM)	0.456				nu hat (KM)	103.9
84					WH	HW				WH	HW
85	95% Approx. Gamma UTL with 95% Coverage				1.916	1.828			95% Approx. Gamma UPL	1.693	1.611
86				95% Gamma USL	3.553	3.492					
87											
88					Lognormal GOF Test on Detected Observations Only						
89				Lilliefors Test Statistic	0.264				Lilliefors GOF Test		
90				5% Lilliefors Critical Value	0.1				Data Not Lognormal at 5% Significance Level		
91					Data Not Lognormal at 5% Significance Level						
92											
93					Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects						
94				Mean in Original Scale	0.749				Mean in Log Scale	-0.589	
95				SD in Original Scale	1.109				SD in Log Scale	0.597	
96				95% UTL95% Coverage	1.728				95% BCA UTL95% Coverage	4.1	
97				95% Bootstrap (%) UTL95% Coverage	4.625				95% UPL (t)	1.499	
98				90% Percentile (z)	1.192				95% Percentile (z)	1.481	
99				99% Percentile (z)	2.224				95% USL	3.867	
100											
101					Background DL/2 Statistics Assuming Lognormal Distribution						
102				Mean in Original Scale	0.789				Mean in Log Scale	-0.539	
103				SD in Original Scale	1.11				SD in Log Scale	0.634	
104				95% UTL95% Coverage	1.948				95% UPL (t)	1.675	

105				90% Percentile (z)	1.313					95% Percentile (z)		1.653
106				99% Percentile (z)	2.546					95% USL		4.582
107			DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.									
108												
109			Nonparametric Distribution Free Background Statistics									
110			Data do not follow a Discernible Distribution (0.05)									
111												
112			Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)									
113				Order of Statistic, r	111					95% UTL with95% Coverage		4.1
114				Approximate f	1.461					Confidence Coefficient (CC) achieved by UTL		0.827
115				95% UPL	2.1					95% USL		8
116				95% KM Chebyshev UPL	5.564							
117												
118			Note: The use of USL to estimate a BTV is recommended only when the data set represents a background									
119			data set free of outliers and consists of observations collected from clean unimpacted locations.									
120			The use of USL tends to provide a balance between false positives and false negatives provided the data									
121			represents a background data set and when many onsite observations need to be compared with the BTV.									
122												

Background Statistics for Uncensored Full Data Sets

User Selected Options	
Date/Time of Computation	6/23/2016 7:54:38 AM
From File	H:\My Documents\Projects\Union Mine\aa-statistics-historical\WMU1-GW-hist.xlsx
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
New or Future K Observations	1
Number of Bootstrap Operations	2000

Magnesium

General Statistics

Total Number of Observations	119	Number of Distinct Observations	33
Minimum	5.7	First Quartile	11.4
Second Largest	28	Median	13
Maximum	29	Third Quartile	14.35
Mean	13.16	SD	3.368
Coefficient of Variation	0.256	Skewness	1.9
Mean of logged Data	2.548	SD of logged Data	0.241

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.898	d2max (for USL)	3.268

Normal GOF Test

Shapiro Wilk Test Statistic	0.833	Normal GOF Test
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.166	Lilliefors GOF Test
5% Lilliefors Critical Value	0.0812	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	19.55	90% Percentile (z)	17.47
	95% UPL (t)	18.77	95% Percentile (z)	18.7
	95% USL	24.16	99% Percentile (z)	20.99

Gamma GOF Test

A-D Test Statistic	3.465	Anderson-Darling Gamma GOF Test
5% A-D Critical Value	0.75	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.136	Kolmogrov-Smirnoff Gamma GOF Test
5% K-S Critical Value	0.0844	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	17.38	k star (bias corrected MLE)	16.95
Theta hat (MLE)	0.757	Theta star (bias corrected MLE)	0.776
nu hat (MLE)	4137	nu star (bias corrected)	4035
MLE Mean (bias corrected)	13.16	MLE Sd (bias corrected)	3.196

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	18.83	90% Percentile	17.38
95% Hawkins Wixley (HW) Approx. Gamma UPL	18.88	95% Percentile	18.82

53	95% WH Approx. Gamma UTL with			95% Coverage	19.78					99% Percentile	21.71
54	95% HW Approx. Gamma UTL with			95% Coverage	19.86						
55				95% WH USL	26.03					95% HW USL	26.44
56											
57					Lognormal GOF Test						
58				Shapiro Wilk Test Statistic	0.909			Shapiro Wilk Lognormal GOF Test			
59				5% Shapiro Wilk P Value	1.2081E-9			Data Not Lognormal at 5% Significance Level			
60				Lilliefors Test Statistic	0.136			Lilliefors Lognormal GOF Test			
61				5% Lilliefors Critical Value	0.0812			Data Not Lognormal at 5% Significance Level			
62					Data Not Lognormal at 5% Significance Level						
63											
64					Background Statistics assuming Lognormal Distribution						
65			95% UTL with	95% Coverage	20.19					90% Percentile (z)	17.4
66				95% UPL (t)	19.09					95% Percentile (z)	19
67				95% USL	26.08					99% Percentile (z)	22.38
68											
69					Nonparametric Distribution Free Background Statistics						
70					Data do not follow a Discernible Distribution (0.05)						
71											
72					Nonparametric Upper Limits for Background Threshold Values						
73				Order of Statistic, r	116				95% UTL with	95% Coverage	23
74				Approximate f	1.526			Confidence Coefficient (CC) achieved by UTL			0.851
75	95% Percentile Bootstrap UTL with			95% Coverage	23.2			95% BCA Bootstrap UTL with		95% Coverage	23
76				95% UPL	17					90% Percentile	16
77				90% Chebyshev UPL	23.3					95% Percentile	16.1
78				95% Chebyshev UPL	27.9					99% Percentile	27.46
79				95% USL	29						
80											
81	Note: The use of USL to estimate a BTV is recommended only when the data set represents a background										
82	data set free of outliers and consists of observations collected from clean unimpacted locations.										
83	The use of USL tends to provide a balance between false positives and false negatives provided the data										
84	represents a background data set and when many onsite observations need to be compared with the BTV.										
85											

Background Statistics for Uncensored Full Data Sets

User Selected Options	
Date/Time of Computation	6/23/2016 7:55:29 AM
From File	H:\My Documents\Projects\Union Mine\aa-statistics-historical\WMU1-GW-hist.xlsx
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
New or Future K Observations	1
Number of Bootstrap Operations	2000

Sodium

General Statistics

Total Number of Observations	125	Number of Distinct Observations	42
Minimum	4.7	First Quartile	13
Second Largest	49	Median	14
Maximum	64	Third Quartile	27
Mean	19.25	SD	9.261
Coefficient of Variation	0.481	Skewness	1.388
Mean of logged Data	2.854	SD of logged Data	0.454

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.891	d2max (for USL)	3.284

Normal GOF Test

Shapiro Wilk Test Statistic	0.848	Normal GOF Test
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.245	Lilliefors GOF Test
5% Lilliefors Critical Value	0.0792	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	36.77	90% Percentile (z)	31.12
	95% LIPL (t)	34.66	95% Percentile (z)	34.48
	95% USL	49.67	99% Percentile (z)	40.8

Gamma GOF Test

A-D Test Statistic	5.64	Anderson-Darling Gamma GOF Test
5% A-D Critical Value	0.755	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.217	Kolmogrov-Smirnoff Gamma GOF Test
5% K-S Critical Value	0.0831	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	4.988	k star (bias corrected MLE)	4.873
Theta hat (MLE)	3.86	Theta star (bias corrected MLE)	3.95
nu hat (MLE)	1247	nu star (bias corrected)	1218
MLE Mean (bias corrected)	19.25	MLE Sd (bias corrected)	8.721

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	35.51	90% Percentile	30.93
95% Hawkins Wixley (HW) Approx. Gamma UPL	35.78	95% Percentile	35.47

53			95% WH Approx. Gamma UTL with	95% Coverage	38.56					99% Percentile	45.08
54			95% HW Approx. Gamma UTL with	95% Coverage	39.02						
55				95% WH USL	61.05					95% HW USL	63.87
56											
57					Lognormal GOF Test						
58				Shapiro Wilk Test Statistic	0.92			Shapiro Wilk Lognormal GOF Test			
59				5% Shapiro Wilk P Value	1.97826-8			Data Not Lognormal at 5% Significance Level			
60				Lilliefors Test Statistic	0.194			Lilliefors Lognormal GOF Test			
61				5% Lilliefors Critical Value	0.0792			Data Not Lognormal at 5% Significance Level			
62					Data Not Lognormal at 5% Significance Level						
63											
64					Background Statistics assuming Lognormal Distribution						
65			95% UTL with	95% Coverage	40.97					90% Percentile (z)	31.06
66				95% UPL (t)	36.95					95% Percentile (z)	36.63
67				95% USL	77.11					99% Percentile (z)	49.92
68											
69					Nonparametric Distribution Free Background Statistics						
70					Data do not follow a Discernible Distribution (0.05)						
71											
72					Nonparametric Upper Limits for Background Threshold Values						
73				Order of Statistic, r	122			95% UTL with	95% Coverage		94
74				Approximate f	1.605			Confidence Coefficient (CC) achieved by UTL			0.876
75			95% Percentile Bootstrap UTL with	95% Coverage	94			95% BCA Bootstrap UTL with	95% Coverage		94
76				95% UPL	32.7				90% Percentile		30
77				90% Chebyshev UPL	47.15				95% Percentile		32
78				95% Chebyshev UPL	59.78				99% Percentile		46.36
79				95% USL	64						
80											
81					Note: The use of USL to estimate a BTV is recommended only when the data set represents a background						
82					data set free of outliers and consists of observations collected from clean unimpacted locations.						
83					The use of USL tends to provide a balance between false positives and false negatives provided the data						
84					represents a background data set and when many onsite observations need to be compared with the BTV.						
85											

Background Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	6/28/2015 1:37:54 PM
From File	manganese.xls
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
Different or Future K Observations	1
Number of Bootstrap Operations	2000

Manganese

General Statistics

Total Number of Observations	25	Number of Distinct Observations	20
		Number of Missing Observations	2
Minimum	0.0017	First Quartile	0.35
Second Largest	1.8	Median	0.45
Maximum	1.8	Third Quartile	0.98
Mean	0.643	SD	0.513
Coefficient of Variation	0.799	Skewness	1.117
Mean of logged Data	-0.915	SD of logged Data	1.399

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.292	d2max (for USL)	2.663

Normal GOF Test

Shapiro Wilk Test Statistic	0.843	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.918	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.284	Lilliefors GOF Test
5% Lilliefors Critical Value	0.177	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	1.819	90% Percentile (z)	1.301
95% UPL (t)	1.538	95% Percentile (z)	1.487
95% USL	2.01	99% Percentile (z)	1.837

Gamma GOF Test

A-D Test Statistic	0.886	Anderson-Darling Gamma GOF Test
5% A-D Critical Value	0.769	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.169	Kolmogrov-Smirnoff Gamma GOF Test
5% K-S Critical Value	0.179	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.197	k star (bias corrected MLE)	1.08
Theta hat (MLE)	0.537	Theta star (bias corrected MLE)	0.595
nu hat (MLE)	59.84	nu star (bias corrected)	54
MLE Mean (bias corrected)	0.643	MLE Sd (bias corrected)	0.618

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	1.89	90% Percentile	1.452

53			95% Hawkins Wixley (HW) Approx. Gamma UPL		2.087					95% Percentile	1.874	
54			95% WH Approx. Gamma UTL with	95% Coverage	2.598					99% Percentile	2.848	
55			95% HW Approx. Gamma UTL with	95% Coverage	3.014							
56				95% WH USL	3.167					95% HW USL	3.799	
57												
58					Lognormal GOF Test							
59				Shapiro Wilk Test Statistic	0.727			Shapiro Wilk Lognormal GOF Test				
60				5% Shapiro Wilk Critical Value	0.918			Data Not Lognormal at 5% Significance Level				
61				Lilliefors Test Statistic	0.245			Lilliefors Lognormal GOF Test				
62				5% Lilliefors Critical Value	0.177			Data Not Lognormal at 5% Significance Level				
63					Data Not Lognormal at 5% Significance Level							
64												
65					Background Statistics assuming Lognormal Distribution							
66			95% UTL with	95% Coverage	9.895					90% Percentile (z)	2.407	
67				95% UPL (t)	4.601					95% Percentile (z)	4.001	
68				95% USL	16.63					99% Percentile (z)	10.38	
69												
70					Nonparametric Distribution Free Background Statistics							
71					Data appear Approximate Gamma Distribution at 5% Significance Level							
72												
73					Nonparametric Upper Limits for Background Threshold Values							
74				Order of Statistic, r	25				95% UTL with	95% Coverage	1.8	
75				Approximate f	1.316				Confidence Coefficient (CC) achieved by UTL		0.723	
76			95% Percentile Bootstrap UTL with	95% Coverage	1.8			95% BCA Bootstrap UTL with		95% Coverage	1.8	
77				95% UPL	1.8					90% Percentile	1.36	
78				90% Chebyshev UPL	2.213					95% Percentile	1.72	
79				95% Chebyshev UPL	2.925					99% Percentile	1.8	
80				95% USL	1.8							
81												
82					Note: The use of USL to estimate a BTV is recommended only when the data set represents a background							
83					data set free of outliers and consists of observations collected from clean unimpacted locations.							
84					The use of USL tends to provide a balance between false positives and false negatives provided the data							
85					represents a background data set and when many onsite observations need to be compared with the BTV.							
86												

Background Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	6/28/2016 1:36:48 PM
From File	Barium.xls
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
Different or Future K Observations	1
Number of Bootstrap Operations	2000

Barium

General Statistics

Total Number of Observations	19	Number of Missing Observations	0
Number of Distinct Observations	16		
Number of Detects	18	Number of Non-Detects	1
Number of Distinct Detects	16	Number of Distinct Non-Detects	1
Minimum Detect	0.02	Minimum Non-Detect	0.02
Maximum Detect	0.09	Maximum Non-Detect	0.02
Variance Detected	2.7276E-4	Percent Non-Detects	5.263%
Mean Detected	0.0369	SD Detected	0.0165
Mean of Detected Logged Data	-3.375	SD of Detected Logged Data	0.391

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.423	d2max (for USL)	2.531

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.813	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.897	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.16	Lilliefors GOF Test
5% Lilliefors Critical Value	0.209	Detected Data appear Normal at 5% Significance Level

Detected Data appear Approximate Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

Mean	0.0361	SD	0.0161
95% UTL95% Coverage	0.075	95% KM UPL (t)	0.0646
90% KM Percentile (z)	0.0567	95% KM Percentile (z)	0.0625
99% KM Percentile (z)	0.0734	95% KM USL	0.0767

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.0355	SD	0.0172
95% UTL95% Coverage	0.0772	95% UPL (t)	0.0661
90% Percentile (z)	0.0576	95% Percentile (z)	0.0638
99% Percentile (z)	0.0755	95% USL	0.0791

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.432	Anderson-Darling GOF Test
5% A-D Critical Value	0.742	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.119	Kolmogrov-Smirnoff GOF
5% K-S Critical Value	0.204	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

					Gamma Statistics on Detected Data Only						
				k hat (MLE)	6.661			k star (bias corrected MLE)	5.588		
				Theta hat (MLE)	0.00555			Theta star (bias corrected MLE)	0.00661		
				nu hat (MLE)	239.8			nu star (bias corrected)	201.2		
				MLE Mean (bias corrected)	0.0369						
				MLE Sd (bias corrected)	0.0156			95% Percentile of Chisquare (2k)	19.91		
					Gamma ROS Statistics using Imputed Non-Detects						
					GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs						
					GROS may not be used when kstar of detected data is small such as < 0.1						
					For such situations, GROS method tends to yield inflated values of UCLs and BTVs						
					For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates						
				Minimum	0.0116			Mean	0.0356		
				Maximum	0.09			Median	0.034		
				SD	0.0171			CV	0.479		
				k hat (MLE)	5.311			k star (bias corrected MLE)	4.507		
				Theta hat (MLE)	0.00671			Theta star (bias corrected MLE)	0.0079		
				nu hat (MLE)	201.8			nu star (bias corrected)	171.3		
				MLE Mean (bias corrected)	0.0356			MLE Sd (bias corrected)	0.0168		
				95% Percentile of Chisquare (2k)	16.94			90% Percentile	0.0581		
				95% Percentile	0.0669			99% Percentile	0.0857		
				The following statistics are computed using Gamma ROS Statistics on Imputed Data							
				Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods							
					WH	HW			WH	HW	
				95% Approx. Gamma UTL with 95% Coverage	0.0853	0.0875		95% Approx. Gamma UPL	0.0683	0.0691	
				95% Gamma USL	0.0884	0.0909					
				The following statistics are computed using gamma distribution and KM estimates							
				Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods							
				k hat (KM)	5.031			nu hat (KM)	191.2		
					WH	HW			WH	HW	
				95% Approx. Gamma UTL with 95% Coverage	0.0796	0.0807		95% Approx. Gamma UPL	0.065	0.0652	
				95% Gamma USL	0.0822	0.0835					
					Lognormal GOF Test on Detected Observations Only						
				Shapiro Wilk Test Statistic	0.937			Shapiro Wilk GOF Test			
				5% Shapiro Wilk Critical Value	0.897			Detected Data appear Lognormal at 5% Significance Level			
				Lilliefors Test Statistic	0.123			Lilliefors GOF Test			
				5% Lilliefors Critical Value	0.209			Detected Data appear Lognormal at 5% Significance Level			
					Detected Data appear Lognormal at 5% Significance Level						
					Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects						
				Mean in Original Scale	0.0358			Mean in Log Scale	-3.415		
				SD in Original Scale	0.0167			SD in Log Scale	0.417		
				95% UTL95% Coverage	0.0904			95% BCA UTL95% Coverage	0.09		
				95% Bootstrap (%) UTL95% Coverage	0.09			95% UPL (t)	0.0691		
				90% Percentile (z)	0.0561			95% Percentile (z)	0.0653		
				99% Percentile (z)	0.0868			95% USL	0.0945		
					Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution						
				KM Mean of Logged Data	-3.404			95% KM UTL (Lognormal)95% Coverage	0.0853		

105				KM SD of Logged Data	0.389					95% KM UPL (Lognormal)	0.0654	
106			95% KM Percentile Lognormal (z)		0.063					95% KM USL (Lognormal)	0.089	
107												
108				Background DL/2 Statistics Assuming Lognormal Distribution								
109				Mean in Original Scale	0.0355					Mean in Log Scale	-3.44	
110				SD in Original Scale	0.0172					SD in Log Scale	0.473	
111				95% UTL95% Coverage	0.101					95% UPL (t)	0.0744	
112				90% Percentile (z)	0.0588					95% Percentile (z)	0.0698	
113				99% Percentile (z)	0.0964					95% USL	0.106	
114			DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.									
115												
116				Nonparametric Distribution Free Background Statistics								
117			Data appear to follow a Discernible Distribution at 5% Significance Level									
118												
119			Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)									
120				Order of Statistic, r	19					95% UTL with95% Coverage	0.09	
121				Approximate f	1					Confidence Coefficient (CC) achieved by UTL	0.623	
122				95% UPL	0.09					95% USL	0.09	
123				95% KM Chebyshev UPL	0.108							
124												
125			Note: The use of USL to estimate a BTV is recommended only when the data set represents a background									
126			data set free of outliers and consists of observations collected from clean unimpacted locations.									
127			The use of USL tends to provide a balance between false positives and false negatives provided the data									
128			represents a background data set and when many onsite observations need to be compared with the BTV									
129												

Background Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	6/29/2016 8:25:05 AM
From File	total organic carbon.xls
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
Different or Future K Observations	1
Number of Bootstrap Operations	2000

Total Organic Carbon

General Statistics

Total Number of Observations	10	Number of Missing Observations	0
Number of Distinct Observations	8		
Number of Detects	7	Number of Non-Detects	3
Number of Distinct Detects	7	Number of Distinct Non-Detects	1
Minimum Detect	1.6	Minimum Non-Detect	1
Maximum Detect	4.4	Maximum Non-Detect	1
Variance Detected	0.762	Percent Non-Detects	30%
Mean Detected	2.929	SD Detected	0.873
Mean of Detected Logged Data	1.034	SD of Detected Logged Data	0.316

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.911	≤2max (for USL)	2.176

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.981	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.803	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.152	Lilliefors GOF Test
5% Lilliefors Critical Value	0.335	Detected Data appear Normal at 5% Significance Level

Detected Data appear Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

Mean	2.35	SD	1.113
95% UTL95% Coverage	5.59	95% KM UPL (t)	4.49
90% KM Percentile (z)	3.776	95% KM Percentile (z)	4.181
99% KM Percentile (z)	4.939	95% KM USL	4.772

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	2.2	SD	1.373
95% UTL95% Coverage	6.196	95% UPL (t)	4.839
90% Percentile (z)	3.959	95% Percentile (z)	4.458
99% Percentile (z)	5.393	95% USL	5.187

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.202	Anderson-Darling GOF Test
5% A-D Critical Value	0.709	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.14	Kolmogrov-Smirnoff GOF
5% K-S Critical Value	0.312	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

