Colbert Landfill Remediation Project Annual Report 2020

Progress Report for

May 2019 through June 2020

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***Historical monitoring well analytical results and remedial progress reports can be found on the Spokane County Solid Waste Department website at:**

https://www.spokanecounty.org/2029/Colbert-Landfill

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1.0 Colbert Landfill Remediation Project Summary

The Colbert Landfill Superfund site is a closed, 40-acre, municipal solid waste landfill located approximately 15 miles north of Spokane, Washington, and about 2.5 miles north of Colbert, Washington. The landfill received waste from 1968 to 1986 when it became filled to capacity. Groundwater in the vicinity of the landfill was found to be contaminated with volatile organic compounds and in 1983, and the landfill was place on the National Priorities List (NPL) by EPA. In 1989, a consent decree was executed to implement a site remedy. The site remedy includes:

- An available alternate water supply for residential wells impacted by groundwater contamination originating from the landfill.
- Institutional Controls
- Construction and operation of a pump and treat system to capture and prevent further spread of groundwater contaminants.
- Landfill closure according to the State of Washington regulations Minimal Functional Standards (WAC173-304).
- Monitoring of contaminants to protect human health and the environment at the site.

Construction of a pump and treat (P&T) system was completed in 1994. The P&T system operated successfully for 20 years. In 2014, an EPA recommended shut-down test was initiated to determine if the facility was continuing to add any significant benefit to the clean-up.

The programs currently in place include a Shut-down Test (lower aquifer) for the pump and treat system; upper aquifer compliance groundwater monitoring (includes 1-4,dioxane monitoring' and Minimal Functional Standards (MFS) monitoring of the upper aquifer); residential well monitoring (includes both upper and lower aquifers); supplemental sampling (includes both upper and lower aquifers); and landfill cover maintenance and monitoring. The groundwater monitoring programs and criteria are summarized below.

Current Monitoring Programs

Program	Aquifer	Parameters	Schedule
Shut-down Test	Lower	VOC's	Annual (Extraction wells Quarterly)
Upper Aquifer Compliance	Upper	VOC's	Annual (Extraction wells Quarterly)
1,4-Dioxane Sampling	Upper	1,4-Dioxane	Annual
MFS Monitoring	Upper	Cl/NH3/NO2/NH3/ SO4/Fe/Mn/Zn/TOC/COD	Annual
Residential Monitoring	Lower/ Upper	VOC's	Monthly/Quarterly/SemiAnnual/ Annual/BiAnnual
Supplemental Sampling	Lower/ Upper	VOC's	Every five years

Program Criteria

PROGRAM	CRITERIA	TCA	DCE	DCA	TCE	PCE	MC	1,4-Dioxane		Units
CONSENT DECREE	Performance	200	7	4050	5	0.7	2.5			ug/L
	Evaluation	200	7	4050	5	0.7	2.5	7		
SHUT-DOWN TEST	Action Level	130	4.55	2632	3.25	0.5	1.63			
	Evaluation	200	7	4050	5	0.7	2.5			
RESIDENTIAL										ug/L
Monthly sampling initiated, evaluated in 12 months	Action Level	130	4.55	2632	3.25	0.5	1.63			
Exeedance requires alternative drinking water source be supplied	MCL	200	7	4050	5	0.7	2.5			
		Cl	**Fe**	**Mn**	**Zn**	**TOC**	**COD**	**SO4**	**NO3**	
MFS	(mg/L)	250	0.3	0.05	5	NA	NA	250	10	mg/L

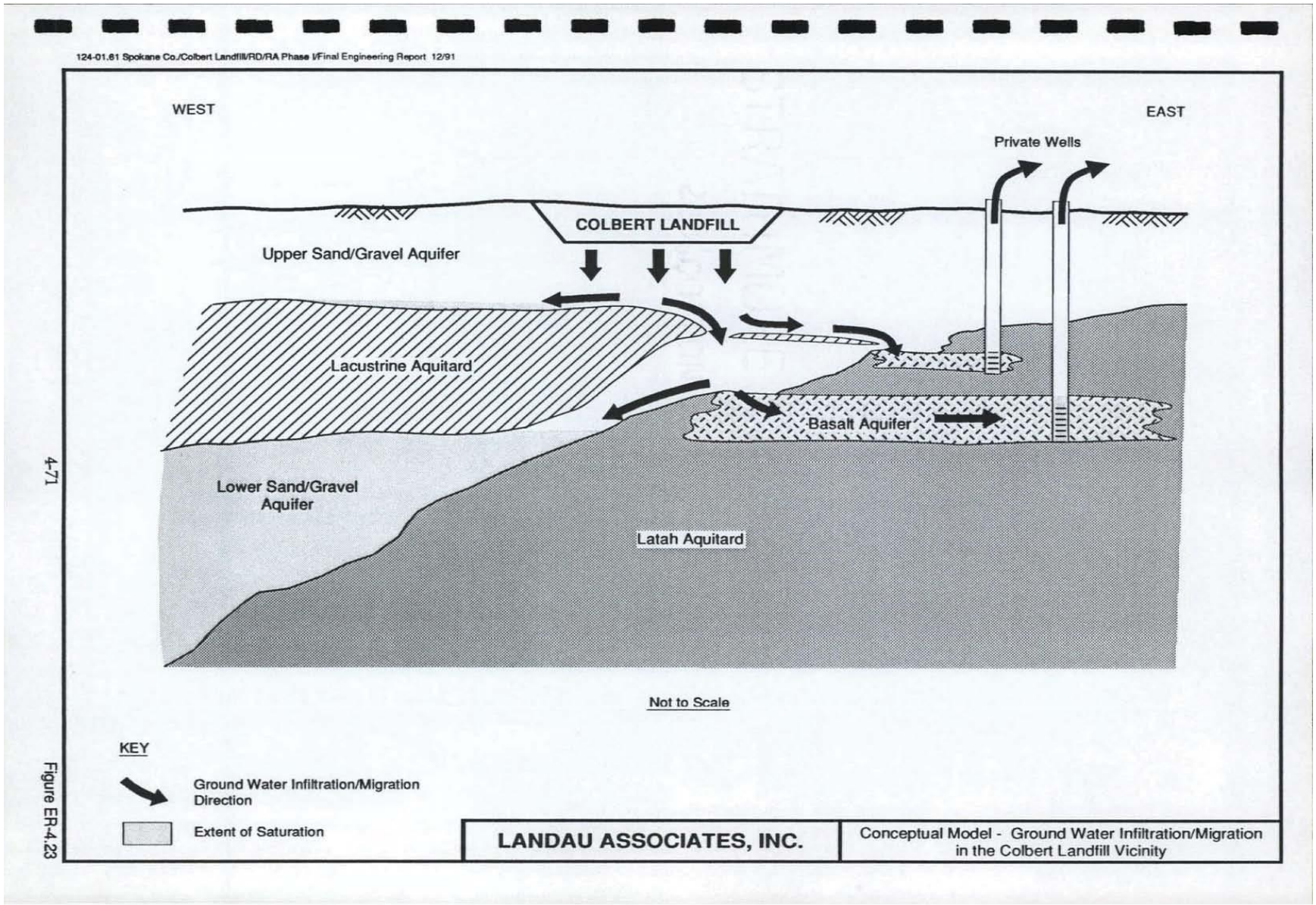
1.1 Geology/Hydrogeology

The geology beneath the Site consists of six vertically stratified and laterally discontinuous geologic units derived from glacial and fluvial material, modified by erosional (and possibly landslide) processes, overlaid on granitic bedrock. There are two primary aquifers that include the saturated portion of the Upper Sand and Gravel Unit and the saturated portion of the Lower Sand and Gravel Unit, which are separated by a Lacustrine Unit that serves as an aquitard. The Latah Formation serves as an aquitard that underlies the Lower Sand and Gravel Aquifer at most locations. A basalt unit forms a secondary aquifer interbedded in the Latah Aquitard and is referred to as the Basalt Aquifer. The Granite Unit is an aquitard that underlies the Latah Formation and serves as the lower boundary to the regional flow system. For more information, please refer to the Phase I Engineering Report (Landau Associates 1991).

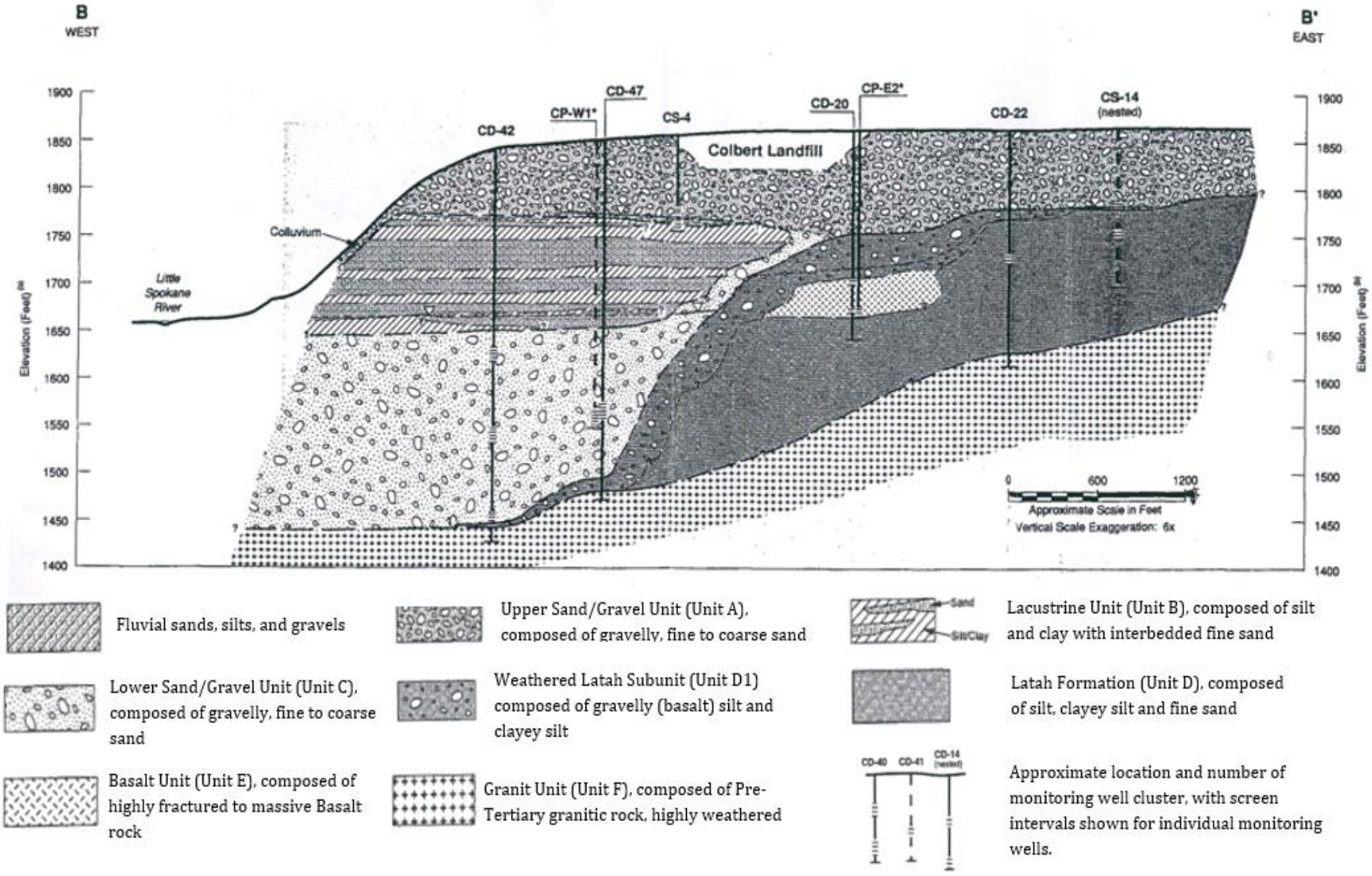
The Upper Sand and Gravel Unit aquifer (Upper Aquifer) is unconfined with a water table that lies approximately 90 ft below the ground surface. Groundwater flow in this aquifer is generally north to south, changing to the southeast approximately 1 mile south of the Site. The direction of flow appears to be influenced by the topography of the upper surface of the Lacustrine Aquitard (Landau Associates 1991).

The Lower Sand and Gravel Unit aquifer (Lower Aquifer) is confined to the west of the landfill and unconfined to the east of the landfill. To the west of the landfill, the Upper and Lower aquifers are separated by the Lacustrine unit, which causes the confined conditions in that area. Groundwater flow in the Lower Aquifer is predominantly toward the west with discharge to the Little Spokane River.

Colbert Landfill Hydrogeology/Groundwater Migration



Colbert Landfill Hydrogeology Overview



1.2 Shut-down Test-Lower Aquifer

A pump and treat system was successfully operated from 1994 through March 31, 2014 to prevent further spread of groundwater contamination emanating from the landfill. A shut-down test for the lower aquifer pump and treat system was deemed appropriate for the site after a Remedial System Evaluation (RSE) was performed as recommended in the 2009 Five Year Review (EPA). The RSE recommendation stated that with the extensive groundwater monitoring programs in place and with concentrations having decreased substantially after 20 years of operation, the current pump and treat system may not be adding significant benefit to the overall protectiveness of the remedy and that a shut-down test would help determine its efficacy. The shut-down test procedures are outlined in the *Final Work Plan, Groundwater Pump and Treat System Shut-down Test, Colbert Landfill CERCLA Site, Spokane County Utilities/ Landau Assoc. 2013*. See Section 2 of this report for more details. The upper aquifer monitoring wells are governed by the Consent Decree compliance, Post Closure (Minimal Functional Standards), and 1,4-dioxane sampling programs and are not included in the Shut-down test work plan. Shut-down testing results and information is presented in Section 2.0.

1.3 Upper Aquifer Monitoring

1.3.1 Compliance Monitoring (VOC's)

The compliance monitoring sampling program is outlined in the Consent Decree and performed according to the Colbert Landfill Operations and Maintenance manual *(Colbert Landfill Operations and Maintenance Manual, 1998*.). During implementation of the lower aquifer system Shut-down Test, the compliance monitoring will only apply to the upper aquifer. Per conditions set forth in the consent decree (Appendix B, page V-7), the south system extraction wells are not required to be in operation and have been on stand-by status since 2004, and therefore are included in the compliance monitoring program. Compliance monitoring results and information is presented in Section 3.2.

1.3.2 1, 4-Dioxane Sampling

During the 2005 (3rd) Five Year Site Review, EPA specified an additional constituent (1,4-Dioxane) for evaluation at the Colbert Landfill site. After extensive monitoring in both the upper and lower aquifers, it was determined that an ongoing monitoring program would apply to selected wells in the upper aquifer only. The selected upper aquifer well locations are sampled for 1,4-dioxane according to the *1,4-Dioxane Work Plan for the Colbert Landfill (December 2007)*. 1,4-Dioxane analytical results and information is presented in Section 3.3.

1.3.3 Minimal Functional Standards (MFS) Post Closure

The landfill was closed pursuant to requirements of the Minimal Functional Standards for Solid Waste Handling (MFS, WAC173-304). Lower aquifer locations, as outlined in the MFS Groundwater Monitoring Plan (Landau Assoc., 1996), require no additional monitoring after the 2 year monitoring period, which ended in January 1999. Monitoring for the upper aquifer continue according to the *Colbert Landfill Operations and Maintenance Manual, 1998*., and the *MFS Groundwater Monitoring Plan, 1996* . MFS analytical results and information is presented in Section 3.4.

1.4 Residential Well Monitoring

The Consent Decree specified that domestic wells within the vicinity of the landfill be monitored to protect human health. Domestic well locations and schedules for this program were selected by proximity to landfill contamination and are evaluated on a regular basis to accommodate any changes in groundwater contamination. This program includes well locations in both the upper and lower aquifers. Sampling for this program is done in accordance with the *Quality Assurance and Field Sampling Plan-Colbert Residential Well Sampling, 1991* and is governed by the Consent Decree. Residential program analytical results and information is presented in Section 4.0.

1.5 Supplemental Sampling

Supplemental sampling occurs every five years and is intended to collect additional data from monitoring and residential wells not regularly sampled. Although there are no criteria for monitoring or reporting associated with supplemental sampling, data collected helps provide a more accurate snapshot of groundwater flow and contamination throughout the area.

1.6 Landfill Operations and Maintenance

In 1997, the landfill closure construction (cover system and components) was completed as part of the MFS requirements. The landfill gas collection and treatment system is monitored and maintained on a regular basis as outlined in the *Operations and Maintenance Manual for Colbert Landfill Closure, CH2MHill, May 1997*. Landfill operations and maintenance information is presented in Section 6.0.

2.0 Shut-down Test

A shut-down test of the Colbert Landfill Groundwater Pump and Treat facility was initiated April 1, 2014 when all lower aquifer extraction wells were turned off and placed in standby mode. The shut-down test was deemed appropriate for the site after a Remedial System Evaluation (RSE) was performed as recommended in the 2009 Five Year Review (EPA). The shut-down test is performed according to the *Final Work Plan, Groundwater Pump and Treat System Shut-down Test, Colbert Landfill CERCLA Site, Spokane County Utilities/ Landau Assoc. 2013*.

2.1 Shut-down Testing Locations and Schedule

The lower aquifer wells selected as monitoring locations for the Colbert Landfill pump and treat system shut-down test include: the compliance monitoring well clusters (CD-41, CD-42, CD-43, CD-44, CD-45, and CD-48), monitoring well CD-49, and the lower aquifer extraction wells (CP-E1, CP-E2, CP-E3, CP-W1, CP-W2, and CP-W3). Locations are presented in Figure 2-1. Collection of groundwater samples (contaminant sampling) from the shut-down locations, along with the collection of water level measurements, was performed as outlined in Table 2-1.

2.2 Shut-down Test Monitoring

The lower aquifer extraction wells, the compliance monitoring well clusters (CD-41, CD-42, CD-43, CD-44, CD-45, and CD-48) and monitoring well CD-49 were sampled according to the *Colbert Landfill Operations and Maintenance Manual, 1998.* Field parameters were taken and VOC samples were collected. Cluster wells CD-42C1 and CD-48C3 had pump failures during our annual sampling event, and cluster well CD-48C2 was hit by a vehicle in the week of May 25th, 2020, and will need to be repaired. The County will replace all 3 pumps and repair CD-48C2 so that groundwater sample collection can occur in August 2020.

2.2.1 Groundwater Elevations

Groundwater elevations for the reporting period are shown in Table 2-2 and in Figure 2-2. Estimated groundwater contours and flow are shown in Figure 2-3 and Figure 2-4. Measurements were consistent and followed typical seasonal variation with levels slightly higher in the spring and slightly lower during the fall. Extraction well hydrographs show the increase in groundwater levels at the immediate vicinity of those wells in April 2014 when the system was shut down.

2.2.2 Field Parameters

Field parameters taken at the shut-down test locations are shown in Table 2-2. The highest conductivities were mostly seen in the east system extraction wells. Conductivity values in monitoring wells ranged from 310 to 1201 umhos/cm. Measurements of pH ranged from 6.79 to 8.04, with the lowest pH values generally found in the east system extraction wells.

2.2.3 Constituents of Concern (COC's)

Constituent of concern concentrations for Shut-down Test locations are presented in Table 2-4 and Table 2-5. COC Concentrations versus time graphs for Shut-down locations are presented in Figure 2-5 through Figure 2-12. Estimated COC plume boundaries and COC detections in the lower aquifer are presented in Figure 2-13 through Figure 2-23. All detected concentrations found in the shut-

down test compliance wells were well below any applicable criteria. Criteria are shown in Table 2-3.

The COC's found in the shut-down program criteria-dependent wells were low concentrations of TCA, DCA, and DCE. Analytical results from the shut-down program criteria-dependent wells are shown in Table 2-4. Time versus concentration plots are found in Figure 2-5 through Figure 2-8. Although the concentrations found in the wells were far below any criteria, monitoring wells CD-49 and CD-43C1 were kept on a quarterly sampling schedule to better evaluate the increasing TCA concentrations, which is currently on a consistent decreasing trend.

Lower aquifer extraction wells are not criteria dependent locations, and therefore actions during the shut-down test are not governed by COC concentrations in these wells. Analytical results from the extraction wells are shown in Table 2-5. Time versus concentration plots are found in Figure 2-9 through Figure 2-12. In general, concentrations of COC's have remained relatively stable in the east system wells, with the exception of CP-E2, in which most COC concentrations are on a slow increasing trend. Although there were significant increases in concentrations for TCA, TCE, and DCA at CP-W3 since the shutdown that peaked around 2017, concentrations appear to be on a decreasing trend or stabilizing at lower concentrations. Concentrations in CP-W2, after noticeably decreasing three months after the wells were inactivated, have remained relatively low.

2.3 Data Evaluation

Data indicates a slight shift in plume concentrations toward the western edge of landfill, evident by the emerging concentrations of TCA and DCE found in CD-49, increasing concentrations for TCA in CD-43C1, and increasing concentrations (rebound) found in CP-W3. Supplemental sampling wells in the center of the landfill showed significant TCA concentrations and indicated a more connective plume than historically mapped.

2.4 Program Changes or Modifications

Criteria Exceedances in the lower aquifer are presented in Table 2-6 (Consent Decree criteria) and Table 2-7 (updated criteria values from the Colbert Landfill 6th Five-year Review, which includes an increase for Trichloroethene [PCE] from the performance standard in the ROD [0.7 µg/L] to the current MCL [5µg/L], and a decrease for 1,1-Dichloroethane [1,1-DCA] to the regional screening level [RSL] of 2.6 µg/L). No criteria were exceeded during the reporting period, except for several extraction wells, which are not criteria dependent.

As stated in the work plan, sampling at the lower aquifer compliance monitoring wells is now on an annual schedule and will be sampled again in April 2021. The exception to this is monitoring well CD-49 and cluster well CD-43C1. Quarterly sampling will continue at CD-49 and CD-43C1 to monitor the increasing trend in concentrations. Per the EPA's Optimization Report (2017) recommendations, the sampling frequency at well clusters CD-43 and CD-42 will be re-evaluated. Since concentrations in the vicinity of CD-40 and CP-W3 appear to be stable or on a decreasing trend, the sampling plan to monitor the area around CD-49/CP-W3 will continue its current course until any significant changes occur. Quarterly sampling will continue at the extraction wells, as running the wells periodically will assist with preventive maintenance and provide indicators for any possible changes in COC concentrations near the landfill boundaries.

2.5 Cost Savings

Typical electrical costs associated with operating the pump and treat system for the lower aquifer on a continual basis for a period of one year were approximately $59,000. From May 2019 through April 2020 the cost for electricity at the facility during the fourth year of the shut-down test was $16,737. Increases in lab costs were minimal when compared to the savings in electricity.

Typical Annual Electrical Costs		**$60,000**
Electrical Costs for Fourth Year of Shut-down Test		-$16,329
Estimated Total Cost Savings		$43,671

Figure 2-1 Shut-down Test Locations

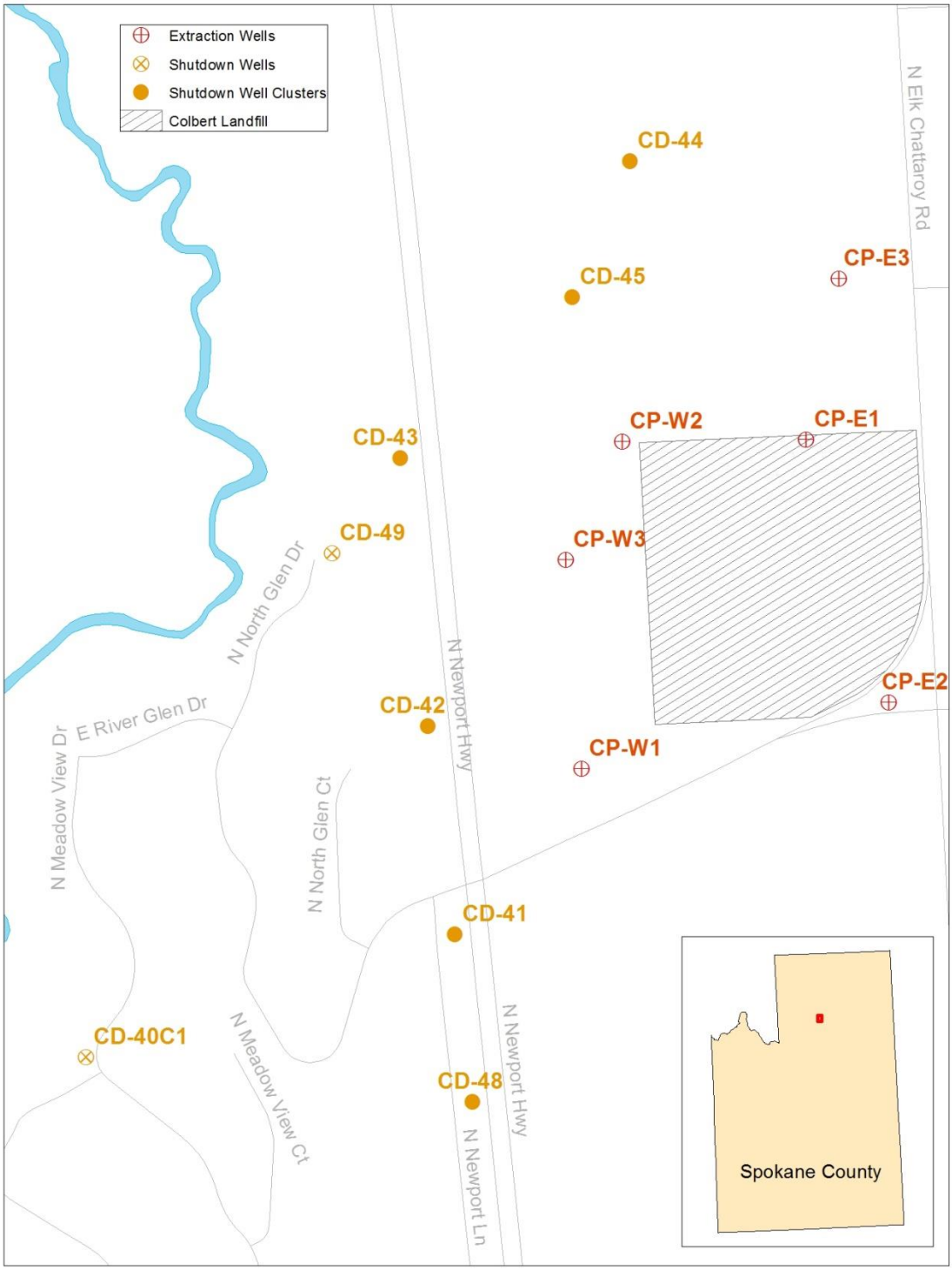
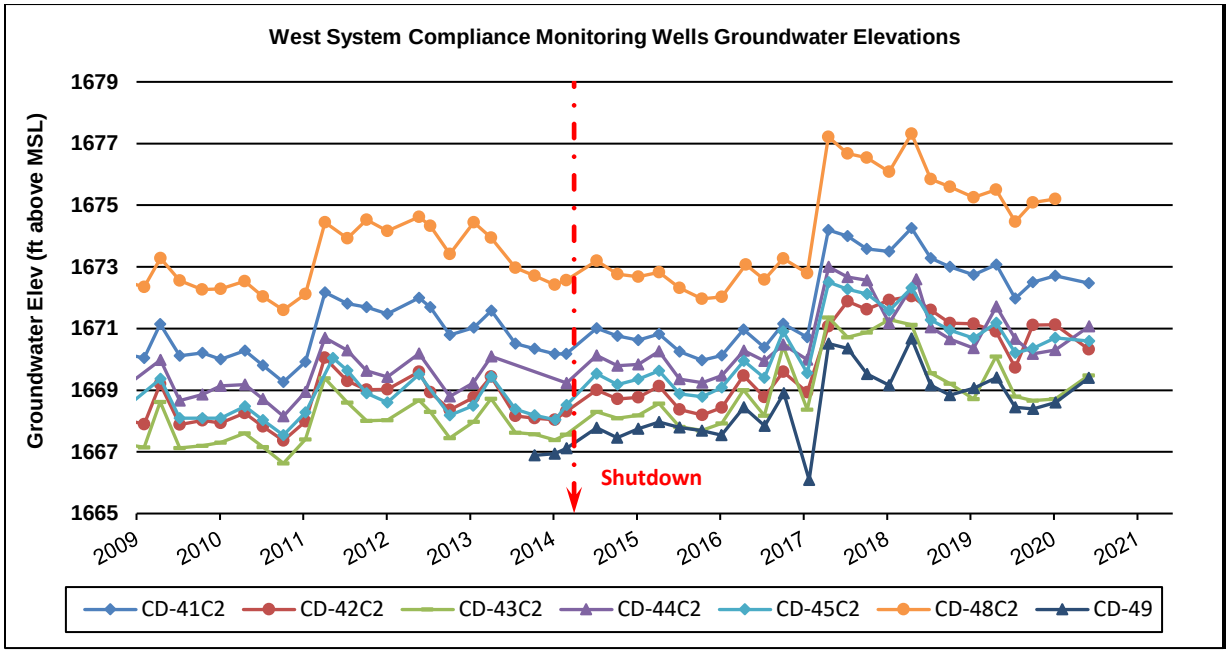


Table 2-1 Colbert Landfill Shut-down Test Sampling Schedule (May 2019 - June 2020)

System	Well ID	Monitoring Frequency		Shut-down Criteria Applies?
		Water Levels	Sampling	
West	CD-40C1	Quarterly	Annual	Yes
	CD-41C2	Quarterly	Annual	
	CD-41C3	Quarterly	Annual	
	CD-42C1	Quarterly	Annual	Yes
	CD-42C2	Quarterly	Annual	
	CD-42C3	Quarterly	Annual	
	CD-43C1	Quarterly	Quarterly	Yes
	CD-43C2	Quarterly	Annual	
	CD-43C3	Quarterly	Annual	
	CD-44C1	Quarterly	Annual	Yes
	CD-44C2	Quarterly	Annual	
	CD-44C3	Quarterly	Annual	
	CD-45C1	Quarterly	Annual	Yes
	CD-45C2	Quarterly	Annual	
	CD-45C3	Quarterly	Annual	
	CD-48C1	Quarterly	Annual	Yes
	CD-48C2	Quarterly	Annual	
	CD-48C3	Quarterly	Annual	
	CD-49	Quarterly	Quarterly	Yes
	CP-W1	Quarterly	Quarterly	No
	CP-W2	Quarterly	Quarterly	
	CP-W3	Quarterly	Quarterly	
East	CP-E1	Quarterly	Quarterly	No
	CP-E2	Quarterly	Quarterly	
	CP-E3	Quarterly	Quarterly	

Changes to the program are highlighted in **RED**

Figure 2-2 Lower Aquifer Groundwater Elevations



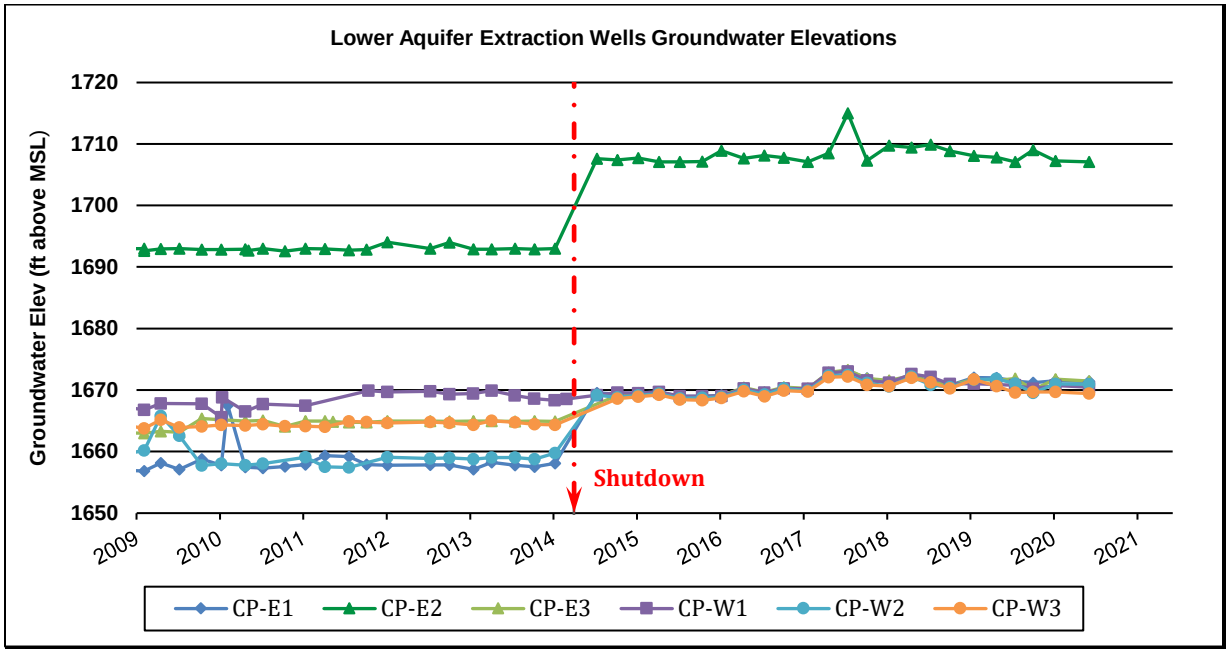


Figure 2-3 Lower Aquifer Groundwater Contours

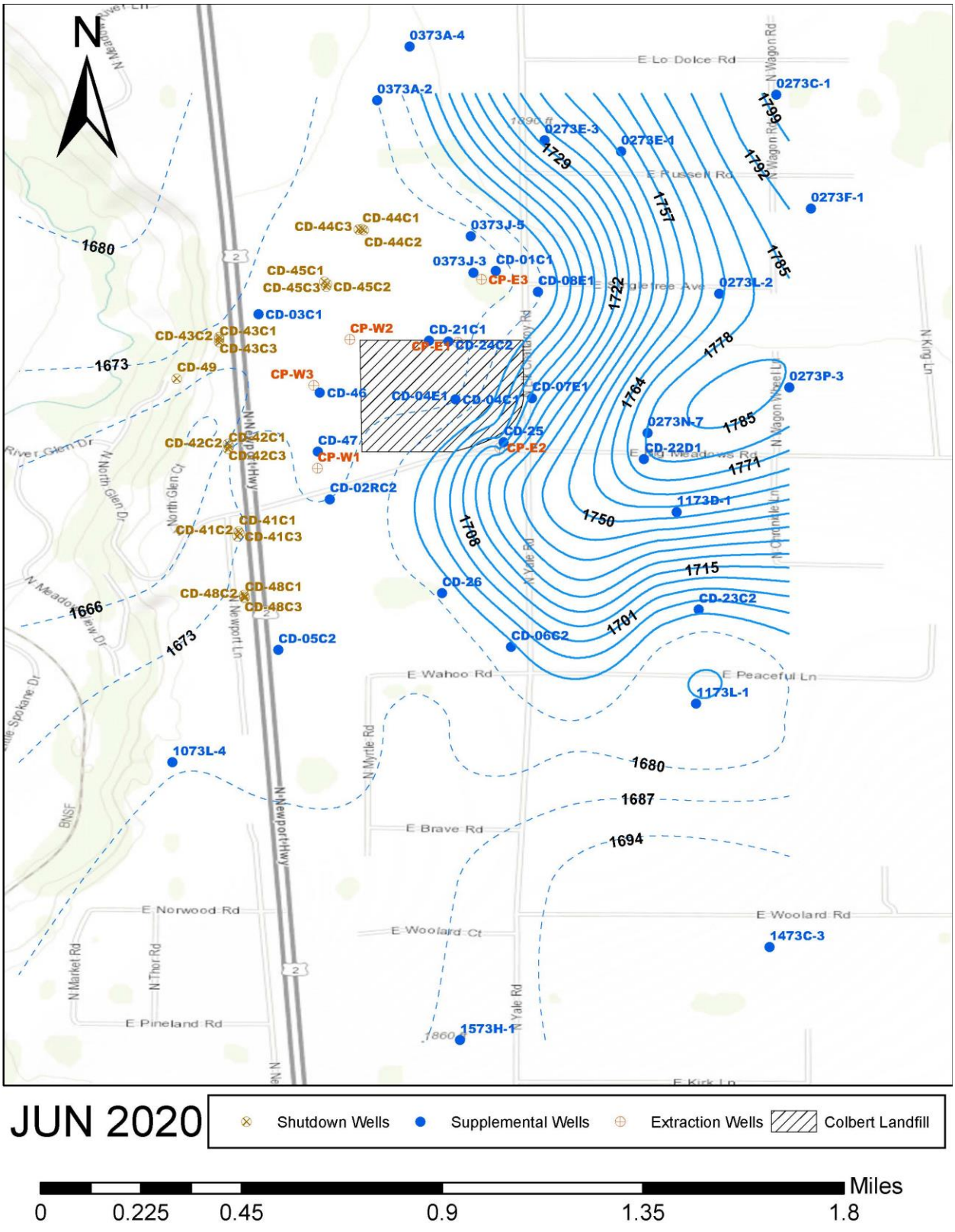


Figure 2-4 Lower Aquifer Groundwater Elevation Map

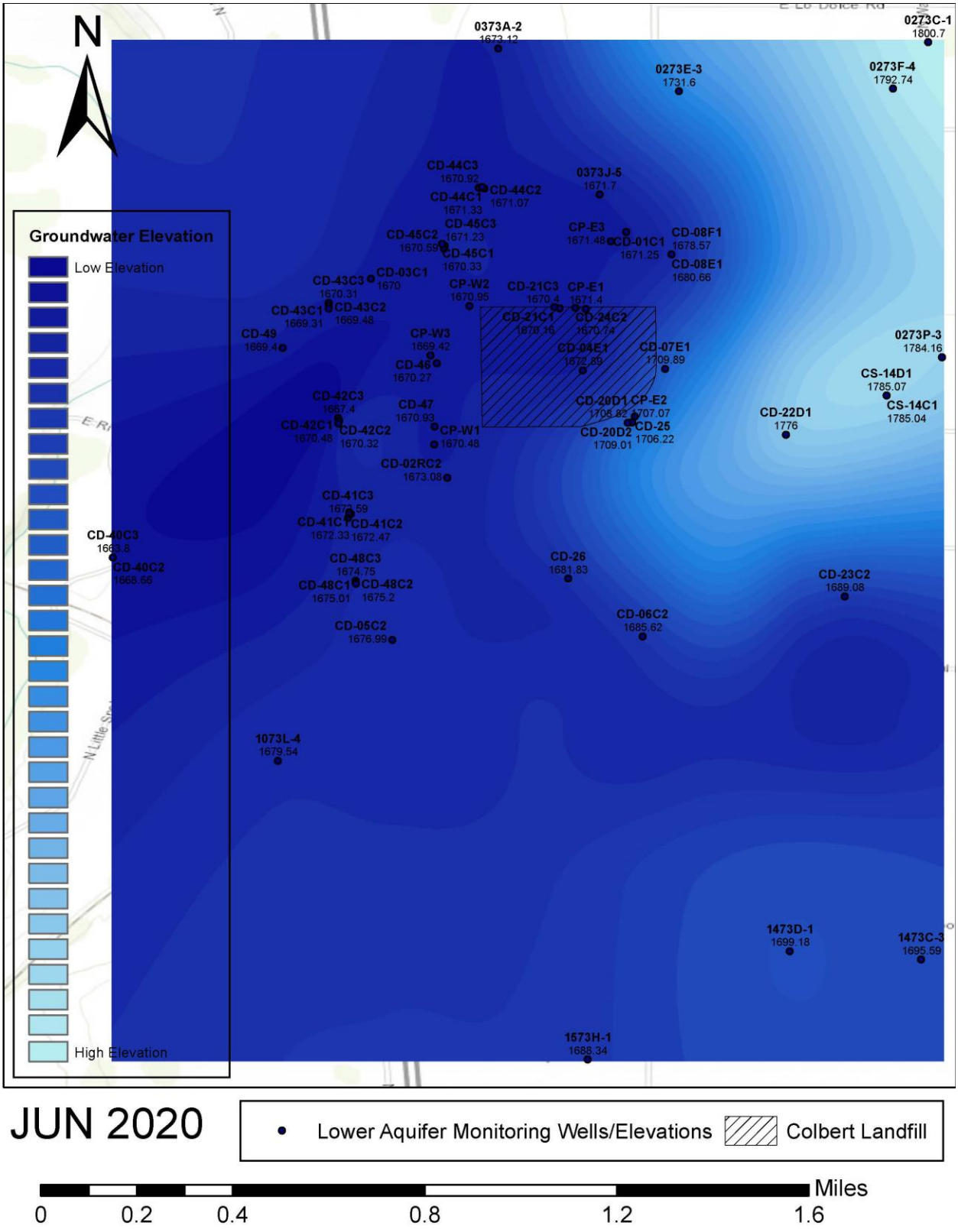


Table 2-2 Shut-down Test Location Field Parameters

StationID	SampleDate	WtrElev	Temp	PH	Conductivity	Turbidity	Aquifer	Program
CD-41C1	6/2/2020	1672.33	12.6	7.7	417	0.91	lower	SD
CD-41C2	6/2/2020	1672.47	12.3	7.8	454	0.48	lower	SD
CD-41C3	6/2/2020	1672.59	12.5	7.66	470	0.38	lower	SD
CD-42C2	6/2/2020	1670.32	13	7.64	500	0.32	lower	SD
CD-42C3	6/2/2020	1667.4	13.2	7.71	426	0.79	lower	SD
CD-43C1	7/16/2019	1668.66	10.2	7.93	474	0.13	lower	SD
CD-43C1	10/2/2019	1668.58	10.1	8.03	484	0.19	lower	SD
CD-43C1	1/8/2020	1668.82	10	8.04	475	0.11	lower	SD
CD-43C1	6/2/2020	1669.31	11.3	7.64	516	0.31	lower	SD
CD-43C2	6/2/2020	1669.48	11.1	7.73	310	0.32	lower	SD
CD-43C3	6/2/2020	1670.31	11.3	7.61	318	0.48	lower	SD
CD-44C1	6/3/2020	1671.33	16.1	7.37	461	16.1	lower	SD
CD-44C2	6/3/2020	1671.07	12.1	7.37	451	0.17	lower	SD
CD-44C3	6/3/2020	1670.92	13.7	7.44	451	0.49	lower	SD
CD-45C1	6/3/2020	1670.33	12.5	7.41	498	0.19	lower	SD
CD-45C2	6/3/2020	1670.59	11.1	7.49	460	0.17	lower	SD
CD-45C3	6/3/2020	1671.23	11.4	7.87	377	0.17	lower	SD
CD-48C1	6/2/2020	1675.01	12.5	7.68	524	0.079	lower	SD
CD-48C3	5/21/2019	1674.88	11.8	7.34	513	0.45	lower	SD
CD-49	7/16/2019	1668.45	12.7	7.84	451	0.13	lower	SD
CD-49	10/2/2019	1668.39	12.1	7.9	470	0.18	lower	SD
CD-49	1/8/2020	1668.6	12.1	7.94	488	0.12	lower	SD
CD-49	6/2/2020	1669.4	13.7	7.67	468	0.79	lower	SD
CP-E1	7/16/2019	1671.48	12.9	6.86	995	1.13	lower	SD
CP-E1	10/2/2019	1671.21	13	6.84	993	1.2	lower	SD
CP-E1	1/8/2020	1671.52	12	6.8	1090	1.11	lower	SD
CP-E1	6/3/2020	1671.4	12.4	6.79	1086	1.09	lower	SD
CP-E2	7/16/2019	1707.08	12.9	6.95	1006	1.18	lower	SD
CP-E2	10/2/2019	1708.98	12.9	7.02	992	1.11	lower	SD
CP-E2	1/8/2020	1707.22	12.8	6.97	1201	1.19	lower	SD
CP-E2	6/3/2020	1707.07	12.6	7.01	1194	1.21	lower	SD
CP-E3	7/16/2019	1671.88	12.3	7.01	812	0.69	lower	SD
CP-E3	10/2/2019	1670.08	13.2	6.98	817	0.61	lower	SD
CP-E3	1/8/2020	1671.76	11.4	7.04	942	1.79	lower	SD
CP-E3	6/3/2020	1671.48	12.2	7.09	947	1.68	lower	SD
CP-W1	7/16/2019	1670.77	11.9	7.21	487	0.78	lower	SD
CP-W1	10/2/2019	1670.23	12.8	7.23	484	0.71	lower	SD
CP-W1	1/8/2020	1670.74	10.6	7.61	522	0.66	lower	SD
CP-W1	6/3/2020	1670.48	12.6	7.59	530	0.66	lower	SD
CP-W2	7/16/2019	1671.05	10.5	7.8	555	0.21	lower	SD
CP-W2	10/2/2019	1669.54	12.9	7.71	556	0.18	lower	SD
CP-W2	1/8/2020	1671.01	10.4	7.62	593	0.81	lower	SD
CP-W2	6/3/2020	1670.95	12.5	7.68	591	0.91	lower	SD
CP-W3	7/16/2019	1669.57	11.4	7.42	586	1.01	lower	SD
CP-W3	10/2/2019	1669.71	12.9	7.5	585	1.04	lower	SD
CP-W3	1/8/2020	1669.67	10.8	7.41	663	0.6	lower	SD
CP-W3	6/3/2020	1669.42	12.5	7.39	662	0.56	lower	SD

Temp=degrees C; Conductivity=umhos/cm; Turbidity= NTU

Table 2-3 Colbert Landfill Shut-down Test Criteria

Groundwater monitoring associated with the P&T system currently includes water level measurements and groundwater quality monitoring at extraction and compliance monitoring wells in accordance with the Quality Assurance Project Plan (QAPP; Landau Associates 1992b) to meet the criteria established in the Consent Decree. The purpose of this monitoring is to evaluate the performance of the P&T system in preventing the spread of contaminated groundwater downgradient from the capture zone for the West System. Compliance monitoring wells are currently sampled on an annual basis and the extraction wells are sampled on a quarterly basis. The consent decree evaluation criteria and action level criteria for the shut-down test are presented below:

SHUT-DOWN TEST CRITERIA		
COC	**ACTION LEVEL CRITERIA (ug/L)**	**CONSENT DECREE EVALUATION CRITERIA (ug/L)**
TCA	**130**	**200**
DCA	**2632**	**4050**
DCE	**4.55**	**7**
MC	**1.6**	**2.5**
PCE	**0.5**	**0.7**
TCE	**3.25**	**5**

Table 2-4 Shut-down Test Compliance Well Analytical Results (reported in ug/L)

StationID	SampleDate	DCA	DCE	MC	PCE	TCA	TCE
CD-40C1	4/24/2019	**1.48**	**1.06**	<0.5	<0.5	**1.33**	<0.5
CD-40C1	6/3/2020	**1.74**	**1.02**	<0.5	<0.5	**1.45**	<0.5
CD-41C1	4/24/2019	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CD-41C1	6/2/2020	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CD-41C2	4/24/2019	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CD-41C2	6/2/2020	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CD-41C3	4/24/2019	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CD-41C3	6/2/2020	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CD-42C1	4/23/2019	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CD-42C2	4/23/2019	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CD-42C2	6/2/2020	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CD-42C3	4/23/2019	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CD-42C3	6/2/2020	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CD-43C1	4/23/2019	<0.5	<0.5	<0.5	<0.5	**4.19**	<0.5
CD-43C1	7/16/2019	<0.5	<0.5	<0.5	<0.5	**5.28**	<0.5
CD-43C1	10/2/2019	<0.5	<0.5	<0.5	<0.5	**6.98**	<0.5
CD-43C1	1/8/2020	<0.5	<0.5	<0.5	<0.5	**5.37**	<0.5
CD-43C1	6/2/2020	<0.5	<0.5	<0.5	<0.5	**3.93**	<0.5
CD-43C2	4/23/2019	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CD-43C2	6/2/2020	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CD-43C3	4/23/2019	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CD-43C3	6/2/2020	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CD-44C1	4/24/2019	<0.5	<0.5	<0.5	<0.5	**2.65**	<0.5
CD-44C1	6/3/2020	<0.5	<0.5	<0.5	<0.5	**2.27**	<0.5
CD-44C2	4/24/2019	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CD-44C2	6/3/2020	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CD-44C3	4/24/2019	<0.5	<0.5	<0.5	<0.5	**0.9**	<0.5
CD-44C3	6/3/2020	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CD-45C1	4/24/2019	<0.5	<0.5	<0.5	<0.5	**1.46**	<0.5
CD-45C1	6/3/2020	<0.5	<0.5	<0.5	<0.5	**1.56**	<0.5
CD-45C2	4/24/2019	<0.5	<0.5	<0.5	<0.5	**0.76**	<0.5
CD-45C2	6/3/2020	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CD-45C3	4/24/2019	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CD-45C3	6/3/2020	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CD-48C1	4/23/2019	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CD-48C1	6/2/2020	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CD-48C2	4/23/2019	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CD-48C3	5/21/2019	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CD-49	4/25/2019	<0.5	**1.57**	<0.5	<0.5	**1.5**	<0.5
CD-49	7/16/2019	<0.5	**1.42**	<0.5	<0.5	**1.42**	<0.5
CD-49	10/2/2019	<0.5	**1.71**	<0.5	<0.5	**1.73**	<0.5
CD-49	1/8/2020	<0.5	**1.65**	<0.5	<0.5	**1.36**	<0.5
CD-49	6/2/2020	<0.5	**1.66**	<0.5	<0.5	**1.1**	<0.5

***Bold** indicates a value greater than non-detection.

Table 2-5 Lower Aquifer Extraction Well Analytical Results (reported in ug/L)

StationID	SampleDate	DCA	DCE	MC	PCE	TCA	TCE
CP-E1	4/25/2019	**8.9**	**16.6**	<0.5	**2.28**	**9.4**	**8.97**
CP-E1	7/16/2019	**9.13**	**16.4**	<0.5	**2.48**	**8.46**	**8.8**
CP-E1	10/2/2019	**9.2**	**20.2**	<0.5	**1.36**	**11.5**	**8.17**
CP-E1	1/8/2020	**8.5**	**19.8**	<0.5	**2.82**	**8.54**	**8.81**
CP-E1	6/3/2020	**9.49**	**20.4**	<0.5	**1.32**	**8.48**	**8.12**
CP-E2	4/25/2019	**42.5**	**143**	<0.5	**0.83**	**54**	**133**
CP-E2	7/16/2019	**34.3**	**130**	<0.5	**0.73**	**57.4**	**141**
CP-E2	10/2/2019	**37.1**	**121**	<0.5	**0.9**	**55.7**	**167**
CP-E2	1/8/2020	**36.9**	**141**	<0.5	**1.08**	**47.9**	**147**
CP-E2	6/3/2020	**41.4**	**138**	<0.5	**1**	**46.3**	**181**
CP-E3	4/25/2019	**2.12**	**8.1**	<0.5	<0.5	**6.23**	**2.39**
CP-E3	7/16/2019	**2.28**	**10.4**	<0.5	<0.5	**8.35**	**2.53**
CP-E3	10/2/2019	**2.33**	**7.85**	<0.5	<0.5	**6.94**	**2.59**
CP-E3	1/8/2020	**2.29**	**9.66**	<0.5	<0.5	**6.84**	**2.04**
CP-E3	6/3/2020	**2.61**	**7.95**	<0.5	<0.5	**4.91**	**2.55**
CP-S1	4/25/2019	**1.53**	<0.5	<0.5	<0.5	**0.82**	**1.42**
CP-S1	7/16/2019	**0.77**	<0.5	<0.5	<0.5	<0.5	**1.16**
CP-S1	10/2/2019	**0.91**	<0.5	<0.5	<0.5	**0.7**	**1.42**
CP-S1	1/8/2020	**1.04**	<0.5	<0.5	<0.5	**0.7**	**1.23**
CP-S1	6/3/2020	**0.74**	<0.5	<0.5	<0.5	**0.55**	**1.26**
CP-S4	4/25/2019	**1.36**	<0.5	<0.5	<0.5	**0.61**	**1.8**
CP-S4	7/16/2019	**1.54**	<0.5	<0.5	<0.5	**0.55**	**1.74**
CP-S4	10/2/2019	**2.09**	<0.5	<0.5	<0.5	**0.71**	**1.87**
CP-S4	1/8/2020	**2.56**	**0.51**	<0.5	**0.57**	**0.8**	**2.05**
CP-S4	6/3/2020	**2.61**	<0.5	<0.5	**0.6**	**0.7**	**1.88**
CP-S5	4/25/2019	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CP-S5	7/16/2019	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CP-S5	10/2/2019	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CP-S5	1/8/2020	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CP-S5	6/3/2020	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CP-S6	4/25/2019	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CP-S6	7/16/2019	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CP-S6	10/2/2019	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CP-S6	1/8/2020	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CP-S6	6/3/2020	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CP-W1	4/24/2019	<0.5	**2.63**	<0.5	<0.5	**4.19**	<0.5
CP-W1	7/16/2019	<0.5	**2.68**	<0.5	<0.5	**3.68**	<0.5
CP-W1	10/2/2019	<0.5	**2.87**	<0.5	<0.5	**3.66**	<0.5
CP-W1	1/8/2020	<0.5	**2.82**	<0.5	<0.5	**3.07**	<0.5
CP-W1	6/3/2020	<0.5	**3.13**	<0.5	<0.5	**2.58**	<0.5
CP-W2	4/24/2019	**1.36**	**1.31**	<0.5	<0.5	**15.3**	<0.5
CP-W2	7/16/2019	**0.98**	**0.83**	<0.5	<0.5	**14.2**	<0.5
CP-W2	10/2/2019	**1.32**	**1.06**	<0.5	<0.5	**16.2**	<0.5
CP-W2	1/8/2020	**1.39**	**1.43**	<0.5	<0.5	**14.9**	<0.5
CP-W2	6/3/2020	**1.86**	**1.94**	<0.5	<0.5	**14.9**	<0.5
CP-W3	4/25/2019	**5.58**	**17.7**	<0.5	<0.5	**36.2**	**25.4**
CP-W3	7/16/2019	**4.99**	**17.3**	<0.5	<0.5	**36.8**	**27.4**
CP-W3	10/2/2019	**5.51**	**16.2**	<0.5	<0.5	**43.6**	**24.8**
CP-W3	1/8/2020	**6.07**	**24.2**	<0.5	<0.5	**37.2**	**27**
CP-W3	6/3/2020	**6.96**	**19.8**	<0.5	<0.5	**31.3**	**28.6**

***Bold** indicates a value greater than non-detection.

Table 2-6 Shutdown Program Criteria Exceedances (Consent Decree criteria)

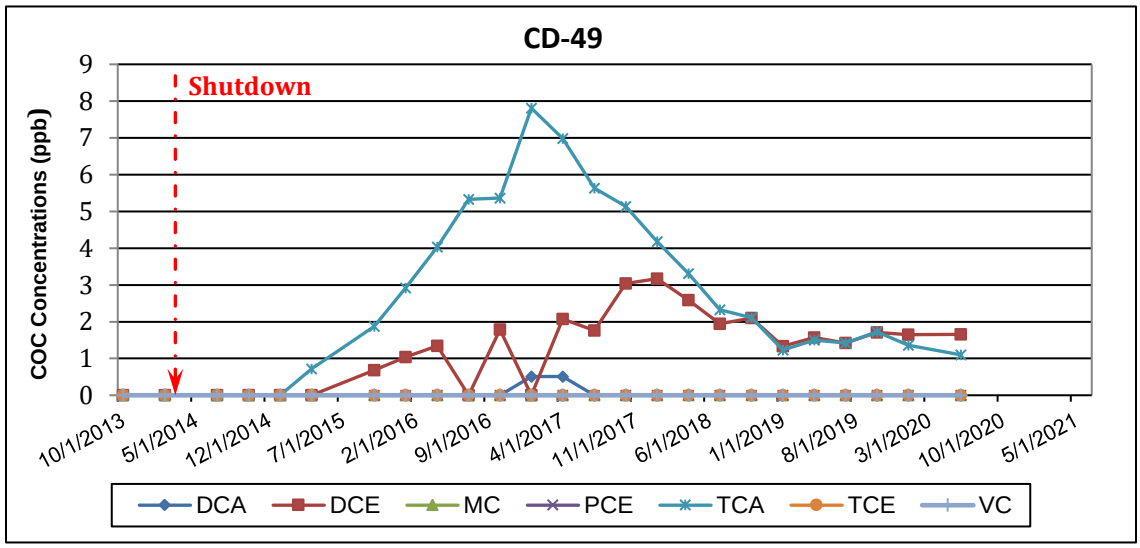
StationID	SampleDate	Aquifer	Program	Analyte	Result	Units	Flag
CP-E1	7/16/2019	lower	SD	1,1-Dichloroethene	16.4	ug/L	Exceedance
CP-E1	10/2/2019	lower	SD	1,1-Dichloroethene	20.2	ug/L	Exceedance
CP-E1	1/8/2020	lower	SD	1,1-Dichloroethene	19.8	ug/L	Exceedance
CP-E1	1/8/2020	lower	SD	1,1-Dichloroethene	16.8	ug/L	Exceedance
CP-E1	6/3/2020	lower	SD	1,1-Dichloroethene	20.4	ug/L	Exceedance
CP-E1	7/16/2019	lower	SD	Tetrachloroethene	2.48	ug/L	Exceedance
CP-E1	10/2/2019	lower	SD	Tetrachloroethene	1.36	ug/L	Exceedance
CP-E1	1/8/2020	lower	SD	Tetrachloroethene	2.82	ug/L	Exceedance
CP-E1	1/8/2020	lower	SD	Tetrachloroethene	2.8	ug/L	Exceedance
CP-E1	6/3/2020	lower	SD	Tetrachloroethene	1.32	ug/L	Exceedance
CP-E1	7/16/2019	lower	SD	Trichloroethene	8.8	ug/L	Exceedance
CP-E1	10/2/2019	lower	SD	Trichloroethene	8.17	ug/L	Exceedance
CP-E1	1/8/2020	lower	SD	Trichloroethene	8.45	ug/L	Exceedance
CP-E1	1/8/2020	lower	SD	Trichloroethene	8.81	ug/L	Exceedance
CP-E1	6/3/2020	lower	SD	Trichloroethene	8.12	ug/L	Exceedance
CP-E2	7/16/2019	lower	SD	1,1-Dichloroethene	130	ug/L	Exceedance
CP-E2	10/2/2019	lower	SD	1,1-Dichloroethene	121	ug/L	Exceedance
CP-E2	1/8/2020	lower	SD	1,1-Dichloroethene	141	ug/L	Exceedance
CP-E2	6/3/2020	lower	SD	1,1-Dichloroethene	138	ug/L	Exceedance
CP-E2	7/16/2019	lower	SD	Tetrachloroethene	0.73	ug/L	Exceedance
CP-E2	10/2/2019	lower	SD	Tetrachloroethene	0.9	ug/L	Exceedance
CP-E2	1/8/2020	lower	SD	Tetrachloroethene	1.08	ug/L	Exceedance
CP-E2	6/3/2020	lower	SD	Tetrachloroethene	1	ug/L	Exceedance
CP-E2	7/16/2019	lower	SD	Trichloroethene	141	ug/L	Exceedance
CP-E2	10/2/2019	lower	SD	Trichloroethene	167	ug/L	Exceedance
CP-E2	1/8/2020	lower	SD	Trichloroethene	147	ug/L	Exceedance
CP-E2	6/3/2020	lower	SD	Trichloroethene	181	ug/L	Exceedance
CP-E3	7/16/2019	lower	SD	1,1-Dichloroethene	10.4	ug/L	Exceedance
CP-E3	10/2/2019	lower	SD	1,1-Dichloroethene	7.85	ug/L	Exceedance
CP-E3	1/8/2020	lower	SD	1,1-Dichloroethene	9.66	ug/L	Exceedance
CP-E3	6/3/2020	lower	SD	1,1-Dichloroethene	7.95	ug/L	Exceedance
CP-W3	7/16/2019	lower	SD	1,1-Dichloroethene	17.3	ug/L	Exceedance
CP-W3	10/2/2019	lower	SD	1,1-Dichloroethene	16.2	ug/L	Exceedance
CP-W3	1/8/2020	lower	SD	1,1-Dichloroethene	24.2	ug/L	Exceedance
CP-W3	6/3/2020	lower	SD	1,1-Dichloroethene	19.8	ug/L	Exceedance
CP-W3	7/16/2019	lower	SD	Trichloroethene	27.4	ug/L	Exceedance
CP-W3	10/2/2019	lower	SD	Trichloroethene	24.8	ug/L	Exceedance
CP-W3	1/8/2020	lower	SD	Trichloroethene	27	ug/L	Exceedance
CP-W3	6/3/2020	lower	SD	Trichloroethene	28.6	ug/L	Exceedance

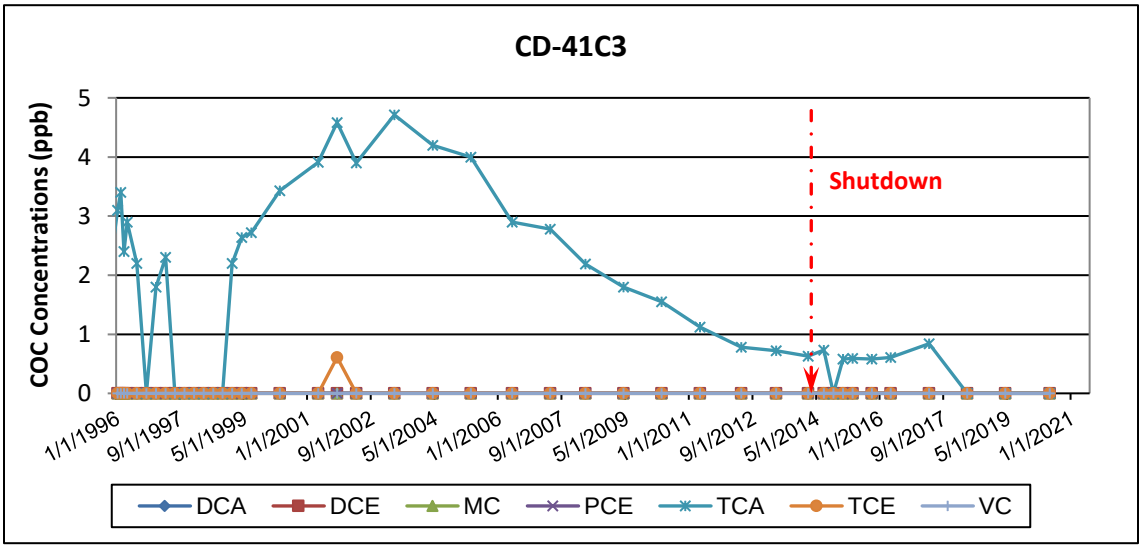
Table 2-7 Shutdown Program Criteria Exceedances (*updated criteria values)

*Increase for Trichloroethene (PCE) from the performance standard in the ROD (0.7 µg/L) to the current MCL (5µg/L), and a decrease for 1,1-Dichloroethane (1,1-DCA) to the regional screening level (RSL) of 2.6 µg/L.

StationID	SampleDate	Aquifer	Program	Analyte	Result	Units	Flag
CP-E1	7/16/2019	lower	SD	1,1-Dichloroethane	9.13	ug/L	Exceedance
CP-E1	10/2/2019	lower	SD	1,1-Dichloroethane	9.2	ug/L	Exceedance
CP-E1	1/8/2020	lower	SD	1,1-Dichloroethane	8.5	ug/L	Exceedance
CP-E1	1/8/2020	lower	SD	1,1-Dichloroethane	8.41	ug/L	Exceedance
CP-E1	6/3/2020	lower	SD	1,1-Dichloroethane	9.49	ug/L	Exceedance
CP-E1	7/16/2019	lower	SD	1,1-Dichloroethene	16.4	ug/L	Exceedance
CP-E1	10/2/2019	lower	SD	1,1-Dichloroethene	20.2	ug/L	Exceedance
CP-E1	1/8/2020	lower	SD	1,1-Dichloroethene	19.8	ug/L	Exceedance
CP-E1	1/8/2020	lower	SD	1,1-Dichloroethene	16.8	ug/L	Exceedance
CP-E1	6/3/2020	lower	SD	1,1-Dichloroethene	20.4	ug/L	Exceedance
CP-E1	7/16/2019	lower	SD	Trichloroethene	8.8	ug/L	Exceedance
CP-E1	10/2/2019	lower	SD	Trichloroethene	8.17	ug/L	Exceedance
CP-E1	1/8/2020	lower	SD	Trichloroethene	8.45	ug/L	Exceedance
CP-E1	1/8/2020	lower	SD	Trichloroethene	8.81	ug/L	Exceedance
CP-E1	6/3/2020	lower	SD	Trichloroethene	8.12	ug/L	Exceedance
CP-E2	7/16/2019	lower	SD	1,1-Dichloroethane	34.3	ug/L	Exceedance
CP-E2	10/2/2019	lower	SD	1,1-Dichloroethane	37.1	ug/L	Exceedance
CP-E2	1/8/2020	lower	SD	1,1-Dichloroethane	36.9	ug/L	Exceedance
CP-E2	6/3/2020	lower	SD	1,1-Dichloroethane	41.4	ug/L	Exceedance
CP-E2	7/16/2019	lower	SD	1,1-Dichloroethene	130	ug/L	Exceedance
CP-E2	10/2/2019	lower	SD	1,1-Dichloroethene	121	ug/L	Exceedance
CP-E2	1/8/2020	lower	SD	1,1-Dichloroethene	141	ug/L	Exceedance
CP-E2	6/3/2020	lower	SD	1,1-Dichloroethene	138	ug/L	Exceedance
CP-E2	7/16/2019	lower	SD	Trichloroethene	141	ug/L	Exceedance
CP-E2	10/2/2019	lower	SD	Trichloroethene	167	ug/L	Exceedance
CP-E2	1/8/2020	lower	SD	Trichloroethene	147	ug/L	Exceedance
CP-E2	6/3/2020	lower	SD	Trichloroethene	181	ug/L	Exceedance
CP-E3	6/3/2020	lower	SD	1,1-Dichloroethane	2.61	ug/L	Exceedance
CP-E3	7/16/2019	lower	SD	1,1-Dichloroethene	10.4	ug/L	Exceedance
CP-E3	10/2/2019	lower	SD	1,1-Dichloroethene	7.85	ug/L	Exceedance
CP-E3	1/8/2020	lower	SD	1,1-Dichloroethene	9.66	ug/L	Exceedance
CP-E3	6/3/2020	lower	SD	1,1-Dichloroethene	7.95	ug/L	Exceedance
CP-W3	7/16/2019	lower	SD	1,1-Dichloroethane	4.99	ug/L	Exceedance
CP-W3	10/2/2019	lower	SD	1,1-Dichloroethane	5.51	ug/L	Exceedance
CP-W3	1/8/2020	lower	SD	1,1-Dichloroethane	6.07	ug/L	Exceedance
CP-W3	6/3/2020	lower	SD	1,1-Dichloroethane	6.96	ug/L	Exceedance
CP-W3	7/16/2019	lower	SD	1,1-Dichloroethene	17.3	ug/L	Exceedance
CP-W3	10/2/2019	lower	SD	1,1-Dichloroethene	16.2	ug/L	Exceedance
CP-W3	1/8/2020	lower	SD	1,1-Dichloroethene	24.2	ug/L	Exceedance
CP-W3	6/3/2020	lower	SD	1,1-Dichloroethene	19.8	ug/L	Exceedance
CP-W3	7/16/2019	lower	SD	Trichloroethene	27.4	ug/L	Exceedance
CP-W3	10/2/2019	lower	SD	Trichloroethene	24.8	ug/L	Exceedance
CP-W3	1/8/2020	lower	SD	Trichloroethene	27	ug/L	Exceedance
CP-W3	6/3/2020	lower	SD	Trichloroethene	28.6	ug/L	Exceedance

Figure 2-5 Lower Aquifer Individual Monitoring Well COC Concentrations





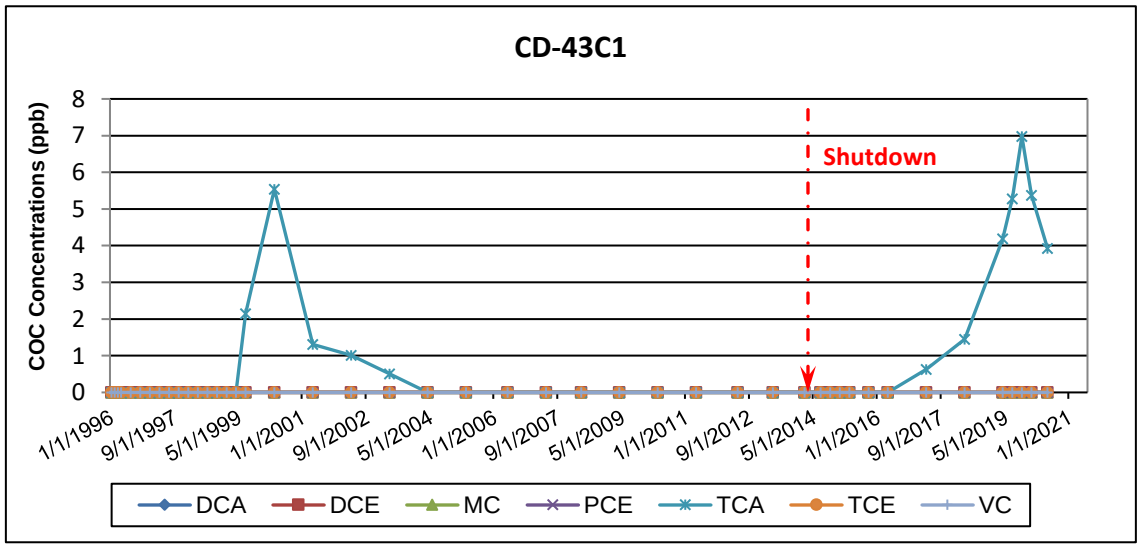
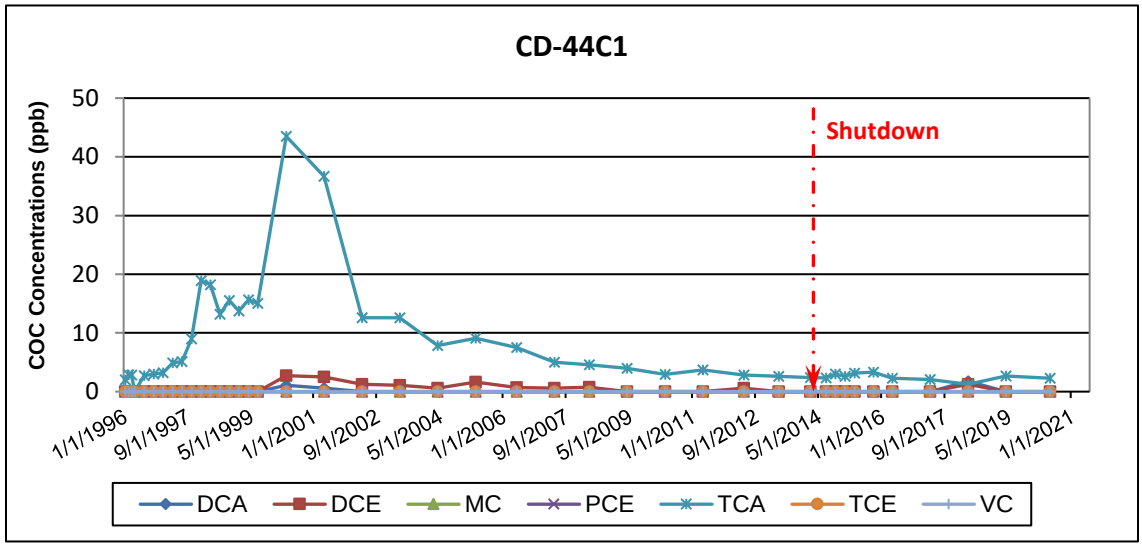
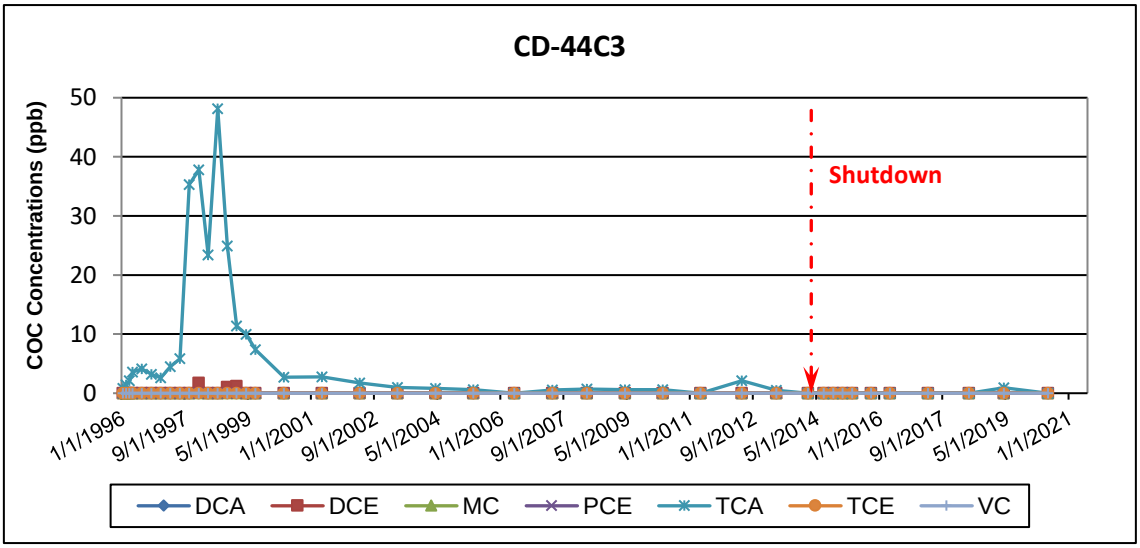


Figure 2-6 Lower Aquifer Individual Monitoring Well COC Concentrations





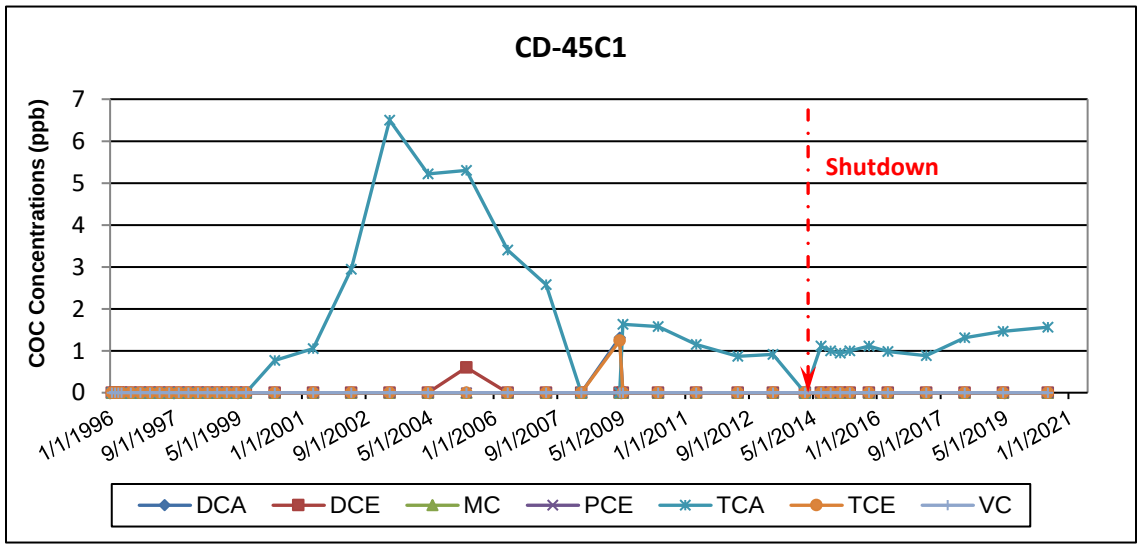
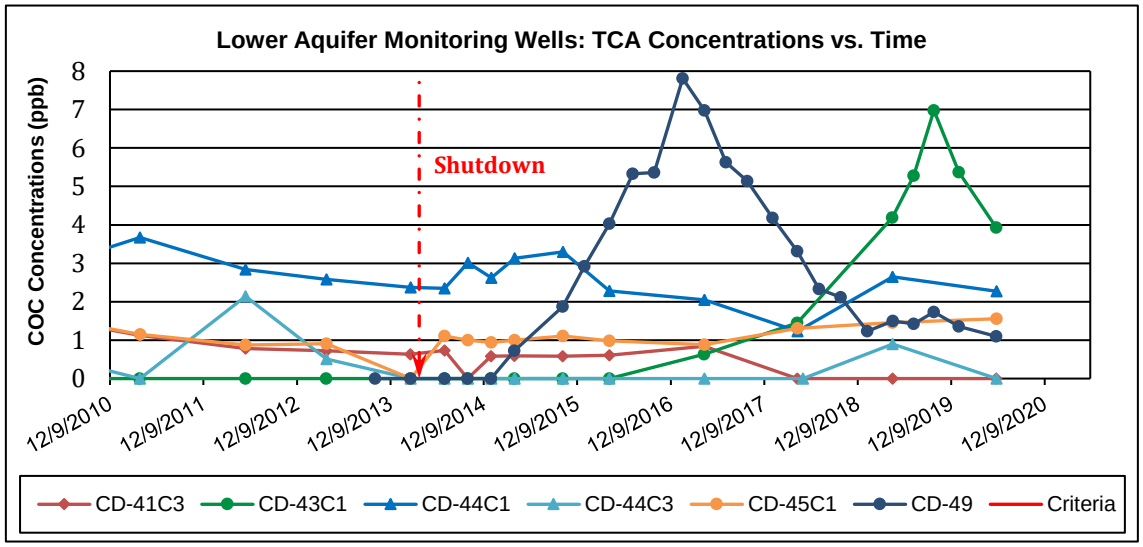
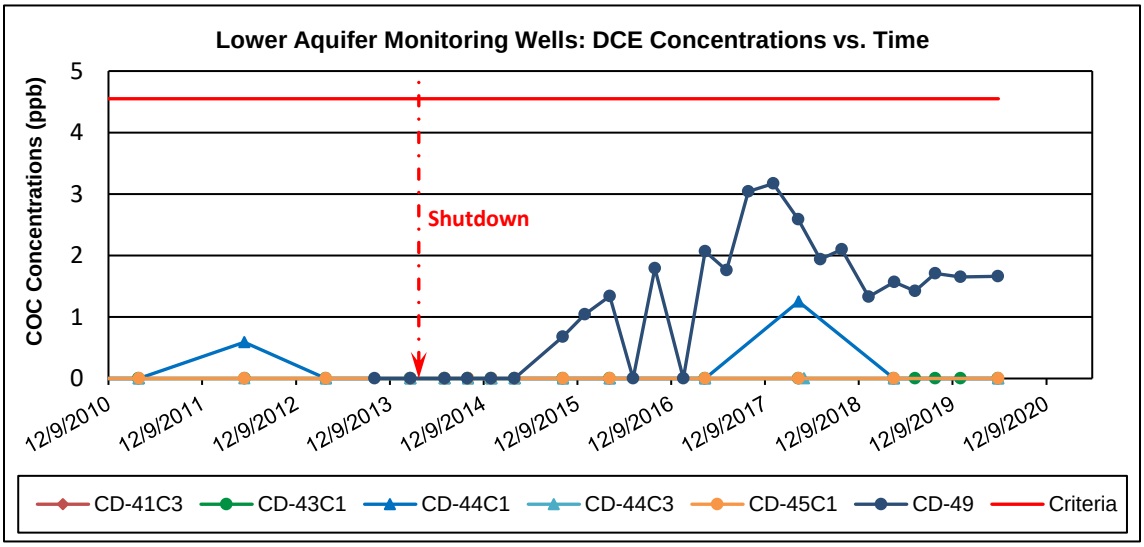


Figure 2-7 Lower Aquifer Monitoring Well Individual COC Concentrations





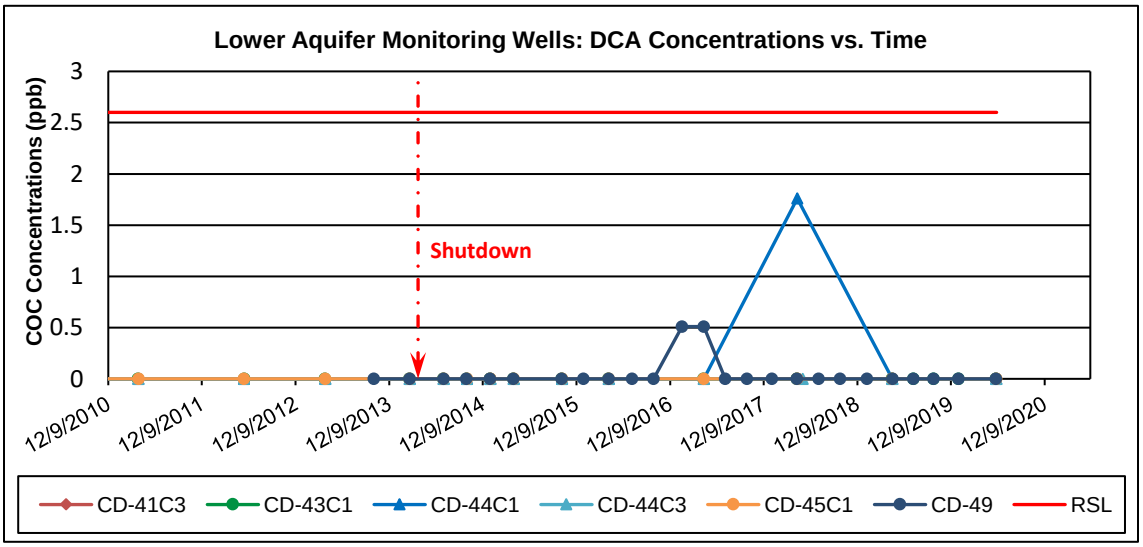
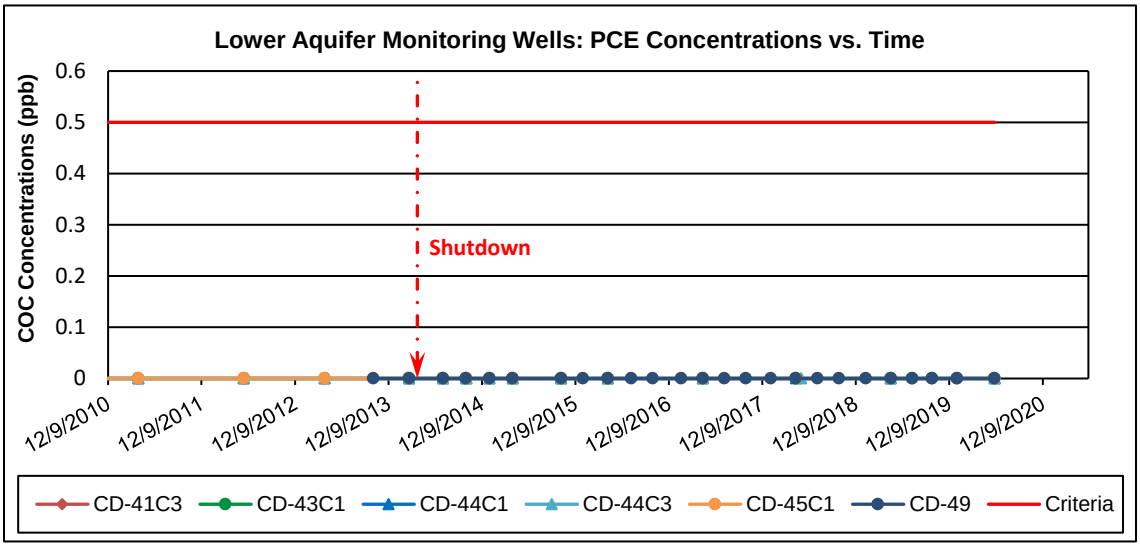


Figure 2-8 Lower Aquifer Monitoring Well Individual COC Concentrations



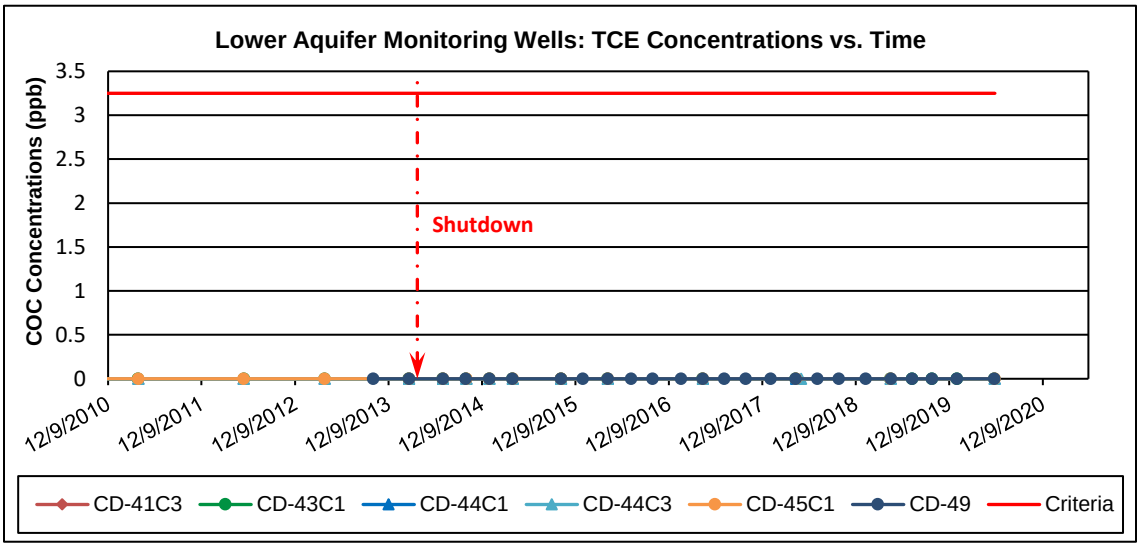
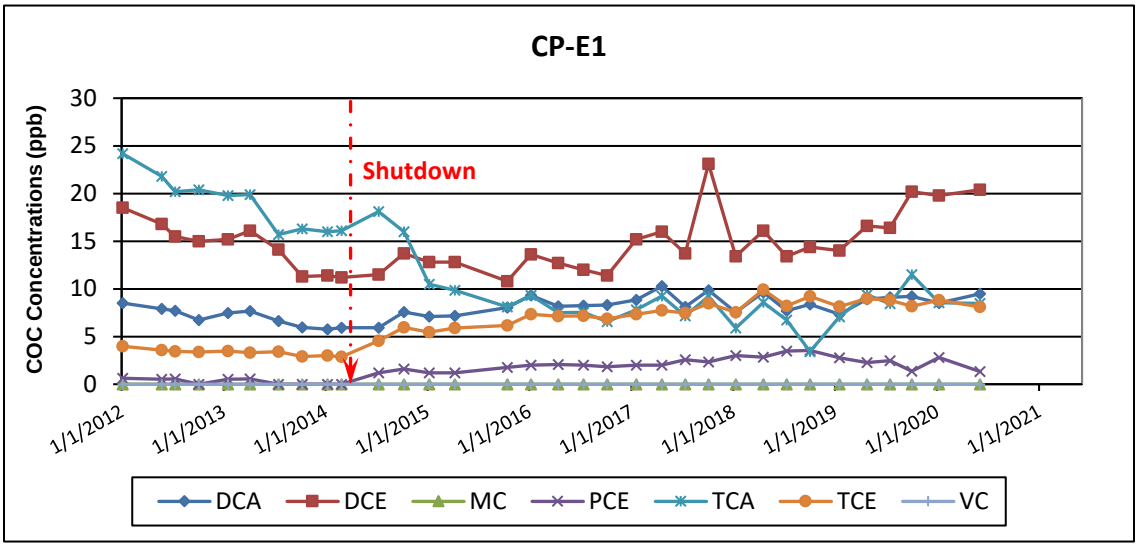
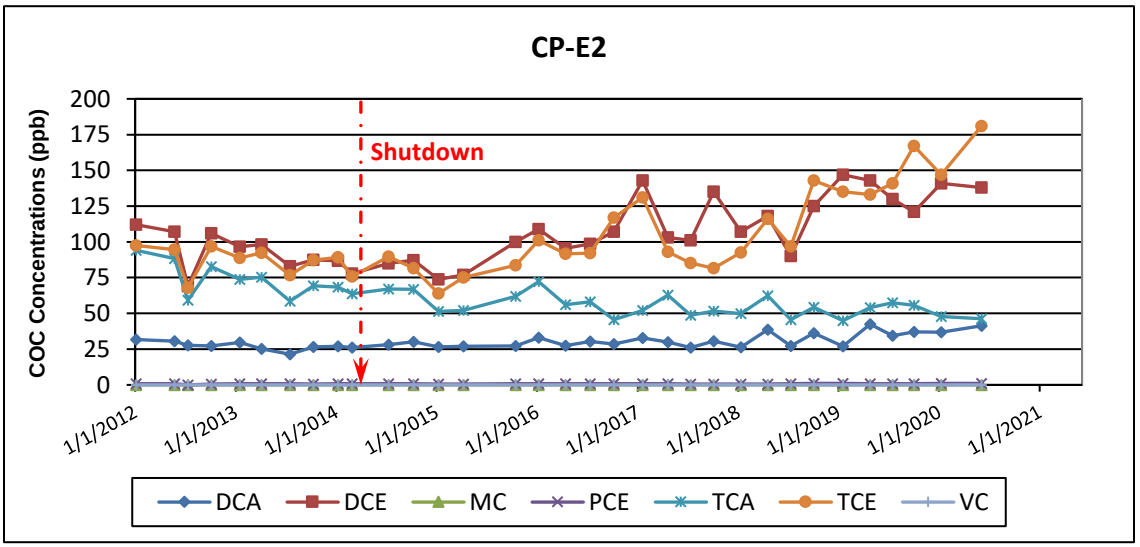