53											
54					Gamma Statistics on Detected Data Only						
55				k hat (MLE)	12.46			k star (bias corrected MLE)	7.213		
56				Theta hat (MLE)	0.235			Theta star (bias corrected MLE)	0.406		
57				nu hat (MLE)	174.4			nu star (bias corrected)	101		
58				MLE Mean (bias corrected)	2.929						
59				MLE Sd (bias corrected)	1.09			95% Percentile of Chisquare (2k)	24.25		
60											
61					Gamma ROS Statistics using Imputed Non-Detects						
62					GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs						
63					GROS may not be used when kstar of detected data is small such as < 0.1						
64					For such situations, GROS method tends to yield inflated values of UCLs and BTVs						
65					For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates						
66				Minimum	0.501			Mean	2.345		
67				Maximum	4.4			Median	2.55		
68				SD	1.192			CV	0.508		
69				k hat (MLE)	3.512			k star (bias corrected MLE)	2.525		
70				Theta hat (MLE)	0.668			Theta star (bias corrected MLE)	0.929		
71				nu hat (MLE)	70.23			nu star (bias corrected)	50.5		
72				MLE Mean (bias corrected)	2.345			MLE Sd (bias corrected)	1.476		
73				95% Percentile of Chisquare (2k)	11.15			90% Percentile	4.322		
74				95% Percentile	5.177			99% Percentile	7.047		
75					The following statistics are computed using Gamma ROS Statistics on Imputed Data						
76					Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods						
77					WH	HW			WH	HW	
78	95% Approx. Gamma UTL with 95% Coverage				8.152	8.8		95% Approx. Gamma UPL	5.512	5.721	
79				95% Gamma USL	6.124	6.418					
80											
81					The following statistics are computed using gamma distribution and KM estimates						
82					Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods						
83					k hat (KM)	4.459			nu hat (KM)	89.18	
84					WH	HW			WH	HW	
85	95% Approx. Gamma UTL with 95% Coverage				7.303	7.724		95% Approx. Gamma UPL	5.091	5.22	
86				95% Gamma USL	5.608	5.793					
87											
88					Lognormal GOF Test on Detected Observations Only						
89				Shapiro Wilk Test Statistic	0.966			Shapiro Wilk GOF Test			
90				5% Shapiro Wilk Critical Value	0.803			Detected Data appear Lognormal at 5% Significance Level			
91				Lilliefors Test Statistic	0.165			Lilliefors GOF Test			
92				5% Lilliefors Critical Value	0.335			Detected Data appear Lognormal at 5% Significance Level			
93					Detected Data appear Lognormal at 5% Significance Level						
94											
95					Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects						
96				Mean in Original Scale	2.437			Mean in Log Scale	0.797		
97				SD in Original Scale	1.071			SD in Log Scale	0.468		
98				95% UTL95% Coverage	6.67			95% BCA UTL95% Coverage	4.4		
99				95% Bootstrap (%) UTL95% Coverage	4.4			95% UPL (t)	5.458		
100				90% Percentile (z)	4.042			95% Percentile (z)	4.792		
101				99% Percentile (z)	6.594			95% USL	6.146		
102											
103					Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution						
104				KM Mean of Logged Data	0.724			95% KM UTL (Lognormal)95% Coverage	9.735		

105				KM SD of Logged Data	0.533					95% KM UPL (Lognormal)		5.747
106				95% KM Percentile Lognormal (z)	4.956					95% KM USL (Lognormal)		6.579
107												
108				Background DL/2 Statistics Assuming Lognormal Distribution								
109				Mean in Original Scale	2.2					Mean in Log Scale		0.516
110				SD in Original Scale	1.373					SD in Log Scale		0.873
111				95% UTL95% Coverage	21.27					95% UPL (t)		8.975
112				90% Percentile (z)	5.128					95% Percentile (z)		7.042
113				99% Percentile (z)	12.77					95% USL		11.2
114				DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.								
115												
116				Nonparametric Distribution Free Background Statistics								
117				Data appear to follow a Discernible Distribution at 5% Significance Level								
118												
119				Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)								
120				Order of Statistic, r	10					95% UTL with95% Coverage		4.4
121				Approximate f	0.526					Confidence Coefficient (CC) achieved by UTL		0.401
122				95% UPL	4.4					95% USL		4.4
123				95% KM Chebyshev UPL	7.438							
124												
125				Note: The use of USL to estimate a BTV is recommended only when the data set represents a background								
126				data set free of outliers and consists of observations collected from clean unimpacted locations.								
127				The use of USL tends to provide a balance between false positives and false negatives provided the data								
128				represents a background data set and when many onsite observations need to be compared with the BTV.								
129												

Background Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	6/29/2016 8:22:12 AM
From File	sulfide.xls
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
Different or Future K Observations	1
Number of Bootstrap Operations	2000

Sulfide

General Statistics

Total Number of Observations	16	Number of Missing Observations	0
Number of Distinct Observations	4		
Number of Detects	4	Number of Non-Detects	12
Number of Distinct Detects	3	Number of Distinct Non-Detects	1
Minimum Detect	2	Minimum Non-Detect	1
Maximum Detect	3.6	Maximum Non-Detect	1
Variance Detected	0.573	Percent Non-Detects	75%
Mean Detected	2.5	SD Detected	0.757
Mean of Detected Logged Data	0.886	SD of Detected Logged Data	0.277

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.524	d2max (for USL)	2.443

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.791	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.748	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.303	Lilliefors GOF Test
5% Lilliefors Critical Value	0.443	Detected Data appear Normal at 5% Significance Level

Detected Data appear Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

Mean	1.375	SD	0.728
95% UTL95% Coverage	3.211	95% KM UPL (t)	2.69
90% KM Percentile (z)	2.307	95% KM Percentile (z)	2.572
99% KM Percentile (z)	3.068	95% KM UBL	3.153

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	1	SD	0.956
95% UTL95% Coverage	3.414	95% UPL (t)	2.728
90% Percentile (z)	2.226	95% Percentile (z)	2.573
99% Percentile (z)	3.225	95% UBL	3.337

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.529	Anderson-Darling GOF Test
5% A-D Critical Value	0.657	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.285	Kolmogrov-Smirnoff GOF
5% K-S Critical Value	0.394	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

53												
54						Gamma Statistics on Detected Data Only							
55					k hat (MLE)	16.5				k star (bias corrected MLE)	4.291	
56					Theta hat (MLE)	0.152				Theta star (bias corrected MLE)	0.583	
57					nu hat (MLE)	132				nu star (bias corrected)	34.33	
58					MLE Mean (bias corrected)	2.5						
59					MLE Sd (bias corrected)	1.207				95% Percentile of Chisquare (2k)	16.33	
60												
61						Gamma ROS Statistics using Imputed Non-Detects							
62						GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs							
63						GROS may not be used when kstar of detected data is small such as < 0.1							
64						For such situations, GROS method tends to yield inflated values of UCLs and BTVs							
65						For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates							
66					Minimum	0.01				Mean	0.81	
67					Maximum	3.6				Median	0.187	
68					SD	1.113				CV	1.374	
69					k hat (MLE)	0.359				k star (bias corrected MLE)	0.333	
70					Theta hat (MLE)	2.259				Theta star (bias corrected MLE)	2.433	
71					nu hat (MLE)	11.47				nu star (bias corrected)	10.65	
72					MLE Mean (bias corrected)	0.81				MLE Sd (bias corrected)	1.404	
73					95% Percentile of Chisquare (2k)	2.944				90% Percentile	2.356	
74					95% Percentile	3.581				99% Percentile	6.725	
75						The following statistics are computed using Gamma ROS Statistics on Imputed Data						
76						Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods						
77						WH	HW				WH	HW
78				95% Approx. Gamma UTL with 95% Coverage		7.047	9.141			95% Approx. Gamma UPL	3.825	4.368
79					95% Gamma USL	6.617	8.467					
80												
81						The following statistics are computed using gamma distribution and KM estimates						
82						Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods						
83					k hat (KM)	3.571				nu hat (KM)	114.3	
84					WH	HW				WH	HW	
85				95% Approx. Gamma UTL with 95% Coverage		3.323	3.347			95% Approx. Gamma UPL	2.612	2.603
86					95% Gamma USL	3.237	3.257					
87												
88						Lognormal GOF Test on Detected Observations Only							
89					Shapiro Wilk Test Statistic	0.819				Shapiro Wilk GOF Test		
90					5% Shapiro Wilk Critical Value	0.748				Detected Data appear Lognormal at 5% Significance Level		
91					Lilliefors Test Statistic	0.265				Lilliefors GOF Test		
92					5% Lilliefors Critical Value	0.443				Detected Data appear Lognormal at 5% Significance Level		
93						Detected Data appear Lognormal at 5% Significance Level						
94												
95						Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects						
96					Mean in Original Scale	1.221				Mean in Log Scale	-0.0271	
97					SD in Original Scale	0.888				SD in Log Scale	0.698	
98					95% UTL95% Coverage	5.665				95% BCA UTL95% Coverage	3.6	
99					95% Bootstrap (%) UTL95% Coverage	3.6				95% UPL (t)	3.435	
100					90% Percentile (z)	2.38				95% Percentile (z)	3.067	
101					99% Percentile (z)	4.935				95% USL	5.354	
102												
103						Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution						
104					KM Mean of Logged Data	0.221				95% KM UTL (Lognormal)95% Coverage	3.441	

105				KM SD of Logged Data	0.402					95% KM UPL (Lognormal)		2.579
106				95% KM Percentile Lognormal (z)	2.417					95% KM USL (Lognormal)		3.331
107												
108				Background DL/2 Statistics Assuming Lognormal Distribution								
109				Mean in Original Scale	1					Mean in Log Scale		-0.298
110				SD in Original Scale	0.956					SD in Log Scale		0.717
111				95% UTL95% Coverage	4.531					95% UPL (t)		2.71
112				90% Percentile (z)	1.859					95% Percentile (z)		2.413
113				99% Percentile (z)	3.932					95% USL		4.276
114				DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.								
115												
116				Nonparametric Distribution Free Background Statistics								
117				Data appear to follow a Discernible Distribution at 5% Significance Level								
118												
119				Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)								
120				Order of Statistic, r	16					95% UTL with95% Coverage		3.6
121				Approximate f	0.842					Confidence Coefficient (CC) achieved by UTL		0.56
122				95% UPL	3.6					95% USL		3.6
123				95% KM Chebyshev UPL	4.644							
124												
125				Note: The use of USL to estimate a BTV is recommended only when the data set represents a background								
126				data set free of outliers and consists of observations collected from clean unimpacted locations.								
127				The use of USL tends to provide a balance between false positives and false negatives provided the data								
128				represents a background data set and when many onsite observations need to be compared with the BTV.								
129												

WMU-2

Class II Surface Impoundment

Background Well

MWC

2016

Union Mine

Background Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	7/6/2016 8:51:43 AM
From File	nickel.xls
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
Different or Future K Observations	1
Number of Bootstrap Operations	2000

Nickel

General Statistics

Total Number of Observations	9	Number of Missing Observations	0
Number of Distinct Observations	8		
Number of Detects	5	Number of Non-Detects	4
Number of Distinct Detects	5	Number of Distinct Non-Detects	3
Minimum Detect	0.012	Minimum Non-Detect	0.005
Maximum Detect	0.03	Maximum Non-Detect	0.04
Variance Detected	5.4500E-5	Percent Non-Detects	44.44%
Mean Detected	0.019	SD Detected	0.00738
Mean of Detected Logged Data	-4.02	SD of Detected Logged Data	0.371

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	3.031	d2max (for USL)	2.11

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.885	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.762	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.306	Lilliefors GOF Test
5% Lilliefors Critical Value	0.386	Detected Data appear Normal at 5% Significance Level

Detected Data appear Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

Mean	0.016	SD	0.00773
95% UTL95% Coverage	0.0394	95% KM UPL (t)	0.0311
90% KM Percentile (z)	0.0259	95% KM Percentile (z)	0.0287
99% KM Percentile (z)	0.034	95% KM USL	0.0323

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.0164	SD	0.008
95% UTL95% Coverage	0.0406	95% UPL (t)	0.0321
90% Percentile (z)	0.0266	95% Percentile (z)	0.0295
99% Percentile (z)	0.035	95% USL	0.0333

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.387	Anderson-Darling GOF Test
5% A-D Critical Value	0.679	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.315	Kolmogrov-Smirnoff GOF
5% K-S Critical Value	0.358	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

53												
54					Gamma Statistics on Detected Data Only							
55				k hat (MLE)	8.951			k star (bias corrected MLE)	3.714			
56				Theta hat (MLE)	0.00212			Theta star (bias corrected MLE)	0.00512			
57				nu hat (MLE)	89.51			nu star (bias corrected)	37.14			
58				MLE Mean (bias corrected)	0.019							
59				MLE Sd (bias corrected)	0.00986			95% Percentile of Chisquare (2k)	14.69			
60												
61					Gamma ROS Statistics using Imputed Non-Detects							
62					GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs							
63					GROS may not be used when kstar of detected data is small such as < 0.1							
64					For such situations, GROS method tends to yield inflated values of UCLs and BTVs							
65					For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates							
66				Minimum	0.01			Mean	0.0164			
67				Maximum	0.03			Median	0.015			
68				SD	0.00654			CV	0.398			
69				k hat (MLE)	8.268			k star (bias corrected MLE)	5.586			
70				Theta hat (MLE)	0.00199			Theta star (bias corrected MLE)	0.00294			
71				nu hat (MLE)	148.8			nu star (bias corrected)	100.6			
72				MLE Mean (bias corrected)	0.0164			MLE Sd (bias corrected)	0.00696			
73				95% Percentile of Chisquare (2k)	19.91			90% Percentile	0.0258			
74				95% Percentile	0.0293			99% Percentile	0.0368			
75					The following statistics are computed using Gamma ROS Statistics on Imputed Data							
76					Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods							
77					WH	HW			WH	HW		
78	95% Approx. Gamma UTL with 95% Coverage				0.0413	0.0423		95% Approx. Gamma UPL	0.0304	0.0306		
79				95% Gamma USL	0.0318	0.0321						
80												
81					The following statistics are computed using gamma distribution and KM estimates							
82					Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods							
83					k hat (KM)	4.28			nu hat (KM)	76.69		
84					WH	HW			WH	HW		
85	95% Approx. Gamma UTL with 95% Coverage				0.0529	0.0566		95% Approx. Gamma UPL	0.0357	0.0368		
86				95% Gamma USL	0.0378	0.0391						
87												
88					Lognormal GOF Test on Detected Observations Only							
89				Shapiro Wilk Test Statistic	0.979			Shapiro Wilk GOF Test				
90				5% Shapiro Wilk Critical Value	0.762			Detected Data appear Lognormal at 5% Significance Level				
91				Lilliefors Test Statistic	0.288			Lilliefors GOF Test				
92				5% Lilliefors Critical Value	0.396			Detected Data appear Lognormal at 5% Significance Level				
93					Detected Data appear Lognormal at 5% Significance Level							
94												
95					Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects							
96				Mean in Original Scale	0.0162			Mean in Log Scale	-4.193			
97				SD in Original Scale	0.00676			SD in Log Scale	0.4			
98				95% UTL95% Coverage	0.0508			95% BCA UTL95% Coverage	0.03			
99				95% Bootstrap (%) UTL95% Coverage	0.03			95% UPL (t)	0.0331			
100				90% Percentile (z)	0.0252			95% Percentile (z)	0.0292			
101				99% Percentile (z)	0.0383			95% USL	0.0351			
102												
103					Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution							
104				KM Mean of Logged Data	-4.276			95% KM UTL (Lognormal)95% Coverage	0.0759			

105				KM SD of Logged Data	0.56					95% KM UPL (Lognormal)	0.0417	
106			95% KM Percentile Lognormal (z)		0.0349					95% KM USL (Lognormal)	0.0453	
107												
108				Background DL/2 Statistics Assuming Lognormal Distribution								
109				Mean in Original Scale	0.0164					Mean in Log Scale	-4.28	
110				SD in Original Scale	0.008					SD in Log Scale	0.724	
111				95% UTL95% Coverage	0.124					95% UPL (t)	0.0572	
112				90% Percentile (z)	0.035					95% Percentile (z)	0.0455	
113				99% Percentile (z)	0.0746					95% USL	0.0638	
114			DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.									
115												
116				Nonparametric Distribution Free Background Statistics								
117			Data appear to follow a Discernible Distribution at 5% Significance Level									
118												
119			Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)									
120				Order of Statistic, r	9					95% UTL with95% Coverage	0.04	
121				Approximate f	0.474					Confidence Coefficient (CC) achieved by UTL	0.37	
122				95% UPL	0.04					95% USL	0.04	
123				95% KM Chebyshev UPL	0.0515							
124												
125			Note: The use of USL to estimate a BTV is recommended only when the data set represents a background									
126			data set free of outliers and consists of observations collected from clean unimpacted locations.									
127			The use of USL tends to provide a balance between false positives and false negatives provided the data									
128			represents a background data set and when many onsite observations need to be compared with the BTV.									
129												

Background Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	7/6/2016 8:45:59 AM
From File	barium.xls
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
Different or Future K Observations	1
Number of Bootstrap Operations	2000

Barium

General Statistics

Total Number of Observations	9	Number of Missing Observations	0
Number of Distinct Observations	7		
Number of Detects	6	Number of Non-Detects	3
Number of Distinct Detects	5	Number of Distinct Non-Detects	2
Minimum Detect	0.012	Minimum Non-Detect	0.02
Maximum Detect	0.023	Maximum Non-Detect	0.1
Variance Detected	1.3467E-5	Percent Non-Detects	33.33%
Mean Detected	0.0183	SD Detected	0.00367
Mean of Detected Logged Data	-4.018	SD of Detected Logged Data	0.221

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	3.031	d2max (for USL)	2.11

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.931	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.788	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.239	Lilliefors GOF Test
5% Lilliefors Critical Value	0.362	Detected Data appear Normal at 5% Significance Level

Detected Data appear Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

Mean	0.0162	SD	0.0033
95% UTL95% Coverage	0.0262	95% KM UPL (t)	0.0247
90% KM Percentile (z)	0.0224	95% KM Percentile (z)	0.0236
99% KM Percentile (z)	0.0259	95% KM USL	0.0252

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.0244	SD	0.015
95% UTL95% Coverage	0.07	95% UPL (t)	0.0539
90% Percentile (z)	0.0437	95% Percentile (z)	0.0492
99% Percentile (z)	0.0594	95% USL	0.0561

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.426	Anderson-Darling GOF Test
5% A-D Critical Value	0.697	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.265	Kolmogrov-Smirnoff GOF
5% K-S Critical Value	0.332	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

53												
54					Gamma Statistics on Detected Data Only							
55				k hat (MLE)	26.46				k star (bias corrected MLE)	13.34		
56				Theta hat (MLE)	6.9292E-4				Theta star (bias corrected MLE)	0.00137		
57				nu hat (MLE)	317.5				nu star (bias corrected)	160.1		
58				MLE Mean (bias corrected)	0.0183							
59				MLE Sd (bias corrected)	0.00502				95% Percentile of Chisquare (2k)	39.72		
60												
61					Gamma ROS Statistics using Imputed Non-Detects							
62					GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs							
63					GROS may not be used when kstar of detected data is small such as < 0.1							
64					For such situations, GROS method tends to yield inflated values of UCLs and BTVs							
65					For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates							
66				Minimum	0.012				Mean	0.0181		
67				Maximum	0.023				Median	0.019		
68				SD	0.00303				CV	0.167		
69				k hat (MLE)	36.59				k star (bias corrected MLE)	24.47		
70				Theta hat (MLE)	4.9560E-4				Theta star (bias corrected MLE)	7.4115E-4		
71				nu hat (MLE)	658.7				nu star (bias corrected)	440.4		
72				MLE Mean (bias corrected)	0.0181				MLE Sd (bias corrected)	0.00367		
73				95% Percentile of Chisquare (2k)	66.27				90% Percentile	0.023		
74				95% Percentile	0.0246				99% Percentile	0.0277		
75				The following statistics are computed using Gamma ROS Statistics on Imputed Data								
76				Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods								
77					WH	HW					WH	HW
78	95% Approx. Gamma UTL with 95% Coverage				0.0294	0.0297			95% Approx. Gamma UPL		0.0249	0.025
79				95% Gamma USL	0.0255	0.0257						
80												
81				The following statistics are computed using gamma distribution and KM estimates								
82				Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods								
83					k hat (KM)	30.38				nu hat (KM)	546.9	
84					WH	HW					WH	HW
85	95% Approx. Gamma UTL with 95% Coverage				0.0307	0.0312			95% Approx. Gamma UPL		0.0257	0.0259
86				95% Gamma USL	0.0264	0.0266						
87												
88					Lognormal GOF Test on Detected Observations Only							
89				Shapiro Wilk Test Statistic	0.88				Shapiro Wilk GOF Test			
90				5% Shapiro Wilk Critical Value	0.788				Detected Data appear Lognormal at 5% Significance Level			
91				Lilliefors Test Statistic	0.264				Lilliefors GOF Test			
92				5% Lilliefors Critical Value	0.362				Detected Data appear Lognormal at 5% Significance Level			
93					Detected Data appear Lognormal at 5% Significance Level							
94												
95					Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects							
96				Mean in Original Scale	0.0181				Mean in Log Scale	-4.027		
97				SD in Original Scale	0.00306				SD in Log Scale	0.182		
98				95% UTL95% Coverage	0.031				95% BCA UTL95% Coverage	0.023		
99				95% Bootstrap (%) UTL95% Coverage	0.023				95% UPL (t)	0.0255		
100				90% Percentile (z)	0.0225				95% Percentile (z)	0.0241		
101				99% Percentile (z)	0.0272				95% USL	0.0262		
102												
103					Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution							
104				KM Mean of Logged Data	-4.025				95% KM UTL (Lognormal)95% Coverage	0.0328		

105				KM SD of Logged Data	0.2					95% KM UPL (Lognormal)	0.0265	
106				95% KM Percentile Lognormal (z)	0.0248					95% KM USL (Lognormal)	0.0273	
107												
108				Background DL/2 Statistics Assuming Lognormal Distribution								
109				Mean in Original Scale	0.0244					Mean in Log Scale	-3.856	
110				SD in Original Scale	0.015					SD in Log Scale	0.553	
111				95% UTL95% Coverage	0.113					95% UPL (t)	0.0625	
112				90% Percentile (z)	0.0429					95% Percentile (z)	0.0525	
113				99% Percentile (z)	0.0765					95% USL	0.0679	
114				DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.								
115												
116				Nonparametric Distribution Free Background Statistics								
117				Data appear to follow a Discernible Distribution at 5% Significance Level								
118												
119				Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)								
120				Order of Statistic, r	9					95% UTL with95% Coverage	0.1	
121				Approximate f	0.474					Confidence Coefficient (CC) achieved by UTL	0.37	
122				95% UPL	0.1					95% USL	0.1	
123				95% KM Chebyshev UPL	0.0334							
124												
125				Note: The use of USL to estimate a BTV is recommended only when the data set represents a background								
126				data set free of outliers and consists of observations collected from clean unimpacted locations.								
127				The use of USL tends to provide a balance between false positives and false negatives provided the data								
128				represents a background data set and when many onsite observations need to be compared with the BTV.								
129												

Background Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	6/24/2016 8:51:24 AM
From File	WMU2-GW-hist_d.xls
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
Different or Future K Observations	1
Number of Bootstrap Operations	2000