Figure 2-9 Lower Aquifer Individual Extraction Well COC Concentrations





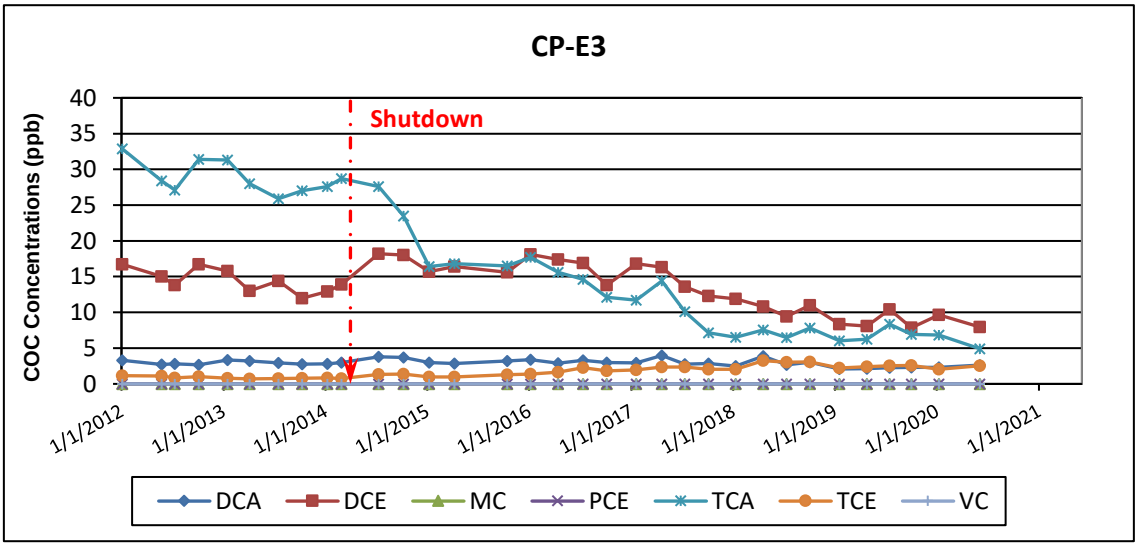


Figure 2-10 Lower Aquifer Individual Extraction Well COC Concentrations

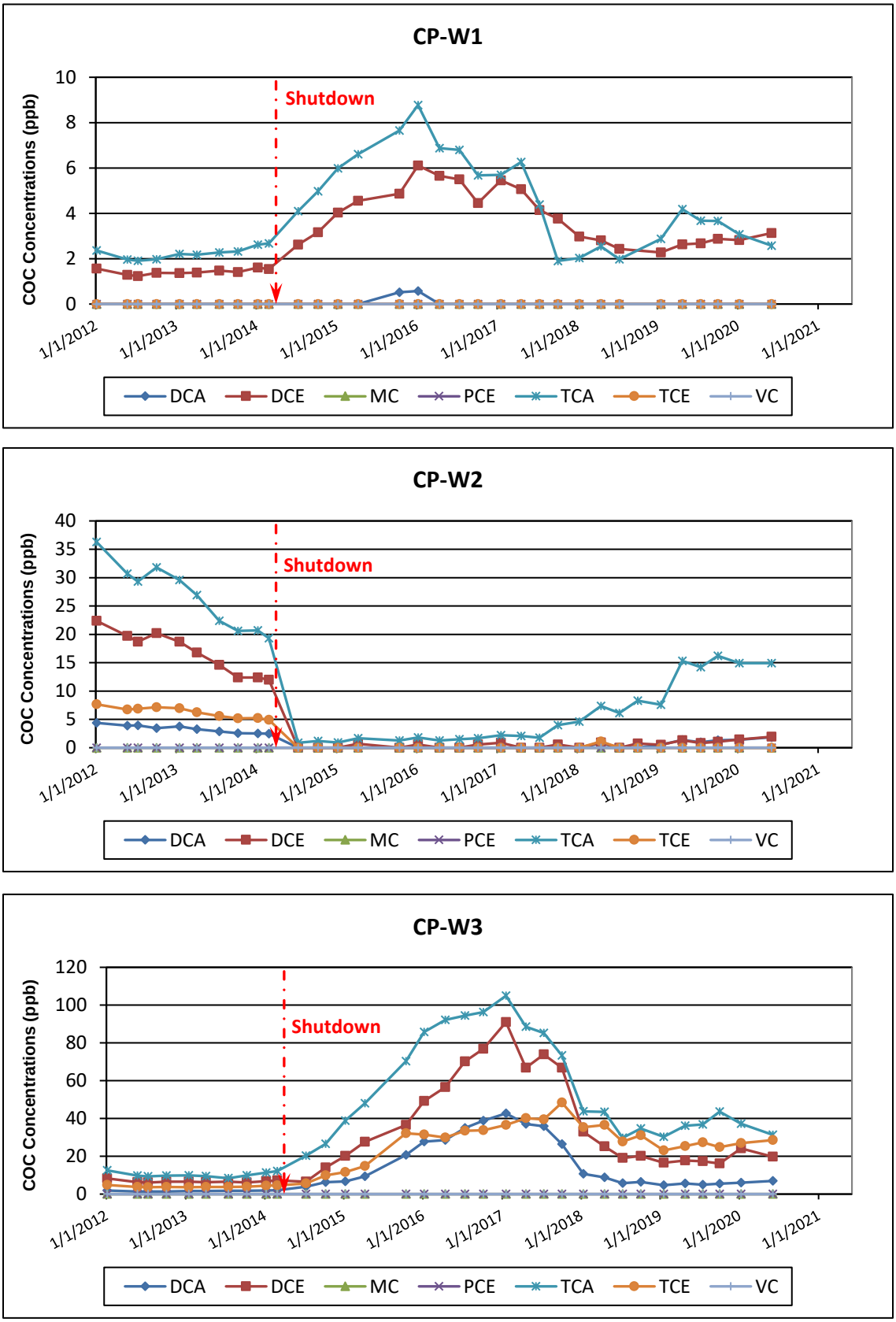
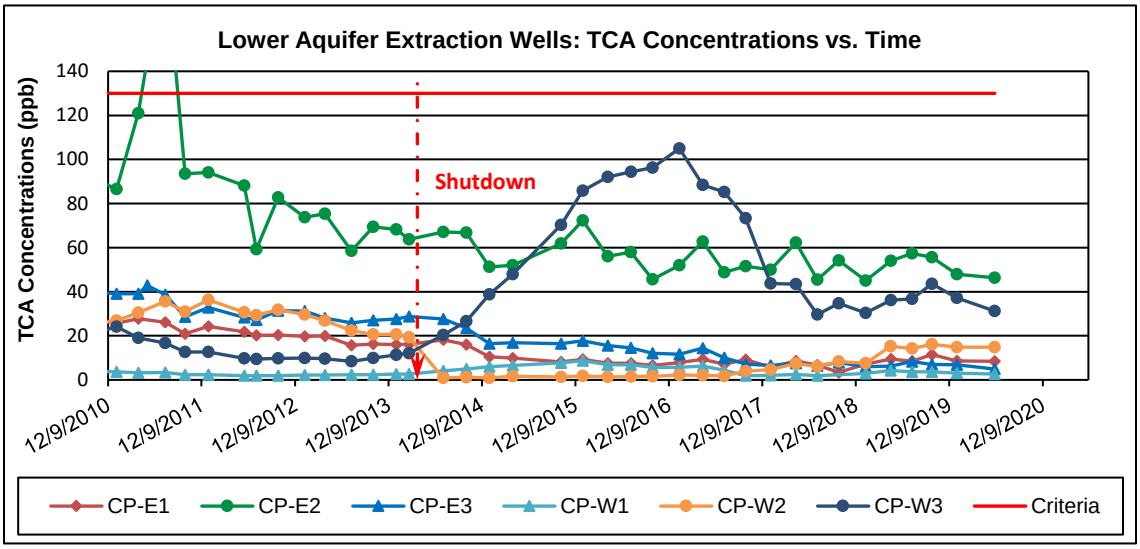
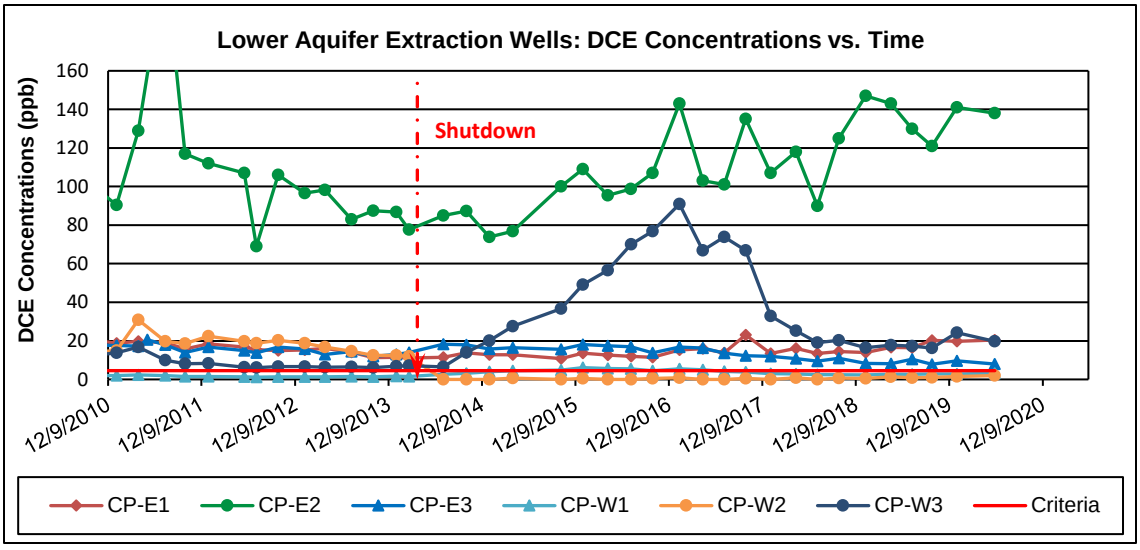


Figure 2-11 Lower Aquifer Extraction Well Individual COC Concentrations





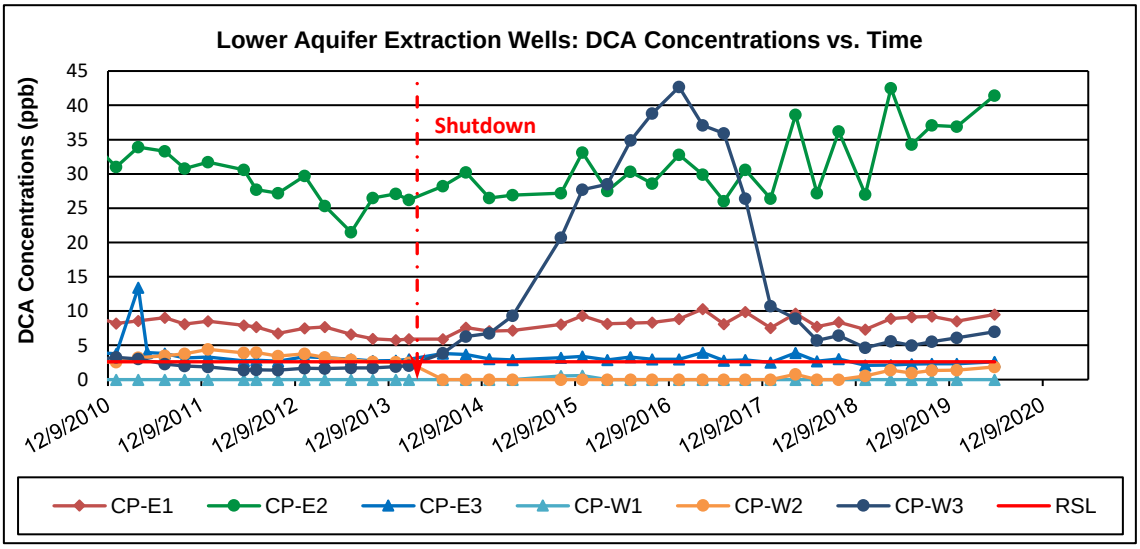
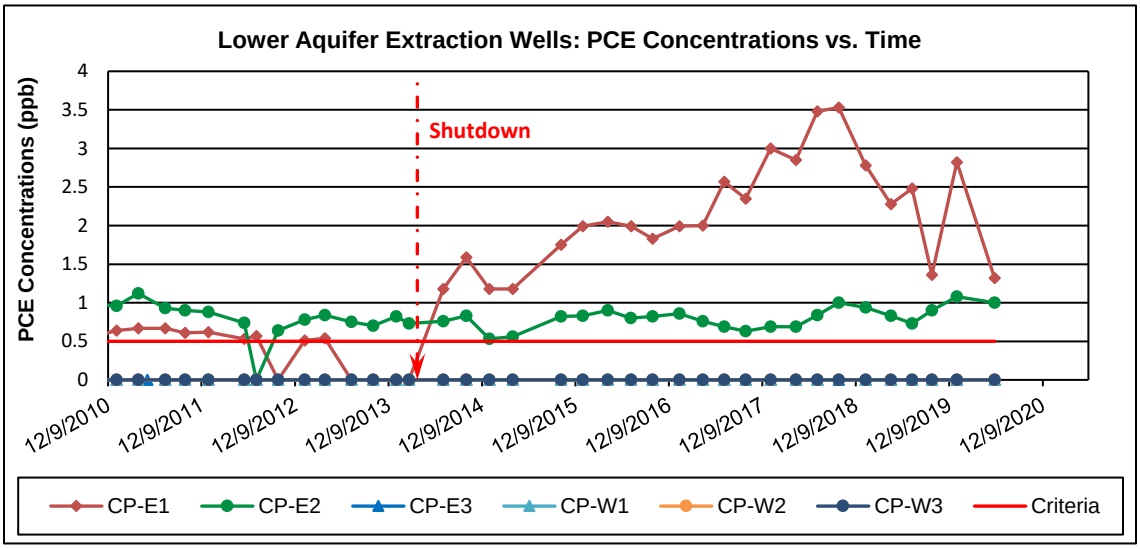


Figure 2-12 Lower Aquifer Extraction Well Individual COC Concentrations



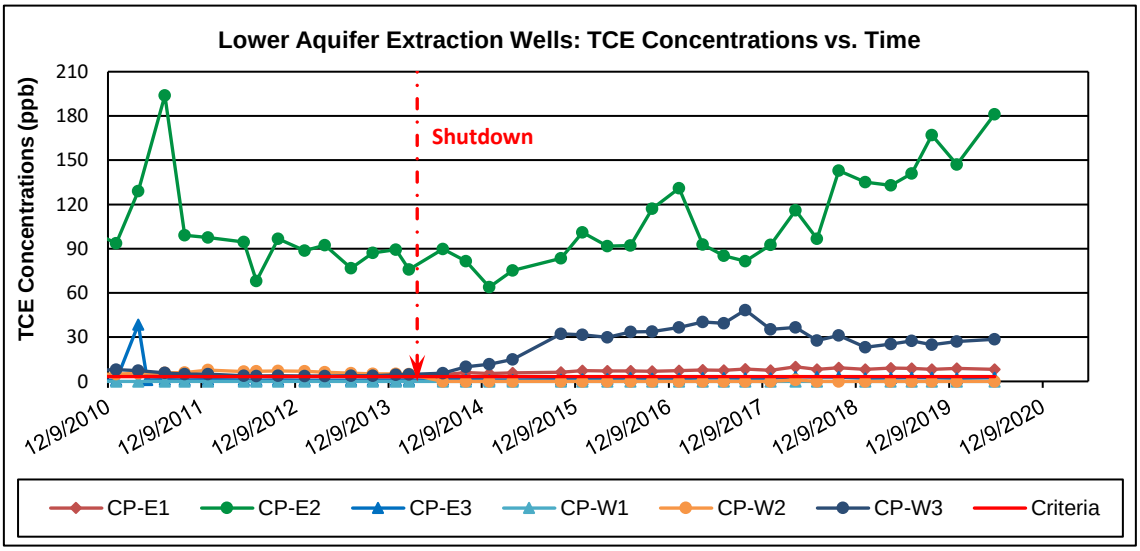


Figure 2-13 Lower Aquifer Estimated TCA Plume

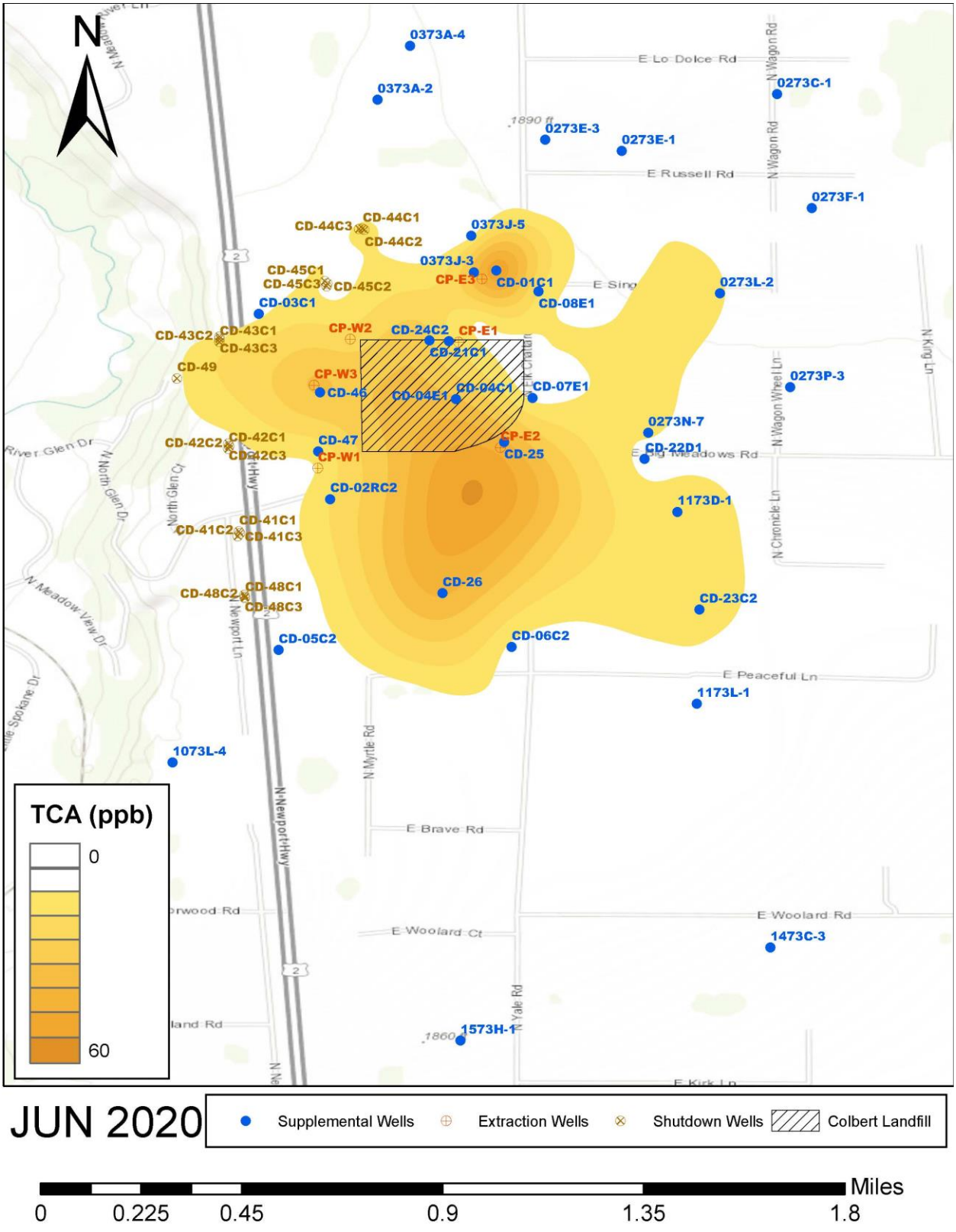


Figure 2-14 Lower Aquifer TCA Detections Map

Figure 2-15 Lower Aquifer Estimated DCA Plume

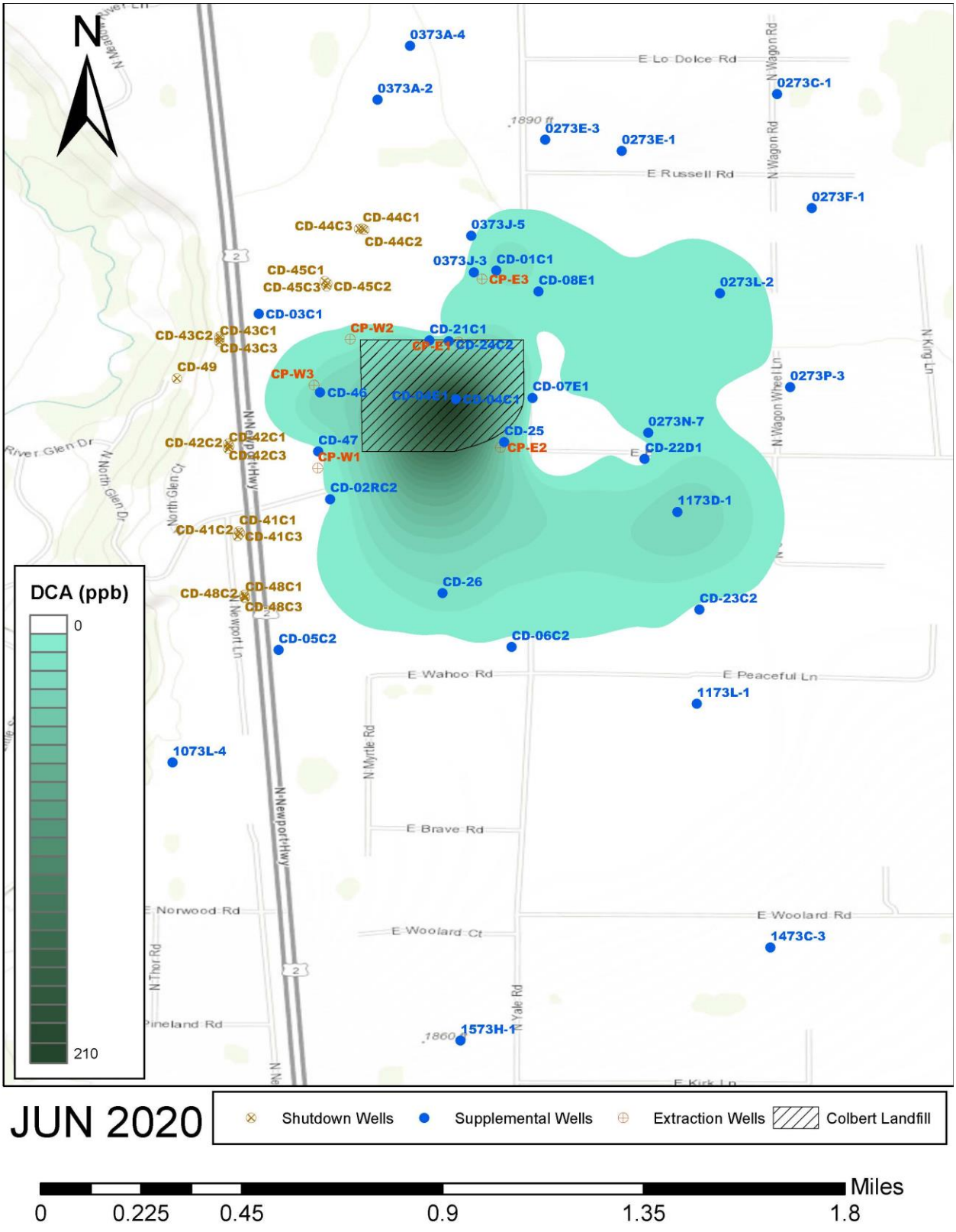


Figure 2-16 Lower Aquifer DCA Detections Map

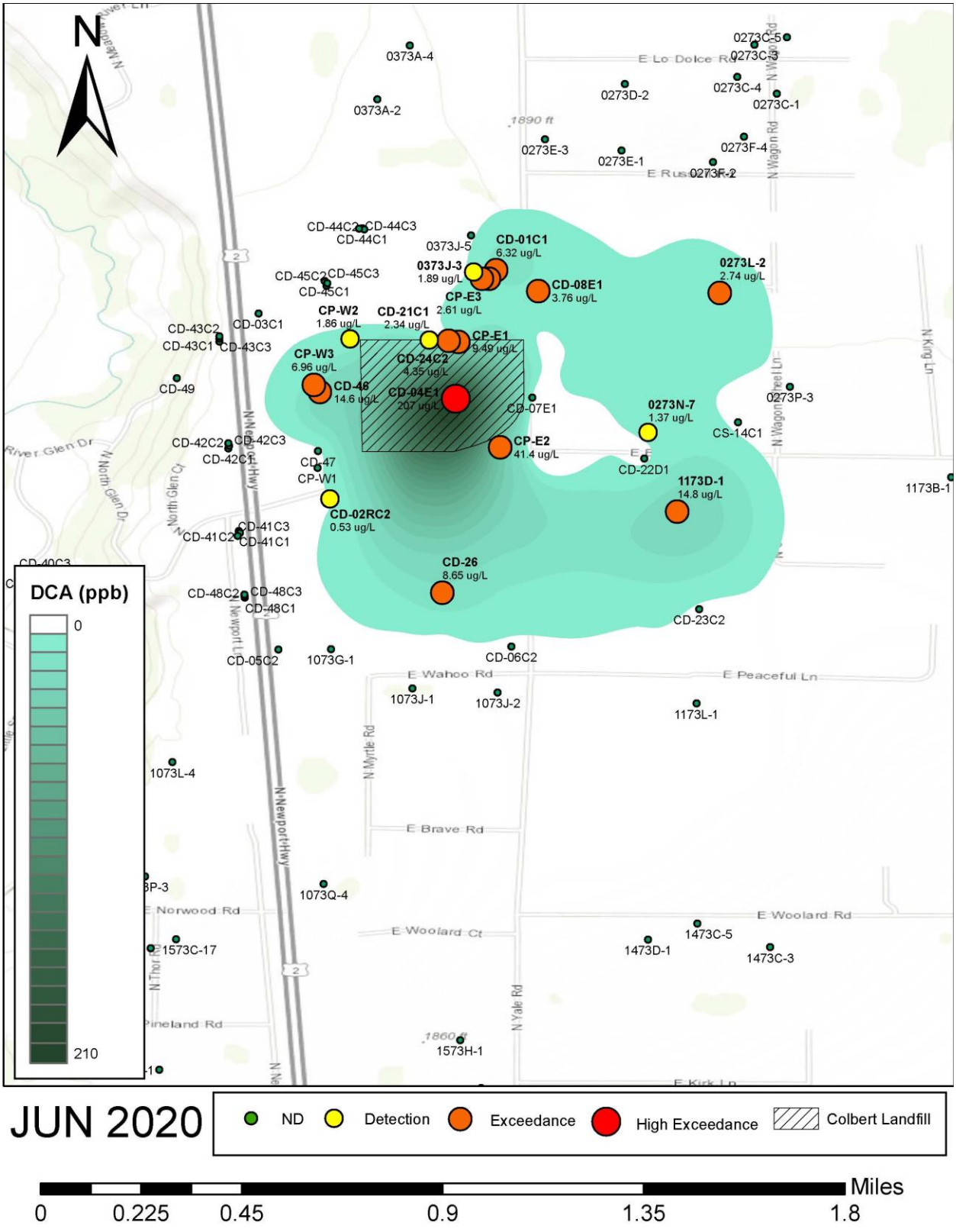


Figure 2-17 Lower Aquifer Estimated DCE Plume

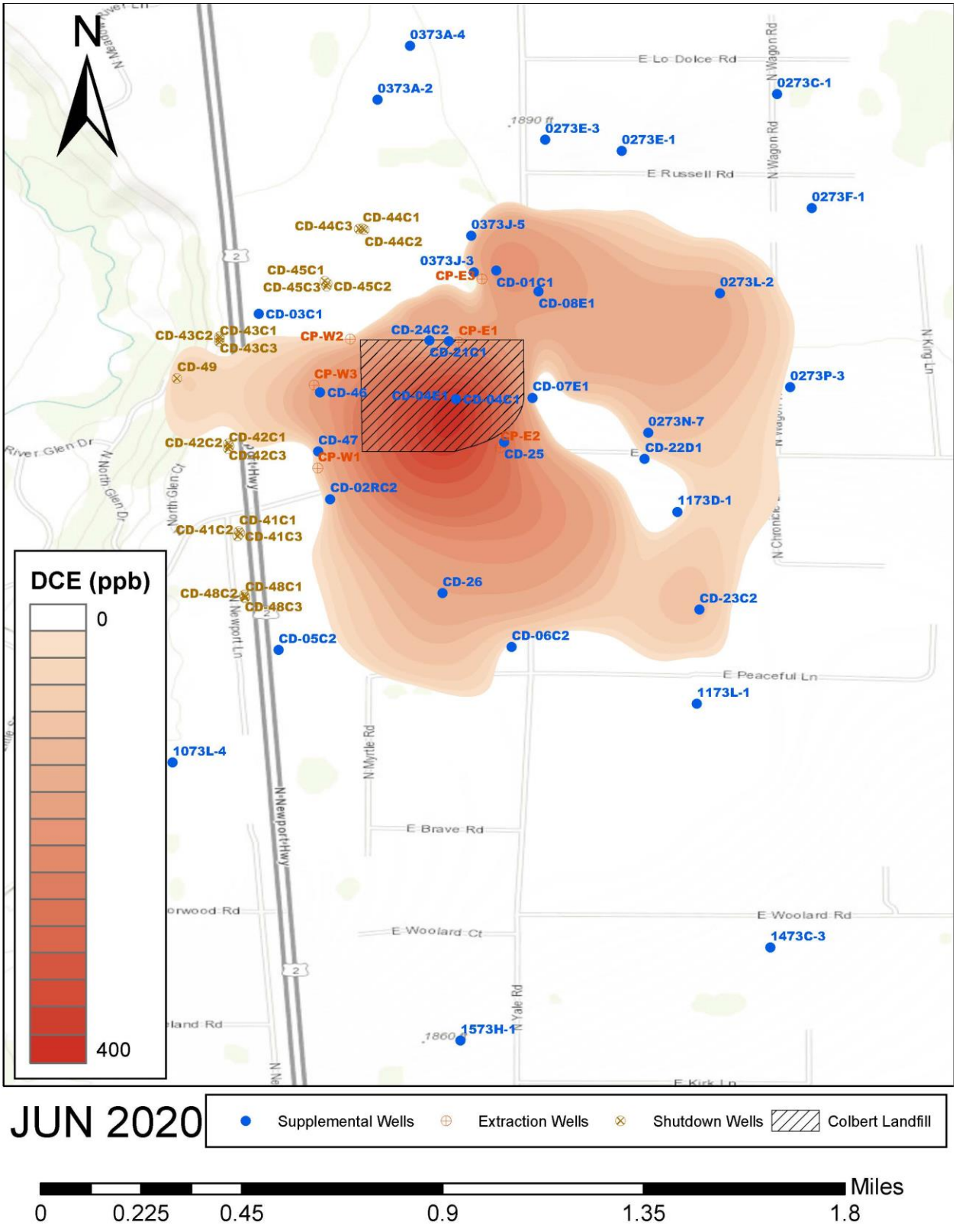


Figure 2-18 Lower Aquifer DCE Detections Map

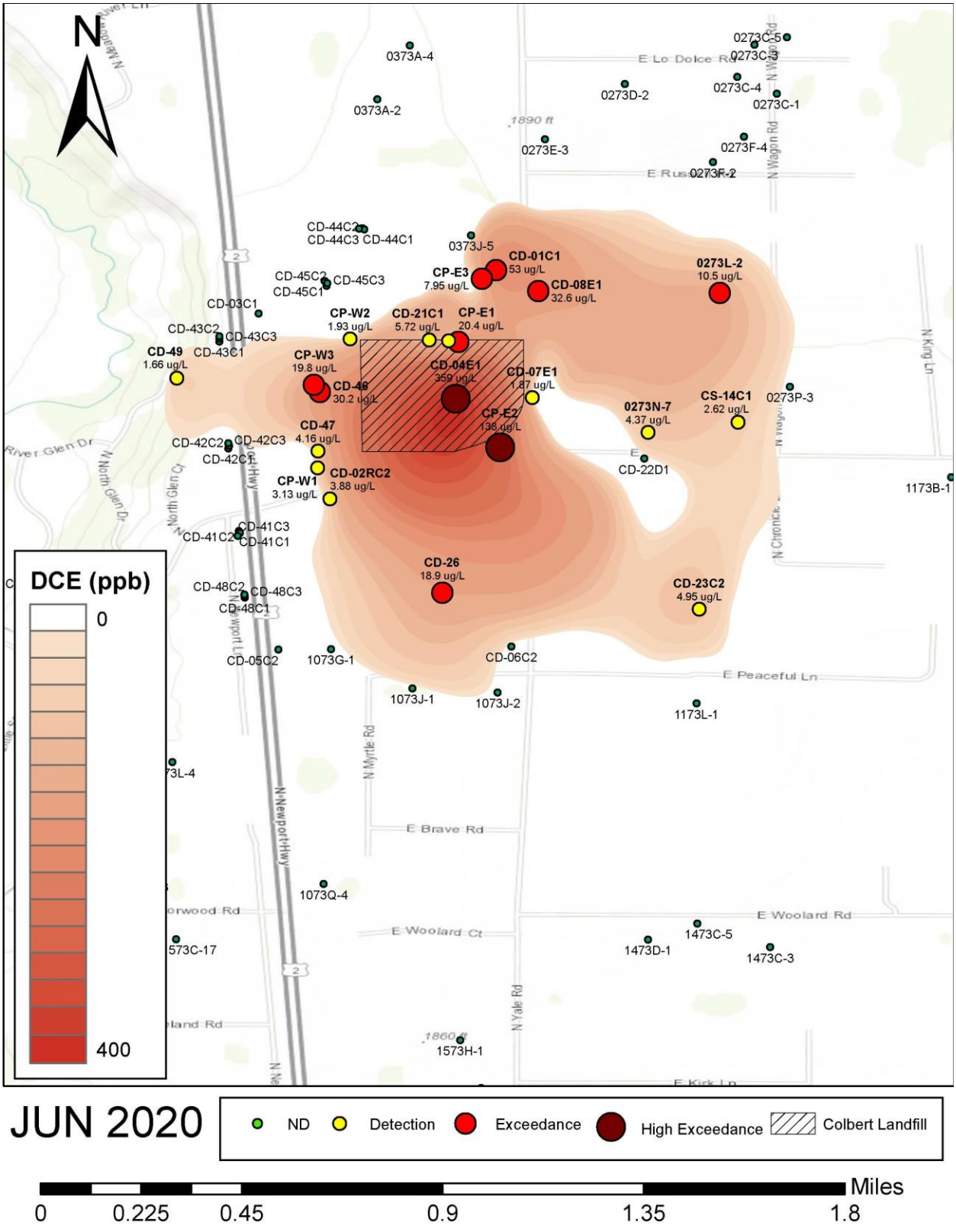


Figure 2-19 Lower Aquifer Estimated PCE Plume

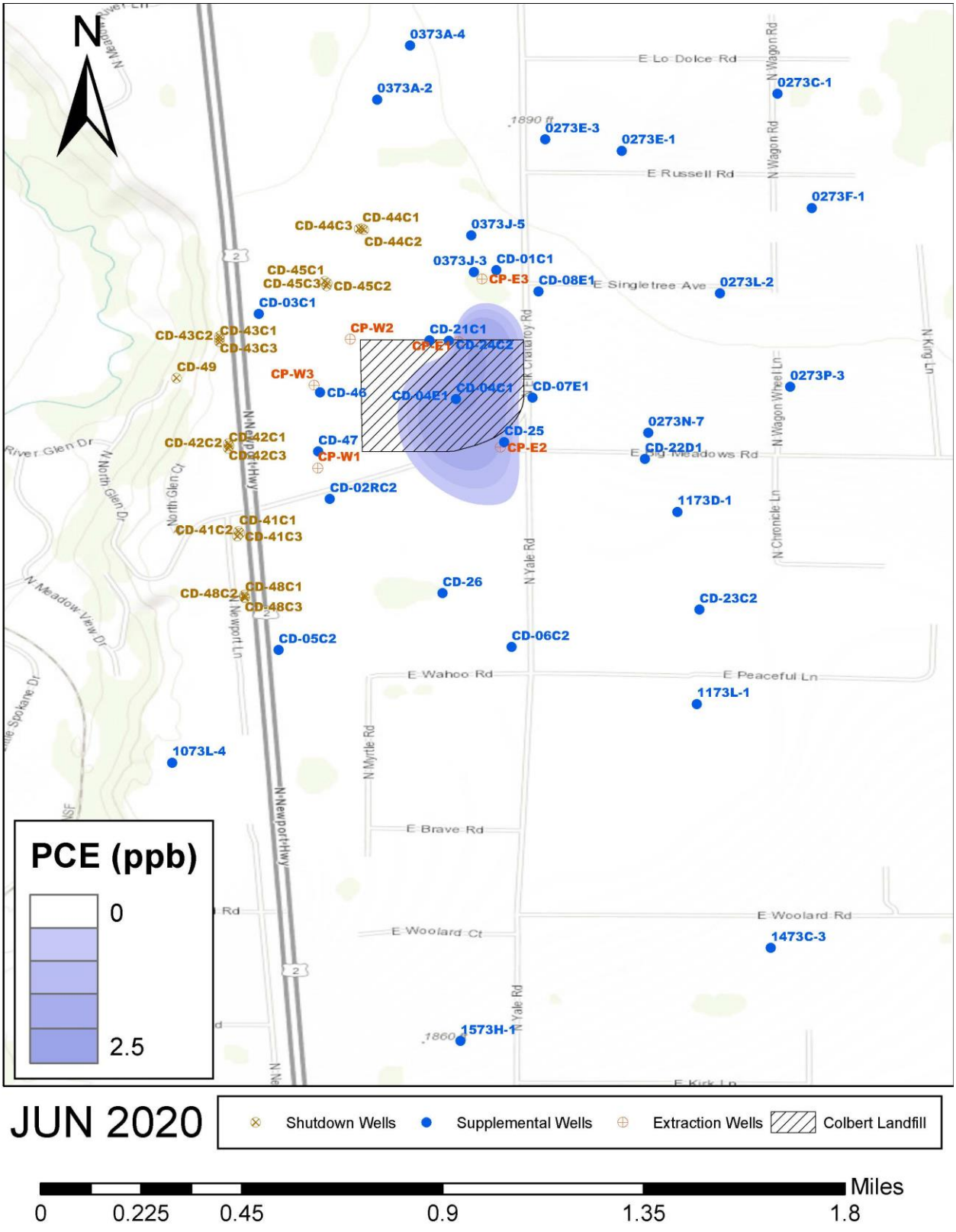


Figure 2-20 Lower Aquifer PCE Detections Map

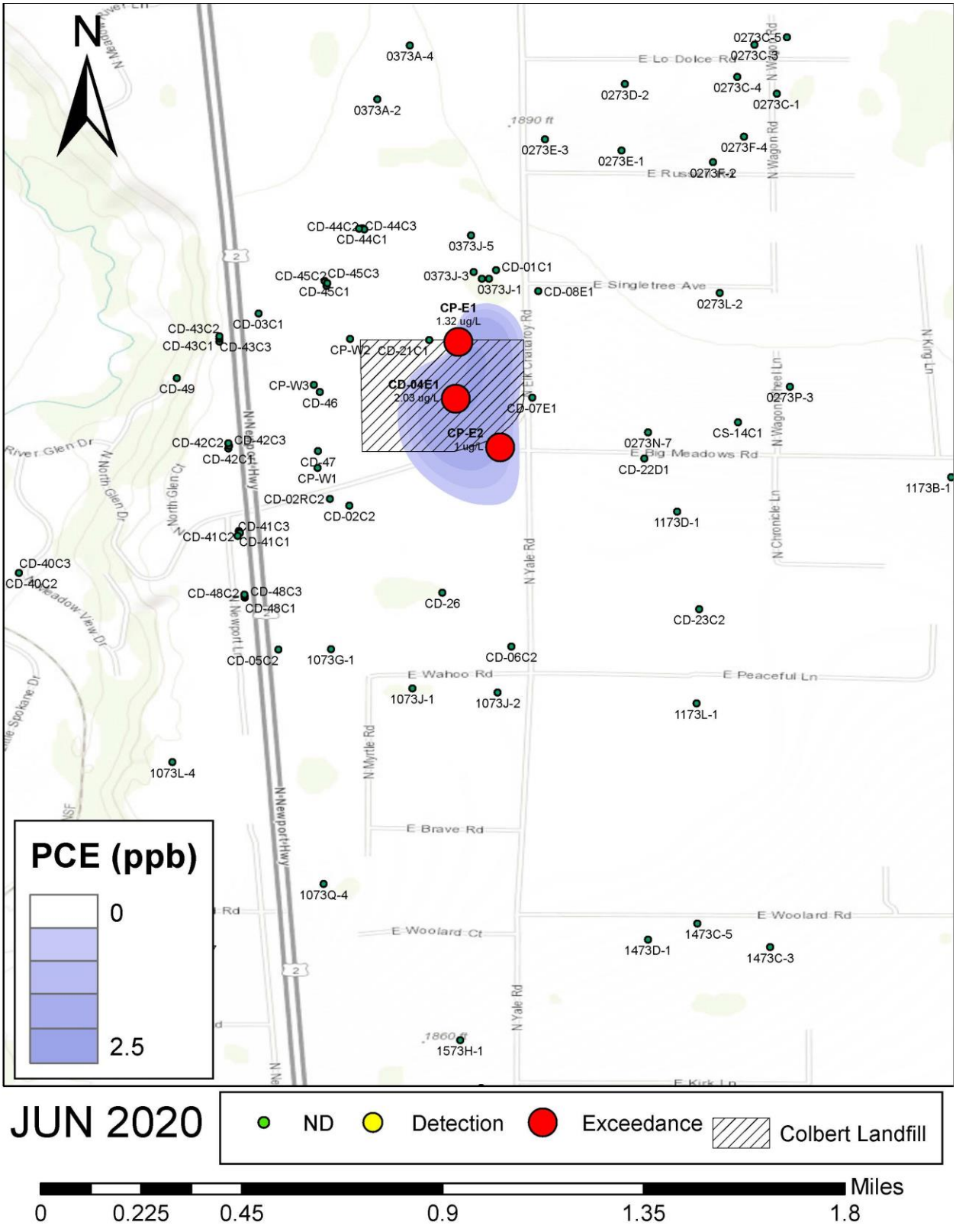


Figure 2-21 Lower Aquifer Estimated TCE Plume

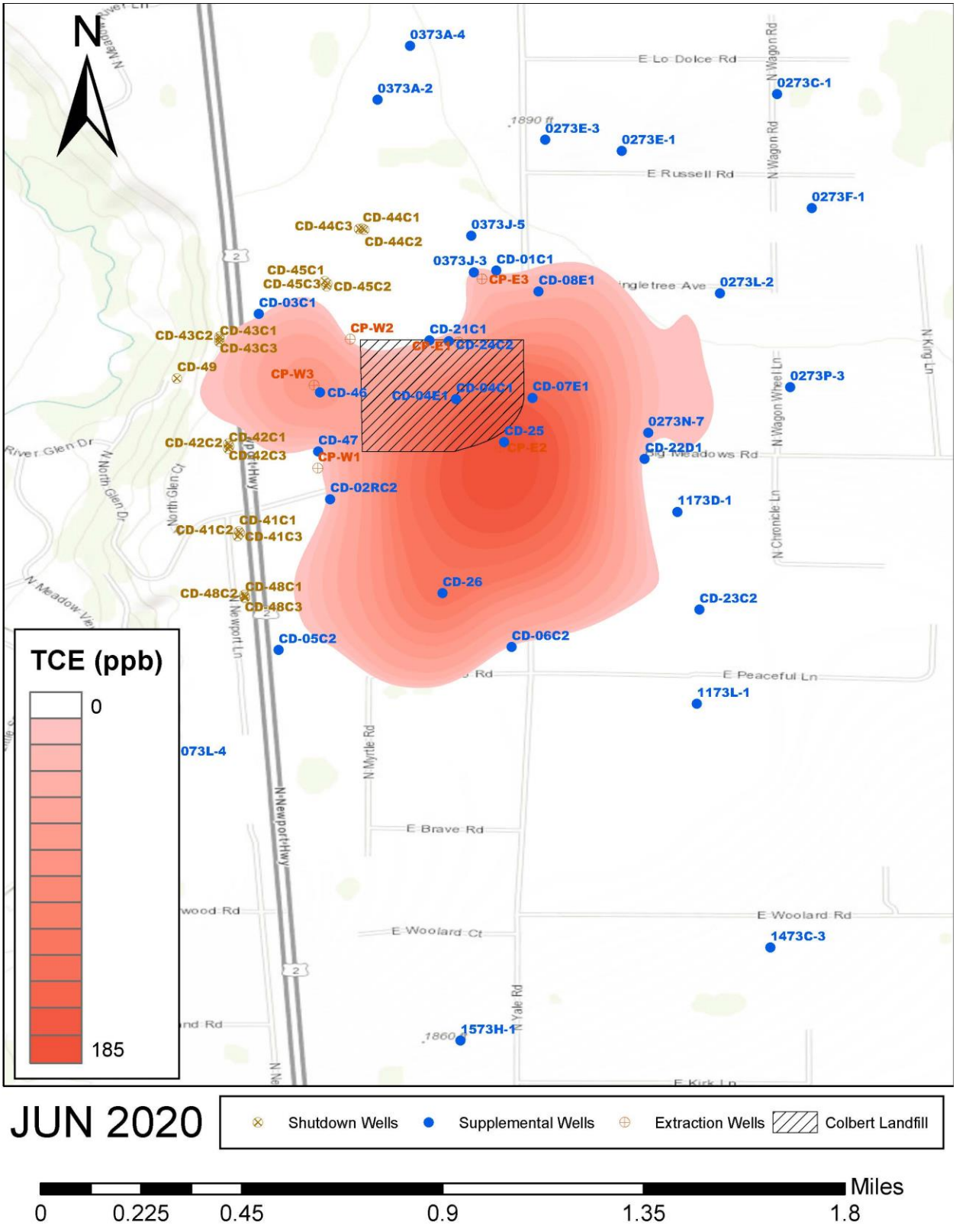


Figure 2-22 Lower Aquifer TCE Detections Map

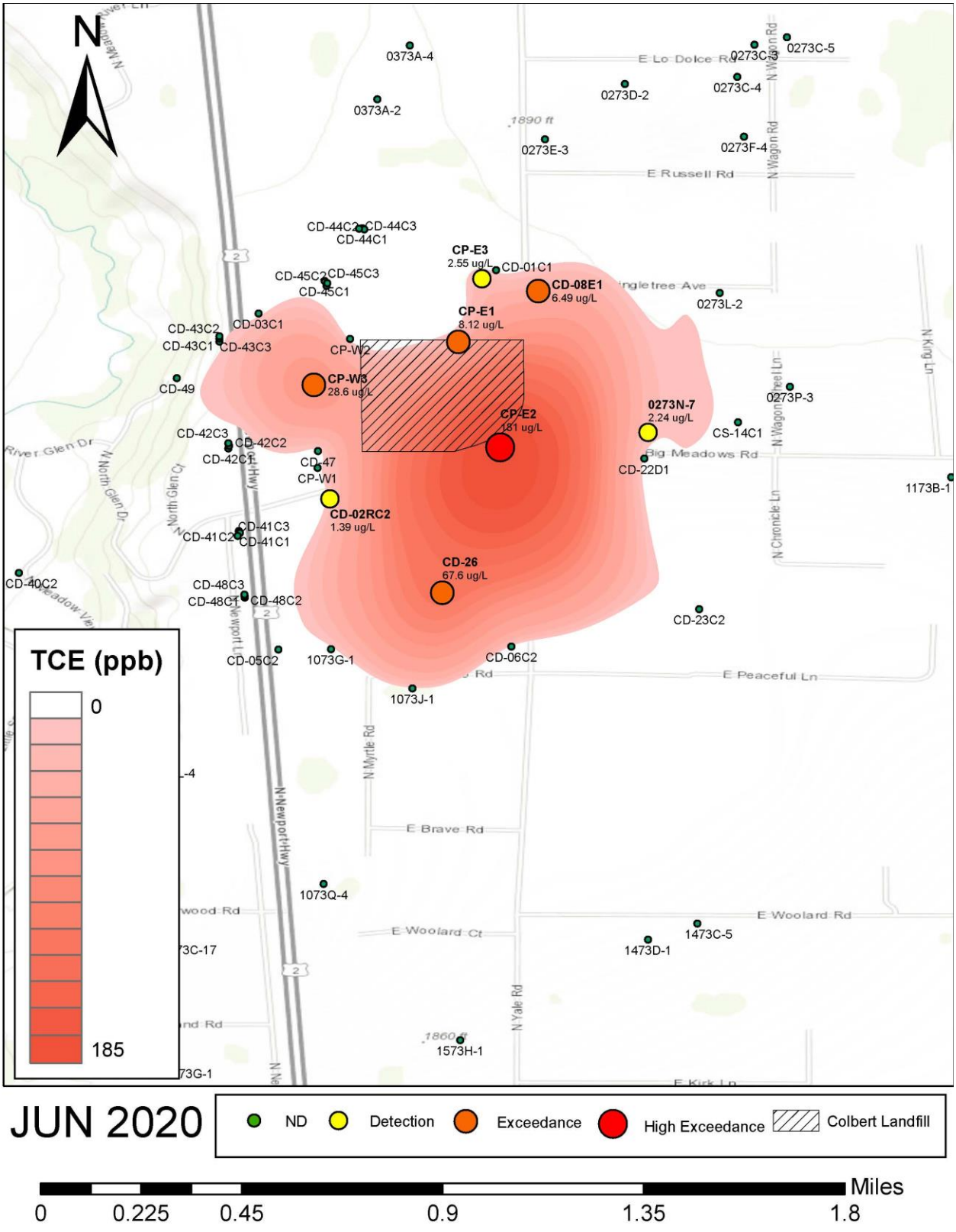
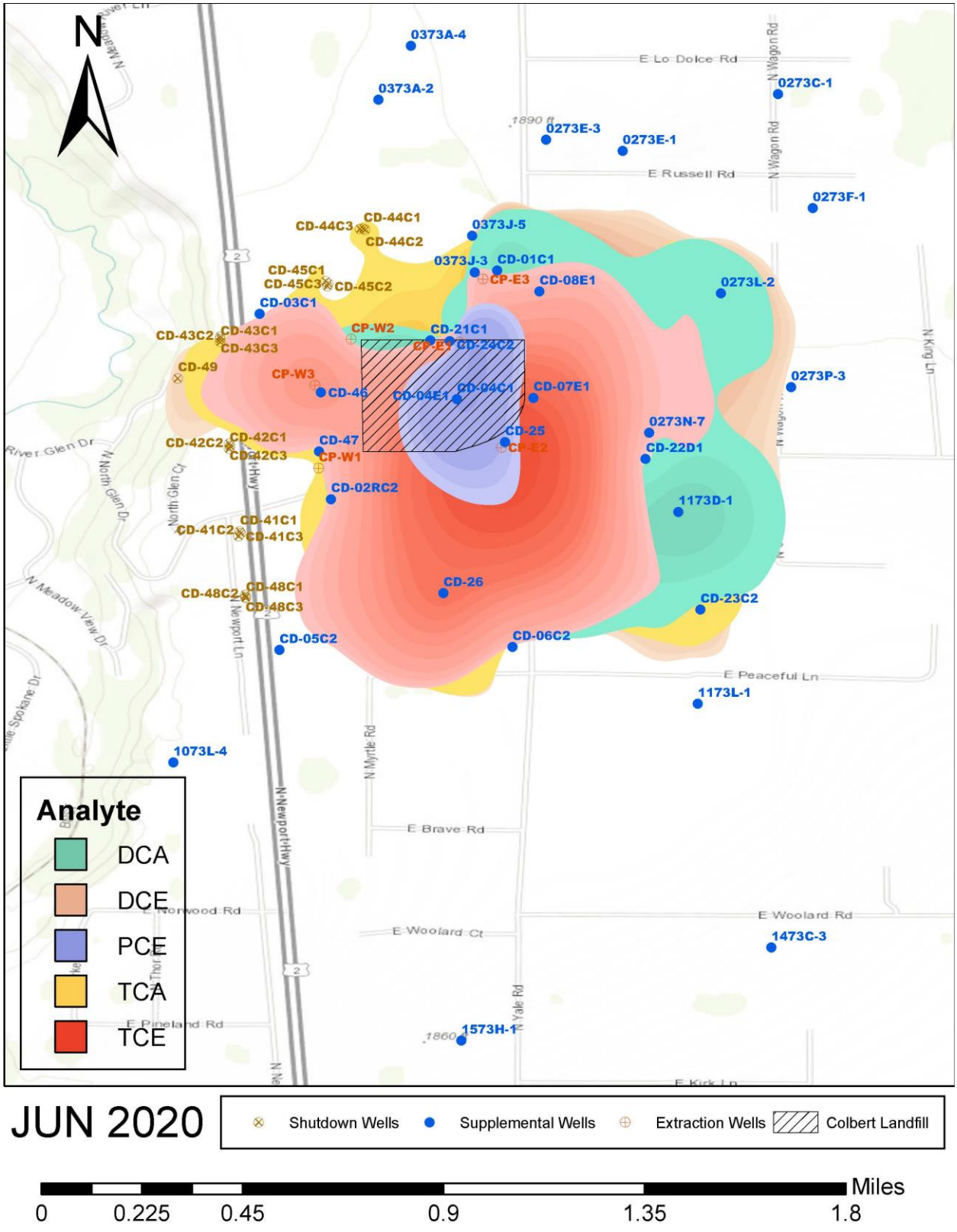


Figure 2-23 Lower Aquifer All Analytes Estimated Plume Map



3.0 Upper Aquifer Monitoring

The upper aquifer monitoring program includes the sampling of compliance indicator COC's (VOC's), 1,4-dioxane sample collection, and MFS sampling from selected monitoring wells. Table 3-1 presents all wells located in the upper aquifer monitoring program and the sample analyses assigned to each well. Upper aquifer monitoring locations are presented in Figure 3-1. All upper aquifer monitoring occurs on an annual basis with the exception of extraction wells, which are operated and sampled quarterly.

3.1 Field Data and Groundwater Elevations

All upper aquifer compliance monitoring field parameters and groundwater elevations for this reporting period are shown in Table 3-3. Conductivity values ranged from 351 to 773 umhos/cm. Field pH values ranged from 6.45 to 8.34. The highest Conductivity values and some of the lowest pH values seem to be located in the southern extraction wells. Upper aquifer groundwater elevation contours/flow paths and elevation maps are presented in Figure 3-3 and Figure 3-4.

3.2 Compliance Monitoring (VOC's)

All wells in the upper aquifer have VOC samples collected from them and analyzed, even though the VOC analysis is not required in the MFS or 1,4-Dioxane work plan specifications.

3.2.1 Chemical Data

Constituent of concern concentrations at the south system extraction wells are presented in Table 3-4. Selected upper aquifer wells COC concentrations versus time are presented in Figure 3-6 and Figure 3-7. Upper aquifer COC estimated plume boundaries and COC detection maps are shown in Figure 3-8 through Figure 3-18.

3.2.2 Criteria

Criteria for the upper aquifer programs are presented in Table 3-2. All criteria exceedances in the upper aquifer programs are presented in Table 3-5 (Consent Decree criteria) and Table 3-6 (updated criteria values from the Colbert Landfill 6th Five-year Review, which includes an increase for Trichloroethene [PCE] from the performance standard in the ROD [0.7 µg/L] to the current MCL [5µg/L], and a decrease for 1,1-Dichloroethane [1,1-DCA] to the regional screening level [RSL] of 2.6 µg/L). The only criteria exceedance in the upper aquifer wells was 1,1-DCA in extraction well CP-S4. CP-S4 analytical results for 1,1-DCA exceeded the regional screening level (2.6 ug/L) at 2.61 ug/L, but did not exceed the established Consent Decree criteria of 4050 ug/L.

3.3 1,4-Dioxane Sampling

As outlined in the *1,4-Dioxane Workplan for the Colbert Landfill (December 2007)*, five locations were selected for one year of Quarterly 1,4-dioxane sampling to further evaluate the extent of this analyte as well as protect residential wells at the Colbert Landfill site (see Table 3-1). In April 2009, that sample event concluded the year of quarterly sampling at these locations. Since then, Spokane County has continued sampling these wells on an annual basis. The 2020 1,4-dioxane sampling was performed during the month of June.

3.3.1 Chemical Data

The results for the June 2020 1,4-dioxane sampling are shown in Table 3-7. Concentrations versus time are presented Figure 3-5. None of the wells listed on the 1,4-Dioxane monitoring plan exceeded any criteria during the annual sampling event in June 2020.

3.4 Upper Aquifer Minimal Functional Standards (MFS) Monitoring

Upper aquifer locations designated in the MFS groundwater monitoring program were sampled in June 2020.

3.4.1 Chemical Data

Concentrations of analytes tested for under MFS monitoring were consistent with previous results (see Figure 3-19 and Figure 3-20). None of the metals had any concentrations in the MFS wells above the reporting limit during this reporting period.

3.4.2 Criteria

None of the MFS sampling locations exceeded any of the applicable criteria during this reporting period.

3.4.3 Statistical Analysis

The MFS Groundwater Monitoring Plan (Landau Assoc., 1996) requires three statistical methods be used when evaluating groundwater Quality in accordance with MFS requirements. Time series plots were performed and discussed previously. Box plots were required after one year of data was collected. Box plots are presented in Figure 3-23.

The third statistical method required is the Mann-Whitney nonparametric significance test. The summary results for this test are presented in Table 3-8. Although lower aquifer locations are no longer scheduled for sampling, previous results are shown here as well. A statistically significant change (less than 0.05 level of significance) from this test indicates that a difference may exist between background and downgradient wells but does not differentiate between sets. While it is true that a difference in nitrate and chloride concentrations may exist between background and downgradient wells, when taking time series plots and box plots into consideration, it is not likely these differences were due to influence by the landfill.

Table 3-1 Upper Aquifer Monitoring Programs and Locations

Program	Schedule	Parameters	Wells
Compliance Monitoring	Annual Quarterly at extraction wells	VOC's	CD-31A1, CD-34A1, CD-36A1, CD-37A1, CD-38A1, CP-S1, CP-S3, CP-S4, CP-S5, CP-S6
1,4-Dioxane Sampling	Annual	1,4-Dioxane	CP-S1, 1073D-1*, 1473M-1*, 1573A-1*, CD-40C1**
MFS Monitoring	Annual	Cl/NH3/NO2/NH3/SO4 /Fe/Mn/Zn/TOC/COD	CD-03A1, CD-60A1, CD-61A1, CS-04A1

* Residential use wells

**Well considered to be screened in fluvial aquifer and COC source is from upper aquifer west of Hwy 2 (see *Phase 1 Engineering Report. Landau Assoc, 1991*.)

Table 3-2 Upper Aquifer Criteria

PROGRAM	CRITERIA	TCA	DCE	DCA	TCE	PCE	MC	1,4-Dioxane		Units
CONSENT DECREE	Performance	200	7	4050	5	0.7	2.5			ug/L
(Compliance)	Evaluation	200	7	4050	5	0.7	2.5	7		
		Cl	**Fe**	**Mn**	**Zn**	**TOC**	**COD**	**SO4**	**NO3**	
MFS	(mg/L)	250	0.3	0.05	5	NA	NA	250	10	mg/L

Figure 3-1 Upper Aquifer Compliance Monitoring Locations

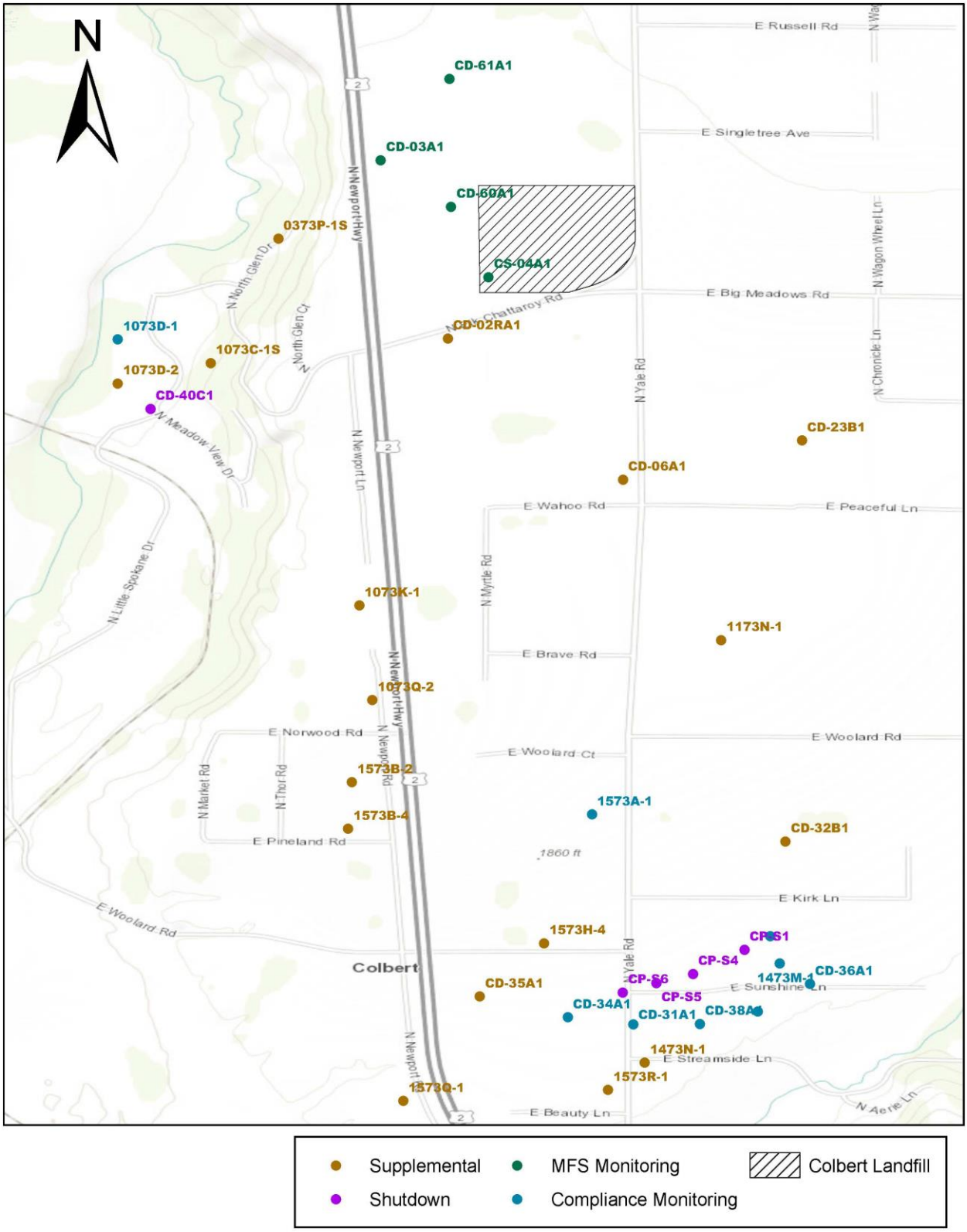
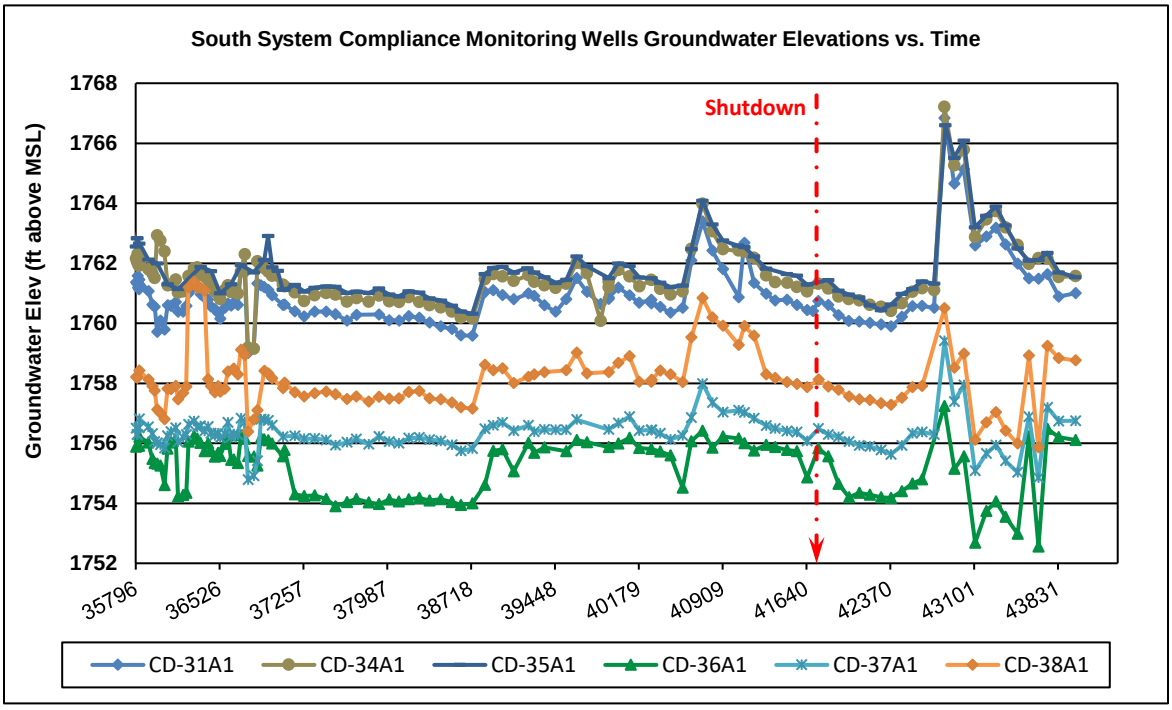


Table 3-3 Upper Aquifer Field Parameters

SampleDate	StationID	WtrElev	Temp	PH	Conductivity	Turbidity	Aquifer	Program
4/24/2019	1073D-1		10.8	7.85	441	0.47	upper	CCM
6/3/2020	1073D-1		11.5	8.16	386	0.2	upper	CCM
4/24/2019	1473M-1		10.8	7.66	619	0.29	upper	CCM
6/3/2020	1473M-1		10.6	7.73	549	0.17	upper	CCM
4/24/2019	1573A-1	1762.12	11	7.51	578	0.19	upper	CCM
6/3/2020	1573A-1	1761.8	11.2	7.71	503	0.49	upper	CCM
4/23/2019	CD-31A1	1761.49	10.5	7.37	585	0.58	upper	CCM
6/2/2020	CD-31A1	1761	10.2	7.68	640	0.2	upper	CCM
4/23/2019	CD-34A1	1761.97	10.8	7.44	636	0.24	upper	CCM
6/2/2020	CD-34A1	1761.57	10.6	7.59	624	0.19	upper	CCM
4/23/2019	CD-36A1	1756.24	10.5	7.57	580	0.41	upper	CCM
6/2/2020	CD-36A1	1756.11	10.5	7.86	542	0.24	upper	CCM
4/23/2019	CD-37A1	1756.89	10.6	7.4	629	0.18	upper	CCM
6/2/2020	CD-37A1	1756.75	10.5	7.61	601	0.19	upper	CCM
4/23/2019	CD-38A1	1758.92	10.4	7.5	411	0.048	upper	CCM
6/2/2020	CD-38A1	1758.76	10.4	7.74	543	0.21	upper	CCM
4/24/2019	CP-S3	1758.44	10.5	7.31	661	3.98	upper	CCM
6/4/2020	CP-S3	1760.12	12.2	7.43	619	2.93	upper	CCM
4/25/2019	CD-03A1	1774.3	9.3	7.32	351	0.21	upper	MFS
6/4/2020	CD-03A1	1773.91	10	8.34	355	1.31	upper	MFS
4/25/2019	CD-60A1	1773.71	9.7	7.11	468	0.13	upper	MFS
6/4/2020	CD-60A1	1773.19	13.7	6.99	541	0.32	upper	MFS
4/25/2019	CD-61A1	1774.78	9.6	7.62	383	0.19	upper	MFS
6/4/2020	CD-61A1	1774.16	12.5	7.32	407	0.21	upper	MFS
4/25/2019	CS-04A1	1773.42	10.7	6.45	646	1.24	upper	MFS
6/4/2020	CS-04A1		11.1	6.87	723	1.63	upper	MFS
4/24/2019	CD-40C1	1663.78	10.5	7.01	543	0.27	upper	SD
6/3/2020	CD-40C1	1662.07	10.2	7.99	538	0.21	upper	SD
4/25/2019	CP-S1	1760.09	10.8	7.43	583	0.44	upper	SD
7/16/2019	CP-S1	1762.54	10.9	7.37	521	0.24	upper	SD
10/2/2019	CP-S1	1759.98	10.7	7.39	525	0.19	upper	SD
1/8/2020	CP-S1	1762.44	10.4	7.32	549	0.91	upper	SD
6/3/2020	CP-S1	1762.36	12.3	7.4	554	0.86	upper	SD
4/25/2019	CP-S4	1763.7	10.4	7.21	710	1.13	upper	SD
7/16/2019	CP-S4	1764.48	10.7	7.21	686	0.71	upper	SD
10/2/2019	CP-S4		10.9	7.3	654	0.49	upper	SD
1/8/2020	CP-S4	1764.42	10.1	7.18	773	0.7	upper	SD
6/3/2020	CP-S4	1764.24	12.2	7.2	769	0.63	upper	SD
4/25/2019	CP-S5		9.2	7.15	642	0.14	upper	SD
7/16/2019	CP-S5		10.8	7.35	620	0.41	upper	SD
10/2/2019	CP-S5	1768.97	10.6	7.31	606	0.39	upper	SD
1/8/2020	CP-S5		9.4	7.2	671	0.49	upper	SD
6/3/2020	CP-S5		12.3	7.18	670	0.51	upper	SD
4/25/2019	CP-S6	1765.18	9.4	7.2	683	0.89	upper	SD
7/16/2019	CP-S6	1765.73	10.4	7.37	616	0.89	upper	SD
10/2/2019	CP-S6	1761.68	10.4	7.32	627	0.49	upper	SD
1/8/2020	CP-S6	1765.68	10	7.19	676	0.44	upper	SD
6/3/2020	CP-S6	1765.6	12.3	7.24	679	0.51	upper	SD

Temp=degrees C; Conductivity=umhos/cm; Turbidity= NTU

Figure 3-2 Upper Aquifer Groundwater Elevations vs. Time



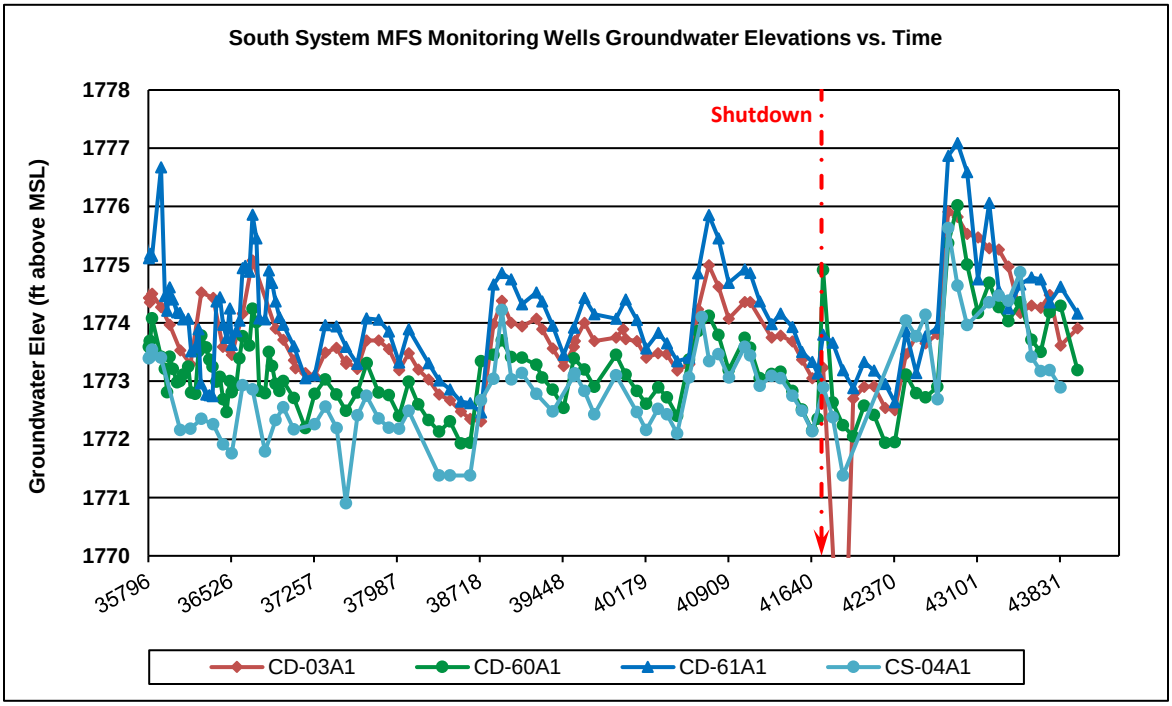


Figure 3-3 Upper Aquifer Estimated Groundwater Elevation Contours

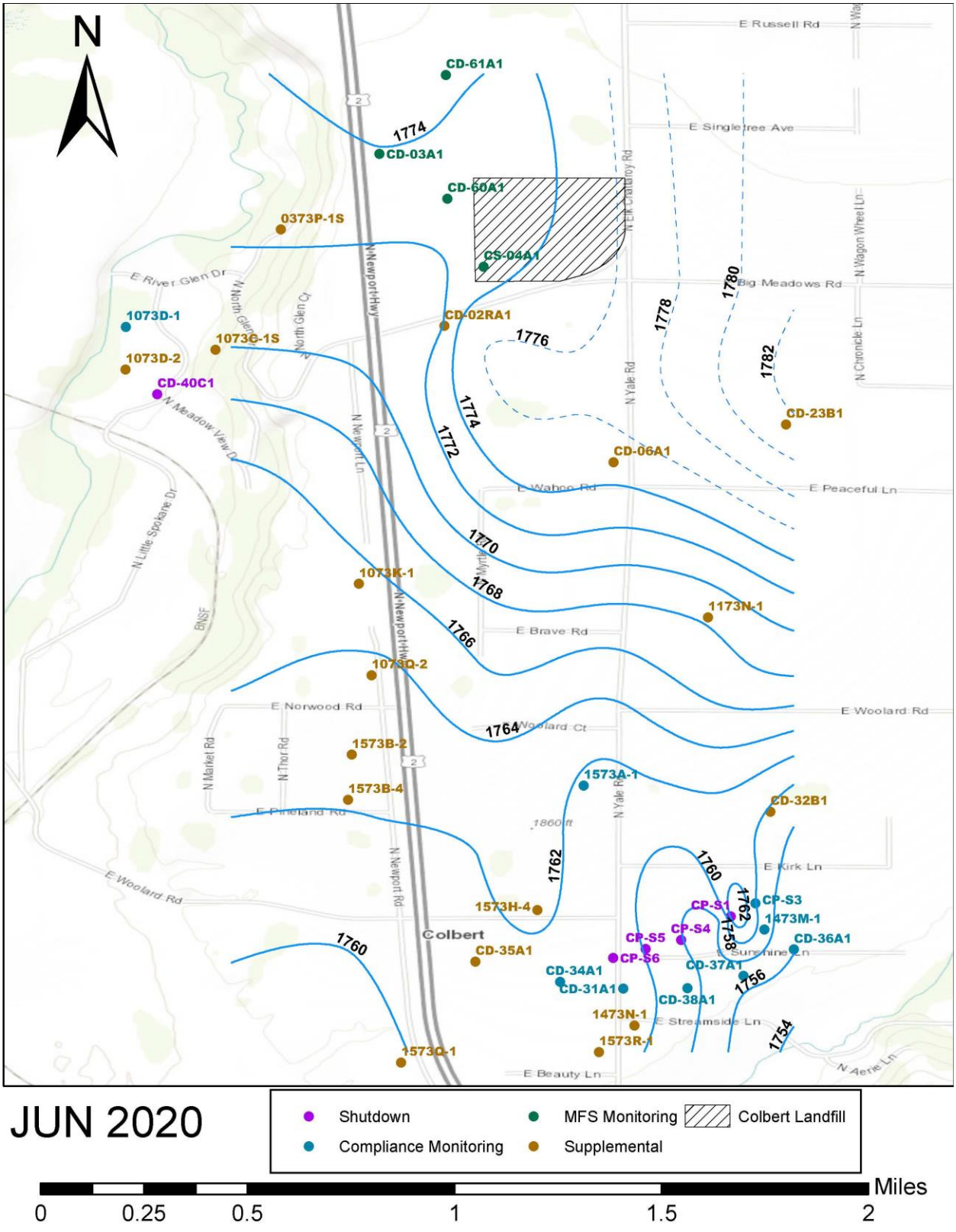


Figure 3-4 Upper Aquifer Groundwater Elevation Map

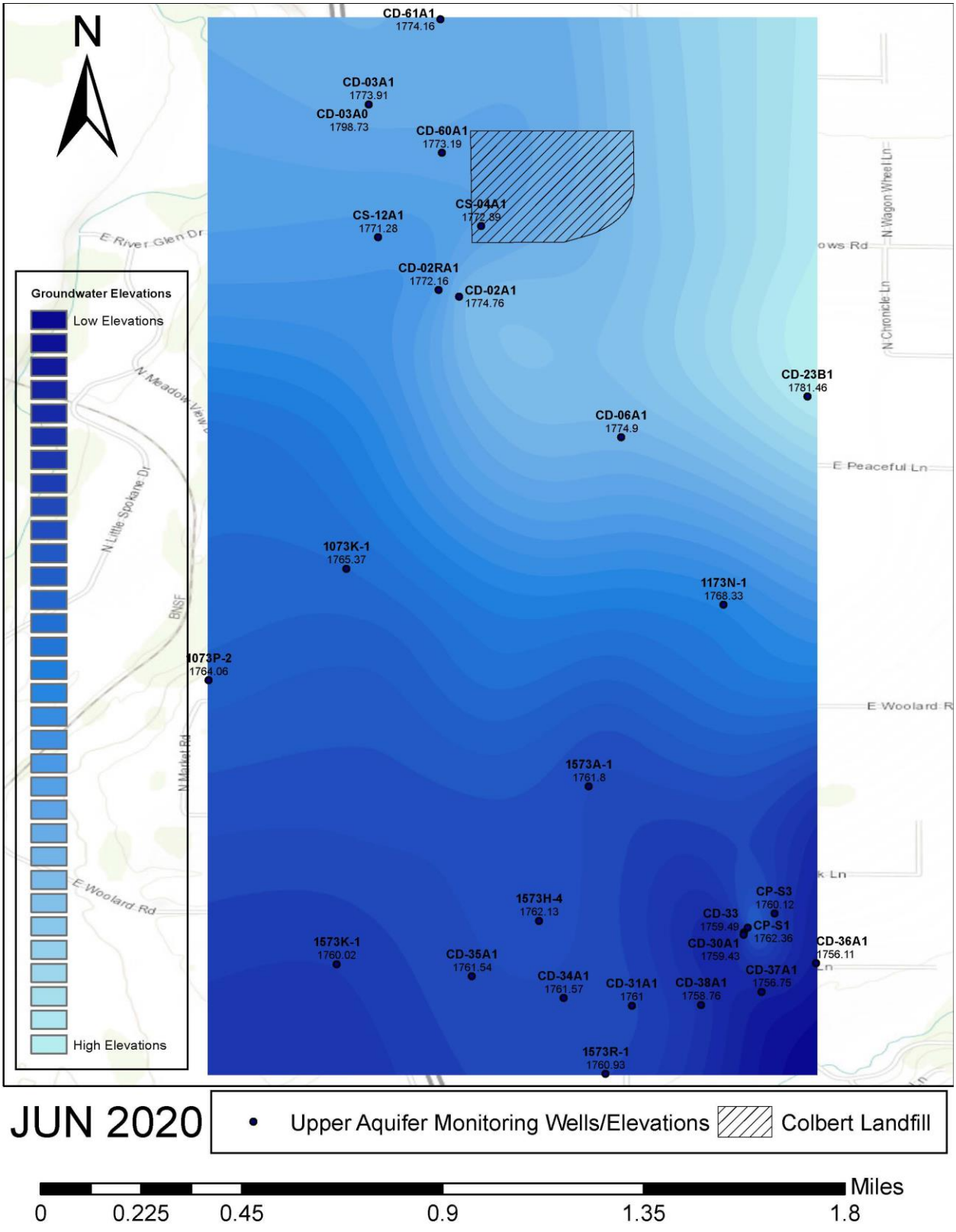


Table 3-4 Upper Aquifer Groundwater Monitoring Result

				ug/L						mg/L								
StationID	Aquifer	Program	SampleDate	DCA	DCE	MC	PCE	TCA	TCE	Cl	COD	Fe	Mn	N-NH3	N-NO3	SO4	TOC	Zn
1473M-1	upper	CCM	6/3/2020	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50									
1573A-1	upper	CCM	6/3/2020	0.75	<0.50	<0.50	<0.50	1.04	0.76									
CD-31A1	upper	CCM	6/2/2020	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50									
CD-34A1	upper	CCM	6/2/2020	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50									
CD-36A1	upper	CCM	6/2/2020	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50									
CD-37A1	upper	CCM	6/2/2020	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50									
CD-38A1	upper	CCM	6/2/2020	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50									
CP-S3	upper	CCM	6/4/2020	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50									
CD-03A1	upper	MFS	6/4/2020	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.67	<0.50	<0.50	<0.50	<0.50	0.45	6	<0.50	<0.50
CD-60A1	upper	MFS	6/4/2020	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	4.98	<0.50	<0.50	<0.50	<0.50	1.65	9.04	<0.50	<0.50
CD-61A1	upper	MFS	6/4/2020	<0.50	<0.50	<0.50	<0.50	1.43	<0.50	0.8	<0.50	<0.50	<0.50	<0.50	0.14	8.97	<0.50	<0.50
CS-04A1	upper	MFS	6/4/2020	0.88	<0.50	<0.50	<0.50	<0.50	0.56	5.52	<0.50	<0.50	<0.50	<0.50	4.5	10.6	<0.50	<0.50
CD-40C1	upper	SD	6/3/2020	1.74	1.02	<0.50	<0.50	1.45	<0.50									
CP-S1	upper	SD	7/16/2019	0.77	<0.50	<0.50	<0.50	<0.50	1.16									
CP-S1	upper	SD	10/2/2019	0.91	<0.50	<0.50	<0.50	0.7	1.42									
CP-S1	upper	SD	1/8/2020	1.04	<0.50	<0.50	<0.50	0.7	1.23									
CP-S1	upper	SD	6/3/2020	0.74	<0.50	<0.50	<0.50	0.55	1.26									
CP-S4	upper	SD	7/16/2019	1.54	<0.50	<0.50	<0.50	0.55	1.74									
CP-S4	upper	SD	10/2/2019	2.09	<0.50	<0.50	<0.50	0.71	1.87									
CP-S4	upper	SD	1/8/2020	2.56	0.51	<0.50	0.57	0.8	2.05									
CP-S4	upper	SD	6/3/2020	2.61	<0.50	<0.50	0.6	0.7	1.88									
CP-S5	upper	SD	7/16/2019	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50									
CP-S5	upper	SD	10/2/2019	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50									
CP-S5	upper	SD	1/8/2020	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50									
CP-S5	upper	SD	6/3/2020	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50									
CP-S6	upper	SD	7/16/2019	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50									
CP-S6	upper	SD	10/2/2019	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50									
CP-S6	upper	SD	1/8/2020	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50									
CP-S6	upper	SD	6/3/2020	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50									

Table 3-5 Upper Aquifer Criteria Exceedances (Consent Decree criteria)

There were no Consent Decree criteria exceedances during this reporting period.

StationID	SampleDate	Aquifer	Program	Analyte	Result	Units	Flag

Table 3-6 Shutdown Program Criteria Exceedances (*updated criteria values)

*Increase for Trichloroethene (PCE) from the performance standard in the ROD (0.7 µg/L) to the current MCL (5µg/L), and a decrease for 1,1-Dichloroethane (1,1-DCA) to the regional screening level (RSL) of 2.6 µg/L.