TDS

General Statistics

Total Number of Observations	38	Number of Missing Observations	0
Number of Distinct Observations	22		
Number of Detects	36	Number of Non-Detects	2
Number of Distinct Detects	21	Number of Distinct Non-Detects	1
Minimum Detect	180	Minimum Non-Detect	10
Maximum Detect	510	Maximum Non-Detect	10
Variance Detected	5682	Percent Non-Detects	5.263%
Mean Detected	391.3	SD Detected	75.38
Mean of Detected Logged Data	5.947	SD of Detected Logged Data	0.224

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.132	d2max (for USL)	2.846

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.931	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.935	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.121	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.148	Detected Data appear Normal at 5% Significance Level	

Detected Data appear Approximate Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

Mean	371.2	SD	111.7
95% UTL95% Coverage	609.4	95% KM UPL (t)	562.1
90% KM Percentile (z)	514.4	95% KM Percentile (z)	554.9
99% KM Percentile (z)	631.1	95% KM USL	689.2

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	370.9	SD	114.1
95% UTL95% Coverage	614.2	95% UPL (t)	565.9
90% Percentile (z)	517.1	95% Percentile (z)	558.6
99% Percentile (z)	636.3	95% USL	695.6

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.266	Anderson-Darling GOF Test	
5% A-D Critical Value	0.747	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.151	Kolmogrov-Smirnoff GOF	
5% K-S Critical Value	0.147	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

53												
54					Gamma Statistics on Detected Data Only							
55				k hat (MLE)	23.05				k star (bias corrected MLE)	21.15		
56				Theta hat (MLE)	16.97				Theta star (bias corrected MLE)	18.5		
57				nu hat (MLE)	1660				nu star (bias corrected)	1523		
58				MLE Mean (bias corrected)	391.3							
59				MLE Sd (bias corrected)	85.08				95% Percentile of Chisquare (2k)	58.47		
60												
61					Gamma ROS Statistics using Imputed Non-Detects							
62					GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs							
63					GROS may not be used when kstar of detected data is small such as < 0.1							
64					For such situations, GROS method tends to yield inflated values of UCLs and BTVs							
65					For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates							
66				Minimum	180				Mean	383.5		
67				Maximum	510				Median	400		
68				SD	80.63				CV	0.21		
69				k hat (MLE)	19.67				k star (bias corrected MLE)	18.13		
70				Theta hat (MLE)	19.5				Theta star (bias corrected MLE)	21.15		
71				nu hat (MLE)	1495				nu star (bias corrected)	1378		
72				MLE Mean (bias corrected)	383.5				MLE Sd (bias corrected)	90.05		
73				95% Percentile of Chisquare (2k)	51.32				90% Percentile	502.4		
74				95% Percentile	542.6				99% Percentile	623.4		
75					The following statistics are computed using Gamma ROS Statistics on Imputed Data							
76					Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods							
77					WH	HW				WH	HW	
78			95% Approx. Gamma UTL with 95% Coverage		593.6	600.3			95% Approx. Gamma UPL	545.4	549.5	
79				95% Gamma USL	681.3	694						
80												
81					The following statistics are computed using gamma distribution and KM estimates							
82					Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods							
83					k hat (KM)	11.04				nu hat (KM)	839	
84					WH	HW				WH	HW	
85			95% Approx. Gamma UTL with 95% Coverage		903.6	1014			95% Approx. Gamma UPL	763.7	834.6	
86				95% Gamma USL	1177	1381						
87												
88					Lognormal GOF Test on Detected Observations Only							
89				Shapiro Wilk Test Statistic	0.863				Shapiro Wilk GOF Test			
90				5% Shapiro Wilk Critical Value	0.935				Data Not Lognormal at 5% Significance Level			
91				Lilliefors Test Statistic	0.17				Lilliefors GOF Test			
92				5% Lilliefors Critical Value	0.148				Data Not Lognormal at 5% Significance Level			
93					Data Not Lognormal at 5% Significance Level							
94												
95					Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects							
96				Mean in Original Scale	383				Mean in Log Scale	5.922		
97				SD in Original Scale	81.38				SD in Log Scale	0.244		
98				95% UTL95% Coverage	627.7				95% BCA UTL95% Coverage	510		
99				95% Bootstrap (%) UTL95% Coverage	510				95% UPL (t)	566.2		
100				90% Percentile (z)	510.1				95% Percentile (z)	557.4		
101				99% Percentile (z)	658.2				95% USL	747.2		
102												
103					Background DL/2 Statistics Assuming Lognormal Distribution							
104				Mean in Original Scale	370.9				Mean in Log Scale	5.719		

105				SD in Original Scale	114.1					SD in Log Scale	1.005	
106				95% UTL95% Coverage	2599					95% UPL (t)	1699	
107				90% Percentile (z)	1105					95% Percentile (z)	1593	
108				99% Percentile (z)	3160					95% USL	5330	
109				DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.								
110												
111				Nonparametric Distribution Free Background Statistics								
112				Data appear to follow a Discernible Distribution at 5% Significance Level								
113												
114				Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)								
115				Order of Statistic, r	38					95% UTL with95% Coverage	510	
116				Approximate f	2					Confidence Coefficient (CC) achieved by UTL	0.858	
117				95% UPL	486.3					95% USL	510	
118				95% KM Chebyshev UPL	864.5							
119												
120				Note: The use of USL to estimate a BTV is recommended only when the data set represents a background								
121				data set free of outliers and consists of observations collected from clean unimpacted locations.								
122				The use of USL tends to provide a balance between false positives and false negatives provided the data								
123				represents a background data set and when many onsite observations need to be compared with the BTV.								
124												

Background Statistics for Uncensored Full Data Sets

User Selected Options	
Date/Time of Computation	6/24/2016 8:32:56 AM
From File	H:\My Documents\Projects\Union Mine\aa-statistics-historical\WMU2-GW-hist.xlsx
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
New or Future K Observations	1
Number of Bootstrap Operations	2000

Bicarbonate

General Statistics

Total Number of Observations	21	Number of Distinct Observations	11
Minimum	110	First Quartile	130
Second Largest	190	Median	150
Maximum	190	Third Quartile	170
Mean	151.9	SD	25.57
Coefficient of Variation	0.168	Skewness	0.105
Mean of logged Data	5.01	SD of logged Data	0.17

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.371	d2max (for USL)	2.58

Normal GOF Test

Shapiro Wilk Test Statistic	0.94	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.908	Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.138	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.193	Data appear Normal at 5% Significance Level	

Data appear Normal at 5% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	212.3	90% Percentile (z)	184.7
	95% UPL (t)	197	95% Percentile (z)	194
	95% USL	217.9	99% Percentile (z)	211.4

Gamma GOF Test

A-D Test Statistic	0.428	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.742	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.14	Kolmogrov-Smirnoff Gamma GOF Test	
5% K-S Critical Value	0.189	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	36.74	k star (bias corrected MLE)	31.53
Theta hat (MLE)	4.134	Theta star (bias corrected MLE)	4.818
nu hat (MLE)	1543	nu star (bias corrected)	1324
MLE Mean (bias corrected)	151.9	MLE Sd (bias corrected)	27.05

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	200.2	90% Percentile	187.4
95% Hawkins Wixley (HW) Approx. Gamma UPL	200.7	95% Percentile	199

53	95% WH Approx. Gamma UTL with		95% Coverage	219.5					99% Percentile	221.8
54	95% HW Approx. Gamma UTL with		95% Coverage	220.6						
55			95% WH USL	226.5					95% HW USL	227.8
56										
57				Lognormal GOF Test						
58			Shapiro Wilk Test Statistic	0.945		Shapiro Wilk Lognormal GOF Test				
59			5% Shapiro Wilk Critical Value	0.908		Data appear Lognormal at 5% Significance Level				
60			Lilliefors Test Statistic	0.132		Lilliefors Lognormal GOF Test				
61			5% Lilliefors Critical Value	0.193		Data appear Lognormal at 5% Significance Level				
62			Data appear Lognormal at 5% Significance Level							
63										
64				Background Statistics assuming Lognormal Distribution						
65		95% UTL with	95% Coverage	224.3					90% Percentile (z)	186.3
66			95% UPL (t)	202.3					95% Percentile (z)	198.2
67			95% USL	232.4					99% Percentile (z)	222.6
68										
69				Nonparametric Distribution Free Background Statistics						
70			Data appear Normal at 5% Significance Level							
71										
72				Nonparametric Upper Limits for Background Threshold Values						
73			Order of Statistic, r	21				95% UTL with	95% Coverage	190
74			Approximate F	1.105		Confidence Coefficient (CC) achieved by UTL				0.659
75	95% Percentile Bootstrap UTL with		95% Coverage	190		95% BCA Bootstrap UTL with			95% Coverage	190
76			95% UPL	190					90% Percentile	190
77			90% Chebyshev UPL	230.4					95% Percentile	190
78			95% Chebyshev UPL	266					99% Percentile	190
79			95% USL	190						
80										
81	Note: The use of USL to estimate a BTV is recommended only when the data set represents a background									
82	data set free of outliers and consists of observations collected from clean unimpacted locations.									
83	The use of USL tends to provide a balance between false positives and false negatives provided the data									
84	represents a background data set and when many onsite observations need to be compared with the BTV.									
85										

Background Statistics for Uncensored Full Data Sets

User Selected Options	
Date/Time of Computation	6/24/2016 8:32:16 AM
From File	H:\My Documents\Projects\Union Mine\aa-statistics-historical\WMU2-GW-hist.xlsx
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
New or Future K Observations	1
Number of Bootstrap Operations	2000

Chloride

General Statistics

Total Number of Observations	38	Number of Distinct Observations	26
Minimum	11	First Quartile	29.25
Second Largest	63	Median	44.5
Maximum	65	Third Quartile	54.75
Mean	41.29	SD	15.51
Coefficient of Variation	0.376	Skewness	-0.231
Mean of logged Data	3.634	SD of logged Data	0.451

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.132	d2max (for USL)	2.846

Normal GOF Test

Shapiro Wilk Test Statistic	0.938	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.938	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.167	Lilliefors GOF Test
5% Lilliefors Critical Value	0.144	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	74.37	90% Percentile (z)	61.17
	95% UPL (t)	67.81	95% Percentile (z)	66.81
	95% USL	85.45	99% Percentile (z)	77.38

Gamma GOF Test

A-D Test Statistic	0.926	Anderson-Darling Gamma GOF Test
5% A-D Critical Value	0.75	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.196	Kolmogrov-Smirnoff Gamma GOF Test
5% K-S Critical Value	0.143	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	5.943	k star (bias corrected MLE)	5.491
Theta hat (MLE)	6.948	Theta star (bias corrected MLE)	7.52
nu hat (MLE)	451.6	nu star (bias corrected)	417.3
MLE Mean (bias corrected)	41.29	MLE Sd (bias corrected)	17.62

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	74.71	90% Percentile	64.86
95% Hawkins Wixley (HW) Approx. Gamma UPL	76.14	95% Percentile	73.88

53	95% WH Approx. Gamma UTL with			95% Coverage	86.01						99% Percentile	92.86
54	95% HW Approx. Gamma UTL with			95% Coverage	88.53							
55				95% WH USL	107.6						95% HW USL	112.8
56												
57					Lognormal GOF Test							
58				Shapiro Wilk Test Statistic	0.903			Shapiro Wilk Lognormal GOF Test				
59				5% Shapiro Wilk Critical Value	0.938			Data Not Lognormal at 5% Significance Level				
60				Lilliefors Test Statistic	0.2			Lilliefors Lognormal GOF Test				
61				5% Lilliefors Critical Value	0.144			Data Not Lognormal at 5% Significance Level				
62					Data Not Lognormal at 5% Significance Level							
63												
64					Background Statistics assuming Lognormal Distribution							
65			95% UTL with	95% Coverage	99.11						90% Percentile (z)	67.52
66				95% UPL (t)	81.89						95% Percentile (z)	79.55
67				95% USL	136.8						99% Percentile (z)	108.2
68												
69					Nonparametric Distribution Free Background Statistics							
70					Data do not follow a Discernible Distribution (0.05)							
71												
72					Nonparametric Upper Limits for Background Threshold Values							
73				Order of Statistic, r	38						95% UTL with 95% Coverage	65
74				Approximate r	2						Confidence Coefficient (CC) achieved by UTL	0.858
75	95% Percentile Bootstrap UTL with			95% Coverage	65						95% BCA Bootstrap UTL with 95% Coverage	63.3
76				95% UPL	63.1						90% Percentile	60.3
77				90% Chebyshev UPL	88.44						95% Percentile	63
78				95% Chebyshev UPL	109.8						99% Percentile	64.26
79				95% USL	65							
80												
81	Note: The use of USL to estimate a BTV is recommended only when the data set represents a background											
82	data set free of outliers and consists of observations collected from clean unimpacted locations.											
83	The use of USL tends to provide a balance between false positives and false negatives provided the data											
84	represents a background data set and when many onsite observations need to be compared with the BTV.											
85												

Background Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	6/24/2016 9:36:29 AM
From File	WMU2-GW-hist_e.xls
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
Different or Future K Observations	1
Number of Bootstrap Operations	2000

Nitrate-N

General Statistics

Total Number of Observations	36	Number of Missing Observations	0
Number of Distinct Observations	17		
Number of Detects	16	Number of Non-Detects	20
Number of Distinct Detects	15	Number of Distinct Non-Detects	2
Minimum Detect	0.066	Minimum Non-Detect	0.045
Maximum Detect	9.262	Maximum Non-Detect	0.5
Variance Detected	5.075	Percent Non-Detects	55.56%
Mean Detected	0.993	SD Detected	2.253
Mean of Detected Logged Data	-1.184	SD of Detected Logged Data	1.421

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.148	d2max (for USL)	2.824

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.432	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.887	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.361	Lilliefors GOF Test
5% Lilliefors Critical Value	0.222	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

Mean	0.512	SD	1.519
95% UTL95% Coverage	3.775	95% KM UPL (t)	3.114
90% KM Percentile (z)	2.458	95% KM Percentile (z)	3.01
99% KM Percentile (z)	4.046	95% KM USL	4.801

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.574	SD	1.523
95% UTL95% Coverage	3.847	95% UPL (t)	3.184
90% Percentile (z)	2.527	95% Percentile (z)	3.08
99% Percentile (z)	4.118	95% USL	4.876

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.31	Anderson-Darling GOF Test
5% A-D Critical Value	0.793	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.228	Kolmogrov-Smirnoff GOF
5% K-S Critical Value	0.227	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

53												
54						Gamma Statistics on Detected Data Only							
55					k hat (MLE)	0.542			k star (bias corrected MLE)	0.482		
56					Theta hat (MLE)	1.833			Theta star (bias corrected MLE)	2.091		
57					nu hat (MLE)	17.34			nu star (bias corrected)	15.42		
58					MLE Mean (bias corrected)	0.993						
59					MLE Sd (bias corrected)	1.431			95% Percentile of Chisquare (2k)	3.752		
60												
61						Gamma ROS Statistics using Imputed Non-Detects							
62						GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs							
63						GROS may not be used when kstar of detected data is small such as < 0.1							
64						For such situations, GROS method tends to yield inflated values of UCLs and BTVs							
65						For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates							
66					Minimum	0.01			Mean	0.503		
67					Maximum	9.262			Median	0.0705		
68					SD	1.549			CV	3.083		
69					k hat (MLE)	0.35			k star (bias corrected MLE)	0.34		
70					Theta hat (MLE)	1.434			Theta star (bias corrected MLE)	1.479		
71					nu hat (MLE)	25.23			nu star (bias corrected)	24.46		
72					MLE Mean (bias corrected)	0.503			MLE Sd (bias corrected)	0.862		
73					95% Percentile of Chisquare (2k)	2.984			90% Percentile	1.468		
74					95% Percentile	2.207			99% Percentile	4.126		
75						The following statistics are computed using Gamma ROS Statistics on Imputed Data						
76						Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods						
77						WH	HW			WH	HW	
78	95% Approx. Gamma UTL with 95% Coverage					2.621	2.738		95% Approx. Gamma UPL	1.753	1.721	
79					95% Gamma USL	4.469	5.129					
80												
81						The following statistics are computed using gamma distribution and KM estimates						
82						Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods						
83					k hat (KM)	0.113			nu hat (KM)	8.167		
84						WH	HW			WH	HW	
85	95% Approx. Gamma UTL with 95% Coverage					2.22	2.118		95% Approx. Gamma UPL	1.569	1.451	
86					95% Gamma USL	3.549	3.575					
87												
88						Lognormal GOF Test on Detected Observations Only							
89					Shapiro Wilk Test Statistic	0.892			Shapiro Wilk GOF Test			
90					5% Shapiro Wilk Critical Value	0.887			Detected Data appear Lognormal at 5% Significance Level			
91					Lilliefors Test Statistic	0.214			Lilliefors GOF Test			
92					5% Lilliefors Critical Value	0.222			Detected Data appear Lognormal at 5% Significance Level			
93						Detected Data appear Lognormal at 5% Significance Level						
94												
95						Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects						
96					Mean in Original Scale	0.517			Mean in Log Scale	-1.897		
97					SD in Original Scale	1.54			SD in Log Scale	1.405		
98					95% UTL95% Coverage	3.068			95% BCA UTL95% Coverage	3.434		
99					95% Bootstrap (%) UTL95% Coverage	9.262			95% UPL (t)	1.564		
100					90% Percentile (z)	0.908			95% Percentile (z)	1.512		
101					99% Percentile (z)	3.939			95% USL	7.921		
102												
103						Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution						
104					KM Mean of Logged Data	-1.802			95% KM UTL (Lognormal)95% Coverage	2.064		

105				KM SD of Logged Data	1.174					95% KM UPL (Lognormal)		1.232
106				95% KM Percentile Lognormal (z)	1.137					95% KM USL (Lognormal)		4.539
107												
108					Background DL/2 Statistics Assuming Lognormal Distribution							
109				Mean in Original Scale	0.574					Mean in Log Scale		-1.355
110				SD in Original Scale	1.523					SD in Log Scale		1.026
111				95% UTL95% Coverage	2.537					95% UPL (t)		1.495
112				90% Percentile (z)	0.961					95% Percentile (z)		1.394
113				99% Percentile (z)	2.805					95% USL		4.672
114				DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.								
115												
116					Nonparametric Distribution Free Background Statistics							
117				Data appear to follow a Discernible Distribution at 5% Significance Level								
118												
119				Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)								
120				Order of Statistic, r	36					95% UTL with95% Coverage		9.262
121				Approximate f	1.895					Confidence Coefficient (CC) achieved by UTL		0.842
122				95% UPL	2.657					95% USL		9.262
123				95% KM Chebyshev UPL	7.225							
124												
125				Note: The use of USL to estimate a BTV is recommended only when the data set represents a background								
126				data set free of outliers and consists of observations collected from clean unimpacted locations.								
127				The use of USL tends to provide a balance between false positives and false negatives provided the data								
128				represents a background data set and when many onsite observations need to be compared with the BTV.								
129												

1					Background Statistics for Uncensored Full Data Sets						
2		User Selected Options									
3		Date/Time of Computation	6/24/2016 8:33:53 AM								
4		From File	H:\My Documents\Projects\Union Mine\aa-statistics-historical\WMU2-GW-hist.xlsx								
5		Full Precision	OFF								
6		Confidence Coefficient	95%								
7		Coverage	95%								
8		New or Future K Observations	1								
9		Number of Bootstrap Operations	2000								
10											
11	Sulfate										
12											
13	General Statistics										
14			Total Number of Observations	38				Number of Distinct Observations	11		
15			Minimum	9.4				First Quartile	110		
16			Second Largest	140				Median	120		
17			Maximum	150				Third Quartile	130		
18			Mean	112.4				SD	26.32		
19			Coefficient of Variation	0.234				Skewness	-2.366		
20			Mean of logged Data	4.658				SD of logged Data	0.473		
21											
22					Critical Values for Background Threshold Values (BTVs)						
23			Tolerance Factor K (For UTL)	2.132				d2max (for USL)	2.846		
24											
25					Normal GOF Test						
26			Shapiro Wilk Test Statistic	0.767			Shapiro Wilk GOF Test				
27			5% Shapiro Wilk Critical Value	0.938			Data Not Normal at 5% Significance Level				
28			Lilliefors Test Statistic	0.253			Lilliefors GOF Test				
29			5% Lilliefors Critical Value	0.144			Data Not Normal at 5% Significance Level				
30					Data Not Normal at 5% Significance Level						
31											
32					Background Statistics Assuming Normal Distribution						
33		95% UTL with	95% Coverage	168.5				90% Percentile (z)	146.1		
34			95% UPL (t)	157.4				95% Percentile (z)	155.7		
35			95% USL	187.3				99% Percentile (z)	173.6		
36											
37					Gamma GOF Test						
38			A-D Test Statistic	5.267			Anderson-Darling Gamma GOF Test				
39			5% A-D Critical Value	0.749			Data Not Gamma Distributed at 5% Significance Level				
40			K-S Test Statistic	0.313			Kolmogrov-Smirnoff Gamma GOF Test				
41			5% K-S Critical Value	0.143			Data Not Gamma Distributed at 5% Significance Level				
42					Data Not Gamma Distributed at 5% Significance Level						
43											
44					Gamma Statistics						
45			k hat (MLE)	7.949				k star (bias corrected MLE)	7.339		
46			Theta hat (MLE)	14.14				Theta star (bias corrected MLE)	15.31		
47			nu hat (MLE)	604.1				nu star (bias corrected)	557.8		
48			MLE Mean (bias corrected)	112.4				MLE Sd (bias corrected)	41.48		
49											
50					Background Statistics Assuming Gamma Distribution						
51			95% Wilson Hilferty (WH) Approx. Gamma UPL	188.3				90% Percentile	167.7		
52			95% Hawkins Wixley (HW) Approx. Gamma UPL	196.4				95% Percentile	188.2		