StationID	SampleDate	Aquifer	Program	Analyte	Result	Units	Flag
CP-S4	6/3/2020	upper	SD	1,1-Dichloroethane	2.61	ug/L	Exceedance

Table 3-7 1,4-Dioxane Monitoring Results

StationID	Aquifer	Analyte	SampleDate	Result	Units	Reporting Limit	Qualifier
1073D-1	upper	1,4-Dioxane	6/3/2020	0.4	ug/L	0.2	
1473M-1	upper	1,4-Dioxane	6/3/2020	0.08	ug/L	0.2	J
1573A-1	upper	1,4-Dioxane	6/3/2020	0.3	ug/L	0.2	
CD-40C1	upper	1,4-Dioxane	6/3/2020	3.2	ug/L	0.2	
CP-S1	upper	1,4-Dioxane	6/3/2020	0.6	ug/L	0.2	

Figure 3-5 1,4-Dioxane Concentrations vs. Time

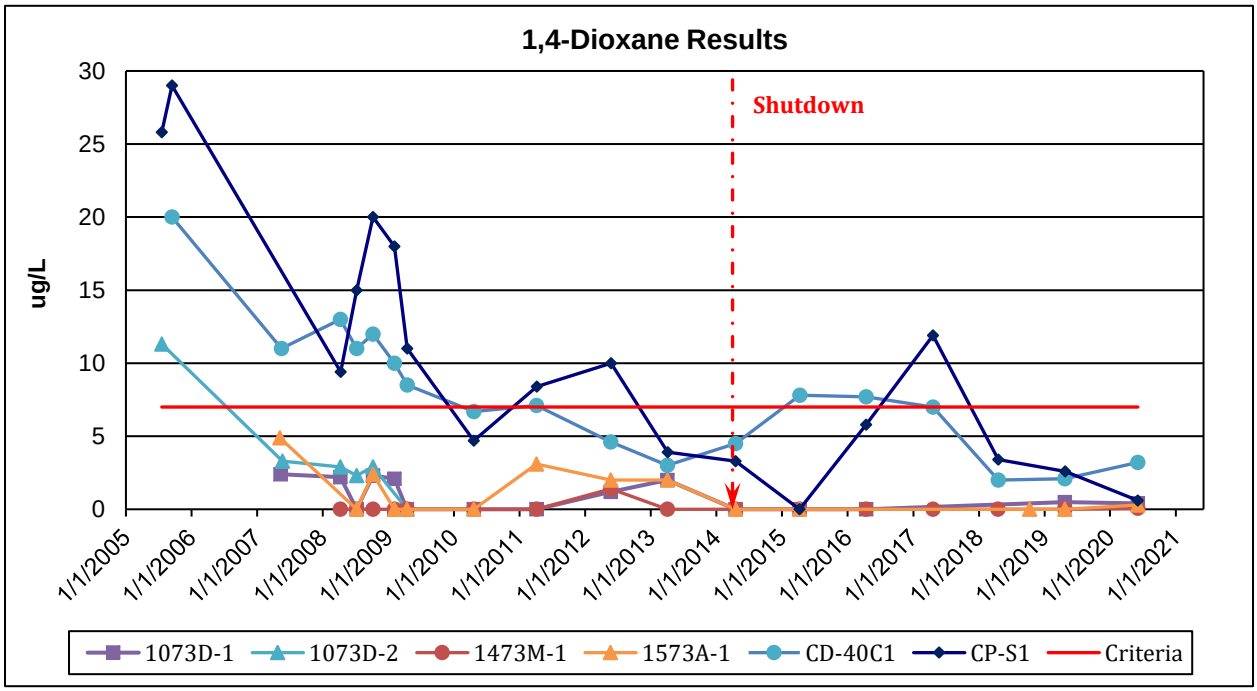
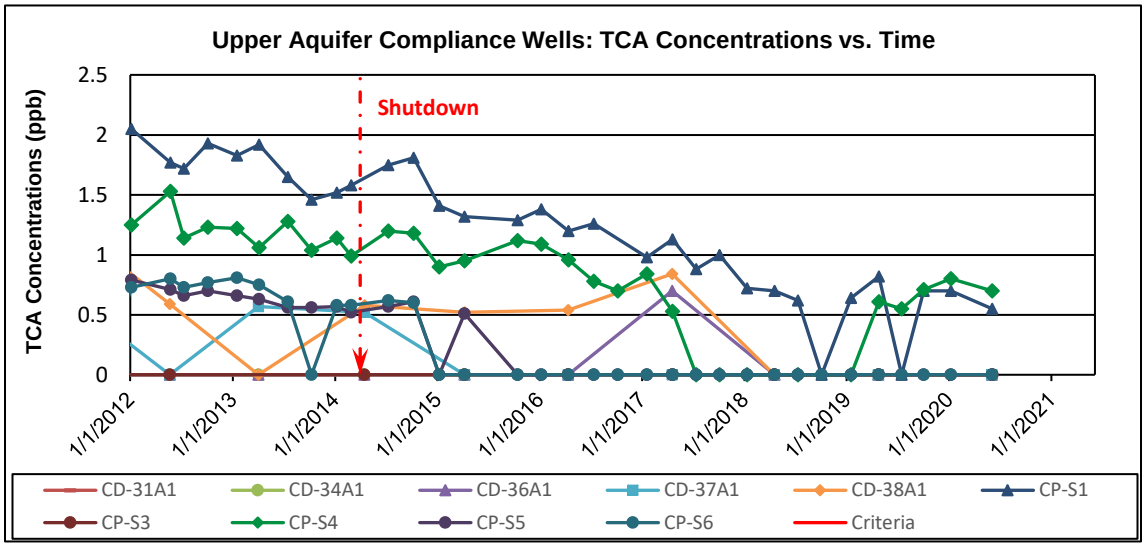
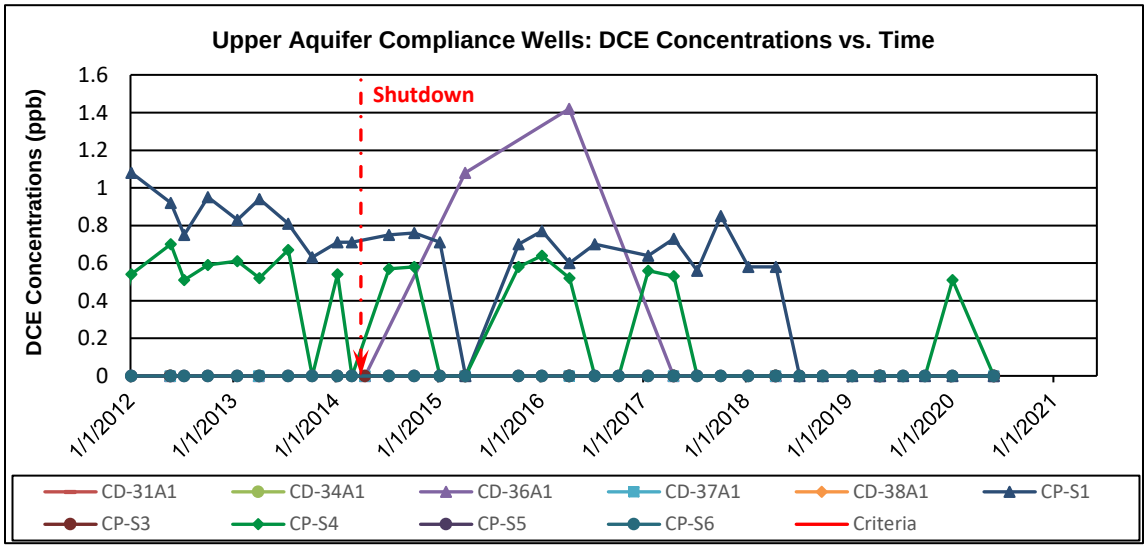


Figure 3-6 Upper Aquifer Compliance Wells COC Concentrations vs. Time





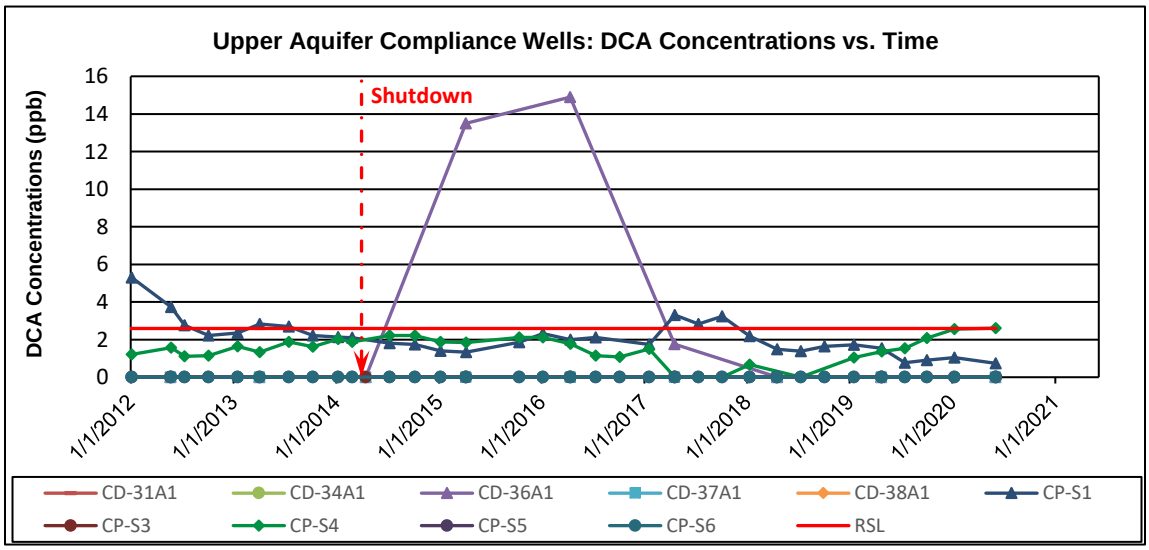
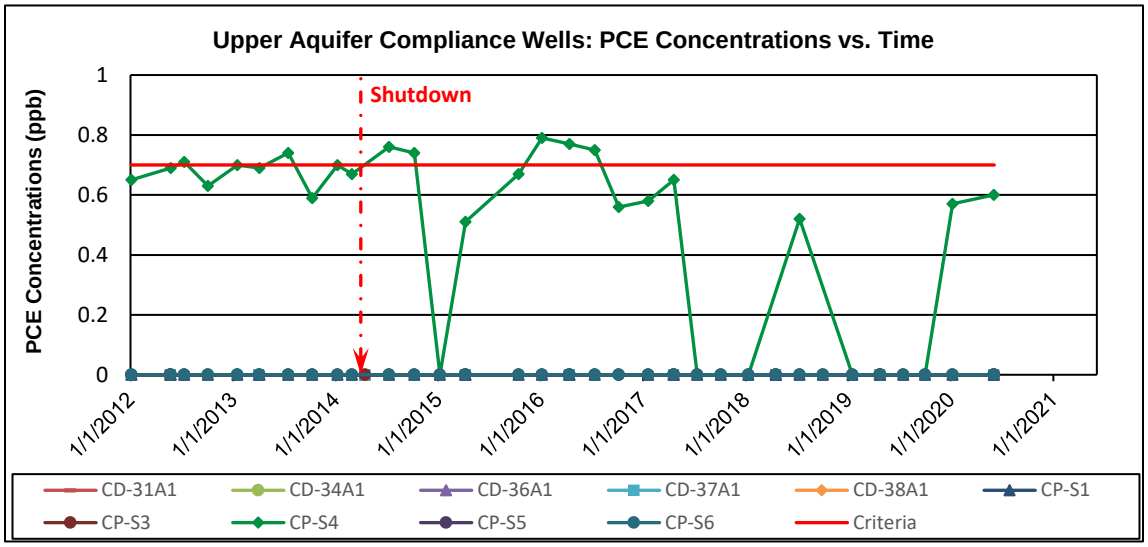