53			95% WH Approx. Gamma UTL with	95% Coverage	212.7					99% Percentile	230.6	
54			95% HW Approx. Gamma UTL with	95% Coverage	224.9							
55				95% WH USL	258.7					95% HW USL	279.9	
56												
57					Lognormal GOF Test							
58				Shapiro Wilk Test Statistic	0.484			Shapiro Wilk Lognormal GOF Test				
59				5% Shapiro Wilk Critical Value	0.938			Data Not Lognormal at 5% Significance Level				
60				Lilliefors Test Statistic	0.334			Lilliefors Lognormal GOF Test				
61				5% Lilliefors Critical Value	0.144			Data Not Lognormal at 5% Significance Level				
62					Data Not Lognormal at 5% Significance Level							
63												
64					Background Statistics assuming Lognormal Distribution							
65			95% UTL with	95% Coverage	288.7					90% Percentile (z)	193.1	
66				95% UPL (t)	236.4					95% Percentile (z)	229.3	
67				95% USL	404.5					99% Percentile (z)	316.5	
68												
69					Nonparametric Distribution Free Background Statistics							
70					Data do not follow a Discernible Distribution (0.05)							
71												
72					Nonparametric Upper Limits for Background Threshold Values							
73				Order of Statistic, r	38				95% UTL with	95% Coverage	150	
74				Approximate f	2				Confidence Coefficient (CC) achieved by UTL		0.858	
75			95% Percentile Bootstrap UTL with	95% Coverage	150				95% BCA Bootstrap UTL with	95% Coverage	140	
76				95% UPL	140.5					90% Percentile	133	
77				90% Chebyshev UPL	192.4					95% Percentile	140	
78				95% Chebyshev UPL	228.6					99% Percentile	146.3	
79				95% USL	150							
80												
81					Note: The use of USL to estimate a BTV is recommended only when the data set represents a background							
82					data set free of outliers and consists of observations collected from clean unimpacted locations.							
83					The use of USL tends to provide a balance between false positives and false negatives provided the data							
84					represents a background data set and when many onsite observations need to be compared with the BTV.							
85												

Background Statistics for Uncensored Full Data Sets

User Selected Options	
Date/Time of Computation	6/24/2016 8:33:31 AM
From File	H:\My Documents\Projects\Union Minelaa-statistics-historical\WMU2-GW-stat.xlsx
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
New or Future K Observations	1
Number of Bootstrap Operations	2000

Calcium

General Statistics

Total Number of Observations	39	Number of Distinct Observations	31
Minimum	36	First Quartile	63
Second Largest	90	Median	68
Maximum	94	Third Quartile	76.5
Mean	66.85	SD	14.65
Coefficient of Variation	0.219	Skewness	-0.652
Mean of logged Data	4.175	SD of logged Data	0.249

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.124	d2max (for USL)	2.857

Normal GOF Test

Shapiro Wilk Test Statistic	0.929	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.939	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.166	Lilliefors GOF Test
5% Lilliefors Critical Value	0.142	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	97.99	90% Percentile (z)	85.64
95% UPL (t)	91.88	95% Percentile (z)	90.96
95% USL	108.7	99% Percentile (z)	100.9

Gamma GOF Test

A-D Test Statistic	1.599	Anderson-Darling Gamma GOF Test
5% A-D Critical Value	0.747	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.201	Kolmogrov-Smirnoff Gamma GOF Test
5% K-S Critical Value	0.141	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	18.29	k star (bias corrected MLE)	16.9
Theta hat (MLE)	3.655	Theta star (bias corrected MLE)	3.956
nu hat (MLE)	1427	nu star (bias corrected)	1318
MLE Mean (bias corrected)	66.86	MLE Sd (bias corrected)	16.26

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	96.18	90% Percentile	88.36
95% Hawkins Wixley (HW) Approx. Gamma UPL	96.91	95% Percentile	95.66

53	95% WH Approx. Gamma UTL with			95% Coverage	104.8					99% Percentile	110.4
54	95% HW Approx. Gamma UTL with			95% Coverage	106						
55				95% WH USL	121.3					95% HW USL	123.6
56											
57					Lognormal GOF Test						
58				Shapiro Wilk Test Statistic	0.866			Shapiro Wilk Lognormal GOF Test			
59				5% Shapiro Wilk Critical Value	0.939			Data Not Lognormal at 5% Significance Level			
60				Lilliefors Test Statistic	0.218			Lilliefors Lognormal GOF Test			
61				5% Lilliefors Critical Value	0.142			Data Not Lognormal at 5% Significance Level			
62				Data Not Lognormal at 5% Significance Level							
63											
64					Background Statistics assuming Lognormal Distribution						
65			95% UTL with	95% Coverage	110.4					90% Percentile (z)	89.48
66				95% UPL (t)	99.49					95% Percentile (z)	97.95
67				95% USL	132.5					99% Percentile (z)	116.1
68											
69					Nonparametric Distribution Free Background Statistics						
70				Data do not follow a Discernible Distribution (0.05)							
71											
72					Nonparametric Upper Limits for Background Threshold Values						
73				Order of Statistic, r	39				95% UTL with	95% Coverage	94
74				Approximate f	2.053			Confidence Coefficient (CC) achieved by UTL			0.865
75	95% Percentile Bootstrap UTL with			95% Coverage	94			95% BCA Bootstrap UTL with		95% Coverage	94
76				95% UPL	90					90% Percentile	82.2
77				90% Chebyshev UPL	111.4					95% Percentile	84.6
78				95% Chebyshev UPL	131.5					99% Percentile	92.48
79				95% USL	94						
80											
81	Note: The use of USL to estimate a BTV is recommended only when the data set represents a background										
82	data set free of outliers and consists of observations collected from clean unimpacted locations.										
83	The use of USL tends to provide a balance between false positives and false negatives provided the data										
84	represents a background data set and when many onsite observations need to be compared with the BTV.										
85											

Background Statistics for Uncensored Full Data Sets

User Selected Options	
Date/Time of Computation	6/24/2016 8:35:02 AM
From File	H:\My Documents\Projects\Union Mine\aa-statistics-historical\WMU2-GW-hist.xlsx
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
New or Future K Observations	1
Number of Bootstrap Operations	2000

Magnesium

General Statistics

Total Number of Observations	38	Number of Distinct Observations	14
Minimum	8.1	First Quartile	19
Second Largest	26	Median	22
Maximum	28	Third Quartile	24
Mean	21.54	SD	3.685
Coefficient of Variation	0.171	Skewness	-1.328
Mean of logged Data	3.051	SD of logged Data	0.212

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.132	d2max (for USL)	2.846

Normal GOF Test

Shapiro Wilk Test Statistic	0.916	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.938	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.155	Lilliefors GOF Test
5% Lilliefors Critical Value	0.144	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	29.4	90% Percentile (z)	26.26
	95% UPL (t)	27.84	95% Percentile (z)	27.6
	95% USL	32.03	99% Percentile (z)	30.12

Gamma GOF Test

A-D Test Statistic	1.37	Anderson-Darling Gamma GOF Test
5% A-D Critical Value	0.746	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.174	Kolmogrov-Smirnoff Gamma GOF Test
5% K-S Critical Value	0.143	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	27.1	k star (bias corrected MLE)	24.98
Theta hat (MLE)	0.795	Theta star (bias corrected MLE)	0.862
nu hat (MLE)	2060	nu star (bias corrected)	1898
MLE Mean (bias corrected)	21.54	MLE Sd (bias corrected)	4.31

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	29.2	90% Percentile	27.22
95% Hawkins Wixley (HW) Approx. Gamma UPL	29.45	95% Percentile	29.09

53			95% WH Approx. Gamma UTL with	95% Coverage	31.42					99% Percentile	32.82	
54			95% HW Approx. Gamma UTL with	95% Coverage	31.79							
55				95% WH USL	35.41					95% HW USL	36.07	
56												
57					Lognormal GOF Test							
58				Shapiro Wilk Test Statistic	0.781			Shapiro Wilk Lognormal GOF Test				
59				5% Shapiro Wilk Critical Value	0.938			Data Not Lognormal at 5% Significance Level				
60				Lilliefors Test Statistic	0.179			Lilliefors Lognormal GOF Test				
61				5% Lilliefors Critical Value	0.144			Data Not Lognormal at 5% Significance Level				
62					Data Not Lognormal at 5% Significance Level							
63												
64					Background Statistics assuming Lognormal Distribution							
65			95% UTL with	95% Coverage	33.2					90% Percentile (z)	27.73	
66				95% UPL (t)	30.36					95% Percentile (z)	29.95	
67				95% USL	38.61					99% Percentile (z)	34.59	
68												
69					Nonparametric Distribution Free Background Statistics							
70					Data do not follow a Discernible Distribution (0.05)							
71												
72					Nonparametric Upper Limits for Background Threshold Values							
73				Order of Statistic, r	38			95% UTL with	95% Coverage		28	
74				Approximate f	2			Confidence Coefficient (CC) achieved by UTL			0.858	
75			95% Percentile Bootstrap UTL with	95% Coverage	28			95% BCA Bootstrap UTL with	95% Coverage		26.3	
76				95% UPL	26.1				90% Percentile		25	
77				90% Chebyshev UPL	32.74				95% Percentile		26	
78				95% Chebyshev UPL	37.82				99% Percentile		27.26	
79				95% USL	28							
80												
81					Note: The use of USL to estimate a BTV is recommended only when the data set represents a background							
82					data set free of outliers and consists of observations collected from clean unimpacted locations.							
83					The use of USL tends to provide a balance between false positives and false negatives provided the data							
84					represents a background data set and when many onsite observations need to be compared with the BTV.							
85												

Background Statistics for Uncensored Full Data Sets

User Selected Options	
Date/Time of Computation	6/24/2016 8:35:24 AM
From File	H:\My Documents\Projects\Union Mine\aa-statistics-historical\WMU2-GW-hist.xlsx
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
New or Future K Observations	1
Number of Bootstrap Operations	2000

Sodium

General Statistics

Total Number of Observations	38	Number of Distinct Observations	19
Minimum	9.9	First Quartile	20.25
Second Largest	33	Median	25
Maximum	37	Third Quartile	29
Mean	23.92	SD	7.036
Coefficient of Variation	0.294	Skewness	-0.551
Mean of logged Data	3.122	SD of logged Data	0.35

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.132	d2max (for USL)	2.846

Normal GOF Test

Shapiro Wilk Test Statistic	0.928	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.938	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.132	Lilliefors GOF Test
5% Lilliefors Critical Value	0.144	Data appear Normal at 5% Significance Level

Data appear Approximate Normal at 5% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	38.92	90% Percentile (z)	32.94
95% UPL (t)	35.94	95% Percentile (z)	35.49
95% USL	43.94	99% Percentile (z)	40.29

Gamma GOF Test

A-D Test Statistic	1.7	Anderson-Darling Gamma GOF Test
5% A-D Critical Value	0.748	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.179	Kolmogrov-Smirnoff Gamma GOF Test
5% K-S Critical Value	0.143	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	9.63	k star (bias corrected MLE)	8.888
Theta hat (MLE)	2.484	Theta star (bias corrected MLE)	2.691
nu hat (MLE)	731.9	nu star (bias corrected)	675.5
MLE Mean (bias corrected)	23.92	MLE Sd (bias corrected)	8.023

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	38.78	90% Percentile	34.6
95% Hawkins Wixley (HW) Approx. Gamma UPL	39.31	95% Percentile	38.46

53			95% WH Approx. Gamma UTL with		95% Coverage	43.52				99% Percentile	46.41	
54			95% HW Approx. Gamma UTL with		95% Coverage	44.42						
55					95% WH USL	52.37				95% HW USL	54.15	
56												
57						Lognormal GOF Test						
58					Shapiro Wilk Test Statistic	0.856			Shapiro Wilk Lognormal GOF Test			
59					5% Shapiro Wilk Critical Value	0.938			Data Not Lognormal at 5% Significance Level			
60					Lilliefors Test Statistic	0.2			Lilliefors Lognormal GOF Test			
61					5% Lilliefors Critical Value	0.144			Data Not Lognormal at 5% Significance Level			
62						Data Not Lognormal at 5% Significance Level						
63												
64						Background Statistics assuming Lognormal Distribution						
65				95% UTL with	95% Coverage	47.89				90% Percentile (z)	35.55	
66					95% UPL (t)	41.29				95% Percentile (z)	40.37	
67					95% USL	61.51				99% Percentile (z)	51.27	
68												
69						Nonparametric Distribution Free Background Statistics						
70						Data appear Approximate Normal at 5% Significance Level						
71												
72						Nonparametric Upper Limits for Background Threshold Values						
73					Order of Statistic, r	38				95% UTL with	95% Coverage	37
74					Approximate f	2				Confidence Coefficient (CC) achieved by UTL		0.858
75			95% Percentile Bootstrap UTL with		95% Coverage	37				95% BCA Bootstrap UTL with	95% Coverage	33.6
76					95% UPL	33.2					90% Percentile	31
77					90% Chebyshev UPL	45.3					95% Percentile	33
78					95% Chebyshev UPL	54.99					99% Percentile	35.52
79					95% USL	37						
80												
81						Note: The use of USL to estimate a BTV is recommended only when the data set represents a background						
82						data set free of outliers and consists of observations collected from clean unimpacted locations.						
83						The use of USL tends to provide a balance between false positives and false negatives provided the data						
84						represents a background data set and when many onsite observations need to be compared with the BTV.						
85												

Background Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	6/24/2016 8:51:56 AM
From File	WMU2-GW-hist_b.xls
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
Different or Future K Observations	1
Number of Bootstrap Operations	2000

Potassium

General Statistics

Total Number of Observations	38	Number of Missing Observations	0
Number of Distinct Observations	18		
Number of Detects	25	Number of Non-Detects	13
Number of Distinct Detects	17	Number of Distinct Non-Detects	3
Minimum Detect	1.6	Minimum Non-Detect	0.41
Maximum Detect	4	Maximum Non-Detect	2.2
Variance Detected	0.366	Percent Non-Detects	34.21%
Mean Detected	2.42	SD Detected	0.605
Mean of Detected Logged Data	0.856	SD of Detected Logged Data	0.236

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.132	d2max (for USL)	2.846

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.919	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.918	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.193	Lilliefors GOF Test
5% Lilliefors Critical Value	0.177	Data Not Normal at 5% Significance Level

Detected Data appear Approximate Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

Mean	2.123	SD	0.714
95% UTL95% Coverage	3.646	95% KM UPL (t)	3.344
90% KM Percentile (z)	3.039	95% KM Percentile (z)	3.298
99% KM Percentile (z)	3.785	95% KM USL	4.156

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	1.916	SD	0.869
95% UTL95% Coverage	3.769	95% UPL (t)	3.402
90% Percentile (z)	3.03	95% Percentile (z)	3.346
99% Percentile (z)	3.938	95% USL	4.39

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.488	Anderson-Darling GOF Test
5% A-D Critical Value	0.743	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.163	Kolmogrov-Smirnoff GOF
5% K-S Critical Value	0.174	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

53											
54					Gamma Statistics on Detected Data Only						
55				k hat (MLE)	18.22			k star (bias corrected MLE)	16.06		
56				Theta hat (MLE)	0.133			Theta star (bias corrected MLE)	0.151		
57				nu hat (MLE)	910.9			nu star (bias corrected)	803		
58				MLE Mean (bias corrected)	2.42						
59				MLE Sd (bias corrected)	0.604			95% Percentile of Chisquare (2k)	46.34		
60											
61					Gamma ROS Statistics using Imputed Non-Detects						
62					GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs						
63					GROS may not be used when kstar of detected data is small such as < 0.1						
64					For such situations, GROS method tends to yield inflated values of UCLs and BTVs						
65					For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates						
66				Minimum	0.996			Mean	2.136		
67				Maximum	4			Median	1.988		
68				SD	0.659			CV	0.308		
69				k hat (MLE)	11.26			k star (bias corrected MLE)	10.39		
70				Theta hat (MLE)	0.19			Theta star (bias corrected MLE)	0.206		
71				nu hat (MLE)	855.5			nu star (bias corrected)	789.3		
72				MLE Mean (bias corrected)	2.136			MLE Sd (bias corrected)	0.663		
73				95% Percentile of Chisquare (2k)	32.38			90% Percentile	3.017		
74				95% Percentile	3.33			99% Percentile	3.971		
75					The following statistics are computed using Gamma ROS Statistics on Imputed Data						
76					Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods						
77					WH	HW			WH	HW	
78	95% Approx. Gamma UTL with 95% Coverage				3.734	3.772		95% Approx. Gamma UPL	3.352	3.371	
79				95% Gamma USL	4.443	4.53					
80											
81					The following statistics are computed using gamma distribution and KM estimates						
82					Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods						
83				k hat (KM)	8.837				nu hat (KM)	671.6	
84					WH	HW			WH	HW	
85	95% Approx. Gamma UTL with 95% Coverage				4.308	4.483		95% Approx. Gamma UPL	3.761	3.869	
86				95% Gamma USL	5.348	5.682					
87											
88					Lognormal GOF Test on Detected Observations Only						
89				Shapiro Wilk Test Statistic	0.962			Shapiro Wilk GOF Test			
90				5% Shapiro Wilk Critical Value	0.918			Detected Data appear Lognormal at 5% Significance Level			
91				Lilliefors Test Statistic	0.147			Lilliefors GOF Test			
92				5% Lilliefors Critical Value	0.177			Detected Data appear Lognormal at 5% Significance Level			
93					Detected Data appear Lognormal at 5% Significance Level						
94											
95					Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects						
96				Mean in Original Scale	2.166			Mean in Log Scale	0.736		
97				SD in Original Scale	0.623			SD in Log Scale	0.271		
98				95% UTL95% Coverage	3.721			95% BCA UTL95% Coverage	3.49		
99				95% Bootstrap (%) UTL95% Coverage	4			95% UPL (t)	3.318		
100				90% Percentile (z)	2.955			95% Percentile (z)	3.261		
101				99% Percentile (z)	3.922			95% USL	4.516		
102											
103					Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution						
104				KM Mean of Logged Data	0.67			95% KM UTL (Lognormal)95% Coverage	5.319		

105				KM SD of Logged Data	0.469					95% KM UPL (Lognormal)	4.361	
106			95% KM Percentile Lognormal (z)		4.231					95% KM USL (Lognormal)	7.438	
107												
108					Background DL/2 Statistics Assuming Lognormal Distribution							
109				Mean in Original Scale	1.916					Mean in Log Scale	0.524	
110				SD in Original Scale	0.869					SD in Log Scale	0.563	
111				95% UTL95% Coverage	5.614					95% UPL (t)	4.424	
112				90% Percentile (z)	3.477					95% Percentile (z)	4.267	
113				99% Percentile (z)	6.264					95% USL	8.396	
114				DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.								
115												
116					Nonparametric Distribution Free Background Statistics							
117					Data appear to follow a Discernible Distribution at 5% Significance Level							
118												
119					Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)							
120				Order of Statistic, r	38					95% UTL with95% Coverage	4	
121				Approximate f	2					Confidence Coefficient (CC) achieved by UTL	0.858	
122				95% UPL	3.43					95% USL	4	
123				95% KM Chebyshev UPL	5.278							
124												
125					Note: The use of USL to estimate a BTV is recommended only when the data set represents a background							
126					data set free of outliers and consists of observations collected from clean unimpacted locations.							
127					The use of USL tends to provide a balance between false positives and false negatives provided the data							
128					represents a background data set and when many onsite observations need to be compared with the BTV.							
129												

Background Statistics for Uncensored Full Data Sets

User Selected Options	
Date/Time of Computation	7/6/2016 6:48:23 AM
From File	H:\My Documents\Projects\Union Mine\bb-5-year data\wmu-2\manganese.xlsx
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
New or Future K Observations	1
Number of Bootstrap Operations	2000

Manganese

General Statistics

Total Number of Observations	8	Number of Distinct Observations	8
Minimum	0.33	First Quartile	0.562
Second Largest	1.3	Median	0.64
Maximum	1.4	Third Quartile	0.865
Mean	0.763	SD	0.383
Coefficient of Variation	0.502	Skewness	1.024
Mean of logged Data	-0.374	SD of logged Data	0.481

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	3.187	d2max (for USL)	2.032

Normal GOF Test

Shapiro Wilk Test Statistic	0.849	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.818	Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.294	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.313	Data appear Normal at 5% Significance Level	

Data appear Normal at 5% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	1.982	90% Percentile (z)	1.253
	95% UPL (t)	1.532	95% Percentile (z)	1.392
	95% USL	1.54	99% Percentile (z)	1.653

Gamma GOF Test

A-D Test Statistic	0.444	Anderson-Darling Gamma GOF Test
5% A-D Critical Value	0.719	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.241	Kolmogrov-Smirnoff Gamma GOF Test
5% K-S Critical Value	0.295	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	5.006	k star (bias corrected MLE)	3.212
Theta hat (MLE)	0.152	Theta star (bias corrected MLE)	0.237
nu hat (MLE)	80.1	nu star (bias corrected)	51.4
MLE Mean (bias corrected)	0.763	MLE Sd (bias corrected)	0.425

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	1.666	90% Percentile	1.333
95% Hawkins Wixley (HW) Approx. Gamma UPL	1.694	95% Percentile	1.569

53			95% WH Approx. Gamma UTL with		95% Coverage	2.499				99% Percentile	2.08	
54			95% HW Approx. Gamma UTL with		95% Coverage	2.621						
55					95% WH USL	1.68				95% HW USL	1.709	
56												
57						Lognormal GOF Test						
58					Shapiro Wilk Test Statistic	0.934			Shapiro Wilk Lognormal GOF Test			
59					5% Shapiro Wilk Critical Value	0.818			Data appear Lognormal at 5% Significance Level			
60					Lilliefors Test Statistic	0.212			Lilliefors Lognormal GOF Test			
61					5% Lilliefors Critical Value	0.313			Data appear Lognormal at 5% Significance Level			
62						Data appear Lognormal at 5% Significance Level						
63												
64						Background Statistics assuming Lognormal Distribution						
65			95% UTL with	95% Coverage		3.186				90% Percentile (z)	1.274	
66				95% UPL (t)		1.808				95% Percentile (z)	1.517	
67				95% USL		1.828				99% Percentile (z)	2.106	
68												
69						Nonparametric Distribution Free Background Statistics						
70						Data appear Normal at 5% Significance Level						
71												
72						Nonparametric Upper Limits for Background Threshold Values						
73				Order of Statistic, r		8			95% UTL with	95% Coverage	1.4	
74				Approximate f		0.421			Confidence Coefficient (CC) achieved by UTL		0.337	
75			95% Percentile Bootstrap UTL with	95% Coverage		1.4			95% BCA Bootstrap UTL with	95% Coverage	1.4	
76				95% UPL		1.4				90% Percentile	1.33	
77				90% Chebyshev UPL		1.98				95% Percentile	1.365	
78				95% Chebyshev UPL		2.532				99% Percentile	1.393	
79				95% USL		1.4						
80												
81						Note: The use of USL to estimate a BTV is recommended only when the data set represents a background						
82						data set free of outliers and consists of observations collected from clean unimpacted locations.						
83						The use of USL tends to provide a balance between false positives and false negatives provided the data						
84						represents a background data set and when many onsite observations need to be compared with the BTV.						
85												

Surface Water

Background Sampling Location

S-6

2016

Union Mine

Background Statistics for Uncensored Full Data Sets

User Selected Options	
Date/Time of Computation	6/16/2016 7:46:35 AM
From File	H:\My Documents\Projects\Union Mine\aa-statistics-historical\UM-Surf-hist-statsx.xlsx
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
New or Future K Observations	1
Number of Bootstrap Operations	2000

TDS

General Statistics

Total Number of Observations	104	Number of Distinct Observations	38
Minimum	57	First Quartile	100
Second Largest	220	Median	120
Maximum	230	Third Quartile	131
Mean	119.8	SD	27.48
Coefficient of Variation	0.229	Skewness	1.074
Mean of logged Data	4.761	SD of logged Data	0.223

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.917	d2max (for USL)	3.223

Normal GOF Test

Shapiro Wilk Test Statistic	0.94	Normal GOF Test
5% Shapiro Wilk P Value	1.5749E-4	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.122	Lilliefors GOF Test
5% Lilliefors Critical Value	0.0869	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	172.5	90% Percentile (z)	155
	95% UPL (t)	165.6	95% Percentile (z)	165
	95% USL	208.3	99% Percentile (z)	183.7

Gamma GOF Test

A-D Test Statistic	0.787	Anderson-Darling Gamma GOF Test
5% A-D Critical Value	0.75	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.0925	Kolmogrov-Smirnoff Gamma GOF Test
5% K-S Critical Value	0.0882	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	20.37	k star (bias corrected MLE)	19.78
Theta hat (MLE)	5.882	Theta star (bias corrected MLE)	6.055
nu hat (MLE)	4236	nu star (bias corrected)	4115
MLE Mean (bias corrected)	119.8	MLE Sd (bias corrected)	26.93

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	167.5	90% Percentile	155.3
95% Hawkins Wixley (HW) Approx. Gamma UPL	167.9	95% Percentile	167.3

53	95% WH Approx. Gamma UTL with			95% Coverage	176					99% Percentile	191.2
54	95% HW Approx. Gamma UTL with			95% Coverage	176.7						
55				95% WH USL	224.9					95% HW USL	228
56											
57					Lognormal GOF Test						
58				Shapiro Wilk Test Statistic	0.982			Shapiro Wilk Lognormal GOF Test			
59				5% Shapiro Wilk P Value	0.634			Data appear Lognormal at 5% Significance Level			
60				Lilliefors Test Statistic	0.0949			Lilliefors Lognormal GOF Test			
61				5% Lilliefors Critical Value	0.0869			Data Not Lognormal at 5% Significance Level			
62					Data appear Approximate Lognormal at 5% Significance Level						
63											
64					Background Statistics assuming Lognormal Distribution						
65			95% UTL with	95% Coverage	179.2					90% Percentile (z)	155.5
66				95% UPL (t)	169.5					95% Percentile (z)	168.7
67				95% USL	239.8					99% Percentile (z)	196.4
68											
69					Nonparametric Distribution Free Background Statistics						
70					Data appear Approximate Lognormal at 5% Significance Level						
71											
72					Nonparametric Upper Limits for Background Threshold Values						
73				Order of Statistic, r	102			95% UTL with	95% Coverage	190	
74				Approximate f	1.789			Confidence Coefficient (CC) achieved by UTL		0.897	
75	95% Percentile Bootstrap UTL with			95% Coverage	187			95% BCA Bootstrap UTL with	95% Coverage	170	
76				95% UPL	160				90% Percentile	150	
77				90% Chebyshev UPL	202.6				95% Percentile	160	
78				95% Chebyshev UPL	240.1				99% Percentile	219.1	
79				95% USL	230						
80											
81	Note: The use of USL to estimate a BTV is recommended only when the data set represents a background										
82	data set free of outliers and consists of observations collected from clean unimpacted locations.										
83	The use of USL tends to provide a balance between false positives and false negatives provided the data										
84	represents a background data set and when many onsite observations need to be compared with the BTV.										
85											

Background Statistics for Uncensored Full Data Sets

User Selected Options	
Date/Time of Computation	6/16/2016 8:49:19 AM
From File	H:\My Documents\Projects\Union Mine\aa-statistics-historical\UM-Surf-hist-statsx.xlsx
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
New or Future K Observations	1
Number of Bootstrap Operations	2000

Bicarbonate

General Statistics

Total Number of Observations	33	Number of Distinct Observations	22
Minimum	28	First Quartile	55
Second Largest	84	Median	65
Maximum	350	Third Quartile	69
Mean	71.3	SD	51.38
Coefficient of Variation	0.721	Skewness	5.265
Mean of logged Data	4.169	SD of logged Data	0.372

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.176	d2max (for USL)	2.787

Normal GOF Test

Shapiro Wilk Test Statistic	0.379	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.931	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.372	Lilliefors GOF Test
5% Lilliefors Critical Value	0.154	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	183.1	90% Percentile (z)	137.2
	95% UPL (t)	159.7	95% Percentile (z)	155.8
	95% USL	214.5	99% Percentile (z)	190.8

Gamma GOF Test

A-D Test Statistic	4.008	Anderson-Darling Gamma GOF Test
5% A-D Critical Value	0.748	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.271	Kolmogrov-Smirnoff Gamma GOF Test
5% K-S Critical Value	0.154	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	5.243	k star (bias corrected MLE)	4.786
Theta hat (MLE)	13.6	Theta star (bias corrected MLE)	14.9
nu hat (MLE)	346	nu star (bias corrected)	315.9
MLE Mean (bias corrected)	71.3	MLE Sd (bias corrected)	32.59

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	131.3	90% Percentile	114.9
95% Hawkins Wixley (HW) Approx. Gamma UPL	128.7	95% Percentile	132

53	95% WH Approx. Gamma UTL with			95% Coverage	153.7					99% Percentile	168
54	95% HW Approx. Gamma UTL with			95% Coverage	151.1						
55				95% WH USL	187.6					95% HW USL	185.5
56											
57					Lognormal GOF Test						
58				Shapiro Wilk Test Statistic	0.715			Shapiro Wilk Lognormal GOF Test			
59				5% Shapiro Wilk Critical Value	0.931			Data Not Lognormal at 5% Significance Level			
60				Lilliefors Test Statistic	0.216			Lilliefors Lognormal GOF Test			
61				5% Lilliefors Critical Value	0.154			Data Not Lognormal at 5% Significance Level			
62					Data Not Lognormal at 5% Significance Level						
63											
64					Background Statistics assuming Lognormal Distribution						
65			95% UTL with	95% Coverage	145.2				90% Percentile (z)		104.1
66				95% UPL (t)	122.5				95% Percentile (z)		119.2
67				95% USL	182.3				99% Percentile (z)		153.6
68											
69					Nonparametric Distribution Free Background Statistics						
70					Data do not follow a Discernible Distribution (0.05)						
71											
72					Nonparametric Upper Limits for Background Threshold Values						
73				Order of Statistic, r	33			95% UTL with	95% Coverage		350
74				Approximate f	1.737			Confidence Coefficient (CC) achieved by UTL			0.816
75	95% Percentile Bootstrap UTL with			95% Coverage	350			95% BCA Bootstrap UTL with	95% Coverage		350
76				95% UPL	163.8				90% Percentile		77.8
77				90% Chebyshev UPL	227.8				95% Percentile		82.2
78				95% Chebyshev UPL	298.7				99% Percentile		264.9
79				95% USL	350						
80											
81	Note: The use of USL to estimate a BTV is recommended only when the data set represents a background										
82	data set free of outliers and consists of observations collected from clean unimpacted locations.										
83	The use of USL tends to provide a balance between false positives and false negatives provided the data										
84	represents a background data set and when many onsite observations need to be compared with the BTV.										
85											

Background Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	5/16/2016 7:58:44 AM
From File	UM-Surf-hist-statsx_j.xls
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
ifferent or Future K Observations	1
Number of Bootstrap Operations	2000

TSS

General Statistics

Total Number of Observations	60	Number of Missing Observations	0
Number of Distinct Observations	8		
Number of Detects	7	Number of Non-Detects	53
Number of Distinct Detects	7	Number of Distinct Non-Detects	2
Minimum Detect	4	Minimum Non-Detect	1
Maximum Detect	72	Maximum Non-Detect	5
Variance Detected	588.2	Percent Non-Detects	88.33%
Mean Detected	17.8	SD Detected	24.25
Mean of Detected Logged Data	2.371	SD of Detected Logged Data	0.973

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.017	d2max (for USL)	3.027

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.61	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.803	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.403	Lilliefors GOF Test
5% Lilliefors Critical Value	0.335	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

Mean	4.26	SD	9.221
95% UTL95% Coverage	22.86	95% KM UPL (t)	19.8
90% KM Percentile (z)	16.08	95% KM Percentile (z)	19.43
99% KM Percentile (z)	25.71	95% KM USL	32.17

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	4.252	SD	9.195
95% UTL95% Coverage	22.8	95% UPL (t)	19.74
90% Percentile (z)	16.03	95% Percentile (z)	19.38
99% Percentile (z)	25.64	95% USL	32.08

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.711	Anderson-Darling GOF Test
5% A-D Critical Value	0.726	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.299	Kolmogrov-Smirnoff GOF
5% K-S Critical Value	0.319	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

53											
54					Gamma Statistics on Detected Data Only						
55				k hat (MLE)	1.127			k star (bias corrected MLE)	0.736		
56				Theta hat (MLE)	15.87			Theta star (bias corrected MLE)	24.18		
57				nu hat (MLE)	15.7			nu star (bias corrected)	10.31		
58				MLE Mean (bias corrected)	17.8						
59				MLE Sd (bias corrected)	20.75			95% Percentile of Chisquare (2k)	4.921		
60											
61					Gamma ROS Statistics using Imputed Non-Detects						
62					GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs						
63					GROS may not be used when k star of detected data is small such as < 0.1						
64					For such situations, GROS method tends to yield inflated values of UCLs and BTVs						
65					For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates						
66				Minimum	0.01			Mean	2.218		
67				Maximum	72			Median	0.01		
68				SD	9.641			CV	4.351		
69				k hat (MLE)	0.174			k star (bias corrected MLE)	0.176		
70				Theta hat (MLE)	12.76			Theta star (bias corrected MLE)	12.59		
71				nu hat (MLE)	20.84			nu star (bias corrected)	21.13		
72				MLE Mean (bias corrected)	2.218			MLE Sd (bias corrected)	5.281		
73				95% Percentile of Chisquare (2k)	1.872			90% Percentile	6.675		
74				95% Percentile	11.78			99% Percentile	26.16		
75					The following statistics are computed using Gamma ROS Statistics on Imputed Data						
76					Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods						
77					WH	HW				WH	HW
78	95% Approx. Gamma UTL with 95% Coverage				8.536	7.313		95% Approx. Gamma UPL		5.753	4.576
79				95% Gamma USL	22.2	23.34					
80											
81					The following statistics are computed using gamma distribution and KM estimates						
82					Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods						
83				k hat (KM)	0.213			nu hat (KM)	25.61		
84					WH	HW				WH	HW
85	95% Approx. Gamma UTL with 95% Coverage				14.54	14.25		95% Approx. Gamma UPL		11.71	11.3
86				95% Gamma USL	25.87	26.78					
87											
88					Lognormal GOF Test on Detected Observations Only						
89				Shapiro Wilk Test Statistic	0.889			Shapiro Wilk GOF Test			
90				5% Shapiro Wilk Critical Value	0.893			Detected Data appear Lognormal at 5% Significance Level			
91				Lilliefors Test Statistic	0.222			Lilliefors GOF Test			
92				5% Lilliefors Critical Value	0.335			Detected Data appear Lognormal at 5% Significance Level			
93					Detected Data appear Lognormal at 5% Significance Level						
94											
95					Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects						
96				Mean in Original Scale	3.43			Mean in Log Scale	0.148		
97				SD in Original Scale	9.475			SD in Log Scale	1.408		
98				95% UTL95% Coverage	19.82			95% BCA UTL95% Coverage	17.85		
99				95% Bootstrap (%) UTL95% Coverage	15.55			95% UPL (t)	12.42		
100				90% Percentile (z)	7.04			95% Percentile (z)	11.74		
101				99% Percentile (z)	30.64			95% USL	82.13		
102											
103					Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution						
104				KM Mean of Logged Data	0.877			95% KM UTL (Lognormal)95% Coverage	14.83		

105				KM SD of Logged Data	0.902					95% KM UPL (Lognormal)		10.99
106				95% KM Percentile Lognormal (z)	10.6					95% KM USL (Lognormal)		36.88
107												
108				Background DL/2 Statistics Assuming Lognormal Distribution								
109				Mean in Original Scale	4.252					Mean in Log Scale		1.059
110				SD in Original Scale	9.195					SD in Log Scale		0.609
111				95% UTL95% Coverage	9.845					95% UPL (t)		8.044
112				90% Percentile (z)	5.292					95% Percentile (z)		7.83
113				99% Percentile (z)	11.89					95% USL		18.21
114				DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.								
115												
116				Nonparametric Distribution Free Background Statistics								
117				Data appear to follow a Discernible Distribution at 5% Significance Level								
118												
119				Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)								
120				Order of Statistic, r	59					95% UTL with95% Coverage		15
121				Approximate f	1.553					Confidence Coefficient (CC) achieved by UTL		0.808
122				95% UPL	12.83					95% USL		72
123				95% KM Chebyshev UPL	44.79							
124												
125				Note: The use of USL to estimate a BTV is recommended only when the data set represents a background								
126				data set free of outliers and consists of observations collected from clean unimpacted locations.								
127				The use of USL tends to provide a balance between false positives and false negatives provided the data								
128				represents a background data set and when many onsite observations need to be compared with the BTV.								
129												

Background Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	6/16/2016 8:00:38 AM
From File	UM-Surf-hist-stats_n.xls
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
Different or Future K Observations	1
Number of Bootstrap Operations	2000

Chloride

General Statistics

Total Number of Observations	106	Number of Missing Observations	0
Number of Distinct Observations	69		
Number of Detects	103	Number of Non-Detects	3
Number of Distinct Detects	67	Number of Distinct Non-Detects	2
Minimum Detect	2.7	Minimum Non-Detect	0.5
Maximum Detect	106	Maximum Non-Detect	1
Variance Detected	105.3	Percent Non-Detects	2.83%
Mean Detected	8.091	SD Detected	10.26
Mean of Detected Logged Data	1.91	SD of Detected Logged Data	0.481

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.915	d2max (for USL)	3.229

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.311	Normal GOF Test on Detected Observations Only
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.346	Lilliefors GOF Test
5% Lilliefors Critical Value	0.0873	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

Mean	7.876	SD	10.14
95% UTL95% Coverage	27.3	95% KM UPL (t)	24.79
90% KM Percentile (z)	20.87	95% KM Percentile (z)	24.56
99% KM Percentile (z)	31.47	95% KM USL	40.63

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	7.873	SD	10.19
95% UTL95% Coverage	27.39	95% UPL (t)	24.87
90% Percentile (z)	20.94	95% Percentile (z)	24.64
99% Percentile (z)	31.59	95% USL	40.79

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	6.33	Anderson-Darling GOF Test
5% A-D Critical Value	0.759	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.216	Kolmogrov-Smirnoff GOF
5% K-S Critical Value	0.0893	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

53											
54					Gamma Statistics on Detected Data Only						
55				k hat (MLE)	2.921			k star (bias corrected MLE)	2.842		
56				Theta hat (MLE)	2.77			Theta star (bias corrected MLE)	2.847		
57				nu hat (MLE)	601.7			nu star (bias corrected)	585.5		
58				MLE Mean (bias corrected)	8.091						
59				MLE Sd (bias corrected)	4.799			95% Percentile of Chisquare (2k)	12.12		
60											
61					Gamma ROS Statistics using Imputed Non-Detects						
62					GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs						
63					GROS may not be used when kstar of detected data is small such as < 0.1						
64					For such situations, GROS method tends to yield inflated values of UCLs and BTVs						
65					For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates						
66				Minimum	0.01			Mean	7.862		
67				Maximum	106			Median	7		
68				SD	10.2			CV	1.298		
69				k hat (MLE)	1.632			k star (bias corrected MLE)	1.592		
70				Theta hat (MLE)	4.816			Theta star (bias corrected MLE)	4.937		
71				nu hat (MLE)	346.1			nu star (bias corrected)	337.6		
72				MLE Mean (bias corrected)	7.862			MLE Sd (bias corrected)	6.23		
73				95% Percentile of Chisquare (2k)	6.133			90% Percentile	16.15		
74				95% Percentile	20.09			99% Percentile	28.92		
75				The following statistics are computed using Gamma ROS Statistics on Imputed Data							
76				Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods							
77					WH	HW			WH	HW	
78	95% Approx. Gamma UTL with 95% Coverage				21.18	22.75		95% Approx. Gamma UPL	16.63	19.71	
79				95% Gamma USL	38.73	45.25					
80											
81				The following statistics are computed using gamma distribution and KM estimates							
82				Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods							
83				k hat (KM)	0.603			nu hat (KM)	127.8		
84					WH	HW			WH	HW	
85	95% Approx. Gamma UTL with 95% Coverage				19.28	19.23		95% Approx. Gamma UPL	17.15	17	
86				95% Gamma USL	33.64	34.97					
87											
88					Lognormal GOF Test on Detected Observations Only						
89				Lilliefors Test Statistic	0.139			Lilliefors GOF Test			
90				5% Lilliefors Critical Value	0.0873			Data Not Lognormal at 5% Significance Level			
91				Data Not Lognormal at 5% Significance Level							
92											
93					Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects						
94				Mean in Original Scale	7.925			Mean in Log Scale	1.879		
95				SD in Original Scale	10.16			SD in Log Scale	0.509		
96				95% UTL95% Coverage	17.34			95% BCA UTL95% Coverage	17		
97				95% Bootstrap (%) UTL95% Coverage	17.75			95% UPL (t)	15.29		
98				90% Percentile (z)	12.57			95% Percentile (z)	15.12		
99				99% Percentile (z)	21.39			95% USL	33.87		
100											
101					Background DL/2 Statistics Assuming Lognormal Distribution						
102				Mean in Original Scale	7.873			Mean in Log Scale	1.83		
103				SD in Original Scale	10.19			SD in Log Scale	0.672		
104				95% UTL95% Coverage	22.55			95% UPL (t)	19.1		

105				90% Percentile (z)	14.74					95% Percentile (z)		18.81
106				99% Percentile (z)	29.73					95% USL		54.53
107			DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.									
108												
109			Nonparametric Distribution Free Background Statistics									
110			Data do not follow a Discernible Distribution (0.05)									
111												
112			Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)									
113				Order of Statistic, r	104				95% UTL with95% Coverage			18
114				Approximate f	1.825				Confidence Coefficient (CC) achieved by UTL			0.904
115				95% UPL	14.6					95% USL		106
116				95% KM Chebyshev UPL	52.3							
117												
118			Note: The use of USL to estimate a BTV is recommended only when the data set represents a background									
119			data set free of outliers and consists of observations collected from clean unimpacted locations.									
120			The use of USL tends to provide a balance between false positives and false negatives provided the data									
121			represents a background data set and when many onsite observations need to be compared with the BTV.									
122												

Background Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	6/16/2016 7:48:20 AM
From File	UM-Surf-hist-stats_a.xls
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
ifferent or Future K Observations	1
Number of Bootstrap Operations	2000

Nitrate-N

General Statistics

Total Number of Observations	83	Number of Missing Observations	0
Number of Distinct Observations	39		
Number of Detects	43	Number of Non-Detects	40
Number of Distinct Detects	34	Number of Distinct Non-Detects	7
Minimum Detect	0.04	Minimum Non-Detect	0.03
Maximum Detect	3	Maximum Non-Detect	2
Variance Detected	0.401	Percent Non-Detects	48.19%
Mean Detected	0.483	SD Detected	0.633
Mean of Detected Logged Data	-1.453	SD of Detected Logged Data	1.23

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.954	d2max (for USL)	3.145

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.713	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.943	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.242	Lilliefors GOF Test
5% Lilliefors Critical Value	0.135	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

Mean	0.329	SD	0.498
95% UTL95% Coverage	1.302	95% KM UPL (t)	1.162
90% KM Percentile (z)	0.967	95% KM Percentile (z)	1.148
99% KM Percentile (z)	1.487	95% KM USL	1.895

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.422	SD	0.485
95% UTL95% Coverage	1.369	95% UPL (t)	1.233
90% Percentile (z)	1.043	95% Percentile (z)	1.219
99% Percentile (z)	1.549	95% USL	1.945

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.404	Anderson-Darling GOF Test
5% A-D Critical Value	0.786	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.145	Kolmogrov-Smirnoff GOF
5% K-S Critical Value	0.14	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.816	k star (bias corrected MLE)	0.775
Theta hat (MLE)	0.592	Theta star (bias corrected MLE)	0.624
nu hat (MLE)	70.17	nu star (bias corrected)	66.61
MLE Mean (bias corrected)	0.483		
MLE Sd (bias corrected)	0.549	95% Percentile of Chisquare (2k)	5.084

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.324
Maximum	3	Median	0.13
SD	0.505	CV	1.562
k hat (MLE)	0.552	k star (bias corrected MLE)	0.54
Theta hat (MLE)	0.587	Theta star (bias corrected MLE)	0.6
nu hat (MLE)	91.56	nu star (bias corrected)	89.59
MLE Mean (bias corrected)	0.324	MLE Sd (bias corrected)	0.441
95% Percentile of Chisquare (2k)	4.035	90% Percentile	0.882
95% Percentile	1.21	99% Percentile	2.06

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1.418	1.542	95% Approx. Gamma UPL	1.127	1.184
95% Gamma USL	3.209	4.024			

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	k hat (KM)	0.436		nu hat (KM)	72.4
	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1.262	1.301	95% Approx. Gamma UPL	1.027	1.034
95% Gamma USL	2.665	3.042			

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.931	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.943	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.134	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.135	Detected Data appear Lognormal at 5% Significance Level	

Detected Data appear Approximate Lognormal at 5% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.317	Mean in Log Scale	-1.959
SD in Original Scale	0.495	SD in Log Scale	1.276
95% UTL95% Coverage	1.705	95% BCA UTL95% Coverage	1.941
95% Bootstrap (%) UTL95% Coverage	1.6	95% UPL (t)	1.192
90% Percentile (z)	0.723	95% Percentile (z)	1.149
99% Percentile (z)	2.742	95% USL	7.791