Figure 3-7 Upper Aquifer Compliance Wells COC Concentrations vs. Time



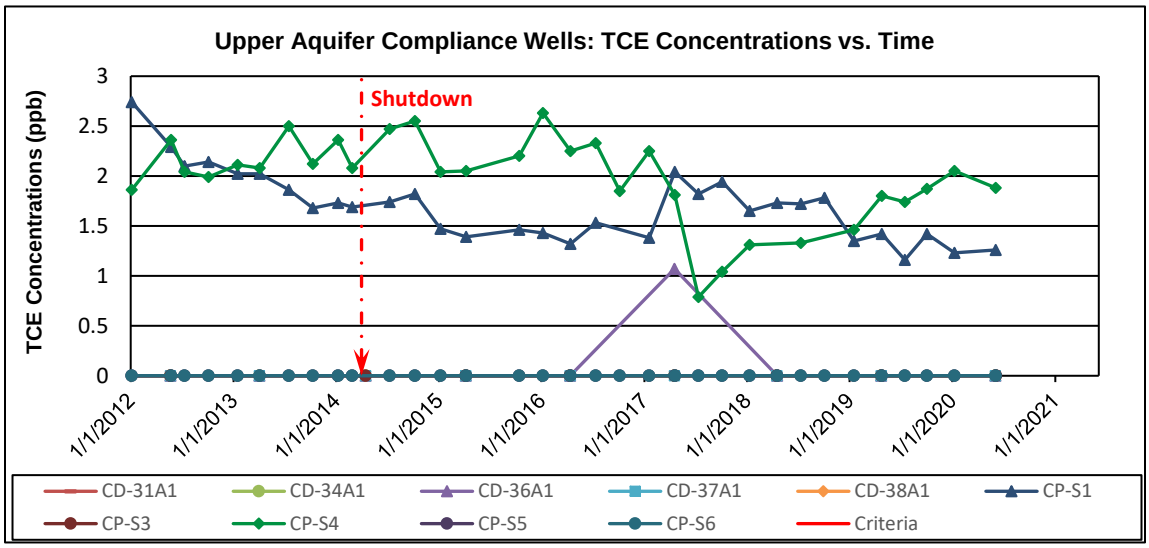


Figure 3-8 Upper Aquifer Estimated TCA Plume

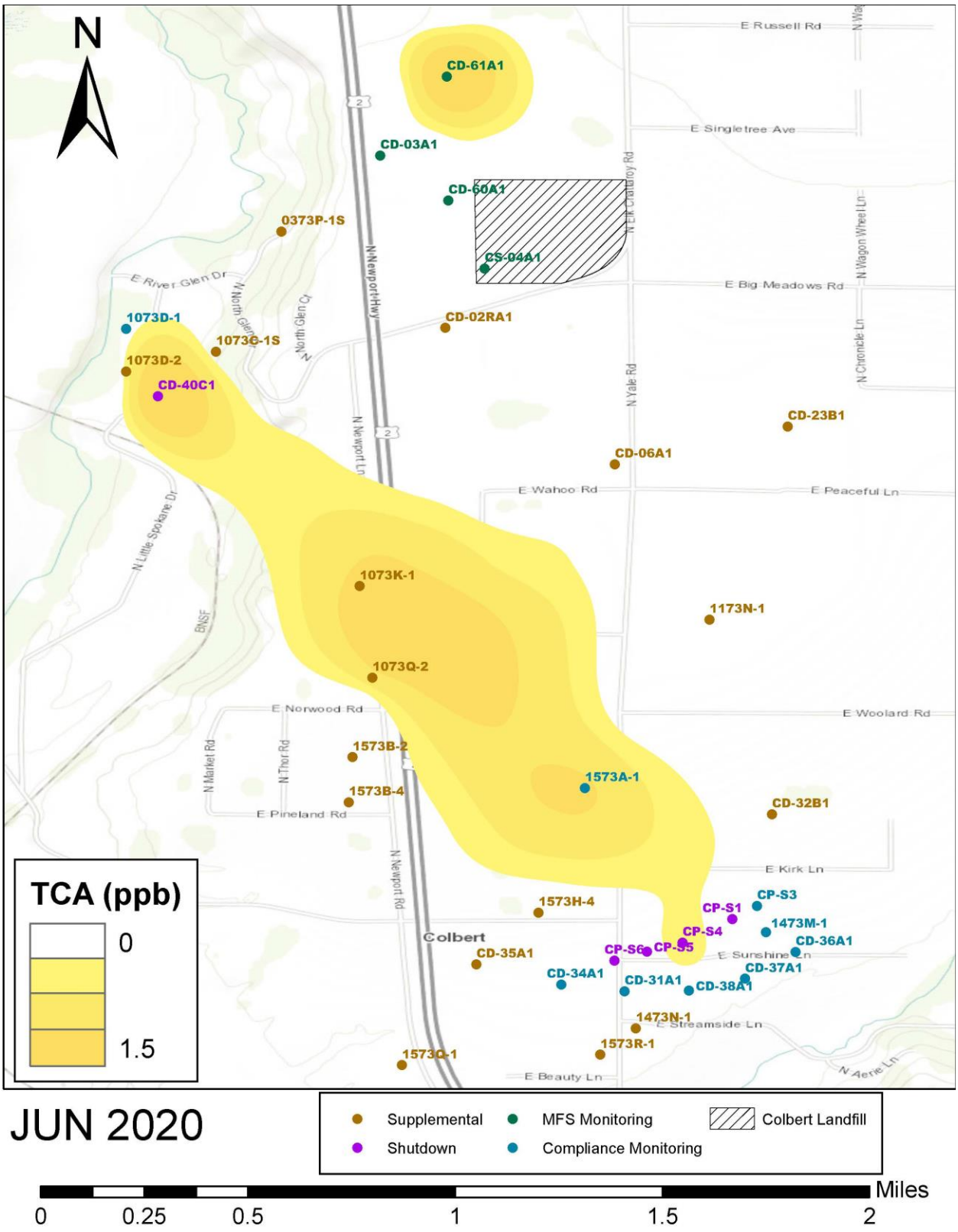


Figure 3-9 Upper Aquifer TCA Detections Map

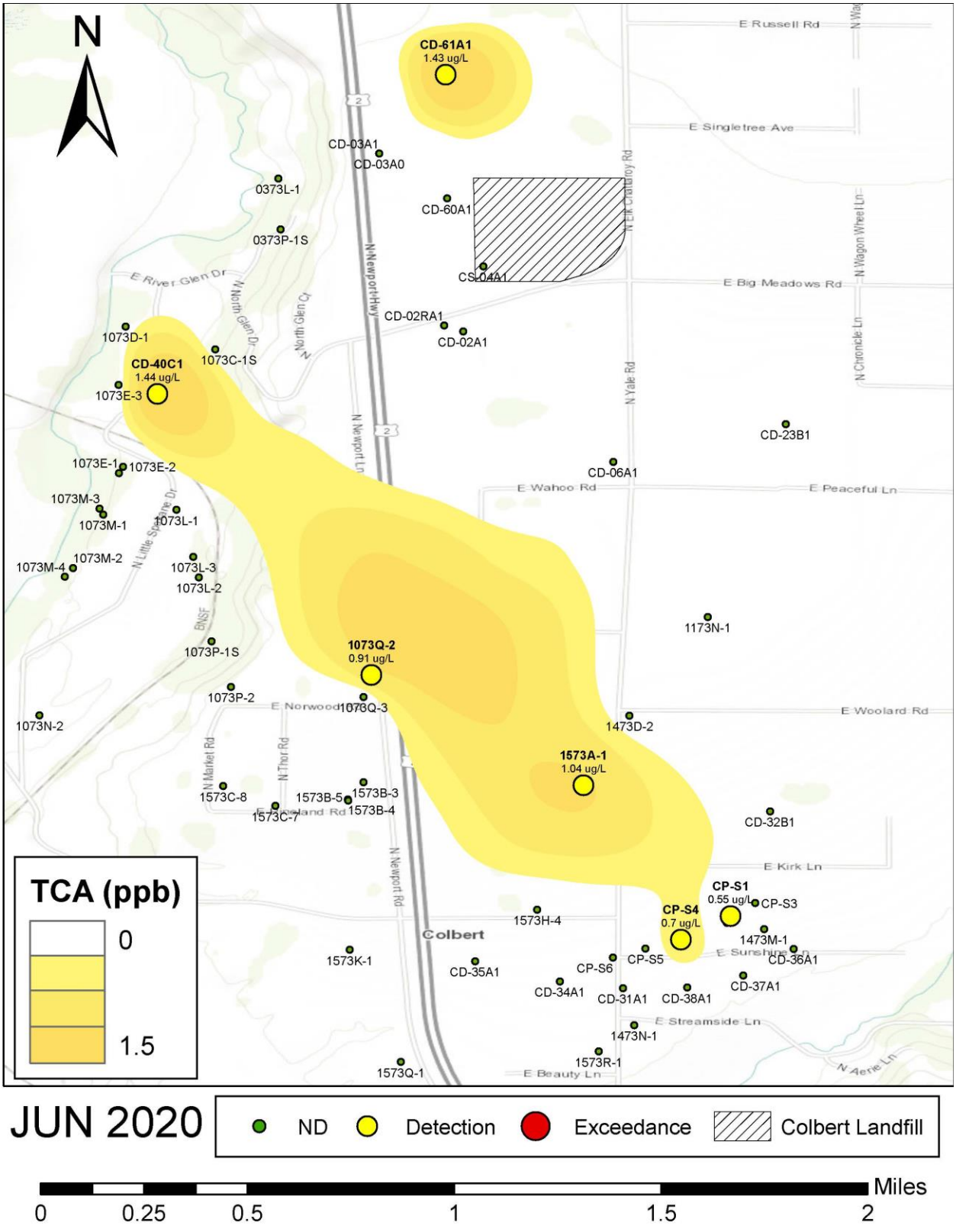


Figure 3-10 Upper Aquifer Estimated DCA Plume

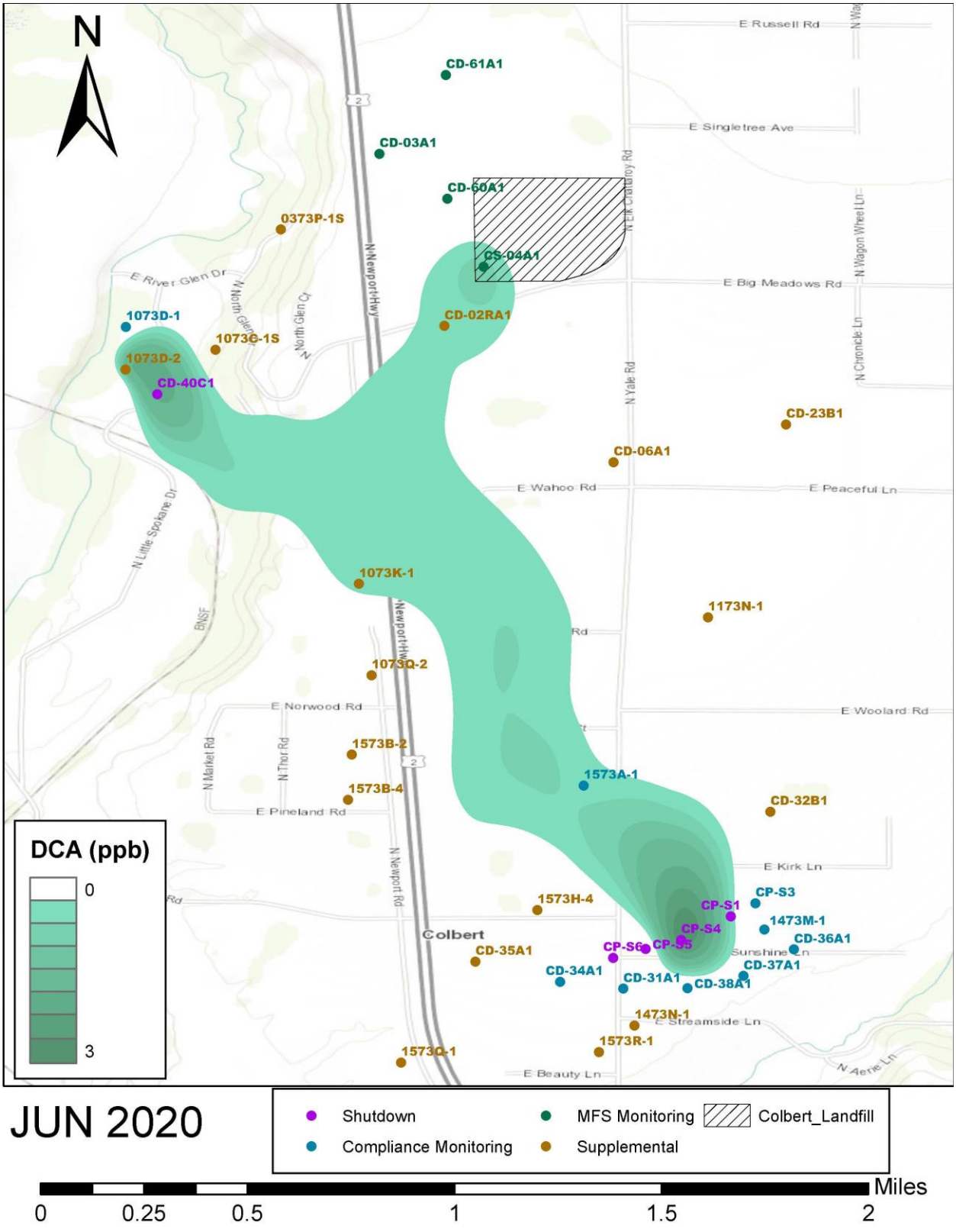


Figure 3-11 Upper Aquifer DCA Detections Map

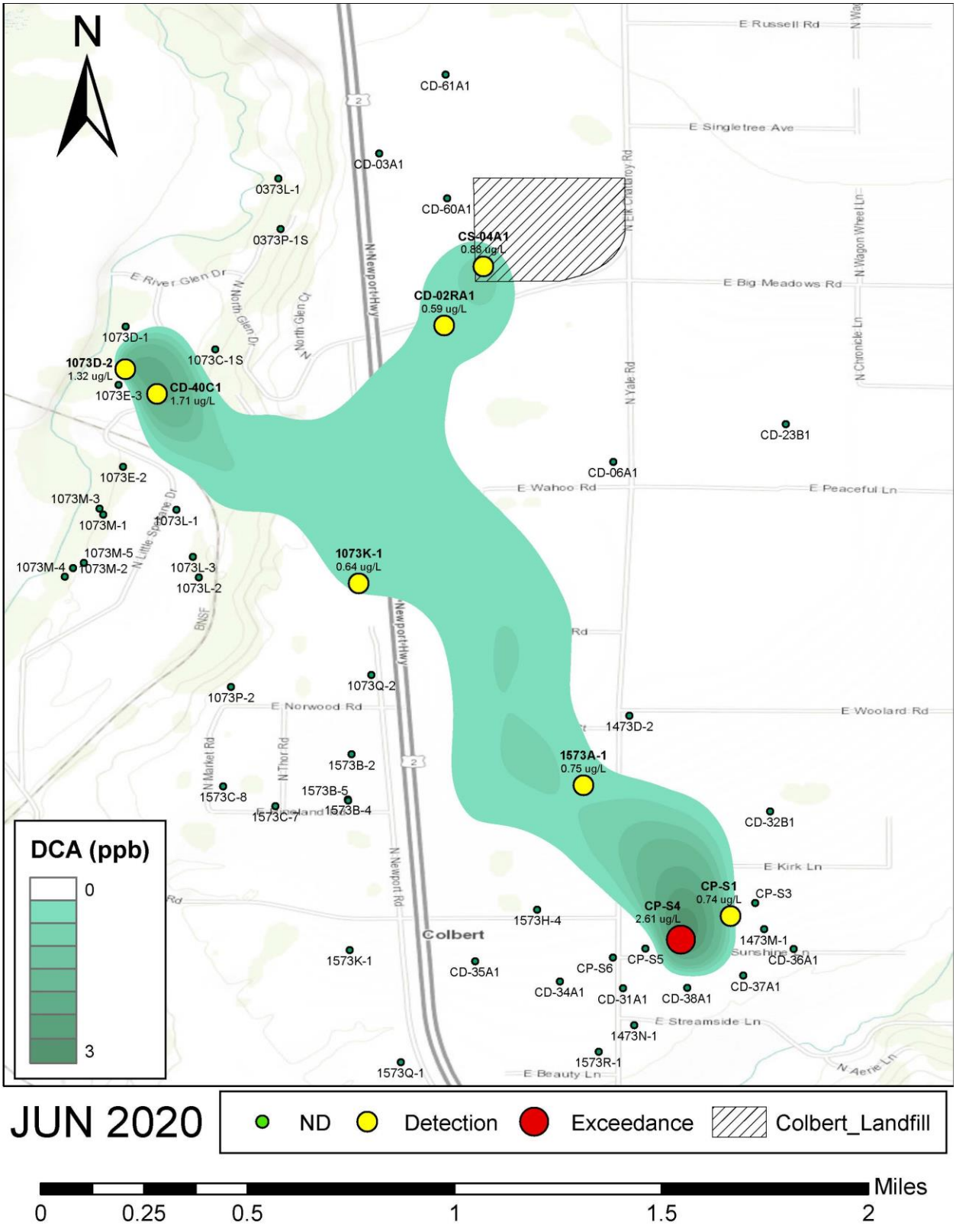


Figure 3-12 Upper Aquifer Estimated DCE Plume

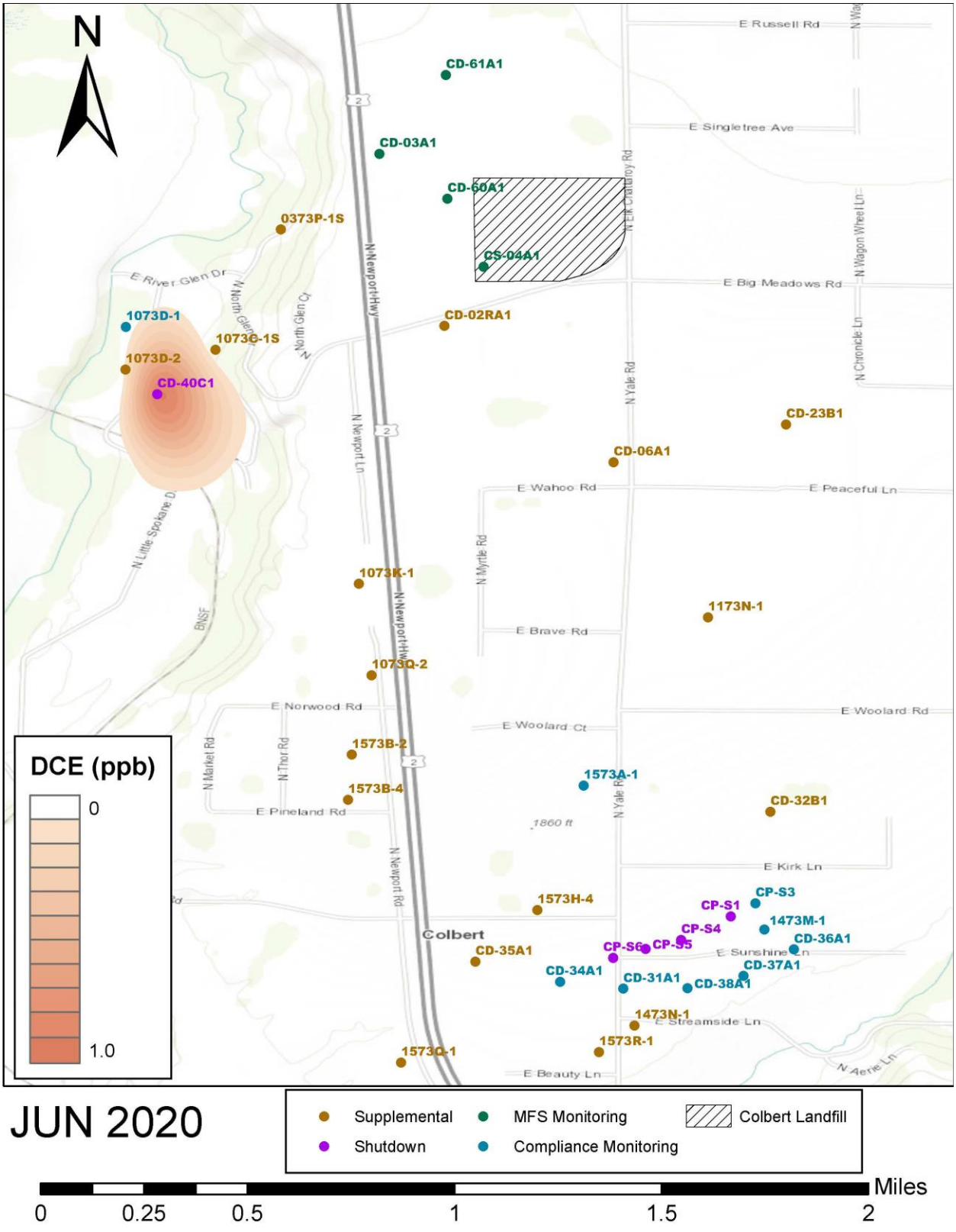


Figure 3-13 Upper Aquifer DCE Detections Map

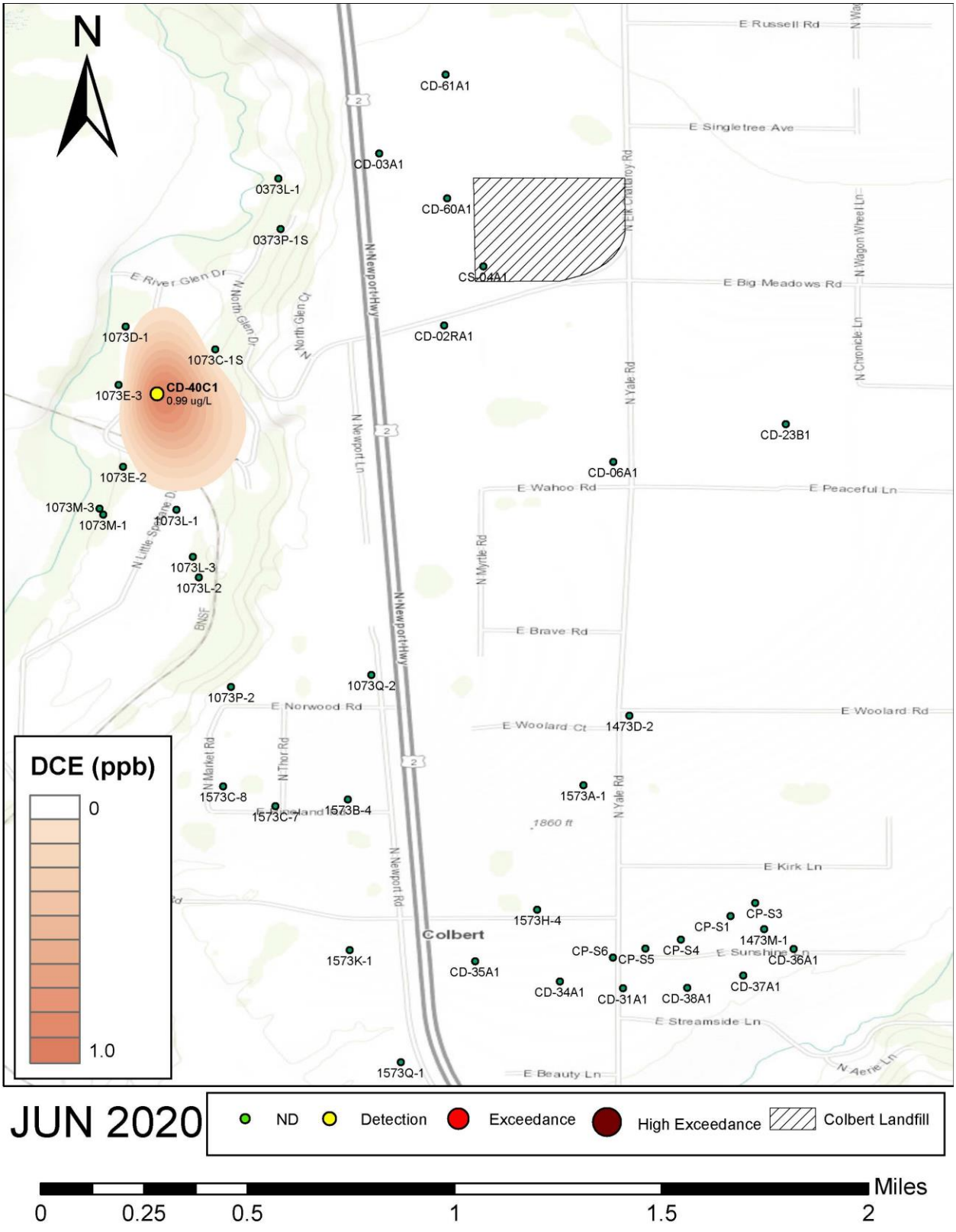


Figure 3-14 Upper Aquifer Estimated PCE Plume

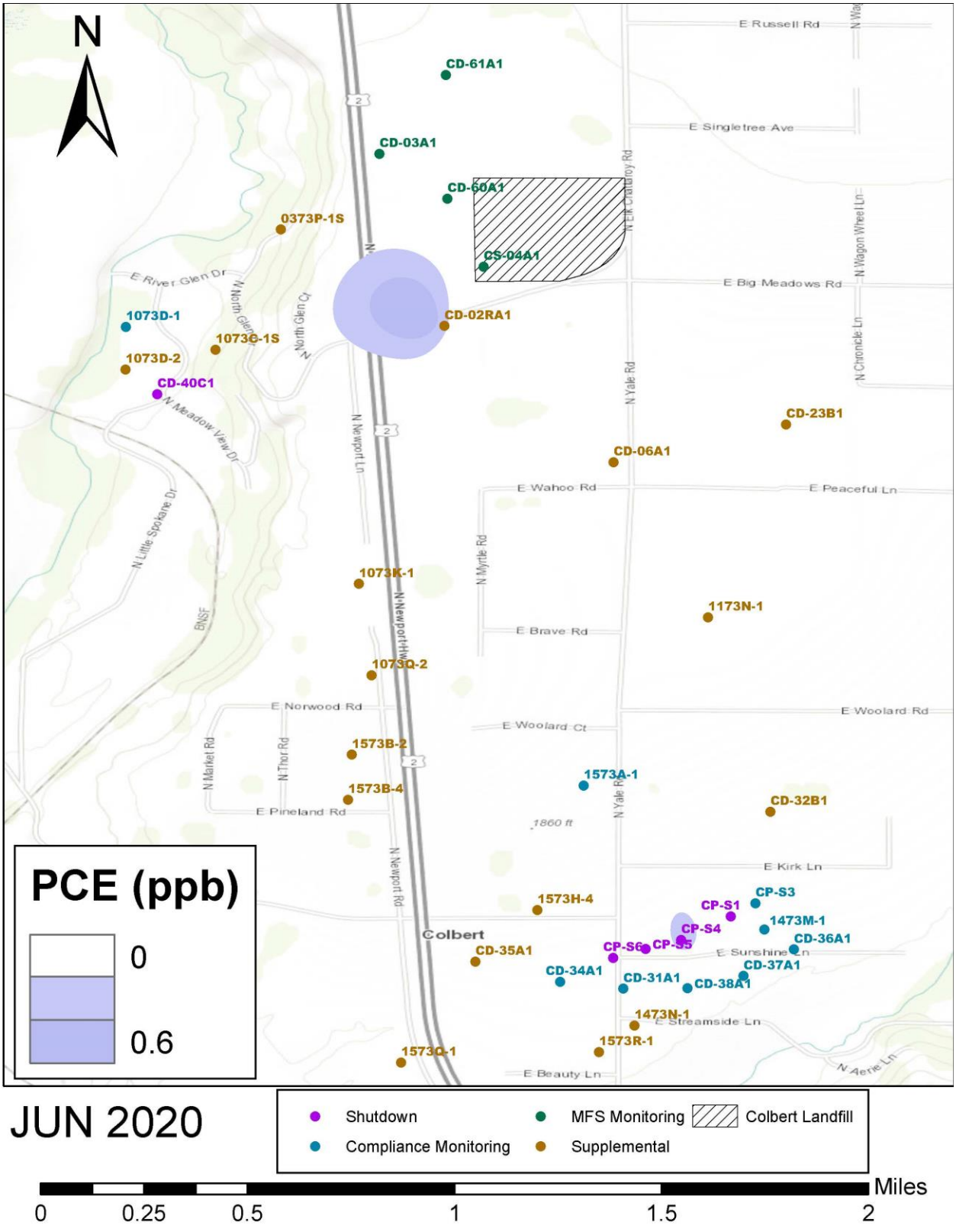


Figure 3-15 Upper Aquifer PCE Detections Map

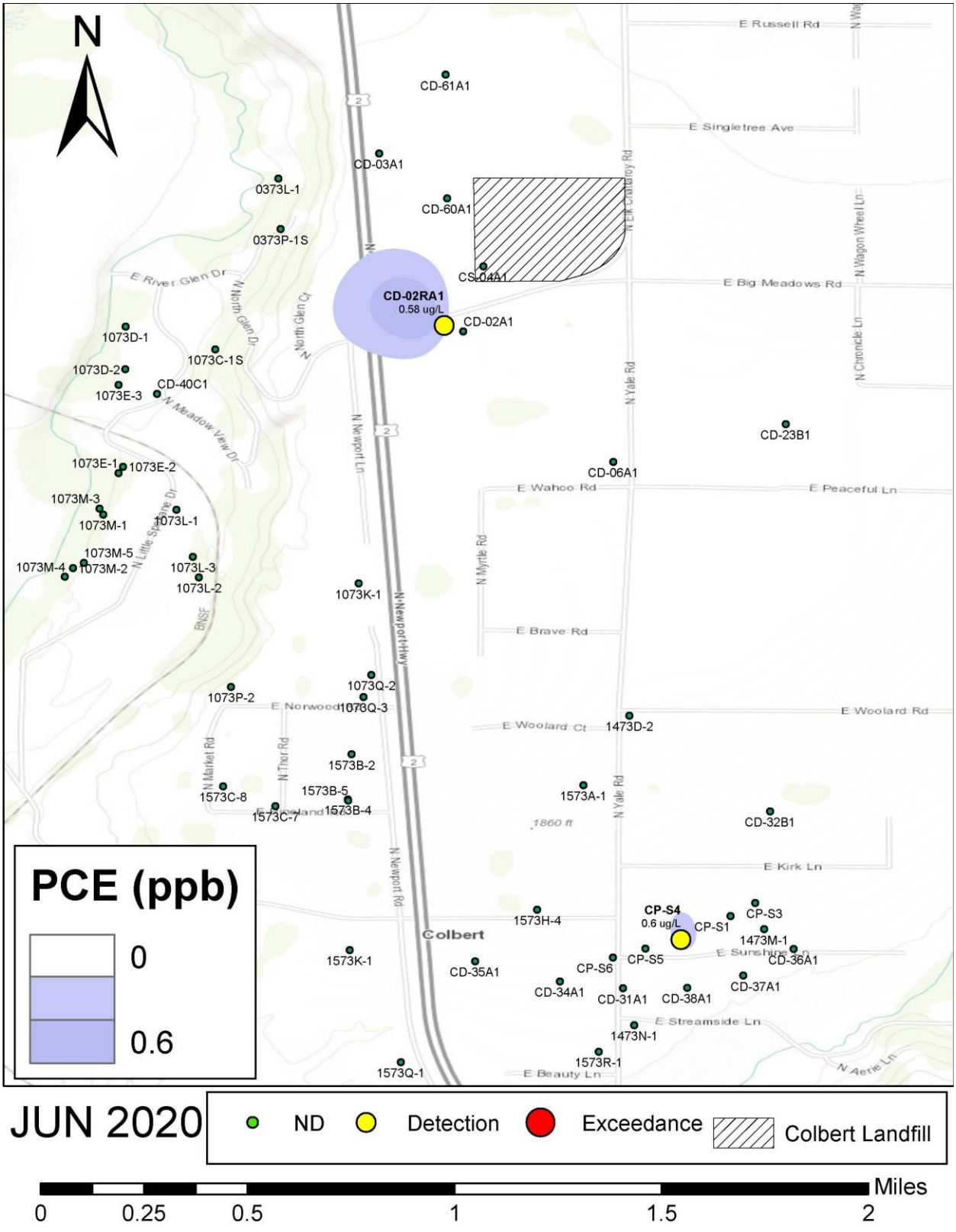


Figure 3-16 Upper Aquifer Estimated TCE Plume

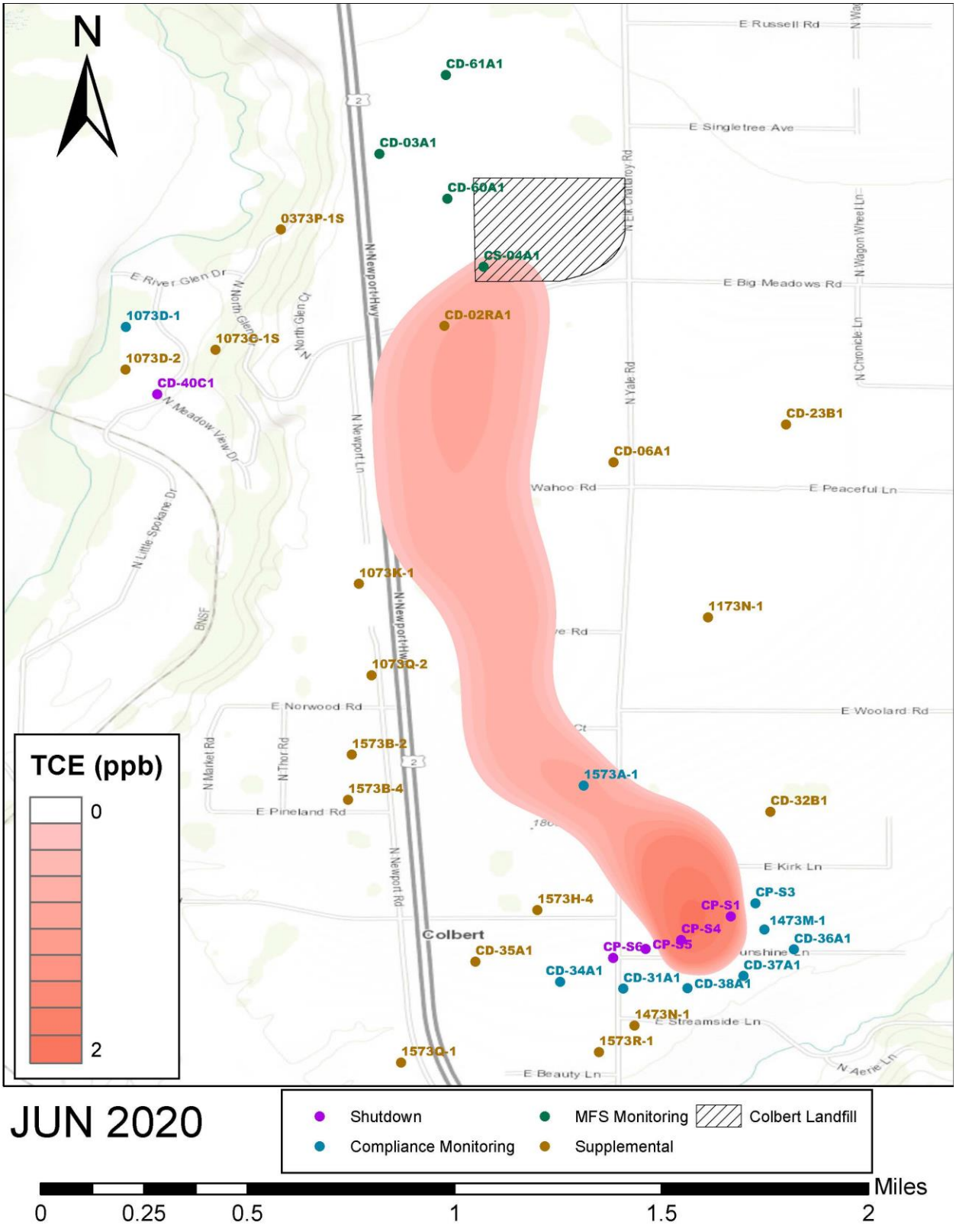


Figure 3-17 Upper Aquifer TCE Detections Map

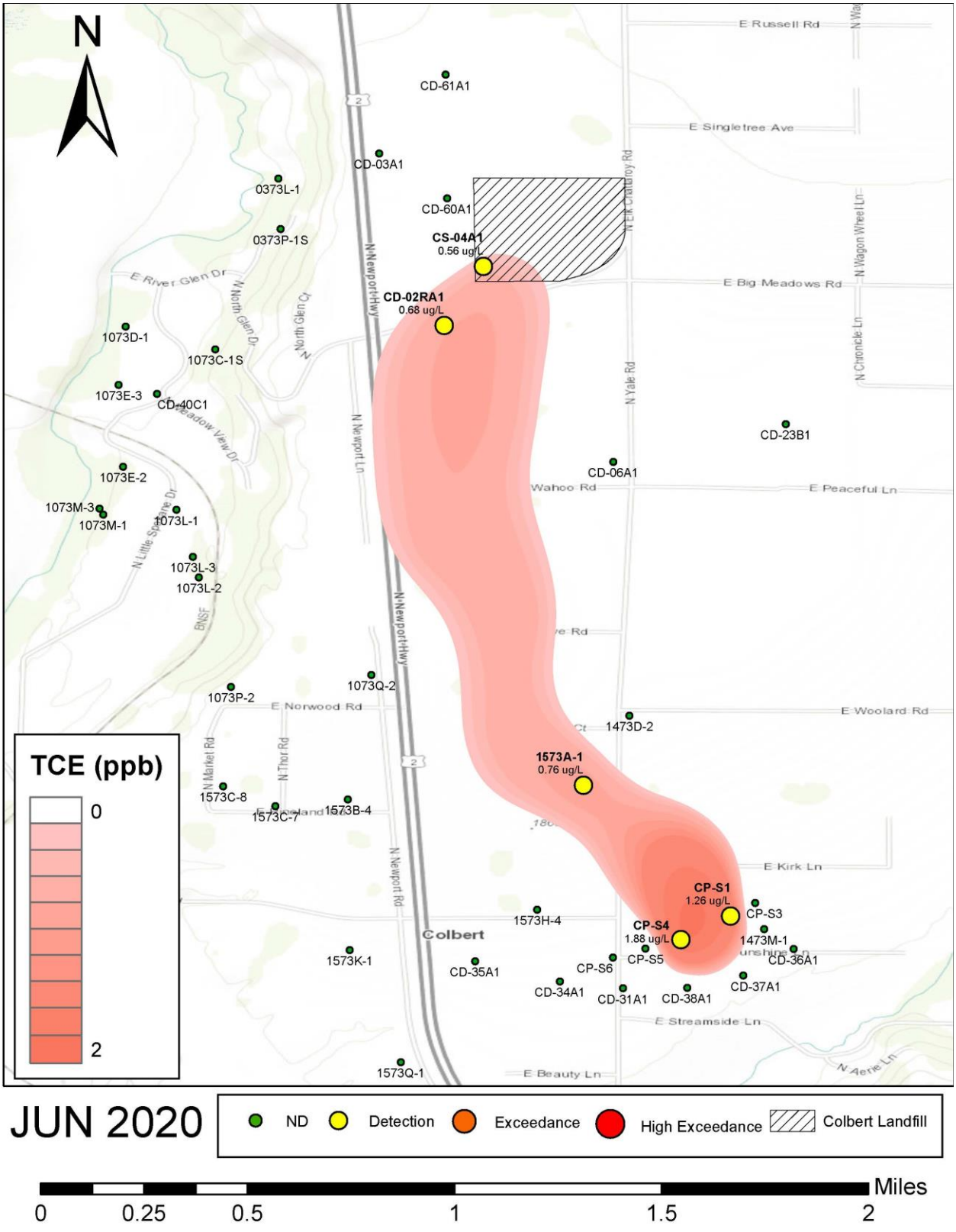


Figure 3-18 Upper Aquifer All Analytes Estimated Plume Map

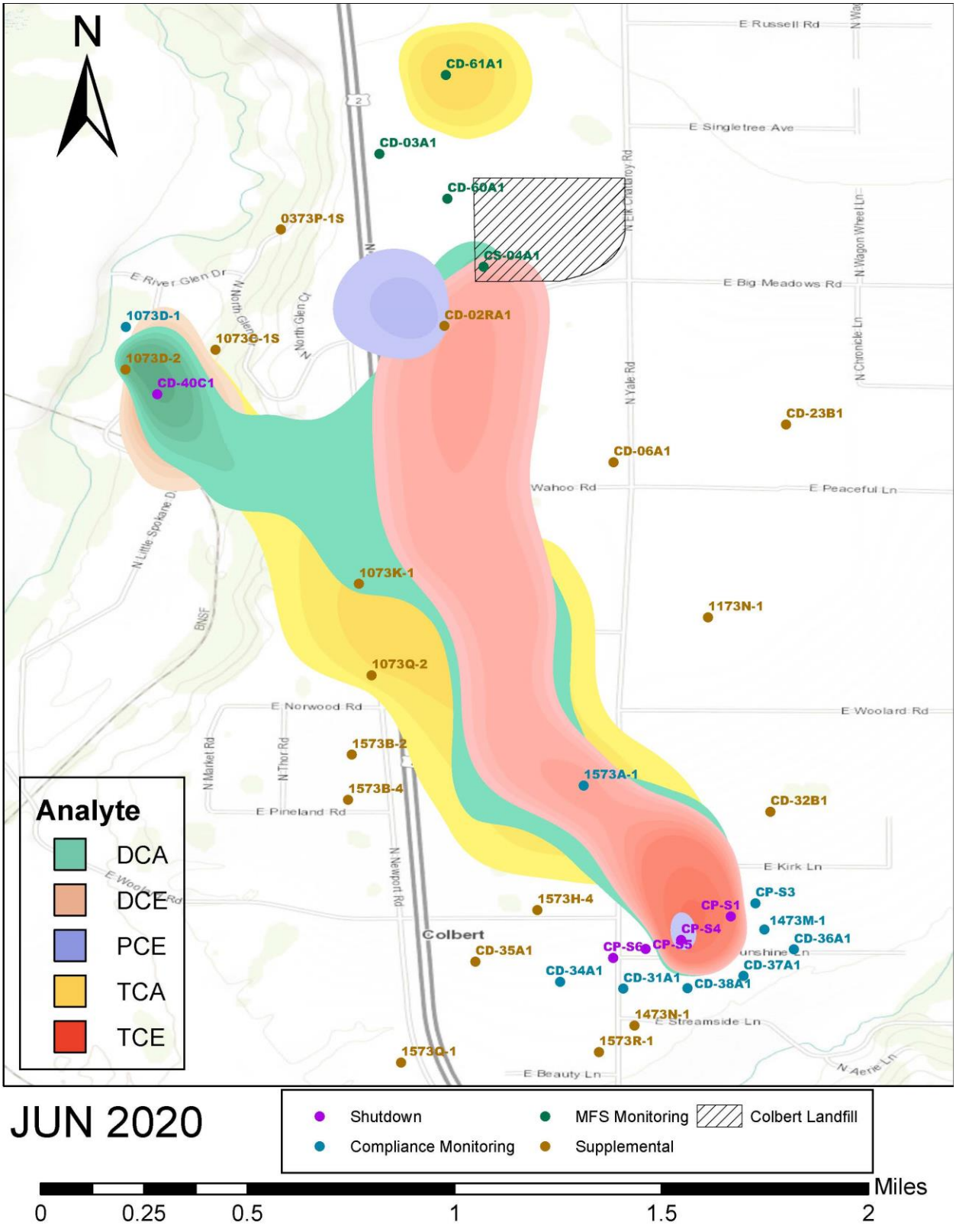
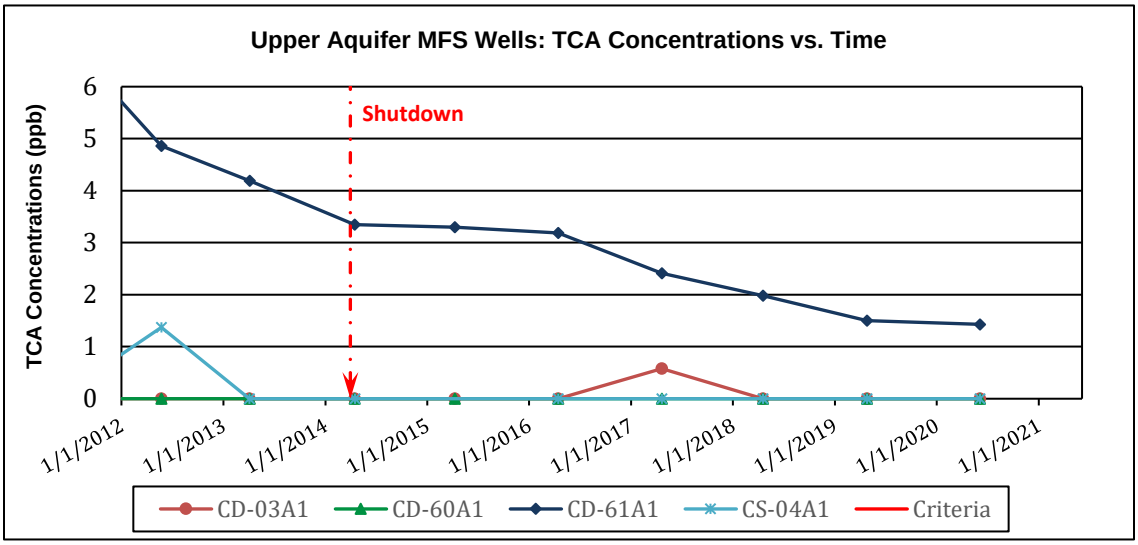
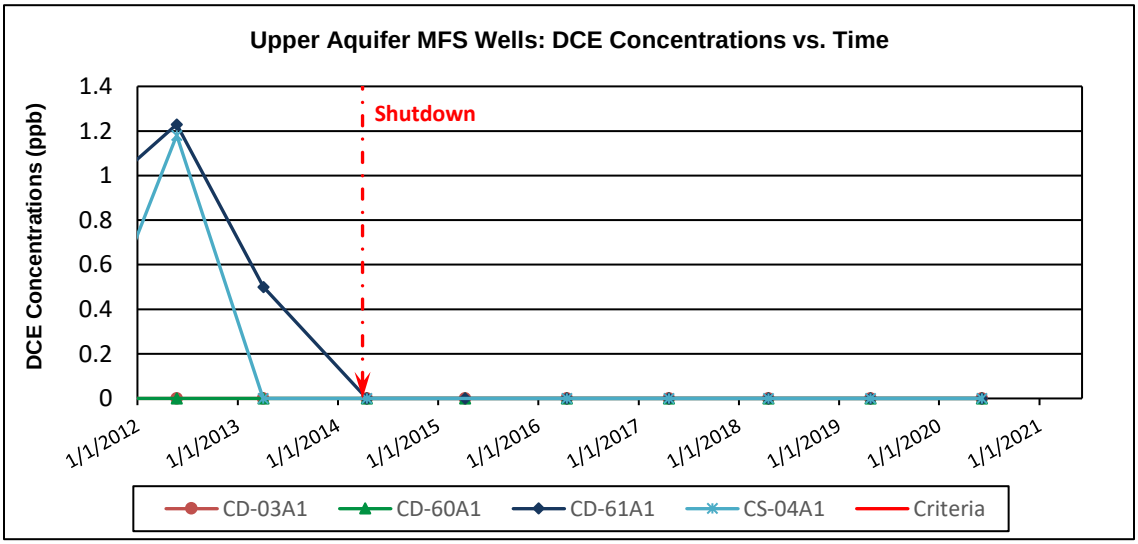


Figure 3-19 Upper Aquifer MFS Wells COC Concentrations vs. Time





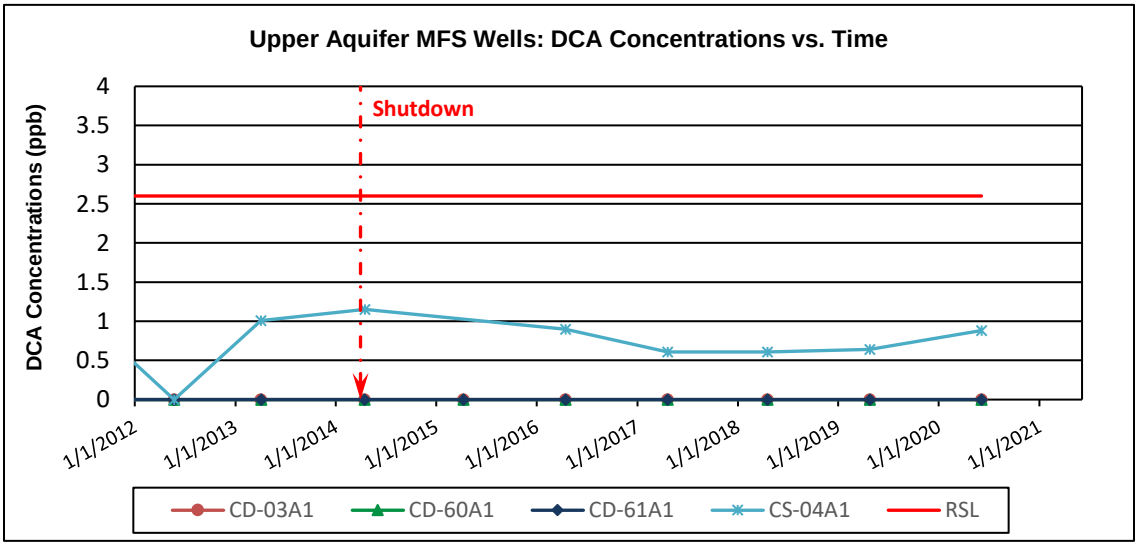
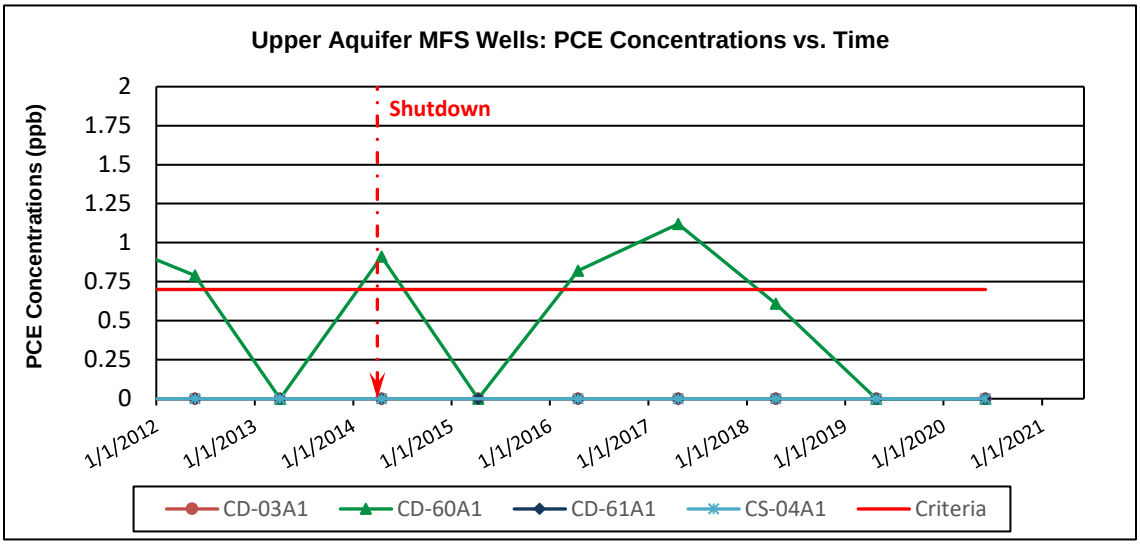


Figure 3-20 Upper Aquifer MFS Wells COC Concentrations vs. Time



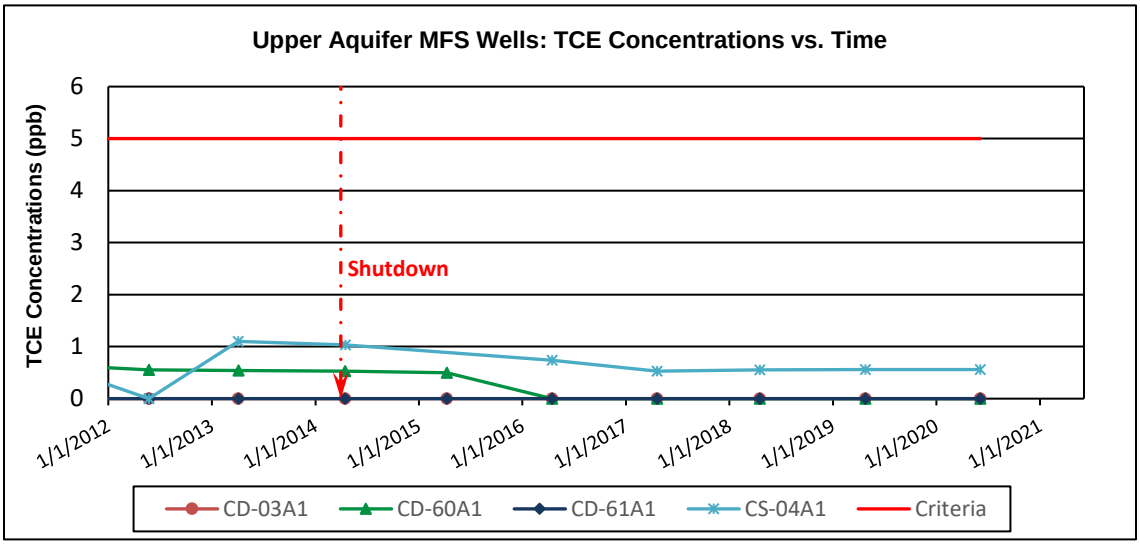
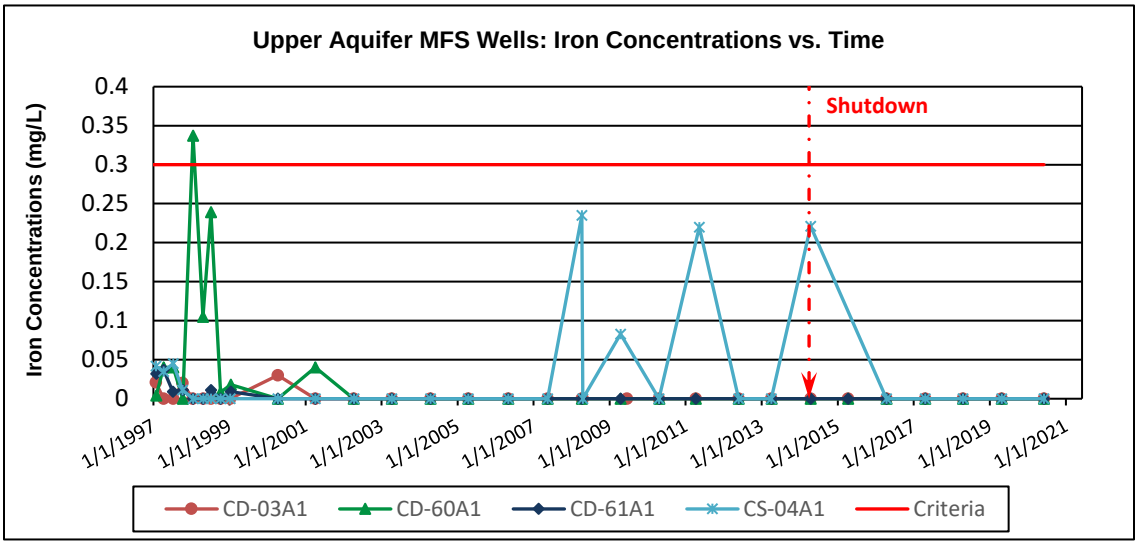
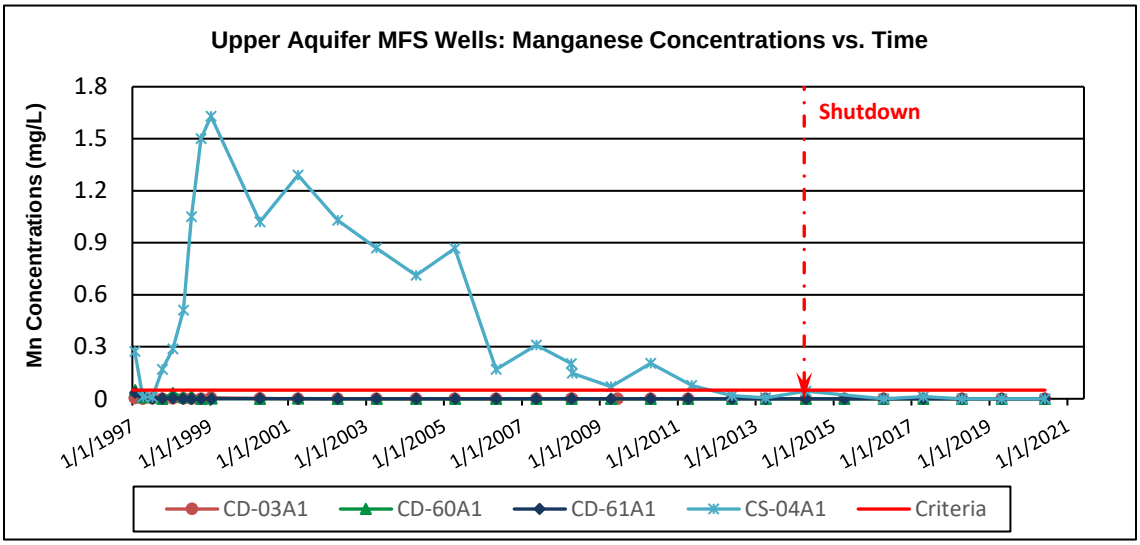


Figure 3-21 Upper Aquifer MFS Parameters vs. Time





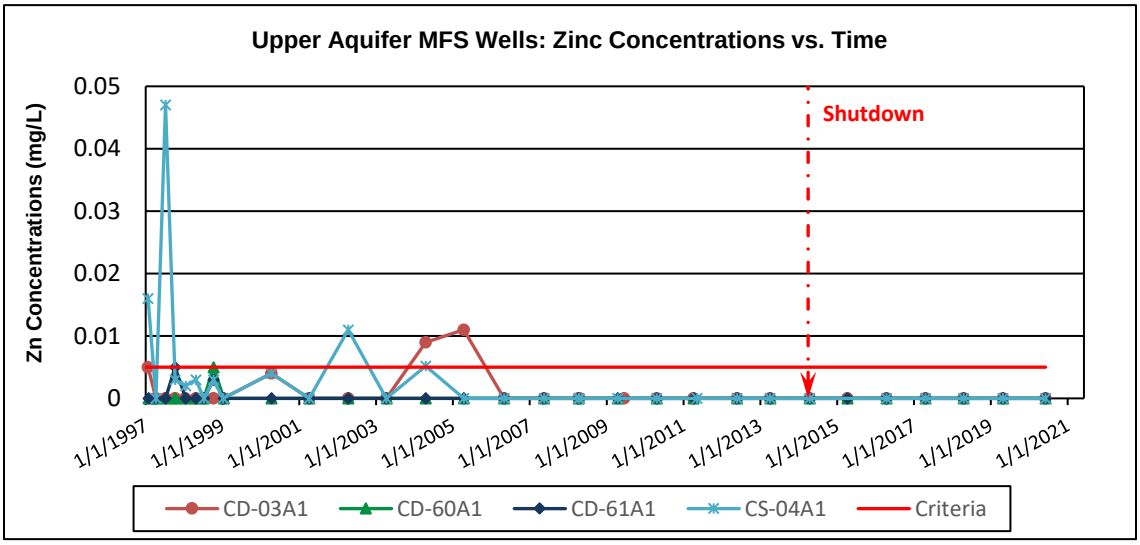
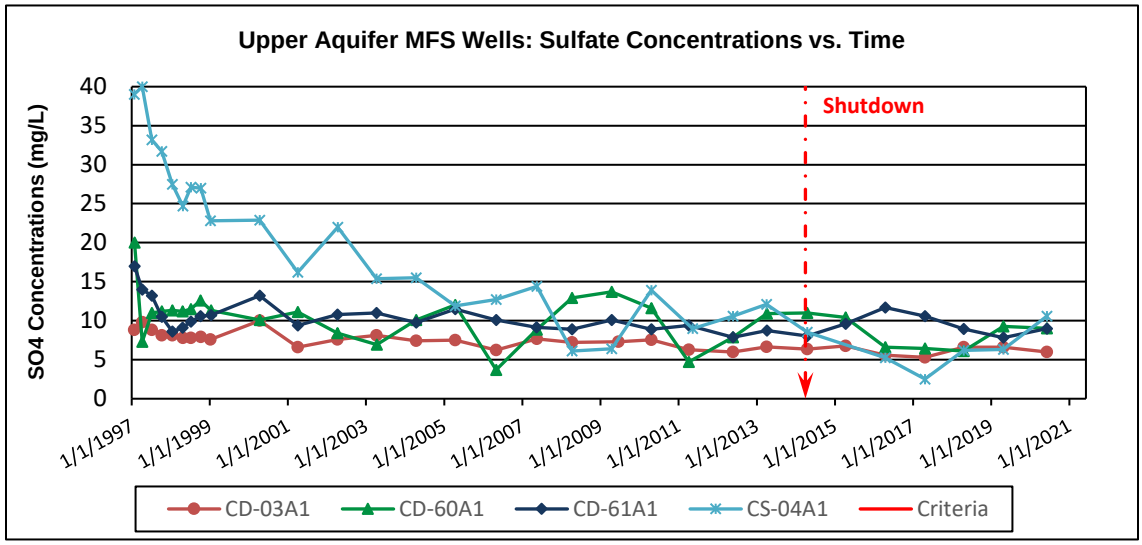
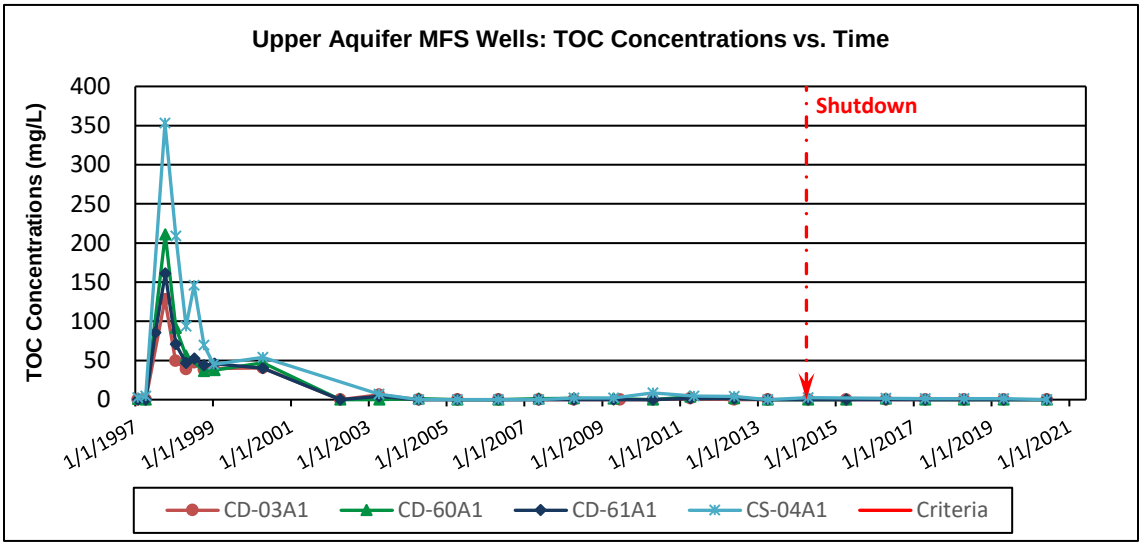


Figure 3-22 Upper Aquifer MFS Parameters vs Time





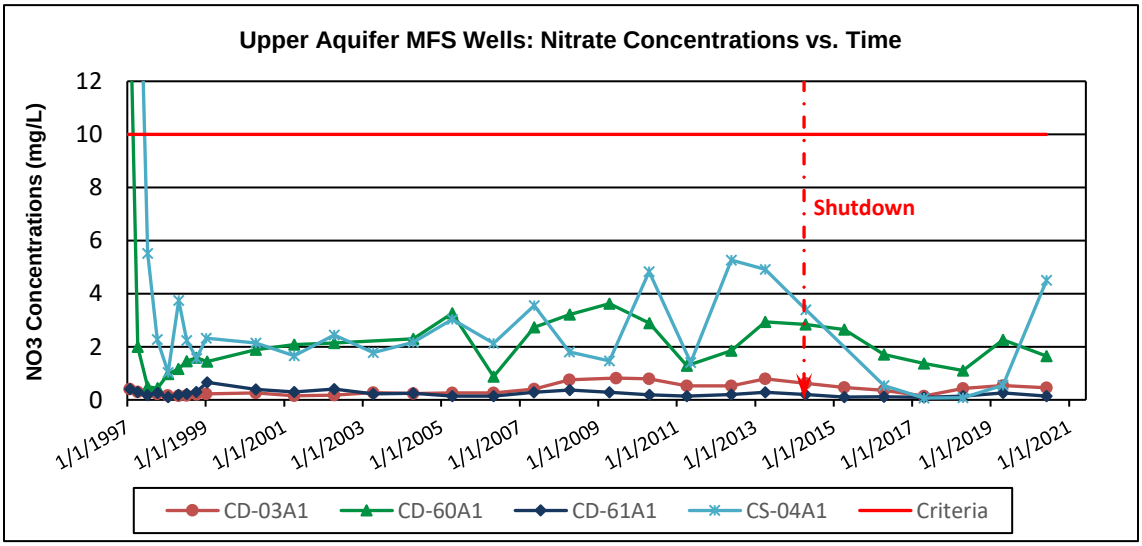


Table 3-8 Summary Results for the Mann-Whitney Nonparametric Significance Test (2020)

	Level of Significance (p)	
Constituent	**Upper Aquifer**	***Lower Aquifer (1999)**
Chloride (Cl)	**1.72E-05**	**0.006**
Chemical Oxygen Demand (COD)	0.4665	0.48
Iron (FE)	0.1488	0.17
Manganese (MN)	0.07258	0.86
Ammonia (NH3)	0.4778	0.42
Nitrite (NO2)	0.4292	1.13
Nitrate (NO3)	**3.00E-06**	0.08
Sulfate	0.6044	**0.0006**
Total Organic Carbon	0.7098	0.32
Zinc	0.06391	0.06

***** Lower aquifer results from January 1999 using CP-E2 and CD-48C2 analytical results for calculations.

Bold number indicates a level of significance under 0.05, test run as two-tailed method.

Figure 3-23 Box Plots for Background and Downgradient MFS Wells (2020)

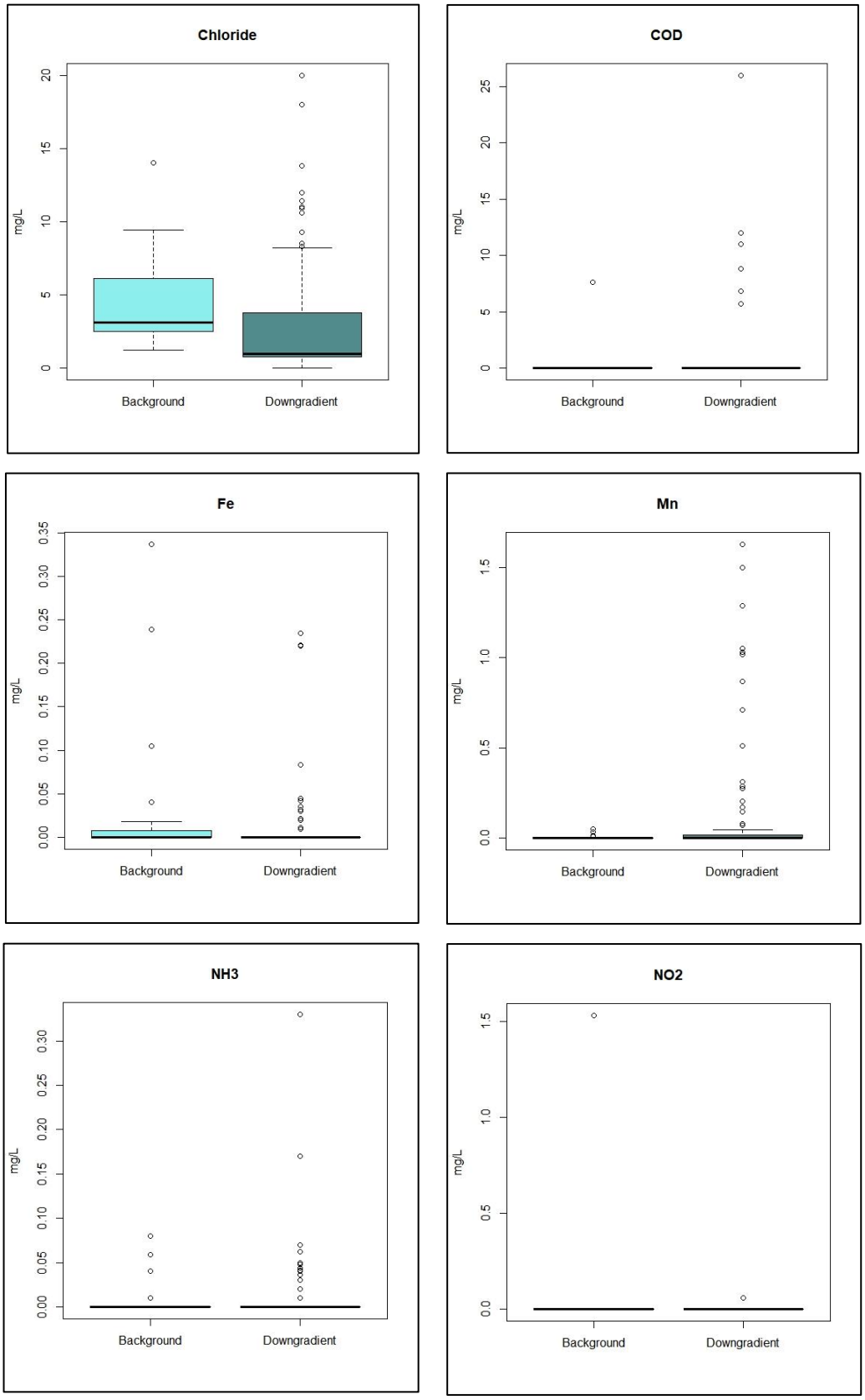
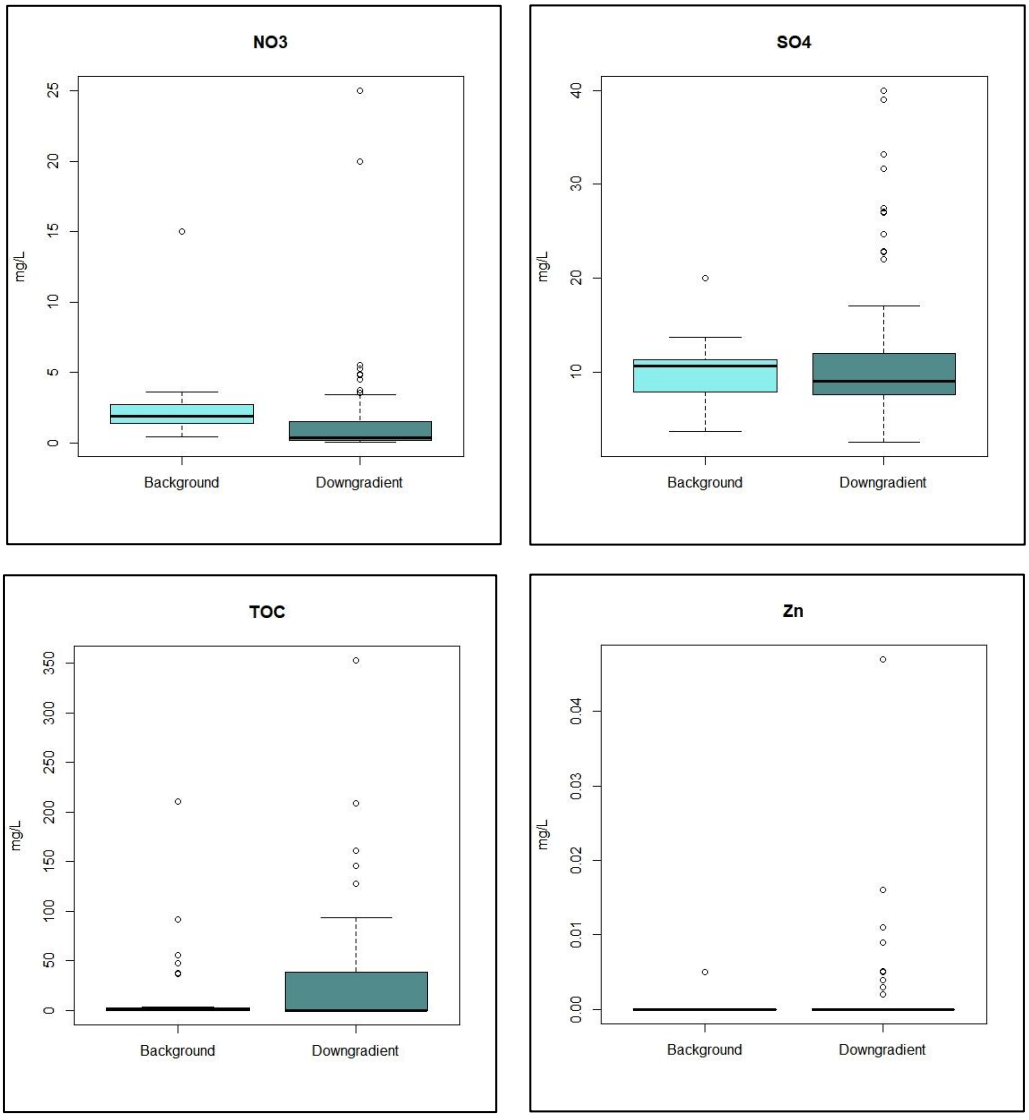


Figure 3-23 continued



4.0 Residential Program

4.1 Locations and Schedule

Current residential well sampling locations can be found in Figure 4-1. The residential sampling schedule is included in Table 4-1.

4.2 Monitoring Results and Criteria

Criteria for residential use wells were established in the Consent Decree. The Consent Decree states that if any residential well with a concentration over the evaluation criteria OR any residential well that has an average concentration over 65% of the evaluation criteria over a 12 month period, the county shall supply that residence with an alternative water source.

All residential well results were well below established criteria. Results from sampling are presented in Table 4-2. Time series plots for wells with COC detections are shown in Figure 4-2 and Figure 4-3.

4.3 Data Evaluation

Only two of the residential wells measured concentrations above the method detection limits for the 2019-2020 sampling year. Although the results were above the detection limit, they were well below any criteria.

4.4 Program Modifications

On a regular basis, the program schedule is re-evaluated to determine if any changes are needed. With the initiation of the Shut-down test, a re-evaluation was performed comparing plume maps and well locations as well as a list of residences connected to a public water supply. Some modifications to increase sampling in specific areas were made to the schedule to ensure a conservative approach with regard to public health.

11 changes have been made to the schedule for the upcoming 2020-2021 sampling year. There were 9 decreases in the sampling schedule (several decreases from semi-annual to annual, a couple decreases from annual to biennial, and one decrease from biennial to supplemental), and 1 increase from bi-annual to quarterly due to detections of DCA. Changes are not required by any documentation or work plan.

The 2020 residential well sampling schedule and changes to the program are presented in Table 4-1.