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-1.895	95% KM UTL (Lognormal)95% Coverage	1.598

105	KM SD of Logged Data	1.21		95% KM UPL (Lognormal)	1.138
106	95% KM Percentile Lognormal (z)	1.099		95% KM USL (Lognormal)	0.751
107					
108	Background DL/2 Statistics Assuming Lognormal Distribution				
109	Mean in Original Scale	0.422		Mean in Log Scale	-1.445
110	SD in Original Scale	0.485		SD in Log Scale	1.197
111	95% UTL95% Coverage	2.448		95% UPL (t)	1.75
112	90% Percentile (z)	1.094		95% Percentile (z)	1.69
113	99% Percentile (z)	3.823		95% USL	10.19
114	DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.				
115					
116	Nonparametric Distribution Free Background Statistics				
117	Data appear to follow a Discernible Distribution at 5% Significance Level				
118					
119	Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)				
120	Order of Statistic, r	81		95% UTL with95% Coverage	2
121	Approximate f	1.421		Coefficient (CC) achieved by UTL	0.791
122	95% UPL	1.912		95% USL	3
123	95% KM Chebyshev UPL	2.512			
124					
125	Note: The use of USL to estimate a BTV is recommended only when the data set represents a background				
126	data set free of outliers and consists of observations collected from clean unimpacted locations.				
127	The use of USL tends to provide a balance between false positives and false negatives provided the data				
128	represents a background data set and when many onsite observations need to be compared with the BTV.				
129					

Background Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	6/16/2016 8:48:53 AM
From File	UM-Surf-hist-statsx_b.xls
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
Different or Future K Observations	1
Number of Bootstrap Operations	2000

Sulfate

General Statistics

Total Number of Observations	104	Number of Missing Observations	0
Number of Distinct Observations	56		
Number of Detects	102	Number of Non-Detects	2
Number of Distinct Detects	55	Number of Distinct Non-Detects	1
Minimum Detect	0.38	Minimum Non-Detect	1
Maximum Detect	79	Maximum Non-Detect	1
Variance Detected	140.5	Percent Non-Detects	1.923%
Mean Detected	24.19	SD Detected	11.85
Mean of Detected Logged Data	3.056	SD of Detected Logged Data	0.605

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.917	d2max (for USL)	3.223

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.855	Normal GOF Test on Detected Observations Only
5% Shapiro Wilk P Value	1.06E-14	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.119	Lilliefors GOF Test
5% Lilliefors Critical Value	0.0877	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

Mean	23.73	SD	12.13
95% UTL95% Coverage	46.99	95% KM UPL (t)	43.96
90% KM Percentile (z)	39.28	95% KM Percentile (z)	43.68
99% KM Percentile (z)	51.95	95% KM USL	62.83

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	23.73	SD	12.19
95% UTL95% Coverage	47.1	95% UPL (t)	44.05
90% Percentile (z)	39.35	95% Percentile (z)	43.78
99% Percentile (z)	52.08	95% USL	63

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	2.038	Anderson-Darling GOF Test
5% A-D Critical Value	0.756	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.131	Kolmogrov-Smirnoff GOF
5% K-S Critical Value	0.0893	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	4.014	k star (bias corrected MLE)	3.903
Theta hat (MLE)	5.025	Theta star (bias corrected MLE)	5.198
nu hat (MLE)	818.9	nu star (bias corrected)	796.2
MLE Mean (bias corrected)	24.19		
MLE Sd (bias corrected)	12.24	95% Percentile of Chisquare (2k)	15.23

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.39	Mean	23.83
Maximum	79	Median	23
SD	12.02	CV	0.504
k hat (MLE)	3.719	k star (bias corrected MLE)	3.618
Theta hat (MLE)	6.408	Theta star (bias corrected MLE)	6.586
nu hat (MLE)	773.6	nu star (bias corrected)	752.6
MLE Mean (bias corrected)	23.83	MLE Sd (bias corrected)	12.53
95% Percentile of Chisquare (2k)	14.41	90% Percentile	40.63
95% Percentile	47.46	99% Percentile	62.11

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	52.15	54.34	95% Approx. Gamma UPL	47.2	48.74
95% Gamma USL	83.75	91.8			

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

k hat (KM)	3.826		nu hat (KM)	705.9	
	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	56	60.15	95% Approx. Gamma UPL	50.22	53.23
95% Gamma USL	93.56	107.8			

Lognormal GOF Test on Detected Observations Only

Lilliefors Test Statistic	0.176	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0877	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	23.84	Mean in Log Scale	3.032
SD in Original Scale	12	SD in Log Scale	0.624
95% UTL95% Coverage	68.6	95% BCA UTL95% Coverage	44
95% Bootstrap (%) UTL95% Coverage	57.6	95% UPL (t)	58.7
90% Percentile (z)	46.13	95% Percentile (z)	57.87
99% Percentile (z)	88.54	95% USL	154.9

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	23.73	Mean in Log Scale	2.984
SD in Original Scale	12.19	SD in Log Scale	0.792
95% UTL95% Coverage	90.19	95% UPL (t)	74.02

90% Percentile (z)	54.52		95% Percentile (z)	72.69
99% Percentile (z)	124.7		95% USL	253.5

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	102	95% UTL with95% Coverage	60
Approximate f	1.789	Confidence Coefficient (CC) achieved by UTL	0.897
95% UPL	39.5	95% USL	79
95% KM Chebyshev UPL	76.88		

Note: The use of USL to estimate a BTV is recommended only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Uncensored Full Data Sets

User Selected Options	
Date/Time of Computation	6/16/2016 8:48:18 AM
From File	H:\My Documents\Projects\Union Minerals-statistics-historical\UM-Surf-hist-stats.xlsx
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
New or Future K Observations	1
Number of Bootstrap Operations	2000

Calcium

General Statistics

Total Number of Observations	84	Number of Distinct Observations	29
Minimum	9.6	First Quartile	16.68
Second Largest	36	Median	18.9
Maximum	46	Third Quartile	22
Mean	19.59	SD	5.322
Coefficient of Variation	0.272	Skewness	2.128
Mean of logged Data	2.945	SD of logged Data	0.24

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.952	d2max (for USL)	3.149

Normal GOF Test

Shapiro Wilk Test Statistic	0.852	Normal GOF Test	
5% Shapiro Wilk P Value	9.806E-12	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.159	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0967	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	29.98	90% Percentile (z)	26.41
	95% UPL (t)	28.5	95% Percentile (z)	28.35
	95% USL	36.35	99% Percentile (z)	31.97

Gamma GOF Test

A-D Test Statistic	1.339	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.751	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.12	Kolmogrov-Smirnoff Gamma GOF Test	
5% K-S Critical Value	0.0973	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	16.66	k star (bias corrected MLE)	16.07
Theta hat (MLE)	1.176	Theta star (bias corrected MLE)	1.219
nu hat (MLE)	2798	nu star (bias corrected)	2700
MLE Mean (bias corrected)	19.59	MLE Sd (bias corrected)	4.888

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	28.3	90% Percentile	26.06
95% Hawkins Wixley (HW) Approx. Gamma UPL	28.32	95% Percentile	28.26

95% WH Approx. Gamma UTL with	95% Coverage	30.06		99% Percentile	32.72
95% HW Approx. Gamma UTL with	95% Coverage	30.12			
	95% WH USL	38.41		95% HW USL	38.84

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.964	Shapiro Wilk Lognormal GOF Test
5% Shapiro Wilk P Value	0.0811	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.105	Lilliefors Lognormal GOF Test
5% Lilliefors Critical Value	0.0967	Data Not Lognormal at 5% Significance Level

Data appear Approximate Lognormal at 5% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	30.38	90% Percentile (z)	25.86
	95% UPL (t)	28.42	95% Percentile (z)	28.22
	95% USL	40.51	99% Percentile (z)	33.24

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

	Order of Statistic, r	82	95% UTL with 95% Coverage	35
	Approximate f	1.439	Confidence Coefficient (CC) achieved by UTL	0.797
95% Percentile Bootstrap UTL with	95% Coverage	35	95% BCA Bootstrap UTL with 95% Coverage	34.65
	95% UPL	30.75	90% Percentile	24
	90% Chebyshev UPL	35.65	95% Percentile	26.7
	95% Chebyshev UPL	42.93	99% Percentile	37.7
	95% USL	46		

Note: The use of USL to estimate a BTV is recommended only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations. The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Uncensored Full Data Sets

User Selected Options	
Date/Time of Computation	6/16/2016 7:57:15 AM
From File	H:\My Documents\Projects\Union Mine\aa-statistics-historical\UM-Surf-hist-statsx.xlsx
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
New or Future K Observations	1
Number of Bootstrap Operations	2000

Magnesium

General Statistics

Total Number of Observations	90	Number of Distinct Observations	58
Minimum	3.1	First Quartile	6.2
Second Largest	14	Median	7.34
Maximum	17	Third Quartile	8.475
Mean	7.564	SD	2.194
Coefficient of Variation	0.29	Skewness	1.259
Mean of logged Data	1.984	SD of logged Data	0.281

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.94	d2max (for USL)	3.173

Normal GOF Test

Shapiro Wilk Test Statistic	0.935	Normal GOF Test
5% Shapiro Wilk P Value	2.0535E-4	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.121	Lilliefors GOF Test
5% Lilliefors Critical Value	0.0934	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	11.82	90% Percentile (z)	10.38
95% UPL (t)	11.23	95% Percentile (z)	11.17
95% USL	14.53	99% Percentile (z)	12.67

Gamma GOF Test

A-D Test Statistic	0.568	Anderson-Darling Gamma GOF Test
5% A-D Critical Value	0.751	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.0836	Kolmogrov-Smirnoff Gamma GOF Test
5% K-S Critical Value	0.094	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	12.99	k star (bias corrected MLE)	12.57
Theta hat (MLE)	0.582	Theta star (bias corrected MLE)	0.602
nu hat (MLE)	2339	nu star (bias corrected)	2262
MLE Mean (bias corrected)	7.564	MLE Sd (bias corrected)	2.134

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	11.4	90% Percentile	10.39
95% Hawkins Wixley (HW) Approx. Gamma UPL	11.45	95% Percentile	11.38

95% WH Approx. Gamma UTL with	95% Coverage	12.17	90% Percentile	13.39
95% HW Approx. Gamma UTL with	95% Coverage	12.24		
	95% WH USL	16.09	95% HW USL	16.42

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.984	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	0.755	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.0683	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.0934	Data appear Lognormal at 5% Significance Level	

Data appear Lognormal at 5% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	12.55	90% Percentile (z)	10.43
	95% UPL (t)	11.63	95% Percentile (z)	11.55
	95% USL	17.74	99% Percentile (z)	13.98

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

	Order of Statistic, r	88	90% UTL with 95% Coverage	12
	Approximate f	1.544	Confidence Coefficient (CC) achieved by UTL	0.834
95% Percentile Bootstrap UTL with	95% Coverage	12	95% BCA Bootstrap UTL with 95% Coverage	13.1
	95% UPL	12	90% Percentile	10.04
	90% Chebyshev UPL	14.18	95% Percentile	11.55
	95% Chebyshev UPL	17.18	99% Percentile	14.33
	99% USL	17		

Note: The use of USL to estimate a BTV is recommended only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations. The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV

Background Statistics for Uncensored Full Data Sets

User Selected Options	
Date/Time of Computation	6/16/2016 7:58:12 AM
From File	H:\My Documents\Projects\Union Minelaa-statistics-historical\UM-Surf-hist-statsx.xlsx
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
New or Future K Observations	1
Number of Bootstrap Operations	2000

Sodium

General Statistics

Total Number of Observations	89	Number of Distinct Observations	48
Minimum	4.3	First Quartile	7
Second Largest	16	Median	7.8
Maximum	58	Third Quartile	8.8
Mean	8.632	SD	5.621
Coefficient of Variation	0.651	Skewness	7.906
Mean of logged Data	2.088	SD of logged Data	0.302

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.942	d2max (for USL)	3.169

Normal GOF Test

Shapiro Wilk Test Statistic	0.358	Normal GOF Test
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.325	Lilliefors GOF Test
5% Lilliefors Critical Value	0.0939	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	19.55	90% Percentile (z)	15.84
95% UPL (t)	18.03	95% Percentile (z)	17.88
95% USL	26.45	99% Percentile (z)	21.71

Gamma GOF Test

A-D Test Statistic	7.056	Anderson-Darling Gamma GOF Test
5% A-D Critical Value	0.753	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.226	Kolmogrow-Smirnoff Gamma GOF Test
5% K-S Critical Value	0.0948	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	7.41	k star (bias corrected MLE)	7.167
Theta hat (MLE)	1.165	Theta star (bias corrected MLE)	1.204
nu hat (MLE)	1319	nu star (bias corrected)	1276
MLE Mean (bias corrected)	8.632	MLE Sd (bias corrected)	3.224

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	14.33	90% Percentile	12.94
95% Hawkins Wixley (HW) Approx. Gamma UPL	14.04	95% Percentile	14.53

95% WH Approx. Gamma UTL with	95% Coverage	15.54		99% Percentile	17.84
95% HW Approx. Gamma UTL with	95% Coverage	15.22			
	95% WH USL	21.92		95% HW USL	21.59

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.794	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.175	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.0939	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	14.49		90% Percentile (z)	11.87
	95% UPL (t)	13.35		95% Percentile (z)	13.25
	95% USL	21		99% Percentile (z)	16.28

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for Background Threshold Values

	Order of Statistic, r	87		95% UTL with 95% Coverage	16
	Approximate f	1.525		Confidence Coefficient (CC) achieved by UTL	0.928
95% Percentile Bootstrap UTL with	95% Coverage	16	95% BCA Bootstrap UTL with	95% Coverage	12.2
	95% UPL	12		90% Percentile	10
	90% Chebyshev UPL	25.59		95% Percentile	11
	95% Chebyshev UPL	33.27		99% Percentile	21.04
	95% USL	58			

Note: The use of USL to estimate a BTV is recommended only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations. The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV

Background Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	6/16/2016 7:57:39 AM
From File	UM-Surf-Nat-stattx_h.xls
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
Different or Future K Observations	1
Number of Bootstrap Operations	2000

Potassium

General Statistics

Total Number of Observations	62	Number of Missing Observations	0
Number of Distinct Observations	37		
Number of Detects	50	Number of Non-Detects	12
Number of Distinct Detects	33	Number of Distinct Non-Detects	6
Minimum Detect	0.55	Minimum Non-Detect	0.1
Maximum Detect	22	Maximum Non-Detect	10
Variance Detected	9.651	Percent Non-Detects	19.35%
Mean Detected	1.708	SD Detected	3.107
Mean of Detected Logged Data	0.188	SD of Detected Logged Data	0.598

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.01	d2max (for USL)	3.039

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.298	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.947	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.408	Lilliefors GOF Test
5% Lilliefors Critical Value	0.125	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

Mean	1.558	SD	2.787
95% UTL95% Coverage	7.158	95% KM UPL (t)	6.249
90% KM Percentile (z)	5.129	95% KM Percentile (z)	6.141
99% KM Percentile (z)	8.04	95% KM USL	10.03

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	1.604	SD	2.843
95% UTL95% Coverage	7.317	95% UPL (t)	6.39
90% Percentile (z)	5.247	95% Percentile (z)	6.28
99% Percentile (z)	8.217	95% USL	10.24

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	7.812	Anderson-Darling GOF Test
5% A-D Critical Value	0.767	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.318	Kolmogrov-Smirnoff GOF
5% K-S Critical Value	0.127	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

		Gamma Statistics on Detected Data Only			
	k hat (MLE)	1.583		k star (bias corrected MLE)	1.501
	Theta hat (MLE)	1.079		Theta star (bias corrected MLE)	1.138
	nu hat (MLE)	158.3		nu star (bias corrected)	150.1
	MLE Mean (bias corrected)	1.708			
	MLE Sd (bias corrected)	1.394		95% Percentile of Chisquare (2k)	7.819
		Gamma ROS Statistics using Imputed Non-Detects			
	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs				
	GROS may not be used when kstar of detected data is small such as < 0.1				
	For such situations, GROS method tends to yield inflated values of UCLs and BTVs				
	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates				
	Minimum	0.01		Mean	1.525
	Maximum	22		Median	1.025
	SD	2.836		CV	1.859
	k hat (MLE)	0.962		k star (bias corrected MLE)	0.926
	Theta hat (MLE)	1.587		Theta star (bias corrected MLE)	1.648
	nu hat (MLE)	119.2		nu star (bias corrected)	114.8
	MLE Mean (bias corrected)	1.526		MLE Sd (bias corrected)	1.586
	95% Percentile of Chisquare (2k)	5.7		90% Percentile	3.581
	95% Percentile	4.698		99% Percentile	7.308
	The following statistics are computed using Gamma ROS Statistics on Imputed Data				
	Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods				
		WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage		5.357	5.727	95% Approx. Gamma UPL	4.339	4.524
	95% Gamma USL	9.587	11.13			
	The following statistics are computed using gamma distribution and KM estimates					
	Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods					
	k hat (KM)	0.312		nu hat (KM)	38.74	
		WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage		4.443	4.264	95% Approx. Gamma UPL	3.72	3.549
	95% Gamma USL	7.327	7.237			
		Lognormal GOF Test on Detected Observations Only				
	Shapiro Wilk Test Statistic	0.712		Shapiro Wilk GOF Test		
	5% Shapiro Wilk Critical Value	0.947		Data Not Lognormal at 5% Significance Level		
	Lilliefors Test Statistic	0.23		Lilliefors GOF Test		
	5% Lilliefors Critical Value	0.125		Data Not Lognormal at 5% Significance Level		
	Data Not Lognormal at 5% Significance Level					
	Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects					
	Mean in Original Scale	1.588		Mean in Log Scale	0.132	
	SD in Original Scale	2.804		SD in Log Scale	0.58	
	95% UTL95% Coverage	3.66		95% BCA UTL95% Coverage	7.485	
	95% Bootstrap (%) UTL95% Coverage	7.7		95% UPL (t)	3.029	
	90% Percentile (z)	2.399		95% Percentile (z)	2.961	
	99% Percentile (z)	4.397		95% USL	6.647	
		Background DL/2 Statistics Assuming Lognormal Distribution				
	Mean in Original Scale	1.604		Mean in Log Scale	0.105	

105	SD in Original Scale	2.843	SD in Log Scale	0.716
106	95% UTL95% Coverage	4.685	95% UPL (t)	3.709
107	90% Percentile (z)	2.782	95% Percentile (z)	3.608
108	99% Percentile (z)	5.877	95% USL	9.79
109	DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.			
110				
111	Nonparametric Distribution Free Background Statistics			
112	Data do not follow a Discernible Distribution (0.05)			
113				
114	Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)			
115	Order of Statistic, r	61	95% UTL with95% Coverage	10
116	Approximate f	1.605	Confidence Coefficient (CC) achieved by UTL	0.823
117	95% UPL	7.055	95% USL	22
118	95% KM Chebyshev UPL	13.8		
119				
120	Note: The use of USL to estimate a BTV is recommended only when the data set represents a background			
121	data set free of outliers and consists of observations collected from clean unimpacted locations.			
122	The use of USL tends to provide a balance between false positives and false negatives provided the data			
123	represents a background data set and when many onsite observations need to be compared with the BTV.			
124				

Background Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	6/16/2016 8:00:05 AM
From File	UM-Soil-hist-stats(x_m.xls
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
Different or Future K Observations	1
Number of Bootstrap Operations	2000

Arsenic

General Statistics

Total Number of Observations	64	Number of Missing Observations	0
Number of Distinct Observations	39		
Number of Detects	45	Number of Non-Detects	19
Number of Distinct Detects	34	Number of Distinct Non-Detects	5
Minimum Detect	5.0000E-4	Minimum Non-Detect	9.0000E-5
Maximum Detect	0.082	Maximum Non-Detect	0.1
Variance Detected	1.6037E-4	Percent Non-Detects	29.69%
Mean Detected	0.00502	SD Detected	0.0127
Mean of Detected Logged Data	-6.299	SD of Detected Logged Data	1.177

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.003	d2max (for USL)	3.051

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.376	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.945	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.36	Lilliefors GOF Test
5% Lilliefors Critical Value	0.132	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

Mean	0.00404	SD	0.0109
95% UTL95% Coverage	0.0259	95% KM UPL (t)	0.0224
90% KM Percentile (z)	0.018	95% KM Percentile (z)	0.022
99% KM Percentile (z)	0.0294	95% KM USL	0.0373

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.00865	SD	0.0145
95% UTL95% Coverage	0.0357	95% UPL (t)	0.031
90% Percentile (z)	0.0252	95% Percentile (z)	0.0305
99% Percentile (z)	0.0403	95% USL	0.0508

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	5.168	Anderson-Darling GOF Test
5% A-D Critical Value	0.803	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.298	Kolmogrov-Smirnoff GOF
5% K-S Critical Value	0.138	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

			Gamma Statistics on Detected Data Only		
		k hat (MLE)	0.613	k star (bias corrected MLE)	0.587
		Theta hat (MLE)	0.0082	Theta star (bias corrected MLE)	0.00856
		nu hat (MLE)	55.15	nu star (bias corrected)	52.81
		MLE Mean (bias corrected)	0.00502		
		MLE Sd (bias corrected)	0.00656	95% Percentile of Chisquare (2k)	4.257
			Gamma ROS Statistics using Imputed Non-Detects		
		GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
		GROS may not be used when kstar of detected data is small such as < 0.1			
		For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
		For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
		Minimum	5.0000E-4	Mean	0.0065
		Maximum	0.082	Median	0.00265
		SD	0.0108	CV	1.665
		k hat (MLE)	0.783	k star (bias corrected MLE)	0.757
		Theta hat (MLE)	0.0083	Theta star (bias corrected MLE)	0.00859
		nu hat (MLE)	100.2	nu star (bias corrected)	96.85
		MLE Mean (bias corrected)	0.0065	MLE Sd (bias corrected)	0.00747
		95% Percentile of Chisquare (2k)	5.008	90% Percentile	0.016
		95% Percentile	0.0215	99% Percentile	0.0346
		The following statistics are computed using Gamma ROS Statistics on Imputed Data			
		Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods			
		WH	HW	WH	HW
	95% Approx. Gamma UTL with 95% Coverage	0.0259	0.0273	95% Approx. Gamma UPL 0.0206	0.021
	95% Gamma USL	0.0499	0.0576		
		The following statistics are computed using gamma distribution and KM estimates			
		Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods			
		k hat (KM)	0.137	nu hat (KM)	17.54
		WH	HW	WH	HW
	95% Approx. Gamma UTL with 95% Coverage	0.0155	0.015	95% Approx. Gamma UPL 0.0121	0.0114
	95% Gamma USL	0.0312	0.0325		
			Lognormal GOF Test on Detected Observations Only		
		Shapiro Wilk Test Statistic	0.826	Shapiro Wilk GOF Test	
		5% Shapiro Wilk Critical Value	0.945	Data Not Lognormal at 5% Significance Level	
		Lilliefors Test Statistic	0.236	Lilliefors GOF Test	
		5% Lilliefors Critical Value	0.132	Data Not Lognormal at 5% Significance Level	
		Data Not Lognormal at 5% Significance Level			
			Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects		
		Mean in Original Scale	0.00396	Mean in Log Scale	-6.447
		SD in Original Scale	0.0107	SD in Log Scale	1.106
		95% UTL95% Coverage	0.0145	95% BCA UTL95% Coverage	0.023
		95% Bootstrap (%) UTL95% Coverage	0.0217	95% UPL (t)	0.0102
		90% Percentile (z)	0.00654	95% Percentile (z)	0.00977
		99% Percentile (z)	0.0208	95% USL	0.0463
			Background DL/2 Statistics Assuming Lognormal Distribution		
		Mean in Original Scale	0.00665	Mean in Log Scale	-6.118

105	SD in Original Scale	0.0145	SD in Log Scale	1.331
106	95% UTL95% Coverage	0.0317	95% UPL (t)	0.0207
107	90% Percentile (z)	0.0121	95% Percentile (z)	0.0197
108	99% Percentile (z)	0.0487	95% USL	0.128
109	DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons			
110				
111	Nonparametric Distribution Free Background Statistics			
112	Data do not follow a Discernible Distribution (0.05)			
113				
114	Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)			
115	Order of Statistic, r	63	95% UTL with95% Coverage	0.1
116	Approximate f	1.658	Confidence Coefficient (CC) achieved by UTL	0.836
117	95% UPL	0.0955	95% USL	0.1
118	95% KM Chebyshev UPL	0.052		
119				
120	Note: The use of USL to estimate a BTV is recommended only when the data set represents a background			
121	data set free of outliers and consists of observations collected from clean unimpacted locations.			
122	The use of USL tends to provide a balance between false positives and false negatives provided the data			
123	represents a background data set and when many onsite observations need to be compared with the BTV.			
124				

Background Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	6/16/2016 7:59:40 AM
From File	UM-Surf-hist-statsx_l.xls
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
Different or Future K Observations	1
Number of Bootstrap Operations	2000

Iron

General Statistics

Total Number of Observations	84	Number of Missing Observations	0
Number of Distinct Observations	45		
Number of Detects	50	Number of Non-Detects	34
Number of Distinct Detects	41	Number of Distinct Non-Detects	8
Minimum Detect	0.0078	Minimum Non-Detect	0.008
Maximum Detect	0.3	Maximum Non-Detect	0.3
Variance Detected	0.00229	Percent Non-Detects	40.48%
Mean Detected	0.05	SD Detected	0.0479
Mean of Detected Logged Data	-3.273	SD of Detected Logged Data	0.724

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.952	d2max (for USL)	3.149

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.667	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.947	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.215	Lilliefors GOF Test
5% Lilliefors Critical Value	0.125	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

Mean	0.0411	SD	0.0401
95% UTL95% Coverage	0.119	95% KM UPL (t)	0.108
90% KM Percentile (z)	0.0925	95% KM Percentile (z)	0.107
99% KM Percentile (z)	0.134	95% KM USL	0.167

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.046	SD	0.0406
95% UTL95% Coverage	0.125	95% UPL (t)	0.114
90% Percentile (z)	0.0981	95% Percentile (z)	0.113
99% Percentile (z)	0.14	95% USL	0.174

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.865	Anderson-Darling GOF Test
5% A-D Critical Value	0.763	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.118	Kolmogrov-Smirnoff GOF
5% K-S Critical Value	0.127	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.955	k star (bias corrected MLE)	1.851
Theta hat (MLE)	0.0256	Theta star (bias corrected MLE)	0.027
nu hat (MLE)	195.5	nu star (bias corrected)	185.1
MLE Mean (bias corrected)	0.05		
MLE Sd (bias corrected)	0.0368	95% Percentile of Chisquare (2k)	9

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.0078	Mean	0.0405
Maximum	0.3	Median	0.03
SD	0.0411	CV	1.015
k hat (MLE)	1.687	k star (bias corrected MLE)	1.635
Theta hat (MLE)	0.024	Theta star (bias corrected MLE)	0.0248
nu hat (MLE)	283.4	nu star (bias corrected)	274.6
MLE Mean (bias corrected)	0.0405	MLE Sd (bias corrected)	0.0317
95% Percentile of Chisquare (2k)	8.276	90% Percentile	0.0827
95% Percentile	0.103	99% Percentile	0.147

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.118	0.121	95% Approx. Gamma UPL	0.101	0.102
95% Gamma USL	0.212	0.23			

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	k hat (KM)	1.048		nu hat (KM)	176
	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.116	0.118	95% Approx. Gamma UPL	0.0998	0.101
95% Gamma USL	0.204	0.22			

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.981	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.947	Detected Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.0797	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.125	Detected Data appear Lognormal at 5% Significance Level	

Detected Data appear Lognormal at 5% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.0407	Mean in Log Scale	-3.486
SD in Original Scale	0.0401	SD in Log Scale	0.733
95% UTL95% Coverage	0.128	95% BCA UTL95% Coverage	0.12
95% Bootstrap (%) UTL95% Coverage	0.12	95% UPL (t)	0.104
90% Percentile (z)	0.0783	95% Percentile (z)	0.102
99% Percentile (z)	0.168	95% USL	0.306

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-3.493	95% KM UTL (Lognormal)95% Coverage	0.134

KM SD of Logged Data	0.76		95% KM UPL (Lognormal)	0.109
95% KM Percentile Lognormal (z)	0.106		95% KM USL (Lognormal)	0.333

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.046	Mean in Log Scale	-3.344
SD in Original Scale	0.0406	SD in Log Scale	0.743
95% UTL95% Coverage	0.151	95% UPL (t)	0.122
90% Percentile (z)	0.0915	95% Percentile (z)	0.12
99% Percentile (z)	0.199	95% USL	0.366

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	82	95% UTL with95% Coverage	0.18
Approximate f	1.439	Confidence Coefficient (CC) achieved by UTL	0.797
95% UPL	0.118	95% USL	0.3
95% KM Chebyshev UPL	0.217		

Note: The use of USL to estimate a BTV is recommended only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	6/16/2016 9:11:33 AM
From File	UM-Surf-hist-statsx_e.xls
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
Different or Future K Observations	1
Number of Bootstrap Operations	2000

Copper

General Statistics

Total Number of Observations	61	Number of Missing Observations	0
Number of Distinct Observations	11		
Number of Detects	7	Number of Non-Detects	54
Number of Distinct Detects	7	Number of Distinct Non-Detects	4
Minimum Detect	0.0035	Minimum Non-Detect	0.002
Maximum Detect	0.78	Maximum Non-Detect	0.03
Variance Detected	0.0837	Percent Non-Detects	88.52%
Mean Detected	0.125	SD Detected	0.289
Mean of Detected Logged Data	-4.08	SD of Detected Logged Data	1.988

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.013	d2max (for USL)	3.033

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.498	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.803	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.469	Lilliefors GOF Test
5% Lilliefors Critical Value	0.335	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

Mean	0.0177	SD	0.0986
95% UTL95% Coverage	0.216	95% KM UPL (t)	0.184
90% KM Percentile (z)	0.144	95% KM Percentile (z)	0.18
99% KM Percentile (z)	0.247	95% KM USL	0.317

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.019	SD	0.0993
95% UTL95% Coverage	0.219	95% UPL (t)	0.186
90% Percentile (z)	0.146	95% Percentile (z)	0.182
99% Percentile (z)	0.25	95% USL	0.32

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.045	Anderson-Darling GOF Test
5% A-D Critical Value	0.778	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.331	Kolmogrov-Smirnoff GOF
5% K-S Critical Value	0.334	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.338	k star (bias corrected MLE)	0.288
Theta hat (MLE)	0.37	Theta star (bias corrected MLE)	0.434
nu hat (MLE)	4.731	nu star (bias corrected)	4.037
MLE Mean (bias corrected)	0.125		
MLE Sd (bias corrected)	0.233	95% Percentile of Chisquare (2k)	2.672

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.0035	Mean	0.0334
Maximum	0.78	Median	0.01
SD	0.102	CV	3.051
k hat (MLE)	0.697	k star (bias corrected MLE)	0.673
Theta hat (MLE)	0.048	Theta star (bias corrected MLE)	0.0496
nu hat (MLE)	84.98	nu star (bias corrected)	82.14
MLE Mean (bias corrected)	0.0334	MLE Sd (bias corrected)	0.0407
95% Percentile of Chisquare (2k)	4.648	90% Percentile	0.0846
95% Percentile	0.115	99% Percentile	0.189

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.122	0.113	95% Approx. Gamma UPL	0.0955	0.0872
95% Gamma USL	0.236	0.232			

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

k hat (KM)	0.0323		nu hat (KM)	3.946	
	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.0554	0.044	95% Approx. Gamma UPL	0.0419	0.033
95% Gamma USL	0.115	0.0953			

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.806	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.803	Detected Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.298	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.335	Detected Data appear Lognormal at 5% Significance Level	

Detected Data appear Lognormal at 5% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.02	Mean in Log Scale	-5.698
SD in Original Scale	0.0994	SD in Log Scale	1.588
95% UTL95% Coverage	0.0823	95% BCA UTL95% Coverage	0.043
95% Bootstrap (%) UTL95% Coverage	0.043	95% UPL (t)	0.0488
90% Percentile (z)	0.0257	95% Percentile (z)	0.0458
99% Percentile (z)	0.135	95% USL	0.415

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-5.441	95% KM UTL (Lognormal)95% Coverage	0.0242

KM SD of Logged Data	0.854		95% KM UPL (Lognormal)	0.0183
95% KM Percentile Lognormal (z)	0.0177		95% KM USL (Lognormal)	0.0579

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.019	Mean in Log Scale	-5.144
SD in Original Scale	0.0993	SD in Log Scale	0.79
95% UTL95% Coverage	0.0286	95% UPL (t)	0.0221
90% Percentile (z)	0.016	95% Percentile (z)	0.0214
99% Percentile (z)	0.0366	95% USL	0.064

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	60	95% UTL with95% Coverage	0.043
Approximate f	1.579	Confidence Coefficient (CC) achieved by UTL	0.816
95% UPL	0.0345	95% USL	0.78
95% KM Chebyshev UPL	0.451		

Note: The use of USL to estimate a BTV is recommended only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	6/16/2016 7:59:13 AM
From File	UM-Surf-hist-statax_k.xls
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
ifferent or Future K Observations	1
Number of Bootstrap Operations	2000

Zinc

General Statistics

Total Number of Observations	82	Number of Missing Observations	0
Number of Distinct Observations	16		
Number of Detects	13	Number of Non-Detects	49
Number of Distinct Detects	11	Number of Distinct Non-Detects	5
Minimum Detect	0.0096	Minimum Non-Detect	0.01
Maximum Detect	2.2	Maximum Non-Detect	0.05
Variance Detected	0.468	Percent Non-Detects	79.03%
Mean Detected	0.304	SD Detected	0.684
Mean of Detected Logged Data	-2.084	SD of Detected Logged Data	1.079

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.01	d2max (for USL)	3.039

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.49	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.866	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.473	Lilliefors GOF Test
5% Lilliefors Critical Value	0.246	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

Mean	0.0719	SD	0.324
95% UTL95% Coverage	0.723	95% KM UPL (t)	0.617
90% KM Percentile (z)	0.487	95% KM Percentile (z)	0.604
99% KM Percentile (z)	0.825	95% KM USL	1.056

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.0709	SD	0.327
95% UTL95% Coverage	0.727	95% UPL (t)	0.621
90% Percentile (z)	0.489	95% Percentile (z)	0.608
99% Percentile (z)	0.831	95% USL	1.064

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	2.283	Anderson-Darling GOF Test
5% A-D Critical Value	0.816	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.38	Kolmogrov-Smirnoff GOF
5% K-S Critical Value	0.254	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

			Gamma Statistics on Detected Data Only		
	k hat (MLE)	0.371		k star (bias corrected MLE)	0.337
	Theta hat (MLE)	0.818		Theta star (bias corrected MLE)	0.901
	nu hat (MLE)	9.658		nu star (bias corrected)	8.762
	MLE Mean (bias corrected)	0.304			
	MLE Sd (bias corrected)	0.523		95% Percentile of Chisquare (2k)	2.968
			Gamma ROS Statistics using Imputed Non-Detects		
	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs				
	GROS may not be used when kstar of detected data is small such as < 0.1				
	For such situations, GROS method tends to yield inflated values of UCLs and BTVs				
	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates				
	Minimum	0.0096		Mean	0.0716
	Maximum	2.2		Median	0.01
	SD	0.326		CV	4.56
	k hat (MLE)	0.403		k star (bias corrected MLE)	0.395
	Theta hat (MLE)	0.177		Theta star (bias corrected MLE)	0.181
	nu hat (MLE)	50.03		nu star (bias corrected)	48.94
	MLE Mean (bias corrected)	0.0716		MLE Sd (bias corrected)	0.114
	95% Percentile of Chisquare (2k)	3.295		90% Percentile	0.203
	95% Percentile	0.299		99% Percentile	0.541
	The following statistics are computed using Gamma ROS Statistics on Imputed Data				
	Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods				
		WH	HW		WH	HW
	95% Approx. Gamma UTL with 95% Coverage	0.245	0.198	95% Approx. Gamma UPL	0.182	0.145
	95% Gamma USL	0.533	0.462			
	The following statistics are computed using gamma distribution and KM estimates					
	Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods					
	k hat (KM)	0.0492		nu hat (KM)	6.106	
		WH	HW		WH	HW
	95% Approx. Gamma UTL with 95% Coverage	0.243	0.197	95% Approx. Gamma UPL	0.181	0.144
	95% Gamma USL	0.527	0.458			
			Lognormal GOF Test on Detected Obeervations Only		
	Shapiro Wilk Test Statistic	0.771		Shapiro Wilk GOF Test		
	5% Shapiro Wilk Critical Value	0.866		Data Not Lognormal at 5% Significance Level		
	Lilliefors Test Statistic	0.263		Lilliefors GOF Test		
	5% Lilliefors Critical Value	0.246		Data Not Lognormal at 5% Significance Level		
	Data Not Lognormal at 5% Significance Level					
			Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects		
	Mean in Original Scale	0.0674		Mean in Log Scale	-5.492	
	SD in Original Scale	0.327		SD in Log Scale	1.962	
	95% UTL95% Coverage	0.213		95% BCA UTL95% Coverage	1.4	
	95% Bootstrap (%) UTL95% Coverage	1.4		95% UPL (t)	0.112	
	90% Percentile (z)	0.0509		95% Percentile (z)	0.104	
	99% Percentile (z)	0.396		95% USL	1.603	
			Background DL/2 Statistics Assuming Lognormal Distribution		
	Mean in Original Scale	0.0709		Mean in Log Scale	-4.41	

105	SD in Original Scale	0.327	SD in Log Scale	1.11
106	95% UTL95% Coverage	0.113	95% UPL (t)	0.0788
107	90% Percentile (z)	0.0504	95% Percentile (z)	0.0755
108	99% Percentile (z)	0.161	95% USL	0.355
109	DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.			
110				
111	Nonparametric Distribution Free Background Statistics			
112	Data do not follow a Discernible Distribution (0.05)			
113				
114	Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)			
115	Order of Statistic, r	61	95% UTL with95% Coverage	1.4
116	Approximate f	1.605	Confidence Coefficient (CC) achieved by UTL	0.823
117	95% UPL	0.0774	95% USL	2.2
118	95% KM Chebyshev UPL	1.495		
119				
120	Note: The use of USL to estimate a BTV is recommended only when the data set represents a background			
121	data set free of outliers and consists of observations collected from clean unimpacted locations.			
122	The use of USL tends to provide a balance between false positives and false negatives provided the data			
123	represents a background data set and when many onsite observations need to be compared with the BTV.			
124				

Background Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	6/16/2016 10:30:36 AM
From File	manganese.xls
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
ifferent or Future K Observations	1
Number of Bootstrap Operations	2000

Manganese

General Statistics

Total Number of Observations	31	Number of Missing Observations	0
Number of Distinct Observations	6		
Number of Detects	10	Number of Non-Detects	21
Number of Distinct Detects	4	Number of Distinct Non-Detects	4
Minimum Detect	0.01	Minimum Non-Detect	0.01
Maximum Detect	0.09	Maximum Non-Detect	0.05
Variance Detected	5.5667E-4	Percent Non-Detects	67.74%
Mean Detected	0.027	SD Detected	0.0236
Mean of Detected Logged Data	-3.831	SD of Detected Logged Data	0.636

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.197	d2max (for USL)	2.78

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.821	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.842	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.417	Lilliefors GOF Test
5% Lilliefors Critical Value	0.28	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

Mean	0.016	SD	0.015
95% UTL95% Coverage	0.0489	95% KM UPL (t)	0.0419
90% KM Percentile (z)	0.0352	95% KM Percentile (z)	0.0407
99% KM Percentile (z)	0.0509	95% KM USL	0.0574

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.0153	SD	0.0159
95% UTL95% Coverage	0.0503	95% UPL (t)	0.0428
90% Percentile (z)	0.0357	95% Percentile (z)	0.0415
99% Percentile (z)	0.0523	95% USL	0.0592

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.224	Anderson-Darling GOF Test
5% A-D Critical Value	0.734	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.389	Kolmogrov-Smirnoff GOF
5% K-S Critical Value	0.269	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

		Gamma Statistics on Detected Data Only		
k hat (MLE)	2.437		k star (bias corrected MLE)	1.772
Theta hat (MLE)	0.0111		Theta star (bias corrected MLE)	0.0152
nu hat (MLE)	48.73		nu star (bias corrected)	35.45
MLE Mean (bias corrected)	0.027			
MLE Sd (bias corrected)	0.0203		95% Percentile of Chisquare (2k)	8.74
		Gamma ROS Statistics using Imputed Non-Detects		
		GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs		
		GROS may not be used when kstar of detected data is small such as < 0.1		
		For such situations, GROS method tends to yield inflated values of UCLs and BTVs		
		For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates		
Minimum	0.01		Mean	0.0157
Maximum	0.09		Median	0.01
SD	0.0152		CV	0.967
k hat (MLE)	2.859		k star (bias corrected MLE)	2.604
Theta hat (MLE)	0.0055		Theta star (bias corrected MLE)	0.00604
nu hat (MLE)	177.3		nu star (bias corrected)	161.4
MLE Mean (bias corrected)	0.0157		MLE Sd (bias corrected)	0.00975
95% Percentile of Chisquare (2k)	11.39		90% Percentile	0.0288
95% Percentile	0.0344		99% Percentile	0.0467
		The following statistics are computed using Gamma ROS Statistics on Imputed Data		
		Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods		
	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.0421	0.0415	95% Approx. Gamma UPL	0.0342	0.0334
95% Gamma USL	0.0531	0.0529			
		The following statistics are computed using gamma distribution and KM estimates		
		Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods		
	k hat (KM)	1.142		nu hat (KM)	70.83
	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.0423	0.0417	95% Approx. Gamma UPL	0.0344	0.0337
95% Gamma USL	0.0532	0.0531			
		Lognormal GOF Test on Detected Observations Only		
Shapiro Wilk Test Statistic	0.811		Shapiro Wilk GOF Test		
5% Shapiro Wilk Critical Value	0.842		Data Not Lognormal at 5% Significance Level		
Lilliefors Test Statistic	0.351		Lilliefors GOF Test		
5% Lilliefors Critical Value	0.28		Data Not Lognormal at 5% Significance Level		
		Data Not Lognormal at 5% Significance Level			
		Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects		
Mean in Original Scale	0.0127		Mean in Log Scale	-4.829
SD in Original Scale	0.0166		SD in Log Scale	0.924
95% UTL95% Coverage	0.0609		95% BCA UTL95% Coverage	0.065
95% Bootstrap (%) UTL95% Coverage	0.09		95% UPL (t)	0.0394
90% Percentile (z)	0.0261		95% Percentile (z)	0.0366
99% Percentile (z)	0.0687		95% USL	0.102
		Background DL/2 Statistics Assuming Lognormal Distribution		
Mean in Original Scale	0.0153		Mean in Log Scale	-4.462

SD in Original Scale	0.0159		SD in Log Scale	0.707
95% UTL95% Coverage	0.0545		95% UPL (t)	0.039
90% Percentile (z)	0.0285		95% Percentile (z)	0.0369
99% Percentile (z)	0.0597		95% USL	0.0811

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	31	95% UTL with95% Coverage	0.09
Approximate f	1.632	Confidence Coefficient (CC) achieved by UTL	0.796
95% UPL	0.066	95% USL	0.09
95% KM Chebyshev UPL	0.0824		

Note: The use of USL to estimate a BTV is recommended only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Appendix E

Additional Info

Union Mine Landfill

Background Lab Analyses

Union Mine Landfill

Table 1
Summary of Laboratory Results: Background Metals/Inorganics
Metals analysis by EPA 6000/7000 Series Methods
Union Mine Landfill

Sample name	Date mm/dd/yy	Magnesium mg/l	Potassium mg/l	Cobalt mg/l	Sodium mg/l	Zinc mg/l	Location/Comments
UM-slate-1	2/3/2016	4,800	800	---	---	---	MW-11 roadcut
UM-slate-2	2/3/2016	3,000	930	---	---	---	MW-11 roadcut
UM-slate-4	6/29/2016	---	---	10	18	30	MW-11 roadcut

Notes:

mg/l = milligrams per liter

--- = not sampled/not analyzed

CALIFORNIA LABORATORY SERVICES

3249 Fitzgerald Road Rancho Cordova, CA 95742

10 February 2016

CLS Work Order #: CZB0225

COC #:

Greg Stanton

El Dorado County Environmental

2850 Fairlane Court, Building C

Placerville, CA 95667

Project Name: Union Mine Disposal Facility

Enclosed are the results of analyses for samples received by the laboratory on 02/03/16 14:20. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness. Any comments and exceptions are addressed below as well as under the Notes and Definitions section.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

James Liang, Ph.D.
Laboratory Director

CA DOHS ELAP Accreditation/Registration number 1233

CALIFORNIA LABORATORY SERVICES

02/10/16 13:42

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZB0225**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Metals by EPA 6000/7000 Series Methods

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
UM-slate-1 (CZB0225-01) Soil	**Sampled: 02/03/16 09:30**	**Received: 02/03/16 14:20**								
Magnesium	**4800**	9.5	50	mg/kg	1	CZ00843	02/04/16	02/05/16	EPA 6010B	
Potassium	**800**	16	50	"	1	"	"	"	"	
UM-slate-2 (CZB0225-02) Soil	**Sampled: 02/03/16 09:40**	**Received: 02/03/16 14:20**								
Magnesium	**3000**	9.5	50	mg/kg	1	CZ00843	02/04/16	02/05/16	EPA 6010B	
Potassium	**930**	16	50	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

02/10/16 13:42

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZB0225**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Metals by EPA 6000/7000 Series Methods - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ00843 - EPA 3050B											
Blank (CZ00843-BLK1)					Prepared: 02/04/16 Analyzed: 02/05/16						
Magnesium	ND	9.5	50	mg/kg							
Potassium	24.9	16	50	"							J
LCS (CZ00843-BS1)					Prepared: 02/04/16 Analyzed: 02/05/16						
Magnesium	532	9.5	50	mg/kg	500		106	75-125			
Potassium	538	16	50	"	500		108	75-125			
Matrix Spike (CZ00843-MS1)		**Source: CZB0187-01**			Prepared: 02/04/16 Analyzed: 02/05/16						
Magnesium	6360	9.5	50	mg/kg	500	6030	67	75-125			QM-5
Potassium	1030	16	50	"	500	486	110	75-125			
Matrix Spike Dup (CZ00843-MSD1)		**Source: CZB0187-01**			Prepared: 02/04/16 Analyzed: 02/05/16						
Magnesium	6300	9.5	50	mg/kg	500	6030	53	75-125	1	30	QM-5
Potassium	1040	16	50	"	500	486	111	75-125	0.6	30	

CALIFORNIA LABORATORY SERVICES

02/10/16 13:42

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZB0225**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Notes and Definitions

QM-5	The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
J	Detected but below the Reporting Limit; therefore, result is an estimated concentration.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit (or method detection limit when specified)
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

This is a "MDL Report", thus if the report denotes an "ND" for a particular analyte, it should be noted that the analyte was not detected at or above the MDL.