Figure 4-1 Residential Well Sampling Locations

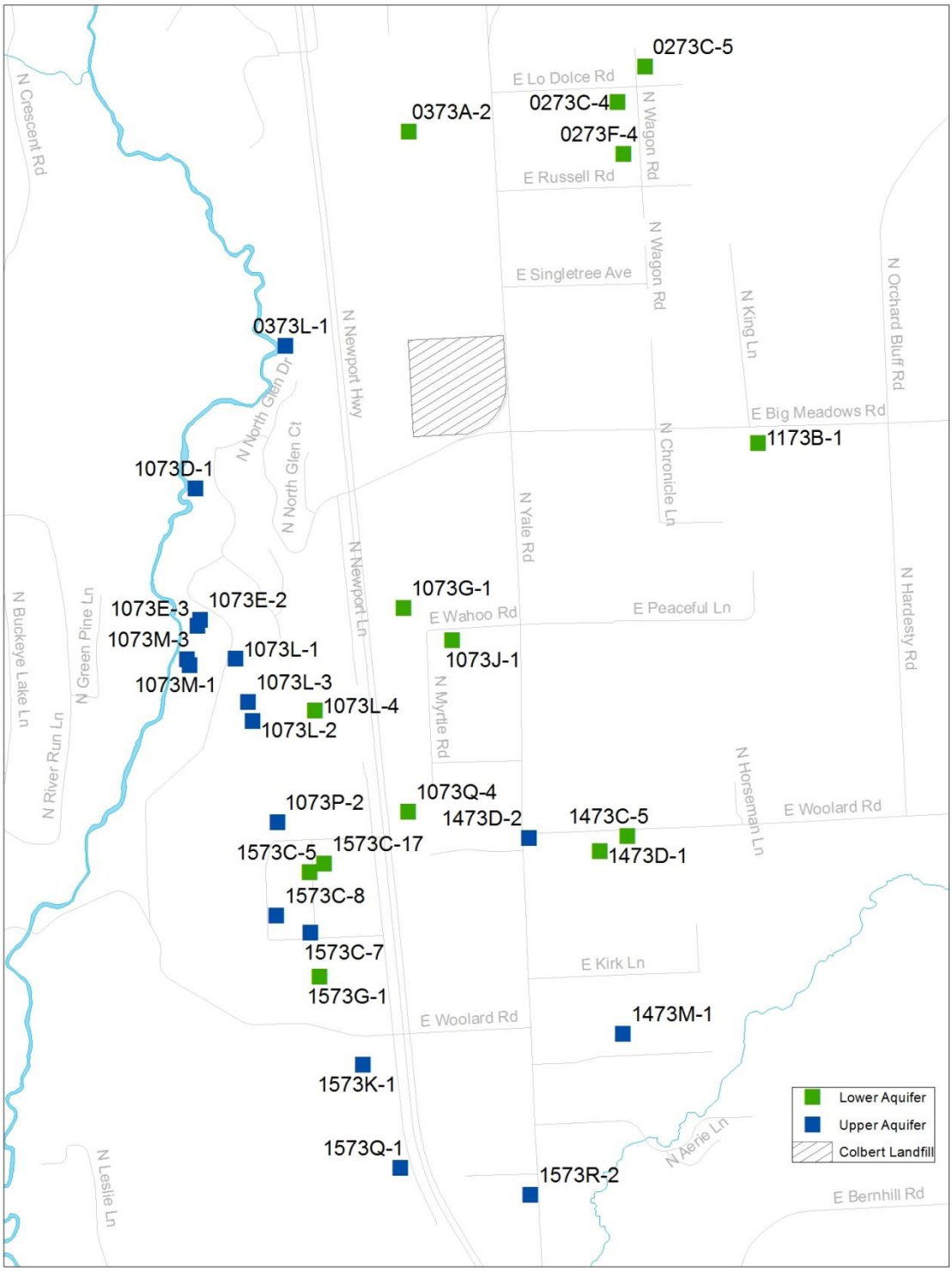


Table 4-1 Residential Well Sampling Schedule for Reporting Period

Colbert Residential Sampling Plan 2020

StationID	LastName	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Sched Comments
0273C-2	Vannatter	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	
0273C-3	Warden	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	Supplemental sampling schedule - only sample on supplemental events.
0273C-4	McQuesten	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	Biennial sampling every odd year. Move to supplemental after 2021 sampling.
0273D-6	Thornton	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	
0273F-4	Gander	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Decreased from semi-annual to annual (December). 2/20/2020
0373A-2	Resseman	☐	☐	☑	☐	☐	☑	☐	☐	☑	☐	☐	☑	Increased to quarterly sampling - detections of DCA.
0373A-4	Owner	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	
0373L-1	Sterling	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	Decreased to annual sampling (July). 2/20/2020.
1073D-1	Nerren	☐	☑	☐	☐	☑	☐	☐	☑	☐	☐	☑	☐	
1073E-2	Pullen	☑	☐	☐	☑	☐	☐	☑	☐	☐	☑	☐	☐	
1073E-3	Clark	☐	☑	☐	☐	☑	☐	☐	☑	☐	☐	☑	☐	
1073G-1	Rux	☐	☐	☑	☐	☐	☑	☐	☐	☑	☐	☐	☑	
1073J-1	Moreno	☑	☐	☐	☑	☐	☐	☑	☐	☐	☑	☐	☐	
1073L-1	Halpin	☐	☐	☑	☐	☐	☑	☐	☐	☑	☐	☐	☑	
1073L-2	Countryman	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	
1073L-3	Anderson	☐	☑	☐	☐	☑	☐	☐	☑	☐	☐	☑	☐	
1073L-4	Crabb	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	
1073M-1	Bertholf	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	
1073M-3	Lane	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	
1073P-1	Greenen	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	☐	☐	
1073P-2	Petrelli	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	
1073Q-4	NORTH MEADOWS W	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	Decreased to semi-annual (Jan/July). 2/20/2020.
1173B-1	Bise	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Decreased to annual (December). 2/20/2020

StationID	LastName	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Sched Comments
1473C-5	Overmyer	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	
1473D-2	Wardian	☐	☑	☐	☐	☑	☐	☐	☑	☐	☐	☑	☐	
1473M-1	Ennis	☑	☐	☐	☑	☐	☐	☑	☐	☐	☑	☐	☐	
1573C-10	Lake	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	Biennial sampling on odd years only. 2/20/2020
1573C-17	RESIDENT	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Biennial sampling on odd years only. 2/20/2020
1573C-5	Nelson	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	
1573C-7	Brown	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	
1573C-8	Williams	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
1573H-1	Hunter	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	
1573K-1	Eschenbacher	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Decreased to annual (April). 2/20/2020.
1573Q-1	Saunder	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	Biennial sampling on odd years only. 2/20/2020
1573R-2	Hunter	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	Decreased to annual sampling (May). 2/20/2020.

Changes made to the Colbert Residential Sampling Schedule

StationID	Still active?	Comments/changes - ColRes review on 2/20/2020
0373A-4	Yes	Changed sampling month from October to June, but kept annual sampling
0273F-4	Yes	Decreased from semi-annual to annual, and changed sampling month to December.
0273C-3	Yes	Decreased to a supplemental sampling schedule due to non-detects, distance from plume, and high volume of wells.
1573K-1	Yes	Decreased to annual sampling - only on April.
1573R-2	Yes	Decreased to annual sampling - only on May.
1173B-1	Yes	Decreased to annual sampling, and changed the sampling month to December.
0373L-1	Yes	Decreased to annual sampling, only in July.
1573C-17	Yes	Decreased to biennial sampling, kept April. **Biennial sampling on odd years only**.
1573Q-1	Yes	Decreased to biennial sampling, kept April. **Biennial sampling on odd years only**.
1073Q-4	Yes	Decreased to semi-annual sampling on January and July due to non-detections for years/distance from the plume.
0373A-2	Yes	Increased to quarterly sampling due to detections of DCA.

Table 4-2 Residential Groundwater Monitoring Program Results

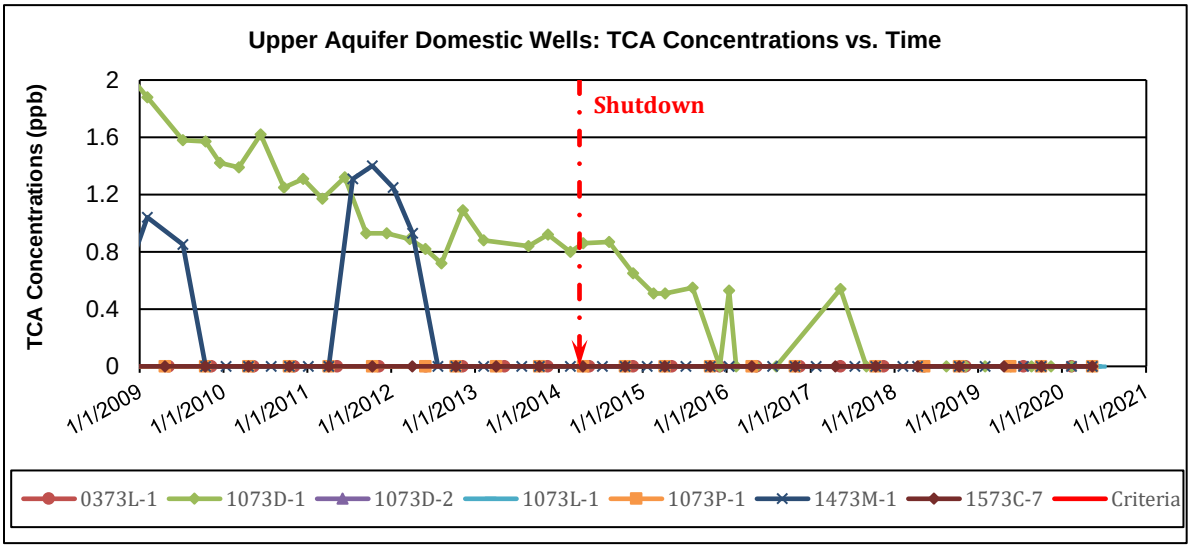
(May 2019 through June 2020)

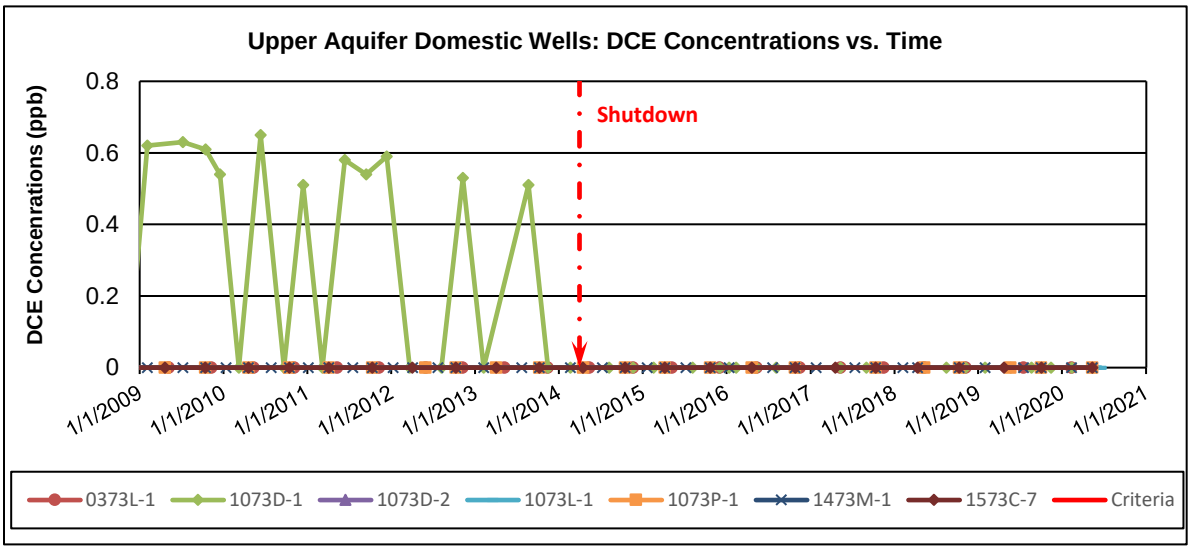
StationID	Aquifer	SampleDate	LastName	DCA	DCE	MC	PCE	TCA	TCE
0273C-2	lower	5/12/2020	Vannatter	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
0273C-3	lower	6/13/2019	Warden	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
0273C-3	lower	6/16/2020	Warden	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
0273C-4	lower	11/13/2019	McQuesten	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
0273D-6	lower	8/20/2019	Thornton	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
0273F-4	lower	6/13/2019	Gander	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
0373A-2	lower	9/18/2019	Resseman	**0.53**	<0.5	<0.5	<0.5	<0.5	<0.5
0373A-2	lower	5/12/2020	Resseman	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
0373A-2	lower	6/17/2020	Resseman	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
0373A-4	lower	6/16/2020	Owner	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
0373L-1	upper	7/17/2019	Sterling	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
0373L-1	upper	2/11/2020	Sterling	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1073D-1	upper	5/22/2019	Nerren	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1073D-1	upper	8/21/2019	Nerren	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1073D-1	upper	11/14/2019	Nerren	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1073D-1	upper	2/12/2020	Nerren	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1073D-1	upper	5/13/2020	Nerren	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1073E-2	upper	7/17/2019	Pullen	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1073E-2	upper	10/2/2019	Pullen	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1073E-2	upper	2/12/2020	Pullen	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1073E-2	upper	5/13/2020	Pullen	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1073E-3	upper	5/21/2019	Clark	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1073E-3	upper	8/21/2019	Clark	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1073E-3	upper	11/13/2019	Clark	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1073E-3	upper	2/11/2020	Clark	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1073E-3	upper	5/12/2020	Clark	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1073G-1	lower	6/13/2019	Rux	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1073G-1	lower	9/18/2019	Rux	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1073G-1	lower	5/12/2020	Rux	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1073G-1	lower	6/17/2020	Rux	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1073J-1	lower	7/17/2019	Moreno	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1073J-1	lower	10/3/2019	Moreno	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1073J-1	lower	2/11/2020	Moreno	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1073L-1	upper	6/13/2019	Halpin	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1073L-1	upper	9/18/2019	Halpin	**0.51**	<0.5	<0.5	<0.5	<0.5	<0.5
1073L-1	upper	5/12/2020	Halpin	**0.52**	<0.5	<0.5	<0.5	<0.5	<0.5
1073L-1	upper	6/17/2020	Halpin	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1073L-2	upper	10/2/2019	Countryman	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1073L-2	upper	5/13/2020	Countryman	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1073L-3	upper	5/21/2019	Anderson	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1073L-3	upper	11/13/2019	Anderson	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

1073L-3	upper	5/13/2020	Anderson	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1073L-4	lower	9/18/2019	Crabb	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1073M-1	upper	7/17/2019	Bertholf	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1073M-3	upper	6/13/2019	Lane	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1073M-3	upper	6/17/2020	Lane	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1073P-1	upper	5/21/2019	Greenen	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1073P-1	upper	10/2/2019	Greenen	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1073P-1	upper	5/12/2020	Greenen	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1073P-2	upper	8/21/2019	Petrelli	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1073Q-4	lower	6/13/2019	NORTH MEADOWS WATER	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1073Q-4	lower	9/18/2019	NORTH MEADOWS WATER	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1173B-1	lower	6/13/2019	Bise	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1473C-5	lower	8/20/2019	Overmyer	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1473D-2	upper	5/21/2019	Wardian	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1473D-2	upper	8/21/2019	Wardian	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1473D-2	upper	11/13/2019	Wardian	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1473D-2	upper	2/11/2020	Wardian	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1473D-2	upper	5/12/2020	Wardian	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1473M-1	upper	7/17/2019	Ennis	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1473M-1	upper	10/2/2019	Ennis	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1473M-1	upper	2/11/2020	Ennis	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1473M-1	upper	5/12/2020	Ennis	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1573C-10	lower	6/13/2019	Lake	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1573C-10	lower	6/17/2020	Lake	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1573C-17	lower	5/12/2020	RESIDENT	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1573C-5	lower	8/21/2019	Nelson	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1573C-7	upper	10/3/2019	Brown	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1573C-7	upper	5/12/2020	Brown	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1573C-8	upper	2/11/2020	Williams	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1573H-1	lower	5/22/2019	Hunter	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1573H-1	lower	5/12/2020	Hunter	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1573K-1	upper	10/3/2019	Eschenbacher	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1573K-1	upper	5/12/2020	Eschenbacher	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1573Q-1	upper	7/17/2019	Saunder	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1573R-2	upper	5/22/2019	Hunter	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1573R-2	upper	11/14/2019	Hunter	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1573R-2	upper	5/12/2020	Hunter	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

***Bold** indicates a value greater than non-detection.

Figure 4-2 Upper Aquifer Residential Wells Concentrations vs Time





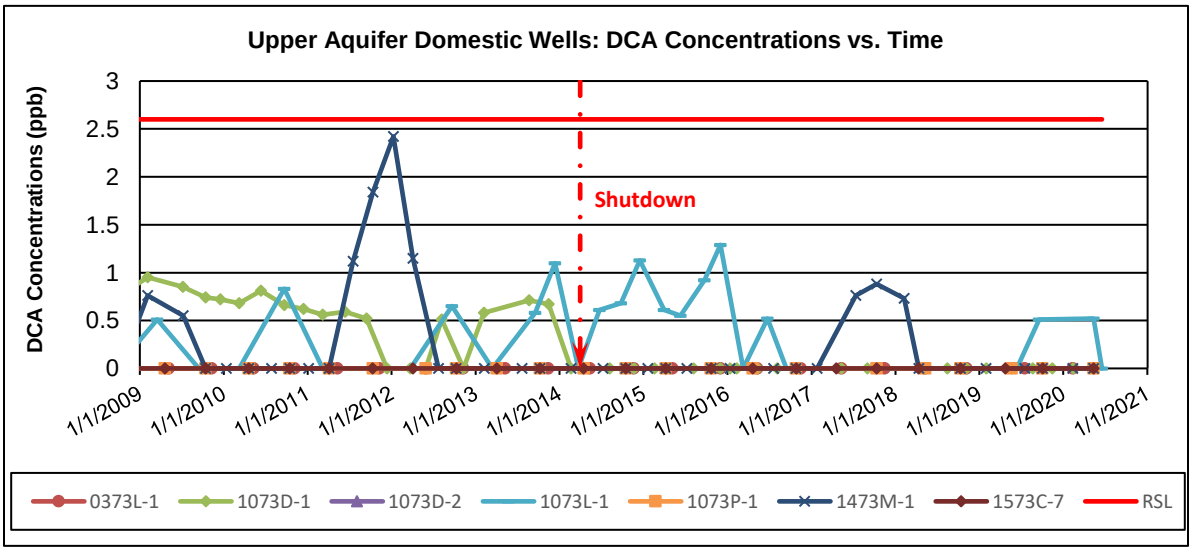
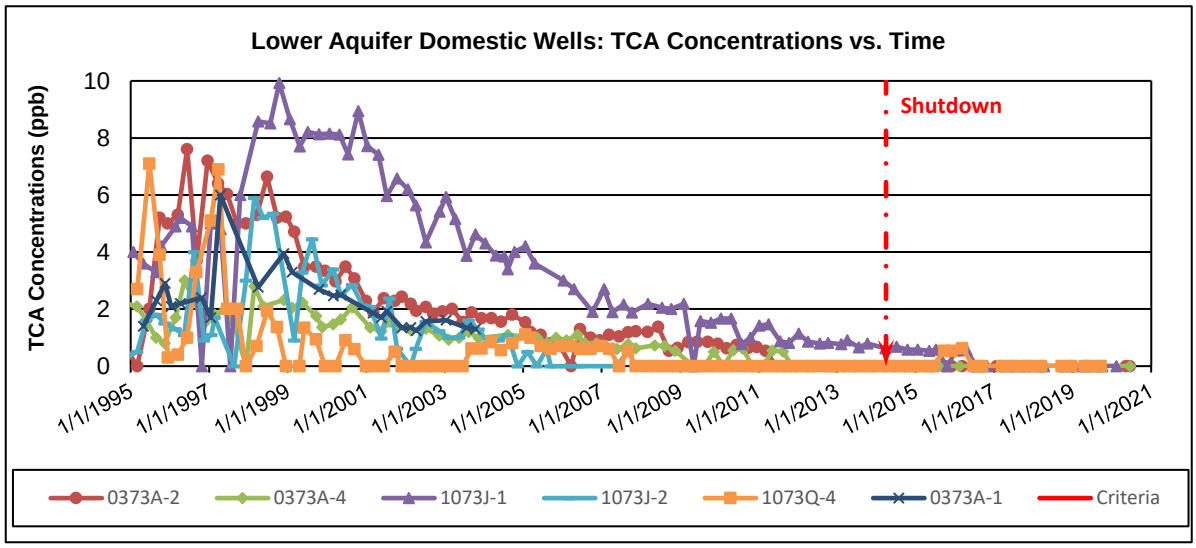
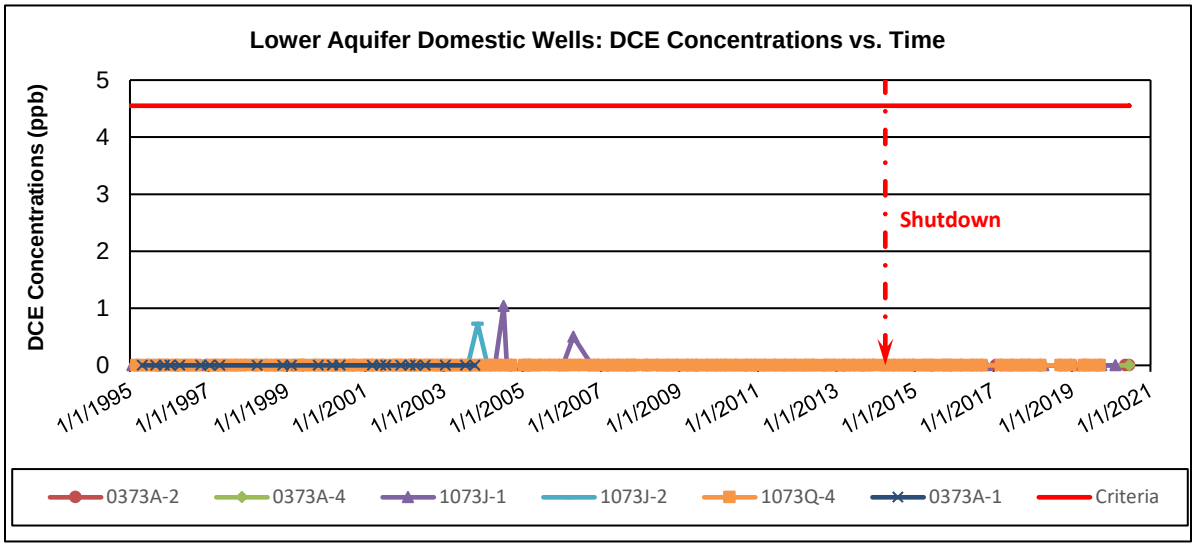
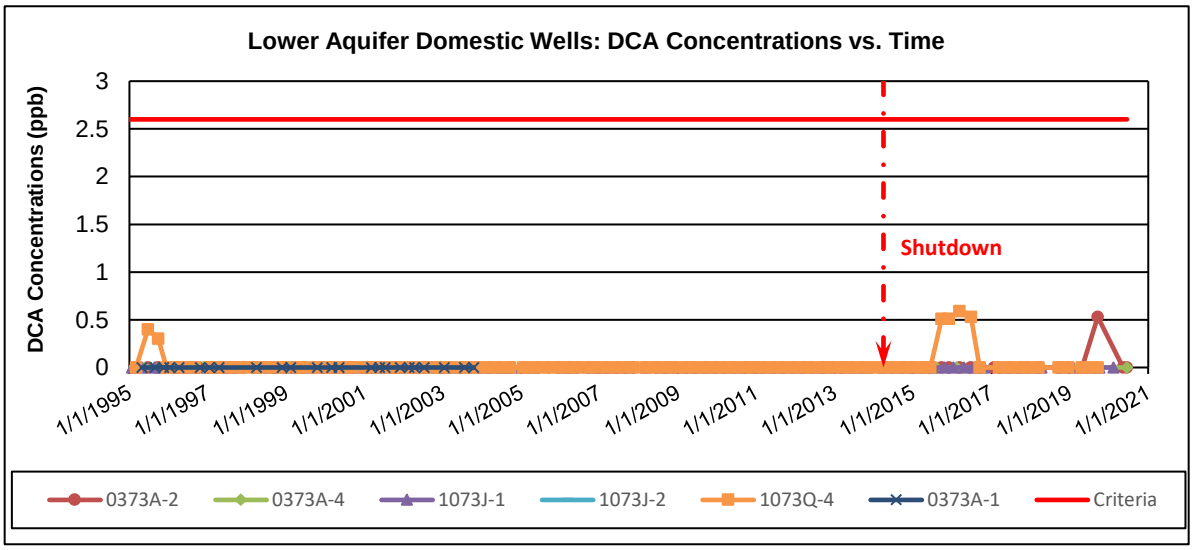


Figure 4-3 Lower Aquifer Residential Wells Concentrations vs Time







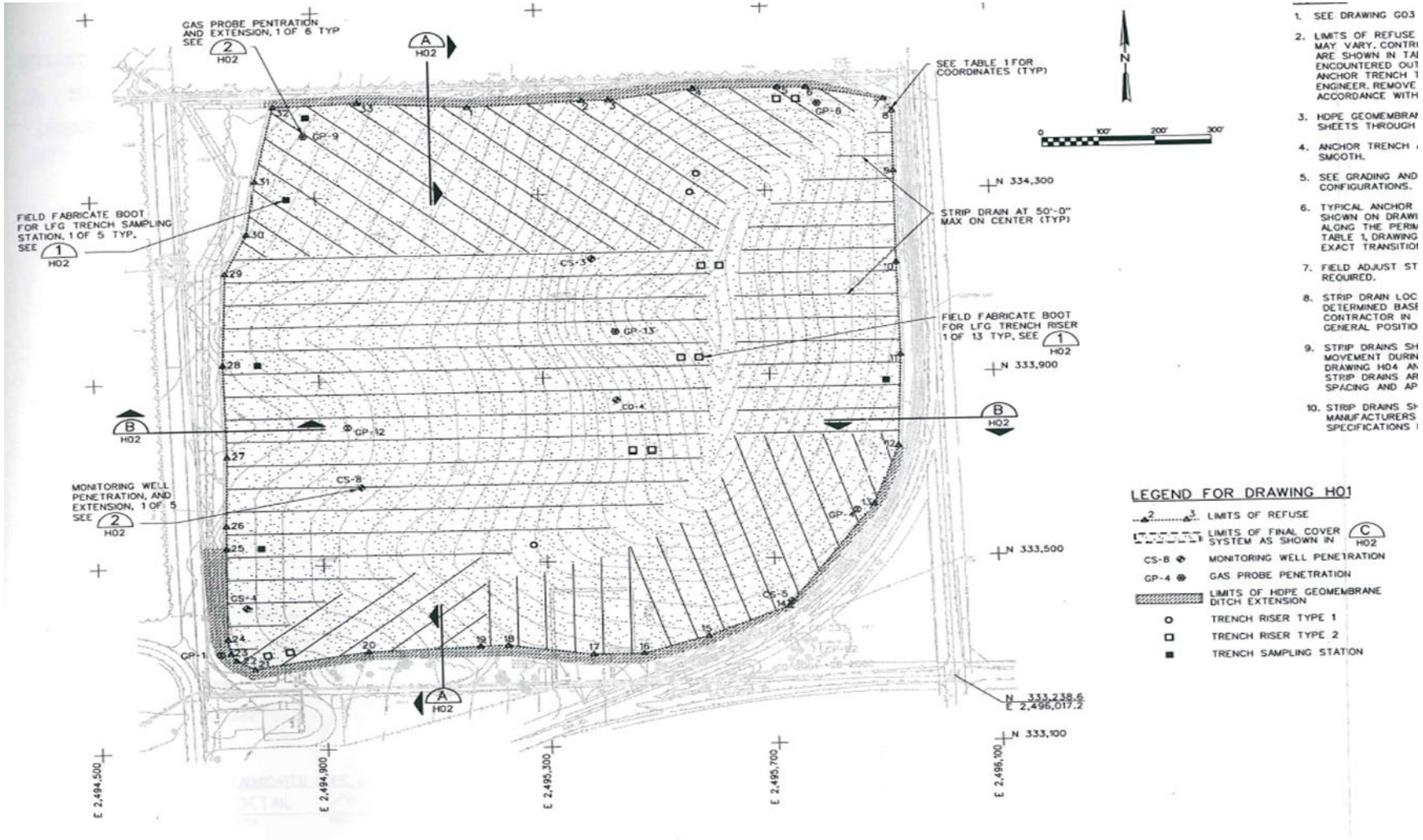
5.0 Colbert Landfill Gas System

5.1 Colbert Landfill Gas Collection System Summary

The landfill gas (LFG) system was installed to prevent off-site gas migration and to prevent build-up of gas pressure. The Colbert Landfill gas collection system uses a combination of interior and perimeter gas collection trenches connected through a main gas manifold. The Colbert Landfill gas collection system is presented in Figure 5-1.

The gas is moved toward the control system with the use of a 15 hp blower (no VFD) at the main facility. Landfill condensate is collected in both an underground storage tank and an above ground storage tank. The amount of gas collected from each area of the interior and perimeter system is controlled through valve adjustments in the trench riser wellhead assemblies installed in each of the gas collection trenches. The overall amount of vacuum available for gas collection in the manifold is controlled by valve adjustments at the main facility. The gas collection station includes a condensate knockout vessel, a gas exhauster, several carbon adsorber vessels, and an exhaust stack. The landfill gas is passed through the carbon adsorber (granular activaged carbon, or GAC) vessels to remove VOC's and is then exhausted out the stack. Monitoring is performed at sample ports before and after the carbon vessels, at each trench riser, and at interior and perimeter gas probes.

Figure 5-1 Colbert Landfill Gas Collection System



5.2 Colbert Landfill Gas Monitoring

Monitoring for gas at the Colbert Landfill is performed at sample ports before and after the carbon vessels, at each trench riser, and at interior and perimeter gas probes. Spokane County personnel perform monthly monitoring at gas probes and the exhaust system, monthly condensate tank level checks, monthly gas fan maintenance (greasing, belt tension adjustments, etc.), and VOC analyses on an annual basis (Method TO-15). TO-15 sampling is typically conducted in the month of August during the reporting period, and was last conducted in August 2019. TO-15 results and the Colbert Landfill Perimeter Gas Probe results/summary is presented in Appendix A. In summary, there are only non-detections or very low concentrations of landfill gas at the perimeter gas probes.

The carbon adsorbers were changed out on 2/13/2020.

Other notable items include:

A cost-benefit analysis was conducted for the option to switch from the activated carbon gas filtration system to a biofilter system at the Colbert site in the fall of 2017. The practice had been to change out the activated carbon every 6 months, but due to the rising costs of purchasing new carbon material and disposing of the old, the annual cost of this practice had risen to $25,000. Taking into account the higher upfront costs of constructing a biofilter, with lower lifetime costs of this system, we found that the financial break-even point over a 20 year period would be to change out the activated carbon every 1.5 years. In other words, if the activated carbon required changing more frequently than once per every 1.5 years, it is financially beneficial to undertake the construction and maintenance of a biofilter system.

From the fall of 2016 to the spring of 2018, Environmental technicians sampled the effluent gas every 3 months for signs of "break-out," or when compounds were no longer adsorbing to the carbon material. TO-15 samples for study were collected on 12/14/2016, 3/30/2017, 11/21/2017, and 3/21/2018. After a year and a half, the quarterly samples began to show small signs of mal-adsorption, with emissions of just a few compounds still less than De Minimus thresholds. Because of the financial modeling and the quarterly sampling results, the staff feel comfortable with a new plan to change out the activated carbon material once every 1.5 years now instead of the unnecessary 6-month change out.

6.0 Landfill Operations and Maintenance

From May 1, 2014 through June, 2020 the following routine landfill cover and gas system monitoring and maintenance was accomplished at the Colbert Landfill. Data collected is included in this section.

- Monthly monitoring at gas probes and exhaust system
- Monthly condensate tank levels
- Monthly gas fan maintenance (greasing, belt tension adjustments, etc.)
- Landfill gas sampling and analysis (Method TO-15) was performed in August 2019.
- Quarterly monitoring of trench risers (June, October, February and April).

All relevant operations and maintenance documentation (field notes summarizing field activities and results, inspection checklists, field sheets for sampling within the reporting period, etc.) is presented in Appendix B.

<u>Other notable items include:</u>

- Cover and ditch weed control was ongoing throughout the growing season.

- Carbon tub change outs were performed in November 2016, June 2017, April 2018, and February 2019.

- Spokane County installed 9 new settlement markers in June 2019 across several known areas of concern to monitor settlement on the landfill. These settlement markers will be surveyed every 2 years, and will be monitored for any additional settling that might occur on the Colbert landfill. The summary of the settlement survey results, and the ongoing surveillance of the settlement markers will be presented in future annual reports.

7.0 References

Landau Associates. 1992. Phase II Remedial Design Remedial Action Colbert Landfill Spokane, Washington *Final Groundwater Monitoring Plan.* August 7.

Landau Associates. 1992. *Quality Assurance Project Plan - Phase II Remedial Design/Remedial Action - Colbert Landfill - Spokane, WA*. February 28.

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EPA. 2011. Colbert Landfill Superfund Site Spokane County, Washington. *Remediation System Evaluation*. U.S. Environmental Protection Agency. October 14.

Landau Associates. 1998. *Colbert Landfill Operations and Maintenance Manual*.

Landau Associates. 1996. *MFS Groundwater Monitoring Plan*

Spokane County Utilities/ Landau Assoc. 2013. *Final Work Plan, Groundwater Pump and Treat System Shut-down Test, Colbert Landfill CERCLA Site.*

Spokane County Utilities. 2007.*1,4-Dioxane Work Plan for the Colbert Landfill*

Spokane County Utilities. 1991*. Quality Assurance and Field Sampling Plan-Colbert Residential Well Sampling*

CH2MHill. May 1997*. Operations and Maintenance Manual for Colbert Landfill Closure*

U.S. District Court, Eastern District of Washington. 1988. Consent Decree No. C-89-033-RJM. The Washington State Department of Ecology and The United States of America on behalf of the U.S. Environmental Protection Agency (plaintiffs) v. County of Spokane and Key Tronic Corporation (defendants). February 28.

Appendix A

Colbert Landfill Perimeter Gas Probe and TO-15 Results

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Analysis Request /Canister Chain of Custody

For Laboratory Use Only

PID: _____ Workorder #: _____

180 Blue Ravine Rd. Suite B, Folsom, CA 95630
Phone (800) 985-5955; Fax (916) 351-8279

Client: SPOKANE COUNTY
Project Name: COLBERT
Project Manager: AUSTIN STEWART Project #
Sampler: M. TERRIS
Site Name: COLBERT

Special Instructions/Notes:

Turnaround Time (Rush surcharges may apply)
Standard (X) Rush _____(specify)

Lab ID	Field Sample Identification(Location)	Can #	Flow Controller #	Start Sampling Information		Stop Sampling Information		Canister Vacuum/Pressure		Lab Use Only		Requested Analyses			
				Date	Time	Date	Time	Initial (in Hg)	Final (in Hg)	Receipt	Final (psig) Gas: N_2 / He	TO-15			
	CGI-003-190829	N0842	1912	8/29	1100	8/29	1130	28.8	0			X			
	CGE-001-190829	N1850	NA	8/29	1105	8/29	1135	28.2	0			X			

Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
[signature]	8/29/19	1400			
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time

Lab Use Only

Shipper Name: UPS | Custody Seals Intact? YES | Yes | No | None

Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, of shipping of samples. D.O.T Hotline (800) 467-4922

eurofins | Air Toxics

9/6/2019
Mr. Mike Terris
Spokane County Utilities
22515 N. Elk Chattaroy Road

Colbert WA 99005

Project Name: COLBERT
Project #:
Workorder #: 1908671

Dear Mr. Mike Terris

The following report includes the data for the above referenced project for sample(s) received on 8/30/2019 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Kelly Buettner at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Kelly Buettner

Project Manager

eurofins | Air Toxics

WORK ORDER #: 1908671

Work Order Summary

CLIENT:	Mr. Mike Terris Spokane County Utilities 22515 N. Elk Chattaroy Road Colbert, WA 99005	**BILL TO:**	Mr. Mike Terris Spokane County Utilities 22515 N. Elk Chattaroy Road Colbert, WA 99005
PHONE:	509-238-6607	**P.O. #**	
FAX:	509-238-6812	**PROJECT #**	COLBERT
DATE RECEIVED:	08/30/2019	**CONTACT:**	Kelly Buettner
DATE COMPLETED:	09/06/2019		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	CGI-003-190829	TO-15	1.6 "Hg	5.1 psi
02A	CGE-001-190829	TO-15	1.6 "Hg	5.4 psi
03A	Lab Blank	TO-15	NA	NA
04A	CCV	TO-15	NA	NA
05A	LCS	TO-15	NA	NA
05AA	LCSD	TO-15	NA	NA

CERTIFIED BY: Heidi Hayes DATE: 09/06/19

Technical Director

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP - 209218, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-18-13, UT NELAP – CA009332019-11, VA NELAP - 460197, WA NELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005-011, Effective date: 10/18/2018, Expiration date: 10/17/2019.
Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
Spokane County Utilities
Workorder# 1908671

Two 6 Liter Summa Canister samples were received on August 30, 2019. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

All Quality Control Limit exceedances and affected sample results are noted by flags. Each flag is defined at the bottom of this Case Narrative and on each Sample Result Summary page. Target compound non-detects in the samples that are associated with high bias in QC analyses have not been flagged.

Dilution was performed on samples CGI-003-190829 and CGE-001-190829 due to the presence of high level target species.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

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Client Sample ID: CGI-003-190829

Lab ID#: 1908671-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a090317**	**Date of Collection: 8/29/19 11:30:00**	
Dil. Factor:	**7.11**	**Date of Analysis: 9/3/19 08:18 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	3.6	120	18	600
Freon 114	3.6	35	25	240
Chloromethane	36	Not Detected	73	Not Detected
Vinyl Chloride	3.6	120	9.1	320
1,3-Butadiene	3.6	Not Detected	7.9	Not Detected
Bromomethane	36	Not Detected	140	Not Detected
Chloroethane	14	100	38	280
Freon 11	3.6	19	20	100
Ethanol	14	Not Detected	27	Not Detected
Freon 113	3.6	Not Detected	27	Not Detected
1,1-Dichloroethene	3.6	41	14	160
Acetone	36	Not Detected	84	Not Detected
2-Propanol	14	Not Detected	35	Not Detected
Carbon Disulfide	14	Not Detected	44	Not Detected
3-Chloropropene	14	Not Detected	44	Not Detected
Methylene Chloride	36	Not Detected	120	Not Detected
Methyl tert-butyl ether	14	Not Detected	51	Not Detected
trans-1,2-Dichloroethene	3.6	3.7	14	15
Hexane	3.6	130	12	450
1,1-Dichloroethane	3.6	16	14	64
2-Butanone (Methyl Ethyl Ketone)	14	Not Detected	42	Not Detected
cis-1,2-Dichloroethene	3.6	140	14	570
Tetrahydrofuran	3.6	57	10	170
Chloroform	3.6	Not Detected	17	Not Detected
1,1,1-Trichloroethane	3.6	Not Detected	19	Not Detected
Cyclohexane	3.6	59	12	200
Carbon Tetrachloride	3.6	Not Detected	22	Not Detected
2,2,4-Trimethylpentane	3.6	49	17	230
Benzene	3.6	27	11	86
1,2-Dichloroethane	3.6	Not Detected	14	Not Detected
Heptane	3.6	100	14	420
Trichloroethene	3.6	6.3	19	34
1,2-Dichloropropane	3.6	Not Detected	16	Not Detected
1,4-Dioxane	14	Not Detected	51	Not Detected
Bromodichloromethane	3.6	Not Detected	24	Not Detected
cis-1,3-Dichloropropene	3.6	Not Detected	16	Not Detected
4-Methyl-2-pentanone	3.6	Not Detected	14	Not Detected
Toluene	3.6	28	13	100
trans-1,3-Dichloropropene	3.6	Not Detected	16	Not Detected
1,1,2-Trichloroethane	3.6	Not Detected	19	Not Detected
Tetrachloroethene	3.6	3.6	24	24
2-Hexanone	14	Not Detected	58	Not Detected

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Client Sample ID: CGI-003-190829

Lab ID#: 1908671-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a090317**	**Date of Collection:**	**8/29/19 11:30:00**
Dil. Factor:	**7.11**	**Date of Analysis:**	**9/3/19 08:18 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	3.6	Not Detected	30	Not Detected
1,2-Dibromoethane (EDB)	3.6	Not Detected	27	Not Detected
Chlorobenzene	3.6	Not Detected	16	Not Detected
Ethyl Benzene	3.6	430	15	1900
m,p-Xylene	3.6	720	15	3200
o-Xylene	3.6	84	15	360
Styrene	3.6	Not Detected	15	Not Detected
Bromoform	3.6	Not Detected	37	Not Detected
Cumene	3.6	30	17	150
1,1,2,2-Tetrachloroethane	3.6	Not Detected	24	Not Detected
Propylbenzene	3.6	24	17	120
4-Ethyltoluene	3.6	45	17	220
1,3,5-Trimethylbenzene	3.6	54	17	260
1,2,4-Trimethylbenzene	3.6	130	17	660
1,3-Dichlorobenzene	3.6	Not Detected	21	Not Detected
1,4-Dichlorobenzene	3.6	37	21	220
alpha-Chlorotoluene	3.6	Not Detected UJ	18	Not Detected UJ
1,2-Dichlorobenzene	3.6	Not Detected	21	Not Detected
1,2,4-Trichlorobenzene	14	Not Detected	100	Not Detected
Hexachlorobutadiene	14	Not Detected	150	Not Detected

UJ = Analyte associated with low bias in the CCV.

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	85	70-130
4-Bromofluorobenzene	103	70-130

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Client Sample ID: CGE-001-190829

Lab ID#: 1908671-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a090316**	**Date of Collection:**	**8/29/19 11:35:00**
Dil. Factor:	**2.89**	**Date of Analysis:**	**9/3/19 07:54 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.4	130	7.1	660
Freon 114	1.4	43	10	300
Chloromethane	14	Not Detected	30	Not Detected
Vinyl Chloride	1.4	120	3.7	310
1,3-Butadiene	1.4	Not Detected	3.2	Not Detected
Bromomethane	14	Not Detected	56	Not Detected
Chloroethane	5.8	100	15	280
Freon 11	1.4	22	8.1	120
Ethanol	5.8	Not Detected	11	Not Detected
Freon 113	1.4	2.7	11	21
1,1-Dichloroethene	1.4	60	5.7	240
Acetone	14	25	34	59
2-Propanol	5.8	Not Detected	14	Not Detected
Carbon Disulfide	5.8	Not Detected	18	Not Detected
3-Chloropropene	5.8	Not Detected	18	Not Detected
Methylene Chloride	14	Not Detected	50	Not Detected
Methyl tert-butyl ether	5.8	Not Detected	21	Not Detected
trans-1,2-Dichloroethene	1.4	5.9	5.7	23
Hexane	1.4	330	5.1	1200
1,1-Dichloroethane	1.4	26	5.8	100
2-Butanone (Methyl Ethyl Ketone)	5.8	6.1	17	18
cis-1,2-Dichloroethene	1.4	260	5.7	1000
Tetrahydrofuran	1.4	110	4.3	310
Chloroform	1.4	Not Detected	7.0	Not Detected
1,1,1-Trichloroethane	1.4	9.6	7.9	52
Cyclohexane	1.4	160	5.0	540
Carbon Tetrachloride	1.4	Not Detected	9.1	Not Detected
2,2,4-Trimethylpentane	1.4	170	6.8	780
Benzene	1.4	22	4.6	70
1,2-Dichloroethane	1.4	1.5	5.8	6.0
Heptane	1.4	56	5.9	230
Trichloroethene	1.4	5.5	7.8	29
1,2-Dichloropropane	1.4	Not Detected	6.7	Not Detected
1,4-Dioxane	5.8	Not Detected	21	Not Detected
Bromodichloromethane	1.4	Not Detected	9.7	Not Detected
cis-1,3-Dichloropropene	1.4	Not Detected	6.6	Not Detected
4-Methyl-2-pentanone	1.4	Not Detected	5.9	Not Detected
Toluene	1.4	Not Detected	5.4	Not Detected
trans-1,3-Dichloropropene	1.4	Not Detected	6.6	Not Detected
1,1,2-Trichloroethane	1.4	Not Detected	7.9	Not Detected
Tetrachloroethene	1.4	Not Detected	9.8	Not Detected
2-Hexanone	5.8	Not Detected	24	Not Detected

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Client Sample ID: CGE-001-190829

Lab ID#: 1908671-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a090316**	**Date of Collection: 8/29/19 11:35:00**	
Dil. Factor:	**2.89**	**Date of Analysis: 9/3/19 07:54 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.4	Not Detected	12	Not Detected
1,2-Dibromoethane (EDB)	1.4	Not Detected	11	Not Detected
Chlorobenzene	1.4	Not Detected	6.6	Not Detected
Ethyl Benzene	1.4	Not Detected	6.3	Not Detected
m,p-Xylene	1.4	Not Detected	6.3	Not Detected
o-Xylene	1.4	Not Detected	6.3	Not Detected
Styrene	1.4	Not Detected	6.2	Not Detected
Bromoform	1.4	Not Detected	15	Not Detected
Cumene	1.4	Not Detected	7.1	Not Detected
1,1,2,2-Tetrachloroethane	1.4	Not Detected	9.9	Not Detected
Propylbenzene	1.4	Not Detected	7.1	Not Detected
4-Ethyltoluene	1.4	Not Detected	7.1	Not Detected
1,3,5-Trimethylbenzene	1.4	Not Detected	7.1	Not Detected
1,2,4-Trimethylbenzene	1.4	Not Detected	7.1	Not Detected
1,3-Dichlorobenzene	1.4	Not Detected	8.7	Not Detected
1,4-Dichlorobenzene	1.4	Not Detected	8.7	Not Detected
alpha-Chlorotoluene	1.4	Not Detected UJ	7.5	Not Detected UJ
1,2-Dichlorobenzene	1.4	Not Detected	8.7	Not Detected
1,2,4-Trichlorobenzene	5.8	Not Detected	43	Not Detected
Hexachlorobutadiene	5.8	Not Detected	62	Not Detected

UJ = Analyte associated with low bias in the CCV.