CALIFORNIA LABORATORY SERVICES

02/10/16 13:42

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZB0225**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

CZB0225

CLS Laboratories
3249 Fitzgerald Road, Rancho Cordova, CA
Phone: (916) 638-7301

CHAIN OF CUSTODY/ANALYSIS REQUEST FORM

Lab Login# Date 2/2/16 Page 1 of 1

Union Mine Disposal Facility

Report to: Robert Lauritzen
El Dorado County Environmental Management
2850 Fairlane Court Bldg C
Placerville, CA 95667
Office: (530) 621-5133
Fax: (530) 626-7136

Sample ID	Date	Time	Lab ID	Sample Matrix	# of Containers	Total Metals - Mg, Mn	Potassium	Comments
LM-slate-1	2/3/2016	930		solid	1	X	X	
LM-slate-2	2/3/2016	940		solid	1	X	X	
~~LM-slate-3~~	~~2/3/2016~~	~~950~~		~~solid~~	~~1~~	~~X~~	~~X~~	

Relinquished by Signature: Robert Lauritzen
Printed Name: Robert Lauritzen
El Dorado County Date/Time

Received by Signature:
Printed Name:
Date/Time 2/2/16 1420

TAT Requirements
X Standard (10 days)

Report Requirements
X I. Routine Report
__ II. Report includes DUP,MS MSD, as required
__ III. Data Validation Report
__ RWQCB (MDLs/PQLs/Trace#)

Additional Info:

Invoice:Greg Stanton, EDCEM
Address: 2850 Fairlane Ct., Bldg C, Placerville, CA 95667
Contract # 557-C 0607-BOS

CALIFORNIA LABORATORY SERVICES

3249 Fitzgerald Road Rancho Cordova, CA 95742

07 July 2016

CLS Work Order #: CZF1208

COC #:

Greg Stanton

El Dorado County Environmental

2850 Fairlane Court, Building C

Placerville, CA 95667

Project Name: Union Mine Disposal Facility

Enclosed are the results of analyses for samples received by the laboratory on 06/29/16 11:09. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness. Any comments and exceptions are addressed below as well as under the Notes and Definitions section.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

James Liang, Ph.D.
Laboratory Director

CA DOHS ELAP Accreditation/Registration number 1233

CALIFORNIA LABORATORY SERVICES

07/07/16 13:00

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF1208**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Metals by EPA 6000/7000 Series Methods

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
UM-slate-4 (CZF1208-01) Soil Sampled: 06/29/16 10:30 Received: 06/29/16 11:09										
Cobalt	**10**	0.080	1.0	mg/kg	1	CZ04695	06/30/16	06/30/16	EPA 6010B	
Sodium	**18**	9.4	50	"	1	"	"	"	"	J
Zinc	**30**	0.27	1.0	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

07/07/16 13:00

El Dorado County Environmental	Project: Union Minc Disposal Facility	**CLS Work Order #: CZF1208**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Metals by EPA 6000/7000 Series Methods - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ04695 - EPA 3050B											
Blank (CZ04695-BLK1)					Prepared & Analyzed: 06/30/16						
Cobalt	ND	0.080	1.0	mg/kg							
Sodium	ND	9.4	50	"							
Zinc	ND	0.27	1.0	"							
LCS (CZ04695-BS1)					Prepared & Analyzed: 06/30/16						
Cobalt	95.4	0.080	1.0	mg/kg	100		95	75-125			
Sodium	463	9.4	50	"	500		93	75-125			
Zinc	99.8	0.27	1.0	"	100		100	75-125			
Matrix Spike (CZ04695-MS1)		**Source: CZF1242-AB**			Prepared & Analyzed: 06/30/16						
Cobalt	91.1	0.080	1.0	mg/kg	100	6.60	84	75-125			
Sodium	641	9.4	50	"	500	180	92	75-125			
Zinc	184	0.27	1.0	"	100	89.2	95	75-125			
Matrix Spike Dup (CZ04695-MSD1)		**Source: CZF1242-AB**			Prepared & Analyzed: 06/30/16						
Cobalt	96.7	0.080	1.0	mg/kg	100	6.60	90	75-125	6	30	
Sodium	703	9.4	50	"	500	180	105	75-125	9	30	
Zinc	198	0.27	1.0	"	100	89.2	109	75-125	7	30	

07/07/16 13:00

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZF1208**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Notes and Definitions

J	Detected but below the Reporting Limit; therefore, result is an estimated concentration.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit (or method detection limit when specified)
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

This is a "MDL Report", thus if the report denotes an "ND" for a particular analyte, it should be noted that the analyte was not detected at or above the MDL.

CALIFORNIA LABORATORY SERVICES

07/07/16 13:00

El Dorado County Environmental	Project: Union Mine Disposal Facility	CLS Work Order #: CZF1208
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

CZF1208.

CLS Laboratories
3249 Fitzgerald Road, Rancho Cordova, CA
Phone: (916) 638-7301

CHAIN OF CUSTODY/ANALYSIS REQUEST FORM

Lab Login# Date 6/24/16 Page 1 of 1

Union Mine Disposal Facility

Report to: Robert Lauritzen
El Dorado County Environmental Management
2850 Fairlaine Court, Bldg C
Placerville, CA 95667
Office: (530)-621-5130
Fax: (530) 626-7130

Sample ID	Date	Time	Lab ID	Sample Matrix	# of Containers	Zinc, cobalt, sodium	Comments
UM-slate-4	6/29/2016	1030		solid	1	X	

Relinquished by: Signature: Robert Lauritzen
Printed Name: Robert Lauritzen
El Dorado County
Date/Time 6/29/16

Recieved by: Signature:
Printed Name: GABRIELLE GALVAN
Date/Time 6-29-16 1109

TAT Requirements
✓ Standard (10 days)

Report Requirements
X I Routine Report
__II Report(includes QC,MS MSD, as required
__III. Data Validation Report
__RWQCB (MDLs/PQLs/Trace#)

Additional Info:
Metals- Zinc, Cobalt, Sodium by EPA 200 Series

Invoice:Greg Stanton, EDCEM
Address: 2850 Fairlane Ct., Bldg C, Placerville, CA, 95667
Contract # 037-C-0507-9OS

Springfield Shaft & Spring
Preliminary Lab Report

2016

Union Mine

CALIFORNIA LABORATORY SERVICES

3249 Fitzgerald Road Rancho Cordova, CA 95742

25 July 2016

CLS Work Order #: CZG0721

COC #:

Greg Stanton

El Dorado County Environmental

2850 Fairlane Court, Building C

Placerville, CA 95667

Project Name: Union Mine Disposal Facility

Enclosed are the results of analyses for samples received by the laboratory on 07/18/16 12:05. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness. Any comments and exceptions are addressed below as well as under the Notes and Definitions section.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

James Liang, Ph.D.
Laboratory Director

CA DOHS ELAP Accreditation/Registration number 1233

CALIFORNIA LABORATORY SERVICES

07/25/16 13:40

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZG0721**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-1 (trench) (CZG0721-01) Water Sampled: 07/18/16 11:00 Received: 07/18/16 12:05										
Bicarbonate as CaCO3	**360**	0.50	5.0	mg/L	1	CZ05137	07/19/16	07/19/16	SM2320B	
Carbonate as CaCO3	ND	0.50	5.0	"	1	"	"	"	"	
Chloride	**56**	0.26	5.0	"	10	CZ05129	07/19/16	07/19/16	EPA 300.0	
Hydroxide as CaCO3	ND	0.50	5.0	"	1	CZ05137	07/19/16	07/19/16	SM2320B	
Nitrate as N	ND	0.053	0.40	"	1	CZ05129	07/19/16	07/19/16	EPA 300.0	
Sulfate as SO4	**53**	0.38	5.0	"	10	"	"	07/19/16	"	
Total Alkalinity	**360**	1.0	5.0	"	1	CZ05137	07/19/16	07/19/16	SM2320B	
Total Dissolved Solids	**500**	10	10	"	1	CZ05138	07/19/16	07/20/16	SM2540C	
SS-Shaft (CZG0721-02) Water Sampled: 07/18/16 11:05 Received: 07/18/16 12:05										
Bicarbonate as CaCO3	**430**	0.50	5.0	mg/L	1	CZ05137	07/19/16	07/19/16	SM2320B	
Carbonate as CaCO3	ND	0.50	5.0	"	1	"	"	"	"	
Chloride	**52**	0.26	5.0	"	10	CZ05129	07/19/16	07/19/16	EPA 300.0	
Hydroxide as CaCO3	ND	0.50	5.0	"	1	CZ05137	07/19/16	07/19/16	SM2320B	
Nitrate as N	ND	0.053	0.40	"	1	CZ05129	07/19/16	07/19/16	EPA 300.0	
Sulfate as SO4	**22**	0.038	0.50	"	1	"	"	"	"	
Total Alkalinity	**430**	1.0	5.0	"	1	CZ05137	07/19/16	07/19/16	SM2320B	
Total Dissolved Solids	**500**	10	10	"	1	CZ05138	07/19/16	07/20/16	SM2540C	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZG0721**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Metals (Dissolved) by EPA 200 Series Methods

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-1 (trench) (CZG0721-01) Water	**Sampled: 07/18/16 11:00**	**Received: 07/18/16 12:05**								
Arsenic	**1200**	46	100	µg/L	1	CZ05186	07/20/16	07/21/16	EPA 200.7	
Calcium	**95000**	14	1000	"	1	"	"	"	"	
Iron	**17000**	6.8	100	"	1	"	"	"	"	
Magnesium	**28000**	26	1000	"	1	"	"	"	"	
Potassium	**6200**	180	1000	"	1	"	"	"	"	
Sodium	**36000**	17	1000	"	1	"	"	"	"	
SS-Shaft (CZG0721-02) Water	**Sampled: 07/18/16 11:05**	**Received: 07/18/16 12:05**								
Arsenic	**460**	46	100	µg/L	1	CZ05186	07/20/16	07/21/16	EPA 200.7	
Calcium	**120000**	14	1000	"	1	"	"	"	"	
Iron	**12000**	6.8	100	"	1	"	"	"	"	
Magnesium	**29000**	26	1000	"	1	"	"	"	"	
Potassium	**3700**	180	1000	"	1	"	"	"	"	
Sodium	**32000**	17	1000	"	1	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZG0721**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ05129 - General Prep											
Blank (CZ05129-BLK1)					Prepared & Analyzed: 07/19/16						
Chloride	ND	0.026	0.50	mg/L							
Nitrate as N	ND	0.053	0.40	"							
Sulfate as SO4	ND	0.038	0.50	"							
LCS (CZ05129-BS1)					Prepared & Analyzed: 07/19/16						
Chloride	4.75	0.026	0.50	mg/L	5.00		95	80-120			
Nitrate as N	0.481	0.053	0.40	"	0.451		107	80-120			
Sulfate as SO4	5.12	0.038	0.50	"	5.00		102	80-120			
LCS Dup (CZ05129-BSD1)					Prepared & Analyzed: 07/19/16						
Chloride	4.78	0.026	0.50	mg/L	5.00		96	80-120	0.7	20	
Nitrate as N	0.484	0.053	0.40	"	0.451		107	80-120	0.6	20	
Sulfate as SO4	5.17	0.038	0.50	"	5.00		103	80-120	0.9	20	
Matrix Spike (CZ05129-MS1)		**Source: CZG0772-01**			Prepared & Analyzed: 07/19/16						
Chloride	18.5	0.026	0.50	mg/L	5.00	13.7	96	80-120			
Nitrate as N	5.19	0.053	0.40	"	0.451	4.95	53	80-120			QM-4X
Sulfate as SO4	34.7	0.038	0.50	"	5.00	30.4	85	80-120			
Matrix Spike Dup (CZ05129-MSD1)		**Source: CZG0772-01**			Prepared & Analyzed: 07/19/16						
Chloride	18.4	0.026	0.50	mg/L	5.00	13.7	94	80-120	0.5	20	
Nitrate as N	5.19	0.053	0.40	"	0.451	4.95	53	80-120	0.02	20	QM-4X
Sulfate as SO4	34.6	0.038	0.50	"	5.00	30.4	84	80-120	0.2	20	
Batch CZ05137 - General Preparation											
Blank (CZ05137-BLK1)					Prepared & Analyzed: 07/19/16						
Bicarbonate as CaCO3	ND	0.50	5.0	mg/L							
Carbonate as CaCO3	ND	0.50	5.0	"							
Hydroxide as CaCO3	ND	0.50	5.0	"							
Total Alkalinity	ND	1.0	5.0	"							

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZG0721**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ05137 - General Preparation											
Duplicate (CZ05137-DUP1)		**Source: CZG0716-01**			Prepared & Analyzed: 07/19/16						
Bicarbonate as CaCO3	189	0.50	5.0	mg/L		188			0.7	20	
Carbonate as CaCO3	ND	0.50	5.0	"		ND				20	
Hydroxide as CaCO3	ND	0.50	5.0	"		ND				20	
Total Alkalinity	189	1.0	5.0	"		188			0.7	20	
Batch CZ05138 - General Prep											
Blank (CZ05138-BLK1)					Prepared: 07/19/16 Analyzed: 07/20/16						
Total Dissolved Solids	ND	10	10	mg/L							
Duplicate (CZ05138-DUP1)		**Source: CZG0660-02**			Prepared: 07/19/16 Analyzed: 07/20/16						
Total Dissolved Solids	189	10	10	mg/L		190			0.5	20	

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZG0721**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Metals (Dissolved) by EPA 200 Series Methods - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ05186 - EPA 3010A											
Blank (CZ05186-BLK1)					Prepared: 07/20/16 Analyzed: 07/21/16						
Arsenic	ND	46	100	µg/L							
Boron	30.5	4.4	50	"							J
Calcium	ND	14	1000	"							
Iron	ND	6.8	100	"							
Magnesium	ND	26	1000	"							
Manganese	ND	0.92	20	"							
Potassium	ND	180	1000	"							
Sodium	ND	17	1000	"							
LCS (CZ05186-BS1)					Prepared: 07/20/16 Analyzed: 07/21/16						
Arsenic	1060	46	100	µg/L	1000		106	85-115			
Boron	1080	4.4	50	"	1000		108	85-115			
Calcium	5210	14	1000	"	5000		104	85-115			
Iron	1160	6.8	100	"	1000		116	85-115			QM-1
Magnesium	5310	26	1000	"	5000		106	85-115			
Manganese	1110	0.92	20	"	1000		111	85-115			
Potassium	5000	180	1000	"	5000		100	85-115			
Sodium	5010	17	1000	"	5000		100	85-115			
Matrix Spike (CZ05186-MS1)		**Source: CZG0804-02**			Prepared: 07/20/16 Analyzed: 07/21/16						
Arsenic	1110	46	100	µg/L	1000	ND	111	70-130			
Boron	12400	4.4	50	"	1000	10900	141	70-130			QM-4X
Calcium	23400	14	1000	"	5000	17800	111	70-130			
Iron	1060	6.8	100	"	1000	58.2	100	70-130			
Magnesium	32600	26	1000	"	5000	27200	109	70-130			
Manganese	1060	0.92	20	"	1000	26.8	104	70-130			
Potassium	9970	180	1000	"	5000	3730	125	70-130			
Sodium	299000	17	1000	"	5000	290000	180	70-130			QM-4X

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZG0721**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Metals (Dissolved) by EPA 200 Series Methods - Quality Control

CLS Labs

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CZ05186 - EPA 3010A											
Matrix Spike (CZ05186-MS2)		**Source: CZG0822-47**			Prepared: 07/20/16 Analyzed: 07/21/16						
Arsenic	1090	46	100	µg/L	1000	ND	109	70-130			
Boron	1060	4.4	50	"	1000	35.3	103	70-130			
Calcium	5270	14	1000	"	5000	ND	105	70-130			
Iron	1150	6.8	100	"	1000	ND	115	70-130			
Magnesium	5310	26	1000	"	5000	ND	106	70-130			
Manganese	1140	0.92	20	"	1000	ND	114	70-130			
Potassium	5430	180	1000	"	5000	575	97	70-130			
Sodium	5620	17	1000	"	5000	1300	86	70-130			
Matrix Spike Dup (CZ05186-MSD1)		**Source: CZG0804-02**			Prepared: 07/20/16 Analyzed: 07/21/16						
Arsenic	1030	46	100	µg/L	1000	ND	103	70-130	7	25	
Boron	11800	4.4	50	"	1000	10900	87	70-130	5	25	
Calcium	22800	14	1000	"	5000	17800	100	70-130	3	25	
Iron	1120	6.8	100	"	1000	58.2	107	70-130	6	25	
Magnesium	31400	26	1000	"	5000	27200	84	70-130	4	25	
Manganese	1010	0.92	20	"	1000	26.8	99	70-130	5	25	
Potassium	9910	180	1000	"	5000	3730	124	70-130	0.6	25	
Sodium	287000	17	1000	"	5000	290000	NR	70-130	4	25	QM-4X

CALIFORNIA LABORATORY SERVICES

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El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZG0721**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

Notes and Definitions

QM-4X	The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.
QM-1	The spike recovery was outside acceptance limits for the LCS or LCSD. The batch was accepted based on acceptable MS/MSD recoveries & RPD's.
J	Detected but below the Reporting Limit; therefore, result is an estimated concentration.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit (or method detection limit when specified)
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

This is a "MDL Report", thus if the report denotes an "ND" for a particular analyte, it should be noted that the analyte was not detected at or above the MDL.

CALIFORNIA LABORATORY SERVICES

07/25/16 13:40

El Dorado County Environmental	Project: Union Mine Disposal Facility	**CLS Work Order #: CZG0721**
2850 Fairlane Court, Building C	Project Number: [none]	COC #:
Placerville CA, 95667	Project Manager: Greg Stanton	

CZG0721

CLS Laboratories
3249 Fitzgerald Road, Rancho Cordova, CA
Phone: (916) 638-7301

CHAIN OF CUSTODY/ANALYSIS REQUEST FORM

Lab Login# Date 7/18/16 Page 1 of 1

Union Mine Disposal Facility

Report to: Robert Lauritzen
El Dorado County Environmental Management
2850 Fairlane Court, Bldg C
Placerville, CA 95667
Office: (530) 621-5130
Fax: (530) 626-7130

Sample ID	Date	Time	Lab ID	Sample Matrix	# of Containers	Analysis Requested: D's-As,Fe,Ca,Mg,K,Na (HNO3)	Bicb to Carb Alkalinity (NP)	Nitrate as N, SO4,TDS, Chloride (NP)	Comments
SS-1 (trench)	7/18/16	1100		water	5	X	X	X	field filtered
SS-Shaft	7/18/16	1105		water	5	X	X	X	field filtered

Relinquished by Signature: Robert Lauritzen
Printed Name: Robert Lauritzen
El Dorado County
Date/Time 7/18/16

Received by Signature
Printed Name
Date/Time 7/18/16 1205

TAT Requirements
X Standard (5 days)
X bl file needed

Report Requirements
I. Routine Report
II. Report(includes DUP,MS MSD, as required.
III. Data Validation Report
X RWQCB (MDLs/PQLs/Traced)

Additional Info.
Metals Field Filtered: yes
Dissolved Metals-As, Fe, Ca, Mg, K, Na
Nitrate as Nitrogen

~~add VOC's below to 8260B~~
~~acrylonitrile~~
~~carbon disulfide~~
~~trans-1,4-Dichloro-2-butene~~
~~methyl-t-bu~~
~~vinyl acetate~~

Invoice:Greg Stanton, EDCEM
Address: 2850 Fairlane Ct., Bldg C, Placerville, CA, 95667
Contract # 037-C-0607-BOS

show MDL/RL

(2-H)