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	94	70-130
4-Bromofluorobenzene	104	70-130

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Summary of Detected Compounds
EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: CGI-003-190829

Lab ID#: 1908671-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	3.6	120	18	600
Freon 114	3.6	35	25	240
Vinyl Chloride	3.6	120	9.1	320
Chloroethane	14	100	38	280
Freon 11	3.6	19	20	100
1,1-Dichloroethene	3.6	41	14	160
trans-1,2-Dichloroethene	3.6	3.7	14	15
Hexane	3.6	130	12	450
1,1-Dichloroethane	3.6	16	14	64
cis-1,2-Dichloroethene	3.6	140	14	570
Tetrahydrofuran	3.6	57	10	170
Cyclohexane	3.6	59	12	200
2,2,4-Trimethylpentane	3.6	49	17	230
Benzene	3.6	27	11	86
Heptane	3.6	100	14	420
Trichloroethene	3.6	6.3	19	34
Toluene	3.6	28	13	100
Tetrachloroethene	3.6	3.6	24	24
Ethyl Benzene	3.6	430	15	1900
m,p-Xylene	3.6	720	15	3200
o-Xylene	3.6	84	15	360
Cumene	3.6	30	17	150
Propylbenzene	3.6	24	17	120
4-Ethyltoluene	3.6	45	17	220
1,3,5-Trimethylbenzene	3.6	54	17	260
1,2,4-Trimethylbenzene	3.6	130	17	660
1,4-Dichlorobenzene	3.6	37	21	220

Client Sample ID: CGE-001-190829

Lab ID#: 1908671-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.4	130	7.1	660

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Summary of Detected Compounds
EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: CGE-001-190829

Lab ID#: 1908671-02A

Freon 114	1.4	43	10	300
Vinyl Chloride	1.4	120	3.7	310
Chloroethane	5.8	100	15	280
Freon 11	1.4	22	8.1	120
Freon 113	1.4	2.7	11	21
1,1-Dichloroethene	1.4	60	5.7	240
Acetone	14	25	34	59
trans-1,2-Dichloroethene	1.4	5.9	5.7	23
Hexane	1.4	330	5.1	1200
1,1-Dichloroethane	1.4	26	5.8	100
2-Butanone (Methyl Ethyl Ketone)	5.8	6.1	17	18
cis-1,2-Dichloroethene	1.4	260	5.7	1000
Tetrahydrofuran	1.4	110	4.3	310
1,1,1-Trichloroethane	1.4	9.6	7.9	52
Cyclohexane	1.4	160	5.0	540
2,2,4-Trimethylpentane	1.4	170	6.8	780
Benzene	1.4	22	4.6	70
1,2-Dichloroethane	1.4	1.5	5.8	6.0
Heptane	1.4	56	5.9	230
Trichloroethene	1.4	5.5	7.8	29

Client Sample ID: Lab Blank

Lab ID#: 1908671-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a090307**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 9/3/19 12:58 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.50	Not Detected	2.5	Not Detected
Freon 114	0.50	Not Detected	3.5	Not Detected
Chloromethane	5.0	Not Detected	10	Not Detected
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,3-Butadiene	0.50	Not Detected	1.1	Not Detected
Bromomethane	5.0	Not Detected	19	Not Detected
Chloroethane	2.0	Not Detected	5.3	Not Detected
Freon 11	0.50	Not Detected	2.8	Not Detected
Ethanol	2.0	Not Detected	3.8	Not Detected
Freon 113	0.50	Not Detected	3.8	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Acetone	5.0	Not Detected	12	Not Detected
2-Propanol	2.0	Not Detected	4.9	Not Detected
Carbon Disulfide	2.0	Not Detected	6.2	Not Detected
3-Chloropropene	2.0	Not Detected	6.3	Not Detected
Methylene Chloride	5.0	Not Detected	17	Not Detected
Methyl tert-butyl ether	2.0	Not Detected	7.2	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Hexane	0.50	Not Detected	1.8	Not Detected
1,1-Dichloroethane	0.50	Not Detected	2.0	Not Detected
2-Butanone (Methyl Ethyl Ketone)	2.0	Not Detected	5.9	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrahydrofuran	0.50	Not Detected	1.5	Not Detected
Chloroform	0.50	Not Detected	2.4	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Cyclohexane	0.50	Not Detected	1.7	Not Detected
Carbon Tetrachloride	0.50	Not Detected	3.1	Not Detected
2,2,4-Trimethylpentane	0.50	Not Detected	2.3	Not Detected
Benzene	0.50	Not Detected	1.6	Not Detected
1,2-Dichloroethane	0.50	Not Detected	2.0	Not Detected
Heptane	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
1,2-Dichloropropane	0.50	Not Detected	2.3	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected
Bromodichloromethane	0.50	Not Detected	3.4	Not Detected
cis-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
4-Methyl-2-pentanone	0.50	Not Detected	2.0	Not Detected
Toluene	0.50	Not Detected	1.9	Not Detected
trans-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
1,1,2-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
2-Hexanone	2.0	Not Detected	8.2	Not Detected

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Client Sample ID: Lab Blank

Lab ID#: 1908671-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a090307**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 9/3/19 12:58 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.50	Not Detected	4.2	Not Detected
1,2-Dibromoethane (EDB)	0.50	Not Detected	3.8	Not Detected
Chlorobenzene	0.50	Not Detected	2.3	Not Detected
Ethyl Benzene	0.50	Not Detected	2.2	Not Detected
m,p-Xylene	0.50	Not Detected	2.2	Not Detected
o-Xylene	0.50	Not Detected	2.2	Not Detected
Styrene	0.50	Not Detected	2.1	Not Detected
Bromoform	0.50	Not Detected	5.2	Not Detected
Cumene	0.50	Not Detected	2.4	Not Detected
1,1,2,2-Tetrachloroethane	0.50	Not Detected	3.4	Not Detected
Propylbenzene	0.50	Not Detected	2.4	Not Detected
4-Ethyltoluene	0.50	Not Detected	2.4	Not Detected
1,3,5-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,2,4-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,3-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,4-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
alpha-Chlorotoluene	0.50	Not Detected UJ	2.6	Not Detected UJ
1,2-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,2,4-Trichlorobenzene	2.0	Not Detected	15	Not Detected
Hexachlorobutadiene	2.0	Not Detected	21	Not Detected

UJ = Analyte associated with low bias in the CCV.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	86	70-130
4-Bromofluorobenzene	101	70-130

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Client Sample ID: CCV

Lab ID#: 1908671-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a090302**	**Date of Collection: NA**
Dil. Factor:	**1.00**	**Date of Analysis: 9/3/19 10:36 AM**

Compound	%Recovery
Freon 12	82
Freon 114	86
Chloromethane	87
Vinyl Chloride	84
1,3-Butadiene	86
Bromomethane	81
Chloroethane	87
Freon 11	82
Ethanol	75
Freon 113	86
1,1-Dichloroethene	85
Acetone	82
2-Propanol	74
Carbon Disulfide	80
3-Chloropropene	77
Methylene Chloride	83
Methyl tert-butyl ether	76
trans-1,2-Dichloroethene	73
Hexane	82
1,1-Dichloroethane	79
2-Butanone (Methyl Ethyl Ketone)	75
cis-1,2-Dichloroethene	86
Tetrahydrofuran	79
Chloroform	83
1,1,1-Trichloroethane	81
Cyclohexane	80
Carbon Tetrachloride	84
2,2,4-Trimethylpentane	85
Benzene	86
1,2-Dichloroethane	81
Heptane	78
Trichloroethene	85
1,2-Dichloropropane	80
1,4-Dioxane	80
Bromodichloromethane	87
cis-1,3-Dichloropropene	75
4-Methyl-2-pentanone	73
Toluene	84
trans-1,3-Dichloropropene	77
1,1,2-Trichloroethane	86
Tetrachloroethene	95
2-Hexanone	70

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Client Sample ID: CCV

Lab ID#: 1908671-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a090302**	**Date of Collection: NA**
Dil. Factor:	**1.00**	**Date of Analysis: 9/3/19 10:36 AM**

Compound	%Recovery
Dibromochloromethane	92
1,2-Dibromoethane (EDB)	86
Chlorobenzene	87
Ethyl Benzene	82
m,p-Xylene	81
o-Xylene	83
Styrene	79
Bromoform	92
Cumene	81
1,1,2,2-Tetrachloroethane	74
Propylbenzene	77
4-Ethyltoluene	81
1,3,5-Trimethylbenzene	83
1,2,4-Trimethylbenzene	79
1,3-Dichlorobenzene	84
1,4-Dichlorobenzene	83
alpha-Chlorotoluene	66 Q
1,2-Dichlorobenzene	84
1,2,4-Trichlorobenzene	86
Hexachlorobutadiene	91

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	96	70-130
1,2-Dichloroethane-d4	86	70-130
4-Bromofluorobenzene	102	70-130

Client Sample ID: LCS

Lab ID#: 1908671-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a090304**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 9/3/19 11:26 AM**	

Compound	%Recovery	Method Limits
Freon 12	86	70-130
Freon 114	96	70-130
Chloromethane	90	70-130
Vinyl Chloride	91	70-130
1,3-Butadiene	87	70-130
Bromomethane	62 Q	70-130
Chloroethane	89	70-130
Freon 11	88	70-130
Ethanol	86	70-130
Freon 113	89	70-130
1,1-Dichloroethene	88	70-130
Acetone	86	70-130
2-Propanol	82	70-130
Carbon Disulfide	87	70-130
3-Chloropropene	84	70-130
Methylene Chloride	88	70-130
Methyl tert-butyl ether	78	70-130
trans-1,2-Dichloroethene	87	70-130
Hexane	88	70-130
1,1-Dichloroethane	83	70-130
2-Butanone (Methyl Ethyl Ketone)	81	70-130
cis-1,2-Dichloroethene	84	70-130
Tetrahydrofuran	86	70-130
Chloroform	88	70-130
1,1,1-Trichloroethane	84	70-130
Cyclohexane	83	70-130
Carbon Tetrachloride	88	70-130
2,2,4-Trimethylpentane	89	70-130
Benzene	91	70-130
1,2-Dichloroethane	84	70-130
Heptane	83	70-130
Trichloroethene	119	70-130
1,2-Dichloropropane	83	70-130
1,4-Dioxane	87	70-130
Bromodichloromethane	92	70-130
cis-1,3-Dichloropropene	82	70-130
4-Methyl-2-pentanone	77	70-130
Toluene	86	70-130
trans-1,3-Dichloropropene	79	70-130
1,1,2-Trichloroethane	88	70-130
Tetrachloroethene	96	70-130
2-Hexanone	74	70-130

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Client Sample ID: LCS

Lab ID#: 1908671-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a090304**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 9/3/19 11:26 AM**	

Compound	%Recovery	Method Limits
Dibromochloromethane	95	70-130
1,2-Dibromoethane (EDB)	88	70-130
Chlorobenzene	87	70-130
Ethyl Benzene	83	70-130
m,p-Xylene	80	70-130
o-Xylene	82	70-130
Styrene	80	70-130
Bromoform	94	70-130
Cumene	82	70-130
1,1,2,2-Tetrachloroethane	53 Q	70-130
Propylbenzene	78	70-130
4-Ethyltoluene	84	70-130
1,3,5-Trimethylbenzene	83	70-130
1,2,4-Trimethylbenzene	80	70-130
1,3-Dichlorobenzene	86	70-130
1,4-Dichlorobenzene	85	70-130
alpha-Chlorotoluene	71	70-130
1,2-Dichlorobenzene	85	70-130
1,2,4-Trichlorobenzene	92	70-130
Hexachlorobutadiene	99	70-130

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	89	70-130
4-Bromofluorobenzene	102	70-130

Client Sample ID: LCSD

Lab ID#: 1908671-05AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a090306**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 9/3/19 12:16 PM**	

Compound	%Recovery	Method Limits
Freon 12	88	70-130
Freon 114	96	70-130
Chloromethane	92	70-130
Vinyl Chloride	92	70-130
1,3-Butadiene	88	70-130
Bromomethane	71	70-130
Chloroethane	93	70-130
Freon 11	90	70-130
Ethanol	87	70-130
Freon 113	91	70-130
1,1-Dichloroethene	89	70-130
Acetone	84	70-130
2-Propanol	83	70-130
Carbon Disulfide	88	70-130
3-Chloropropene	85	70-130
Methylene Chloride	88	70-130
Methyl tert-butyl ether	80	70-130
trans-1,2-Dichloroethene	88	70-130
Hexane	90	70-130
1,1-Dichloroethane	84	70-130
2-Butanone (Methyl Ethyl Ketone)	83	70-130
cis-1,2-Dichloroethene	85	70-130
Tetrahydrofuran	87	70-130
Chloroform	89	70-130
1,1,1-Trichloroethane	86	70-130
Cyclohexane	84	70-130
Carbon Tetrachloride	89	70-130
2,2,4-Trimethylpentane	91	70-130
Benzene	90	70-130
1,2-Dichloroethane	82	70-130
Heptane	81	70-130
Trichloroethene	116	70-130
1,2-Dichloropropane	81	70-130
1,4-Dioxane	86	70-130
Bromodichloromethane	91	70-130
cis-1,3-Dichloropropene	81	70-130
4-Methyl-2-pentanone	77	70-130
Toluene	85	70-130
trans-1,3-Dichloropropene	80	70-130
1,1,2-Trichloroethane	90	70-130
Tetrachloroethene	98	70-130
2-Hexanone	77	70-130

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Client Sample ID: LCSD

Lab ID#: 1908671-05AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a090306**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 9/3/19 12:16 PM**	

Compound	%Recovery	Method Limits
Dibromochloromethane	96	70-130
1,2-Dibromoethane (EDB)	90	70-130
Chlorobenzene	88	70-130
Ethyl Benzene	83	70-130
m,p-Xylene	82	70-130
o-Xylene	82	70-130
Styrene	81	70-130
Bromoform	97	70-130
Cumene	82	70-130
1,1,2,2-Tetrachloroethane	54 Q	70-130
Propylbenzene	79	70-130
4-Ethyltoluene	86	70-130
1,3,5-Trimethylbenzene	84	70-130
1,2,4-Trimethylbenzene	82	70-130
1,3-Dichlorobenzene	86	70-130
1,4-Dichlorobenzene	87	70-130
alpha-Chlorotoluene	74	70-130
1,2-Dichlorobenzene	86	70-130
1,2,4-Trichlorobenzene	95	70-130
Hexachlorobutadiene	101	70-130

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	97	70-130
1,2-Dichloroethane-d4	89	70-130
4-Bromofluorobenzene	105	70-130

IN. PRESS	END PRESS
1050	1145
28.8	Ø

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FIELD SAMPLE I.D. #: CGI-003-190829
CLIENT NAME: SPOKANE COUNTY
PROJECT: COLBERT
SAMPLERS NAME: M. TERRIS
DATE: 8/29/2019 TIME: 1100
CANISTER #: N0892
COMMENTS:
ANALYSES: TO-15

28.2	Ø

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FIELD SAMPLE I.D. #: CGE-D01-190829
CLIENT NAME: SPOKANE COUNTY
PROJECT: COLBERT
SAMPLERS NAME: M. TERRIS
DATE: 8/29/2019 TIME: 1105
CANISTER #: N1850
COMMENTS:
ANALYSES: TO-15

COLBERT PERIMETER GAS MONITORING REPORT

Barometer: 30.09

Tech: MT

Calibration: Zeroed CH4 to AB air CALGAS -> Ch4 reading 14.9% calibrate dto 15.0%; Co2 reading 14.7% calibrated to 15.0; Zeroed O2 to CALGAS -> O2 reading 20.5% AB air

FanFlow: 58

Weather Sli Cloudy 80's

Equipment: Gem 500 #410

Location	Date	Time	CH4	CO2	O2	Balance	Static Press	Diff. Press.	Comments
CGP0001L	7/25/2019		0	3.1	15.8	81.1	0	-0.01	
CGP0001L	2/21/2020		0	2.9	16.3	80.8	0	0	
CGP0001L	1/30/2020		0	2.3	17.1	80.6	0	-0.03	
CGP0001L	12/10/2019		0	3.3	16.8	81	0	-0.01	
CGP0001L	6/25/2020		0	2.4	6.5	91.1	0	-0.02	
CGP0001L	5/15/2020		0	2.1	17.5	80.4	0	-0.01	
CGP0001L	5/15/2020		0	2.1	17.5	80.4	0	-0.01	
CGP0001L	10/23/2019		0	4.1	15.8	81	0	0	
CGP0001L	8/23/2019		0	3.1	17.1	79.8	0	-0.01	
CGP0001L	6/26/2019		0	2.7	7.1	90.2	0	0	
CGP0001L	5/16/2019		0	2.1	16.9	81	0	0	
CGP0001L	5/20/2019		0	2.2	20.4	77.4	0	-0.02	
CGP0001L	4/24/2020		0	3.1	6.6	90.3	0	-0.01	
CGP0001L	11/18/2019		0	2.7	6.5	90.8	0	0.01	
CGP0001L	3/6/2020		0	3.1	16.4	80.5	0	0	
CGP0001L	9/6/2019		0	2.7	17.1	80.2	0	-0.01	
CGP0001U	11/18/2019		0	6.1	4.4	89.5	0	0	
CGP0001U	3/6/2020		0	6	5.8	88.2	0	0	
CGP0001U	1/30/2020		0	5.5	5.4	89.1	0	0	
CGP0001U	4/24/2020		0	6.5	4.5	89	0	0	
CGP0001U	5/20/2019		0	4.8	6.3	88.9	0	-0.01	
CGP0001U	5/16/2019		0	5.5	14.7	79.8	0	0	
CGP0001U	6/26/2019		0	5	5.6	89.4	0	0	
CGP0001U	7/25/2019		0	5.9	5.6	88.5	0	0	
CGP0001U	6/25/2020		0	1.8	6.9	91.3	0	-0.02	
CGP0001U	8/23/2019		0	6.8	6.8	86.4	0	0	
CGP0001U	12/10/2019		0	7.2	8.2	85.9	0	0	
CGP0001U	5/15/2020		0	2.8	7.1	90.1	0	-0.02	
CGP0001U	5/15/2020		0	2.8	7.1	90.1	0	-0.02	
CGP0001U	10/23/2019		0	6.1	8	85.9	0	0	
CGP0001U	9/6/2019		0	5.9	7.4	86.7	0	0	

COLBERT PERIMETER GAS MONITORING REPORT

Barometer: 30.01

Tech: MT

Calibration: Zeroed CH4 to AB air -> CALGAS Ch4 reading 14.9% cal to 15.0%; CO2 reading 14.8% cal to 15.0%; zeroed O2 to CALGAS -> cal O2 to 20.9% AB air

FanFlow: 53

Weather Partly Cloudy 42

Equipment: Gem 500 #410

Location	Date	Time	CH4	CO2	O2	Balance	Static Press	Diff. Press.	Comments
CGP0001U	2/21/2020		0	5.9	5.7	88.4	0	0	
CGP0002L	12/10/2019		0	7.1	7.1	85.8	0	-0.01	
CGP0002L	4/24/2020		0	7.9	4.8	87.3	0	0	
CGP0002L	8/23/2019		0	4.6	15.9	79.5	0	-0.01	
CGP0002L	5/20/2019		0	4.9	6.6	88.5	0	-0.03	
CGP0002L	11/18/2019		0	7.6	4.7	87.7	0	0	
CGP0002L	5/16/2019		0	4.3	8.1	87.6	0	0	
CGP0002L	6/26/2019		0	5.1	6.2	88.7	0	-0.03	
CGP0002L	7/25/2019		0	5.2	7	87.8	0	-0.01	
CGP0002L	9/6/2019		0	5.9	7.3	86.8	0	0	
CGP0002L	10/23/2019		0	6	8.2	85.8	0	0	
CGP0002L	5/15/2020		0	5.4	6.1	88.5	0	-0.01	
CGP0002L	2/21/2020		0	4.9	7.1	88	0	0	
CGP0002L	6/25/2020		0	4.4	5.3	90.3	0	-0.01	
CGP0002L	1/30/2020		0	5.2	6.1	88.7	0	-0.02	
CGP0002L	3/6/2020		0	5.2	6.9	87.9	0	0	
CGP0002L	5/15/2020		0	5.4	6.1	88.5	0	-0.01	
CGP0002U	7/25/2019		0	1.5	19.3	79.2	0	0	
CGP0002U	11/18/2019		0	2	7.2	90.8	0	0	
CGP0002U	9/6/2019		0	1.9	19.1	79	0	0	
CGP0002U	3/6/2020		0	1.1	19.5	79.4	0	-0.01	
CGP0002U	2/21/2020		0	1.2	19.1	79.7	0	-0.01	
CGP0002U	4/24/2020		0	2.1	7.2	90.7	0	0	
CGP0002U	5/20/2019		0	1.2	6.9	91.9	0	-0.02	
CGP0002U	5/16/2019		0	2	18	80	0	-0.01	
CGP0002U	6/26/2019		0	1.6	18.6	79.8	0	-0.03	
CGP0002U	10/23/2019		0	1.5	19.4	79.1	0	0	
CGP0002U	5/15/2020		0	1.2	18.8	80	0	0	
CGP0002U	5/15/2020		0	1.2	18.8	80	0	0	
CGP0002U	6/25/2020		0	1.1	6.5	92.4	0	0	
CGP0002U	12/10/2019		0	1.7	18.9	79.1	0	0	

COLBERT PERIMETER GAS MONITORING REPORT

Barometer: 30.05

Tech: MT

Calibration: Zeroed CH4 to AB air -> CALGAS -> CH4 reading 15.0 no cal needed; CO reading 14.7% cal to 15.0%; O2 reading .1 % zeroed O2; removed CALGAS O2 reading 21.0% O2

FanFlow: 54

Weather PC 40's

Equipment: GEM 500 #410

Location	Date	Time	CH4	CO2	O2	Balance	Static Press	Diff. Press.	Comments
CGP0002U	1/30/2020		0	1.2	19.2	79.6	0	0	
CGP0002U	8/23/2019		0	1.1	19.5	79.4	0	0	
CGP0003L	4/24/2020		0	9.4	4.1	86.5	0	0	
CGP0003L	6/25/2020		0	7.6	4.7	87.7	0	-0.02	
CGP0003L	12/10/2019		0	9.3	5	85	0	0	
CGP0003L	5/15/2020		0	7.9	5	87.1	0	-0.03	
CGP0003L	5/15/2020		0	7.9	5	87.1	0	-0.03	
CGP0003L	10/23/2019		0	9.1	5.9	85	0	0	
CGP0003L	9/6/2019		0	8.8	5.1	86.1	0	-0.01	
CGP0003L	8/23/2019		0	3.8	16.5	79.7	0	0	
CGP0003L	7/25/2019		0	7.5	5.5	87	0	-0.03	
CGP0003L	6/26/2019		0	8.3	4.7	87	0	-0.03	
CGP0003L	3/6/2020		0	8	5.5	86.5	0	-0.01	
CGP0003L	5/20/2019		0	8.4	5	86.6	0	0	
CGP0003L	11/18/2019		0	9.7	3.8	86.5	0	0	
CGP0003L	1/30/2020		0	8.4	4.7	86.9	0	0	
CGP0003L	2/21/2020		0	7.9	5.4	86.7	0	-0.01	
CGP0003L	5/16/2019		0	8.8	4.9	86.3	0	-0.01	
CGP0003U	10/23/2019		0	1.6	19.7	78.7	0	-0.02	
CGP0003U	1/30/2020		0	1	19.7	79.3	0	0	
CGP0003U	12/10/2019		0	1.2	19.9	79.2	0	0	
CGP0003U	6/25/2020		0	1.5	7.3	91.2	0	0	
CGP0003U	5/15/2020		0	1	18.6	80.4	0	-0.01	
CGP0003U	9/6/2019		0	1.5	20	78.5	0	-0.01	
CGP0003U	8/23/2019		0	1.2	19.1	79.7	0	0	
CGP0003U	3/6/2020		0	2	18.4	79.6	0	0	
CGP0003U	5/15/2020		0	1	18.6	80.4	0	-0.01	
CGP0003U	2/21/2020		0	2.2	18.1	79.7	0	0	
CGP0003U	6/26/2019		0	1.8	17.5	80.7	0	0	
CGP0003U	11/18/2019		0	2	7	91	0	0.01	
CGP0003U	4/24/2020		0	2.5	7.2	90.3	0	-0.01	

COLBERT PERIMETER GAS MONITORING REPORT

Barometer: 30

Tech: MT **Calibration:** Had to reset to factory settings, then normal calibration. See field book **FanFlow:** 56 **Weather** Partly Cloudy 60's NE wind 10-15

Equipment: GEM 500 410

Location	Date	Time	CH4	CO2	O2	Balance	Static Press	Diff. Press.	Comments
CGP0003U	5/20/2019		0	1.4	21.2	77.4	0	0	
CGP0003U	5/16/2019		0	2.1	18.8	79.1	0	0	
CGP0004L	8/23/2019		0	2.4	17.9	79.7	0	0	
CGP0004L	12/10/2019		0	3.5	16	79.5	0	0	
CGP0004L	11/18/2019		0	7.7	4.4	87.9	0	0	
CGP0004L	5/20/2019		0	4.8	6.3	88.9	0	0	
CGP0004L	5/16/2019		0	5.9	6.9	87.2	0	-0.01	
CGP0004L	6/26/2019		0	4.4	6.2	89.4	0	0	
CGP0004L	7/25/2019		0	4.3	7.3	88.4	0	-0.03	
CGP0004L	3/6/2020		0	4	7.2	88.8	0	-0.02	
CGP0004L	9/6/2019		0	4.2	16.5	79.3	0	-0.02	
CGP0004L	10/23/2019		0	4.1	16.4	79.5	0	-0.01	
CGP0004L	4/24/2020		0	7.8	4.1	88.1	0	0	
CGP0004L	5/15/2020		0	4.5	6.3	89.2	0	-0.02	
CGP0004L	6/25/2020		0	3.8	6.2	90	0	-0.01	
CGP0004L	1/30/2020		0	5.9	5.7	88.4	0	0	
CGP0004L	2/21/2020		0	3.9	7.1	89	0	-0.02	
CGP0004L	5/15/2020		0	4.5	6.3	89.2	0	-0.02	
CGP0004U	8/23/2019		0	3.5	16	80.5	0	-0.01	
CGP0004U	6/26/2019		0	2.8	7	90.2	0	-0.02	
CGP0004U	3/6/2020		0	3.2	16.4	80.4	0	-0.01	
CGP0004U	11/18/2019		0	3.2	6.3	90.5	0	-0.01	
CGP0004U	4/24/2020		0	3.1	6.1	90.8	0	-0.01	
CGP0004U	5/16/2019		0	1.8	15.5	82.7	0	0	
CGP0004U	7/25/2019		0	3.5	15.5	81	0	-0.04	
CGP0004U	6/25/2020		0	2.8	6.5	90.7	0	0	
CGP0004U	9/6/2019		0	3.3	16.5	80.2	0	0	
CGP0004U	5/20/2019		0	3.2	6.7	90.1	0	0	
CGP0004U	2/21/2020		0	3.1	16.4	80.5	0	0	
CGP0004U	12/10/2019		0	3.7	16.2	80.2	0	-0.01	
CGP0004U	5/15/2020		0	3	6.8	90.2	0	0	

COLBERT PERIMETER GAS MONITORING REPORT

Barometer: 30.01

Tech: MT **Calibration:** Zeroed CH4 to AB air CALGAS-> CH4 reading 14.9% calibrated to 15.0; CO2 reading 15.1% calibrated to 15.0%; zeroed O2 to CALGAS -> O2 reading 20.6% **FanFlow:** 55 **Weather** PC 50's/60's

Equipment: Gem 500 #410

Location	Date	Time	CH4	CO2	O2	Balance	Static Press	Diff. Press.	Comments
CGP0004U	5/15/2020		0	3	6.8	90.2	0	0	
CGP0004U	10/23/2019		0	3.5	16.3	80.2	0	0	
CGP0004U	1/30/2020		0	3.3	6.6	90.1	0	0	
CGP0005L	1/30/2020		0	6	3.8	90.2	0	0.01	
CGP0005L	5/15/2020		0.1	2.5	7	90.4	0	-0.01	
CGP0005L	2/21/2020		0	4.1	17.5	78.4	0	-0.01	
CGP0005L	9/6/2019		0	7.1	6.4	86.5	0	0	
CGP0005L	12/10/2019		0	7.5	7.7	86.6	0	0	
CGP0005L	5/15/2020		0.1	2.5	7	90.4	0	-0.01	
CGP0005L	4/24/2020		0	9.1	3.3	87.6	0	-0.01	
CGP0005L	10/23/2019		0	7.4	6	86.6	0	0	
CGP0005L	7/25/2019		0	2.9	15.9	81.2	0	0	
CGP0005L	6/26/2019		0	2.4	7.3	90.3	0	-0.01	
CGP0005L	5/16/2019		0	6.6	2.2	91.2	0	0	
CGP0005L	5/20/2019		0	3.5	6.5	90	0	0	
CGP0005L	11/18/2019		0	8.9	3.2	87.9	0	0	
CGP0005L	3/6/2020		0	2.5	17.2	80.3	0	-0.01	
CGP0005L	8/23/2019		0	3.1	17.1	79.8	0	-0.01	
CGP0005L	6/25/2020		0	3.2	5.9	90.9	0	-0.01	
CGP0005U	6/25/2020		0	1.3	7.3	91.4	0	0	
CGP0005U	10/23/2019		0	1.5	19.4	79.1	0	-0.01	
CGP0005U	4/24/2020		0	2.1	6	91.9	0	0	
CGP0005U	5/15/2020		0.1	1.2	18.2	80.5	0	-0.01	
CGP0005U	5/15/2020		0.1	1.2	18.2	80.5	0	-0.01	
CGP0005U	12/10/2019		0	2.1	18.9	79.1	0	-0.01	
CGP0005U	2/21/2020		0	1.2	18.7	80.1	0	0	
CGP0005U	6/26/2019		0	1.3	18.2	80.5	0	0	
CGP0005U	1/30/2020		0	0.8	18.7	80.5	0	0.02	
CGP0005U	9/6/2019		0	1.3	19.6	79.1	0	0	
CGP0005U	7/25/2019		0	1.5	18.2	80.3	0	0	
CGP0005U	5/16/2019		0	1.5	13.8	84.7	0	0	

COLBERT PERIMETER GAS MONITORING REPORT

Barometer: 30

Tech: MT **Calibration:** Had to reset to factory settings, then normal calibration. See field book **FanFlow:** 56 **Weather** Partly Cloudy 60's NE wind 10-15

Equipment: GEM 500 410

Location	Date	Time	CH4	CO2	O2	Balance	Static Press	Diff. Press.	Comments
CGP0005U	5/20/2019		0	1.7	20	78.3	0	0	
CGP0005U	11/18/2019		0	2.2	6.2	91.6	0	0	
CGP0005U	3/6/2020		0	1.1	19	79.9	0	-0.02	
CGP0005U	8/23/2019		0	1.5	19.2	79.3	0	0	
CGP0007L	10/23/2019		0	1	20.1	78.9	0	0	
CGP0007L	11/18/2019		0	0	19.6	80.4	0	-0.03	
CGP0007L	5/16/2019		0	3.1	20	76.9	0	-0.01	
CGP0007L	6/26/2019		0	0.8	20.1	79.1	0	-0.01	
CGP0007L	5/20/2019		0	2	18	80	0	0	
CGP0007L	8/23/2019		0	1.5	18.5	80	0	0	
CGP0007L	9/6/2019		0	1.2	19.8	79	0	0	
CGP0007L	4/24/2020		0	0.9	18.9	80.2	0	0	
CGP0007L	5/15/2020		0	0.9	18.9	80.2	0	0	
CGP0007L	5/15/2020		0	1	19	80	0	0	
CGP0007L	12/10/2019		0	1.1	19.5	78.9	0	0	
CGP0007L	6/25/2020		0	1.1	19.1	79.8	0	0	
CGP0007L	3/6/2020		0	1.5	19.9	78.6	0	-0.02	
CGP0007L	2/21/2020		0	1.1	20	78.9	0	-0.02	
CGP0007L	1/30/2020		0	0.7	19.9	79.4	0	0	
CGP0007U	7/25/2019		0	2.2	17.4	80.4	0	0	
CGP0007U	5/16/2019		0	2.2	19.4	78.4	0	0	
CGP0007U	2/21/2020		0	0.8	20.5	78.7	0	-0.01	
CGP0007U	10/23/2019		0	3.5	15.3	81.2	0	-0.01	
CGP0007U	9/6/2019		0	3.5	15.3	81.2	0	-0.01	
CGP0007U	5/20/2019		0	3.2	7	89.8	0	0	
CGP0007U	3/6/2020		0	0.3	20.1	79.6	0	-0.03	
CGP0007U	6/26/2019		0	0.9	19.8	79.3	0	0	
CGP0007U	8/23/2019		0	4.1	6.1	89.8	0	-0.01	
CGP0007U	4/24/2020		0	1.4	17.7	80.9	0	0	
CGP0007U	5/15/2020		0	1.4	17.7	80.9	0	-0.01	
CGP0007U	5/15/2020		0	1.4	17.7	80.9	0	-0.01	

COLBERT PERIMETER GAS MONITORING REPORT

Barometer: 29.99

Tech: MT

Calibration: Zeroed CH4 to AB air ->CALGAS CH4 reading 14.9% calibrated to 15.0%; CO2 reading 14.8%, calibrated to 15.0% CO2: Zeroed O2 to CALGAS then calibrated to

FanFlow: 51

Weather Cloudy 30's

Equipment: Gem 500 #410

Location	Date	Time	CH4	CO2	O2	Balance	Static Press	Diff. Press.	Comments
CGP0007U	12/10/2019		0	4.1	16.1	81.2	0	-0.01	
CGP0007U	6/25/2020		0	1.9	18.1	80	0	-0.02	
CGP0007U	1/30/2020		0	1.2	19.4	79.7	0	0	
CGP0007U	11/18/2019		0	1.3	18	80.7	0	-0.03	
CGP0010L	10/23/2019		0	6	7.3	86.7	0	0	
CGP0010L	11/18/2019		0	5.6	5	89.4	0	-0.02	
CGP0010L	5/20/2019		0	3.7	6.3	90	0	0	
CGP0010L	5/16/2019		0	3.9	16.4	79.7	0	-0.01	
CGP0010L	6/26/2019		0	3.6	6.1	90.3	0	-0.03	
CGP0010L	8/23/2019		0	5.1	5	89.9	0	-0.02	
CGP0010L	4/24/2020		0	6.1	4.9	89	0	-0.02	
CGP0010L	5/15/2020		0	3.9	6	90.1	0	0	
CGP0010L	5/15/2020		0	3.9	6	90.1	0	0	
CGP0010L	12/10/2019		0	6.2	6.6	86.7	0	-0.01	
CGP0010L	3/6/2020		0	5.1	5.5	89.4	0	0	
CGP0010L	1/30/2020		0	4.8	5.8	89.4	0	0	
CGP0010L	7/25/2019		0	3.6	6.1	90.3	0	-0.02	
CGP0010L	6/25/2020		0	5.9	5.2	88.9	0	0	
CGP0010L	2/21/2020		0	5.3	5.5	89.2	0	-0.02	
CGP0010L	9/6/2019		0	2.5	7.3	90.2	0	0	
CGP0010U	5/20/2019		0	1.8	16.4	81.8	0	0	
CGP0010U	6/25/2020		0	1.8	7	91.2	0	0	
CGP0010U	3/6/2020		0	2	18	80	0	0	
CGP0010U	11/18/2019		0	2.5	6.5	91	0	0	
CGP0010U	5/16/2019		0	1.9	19.1	79	0	0	
CGP0010U	6/26/2019		0	1.6	18	80.4	0	-0.01	
CGP0010U	7/25/2019		0	1.8	17.7	80.5	0	-0.02	
CGP0010U	2/21/2020		0	1.9	17.9	80.2	0	0	
CGP0010U	9/6/2019		0	2.2	17.3	80.5	0	-0.01	
CGP0010U	4/24/2020		0	3.1	7.2	89.7	0	0	
CGP0010U	1/30/2020		0	1.4	17.6	81	0	0	

COLBERT PERIMETER GAS MONITORING REPORT

Barometer: 30.01

Tech: MT

Calibration: Zeroed CH4 to AB air CALGAS-> CH4 reading 14.9% calibrated to 15.0; CO2 reading 15.1% calibrated to 15.0%; zeroed O2 to CALGAS -> O2 reading 20.6%

FanFlow: 55

Weather PC 50's/60's

Equipment: Gem 500 #410

Location	Date	Time	CH4	CO2	O2	Balance	Static Press	Diff. Press.	Comments
CGP0010U	5/15/2020		0	1.4	18	80.6	0	0	
CGP0010U	5/15/2020		0	1.4	18	80.6	0	0	
CGP0010U	12/10/2019		0	2.1	17.1	80.5	0	0	
CGP0010U	8/23/2019		0	1.5	18	80.5	0	0	
CGP0010U	10/23/2019		0	1.9	17.6	80.5	0	-0.01	
CGP0011L	7/25/2019		0	0.3	20.2	79.5	0	0	
CGP0011L	5/16/2019		0	1.1	20	78.9	0	0	
CGP0011L	6/26/2019		0	0.2	20.3	79.5	0	0	
CGP0011L	5/20/2019		0	0.9	19.1	80	0	-0.02	
CGP0011L	11/18/2019		0	0.3	19.2	80.5	0	0	
CGP0011L	3/6/2020		0	0.1	20.8	79.1	0	-0.01	
CGP0011L	4/24/2020		0	0.9	19.2	79.9	0	0	
CGP0011L	10/23/2019		0	1.2	19.5	79.3	0	0	
CGP0011L	5/15/2020		0	0.9	19.2	79.9	0	-0.01	
CGP0011L	5/15/2020		0	1.1	19	79.9	0	-0.01	
CGP0011L	12/10/2019		0	1	17.3	79.3	0	-0.01	
CGP0011L	6/25/2020		0	3.4	5.3	91.3	0	0	
CGP0011L	1/30/2020		0	0.1	20.8	79.1	0	0	
CGP0011L	2/21/2020		0	0.8	20.6	78.6	0	-0.01	
CGP0011L	8/23/2019		0	1.1	19.7	79.2	0	-0.01	
CGP0011L	9/6/2019		0	0.6	19.1	79.3	0	-0.02	
CGP0011U	10/23/2019		0	5.1	14.5	80.4	0	-0.01	
CGP0011U	7/25/2019		0	1.9	17.5	80.5	0	0	
CGP0011U	6/26/2019		0	1.9	17.5	80.6	0	-0.02	
CGP0011U	5/16/2019		0	3	17.3	79.7	0	0	
CGP0011U	8/23/2019		0	3.5	15.5	81	0	-0.01	
CGP0011U	11/18/2019		0	3.1	6	90.9	0	0	
CGP0011U	12/10/2019		0	5	15.5	80.4	0	0	
CGP0011U	5/20/2019		0	2.3	19.4	78.3	0	-0.01	
CGP0011U	9/6/2019		0	2.6	17	80.4	0	-0.01	
CGP0011U	4/24/2020		0	3.5	5.9	90.6	0	0	

COLBERT PERIMETER GAS MONITORING REPORT

Barometer: 30.01

Tech: MT **Calibration:** Zeroed CH4 to AB air CALGAS-> CH4 reading 14.9% calibrated to 15.0; CO2 reading 15.1% calibrated to 15.0%; zeroed O2 to CALGAS -> O2 reading 20.6% **FanFlow:** 55 **Weather** PC 50's/60's

Equipment: Gem 500 #410

Location	Date	Time	CH4	CO2	O2	Balance	Static Press	Diff. Press.	Comments
CGP0011U	5/15/2020		0	3.5	5.9	90.6	0	0	
CGP0011U	6/25/2020		0	0.9	19.1	80	0	-0.02	
CGP0011U	1/30/2020		0	1.4	6.1	92.5	0	0	
CGP0011U	2/21/2020		0	2.6	16.2	81.2	0	0	
CGP0011U	3/6/2020		0	2.6	16.2	81.2	0	0	
CGP0011U	5/15/2020		0	1.1	6.5	92.4	0	0	

Appendix B

Landfill Operations and Maintenance Field Data/Summary

COLBERT LANDFILL ANNUAL GROUNDWATER SAMPLING

Date	6-2-2020	**Field Personnel:**	GF
StationID:	CD-31A1	**Weather:**	ptly cldy 60°
Sample ID:	CD-31A1 - 200602	**Purge Method:**	Disp. bailer, Ded. Grundfos, Ded. Bladder, Ded. Bennett, Env. Tech ES 40, Port. Grundfos, Port. Bennet, PDB, Hydrasleeve
QA/QC Sample ID:	NA		

Well Depth:	110	**Screens from:**	103	**To**	108	**Casing Size (in)**	2.5	
Depth to Water:	92.60'							
Water Column Depth:	17.4	x	0.26	=	4.52 use 4.75	x3 well volumes =	14.25	

Gallons per linear foot: | **Calc. Purge vol./casing vol.:** | **Total Purge Vol. (gal)**

CASING INFO

DIA.	VOL. (gal/ft)
1.25	0.08
2.0	0.17
2.5	0.26
4	0.66
6	1.5
8	2.6

Purge Rate	—	**Purge Begin Time**	1010

Field Parameters

Time	Purge Vol/gal	pH	Cond. (umhos/cm)	Temp. (C)	Turb.	Comments
1022	4.75	7.67	636	10.4		Clear
1033	9.5	7.69	642	10.2		Clear
1044	14.25	7.68	640	10.2		Clear
Stabilization Criteria:		+/- 0.1 unit	+/- 5%		0.20	(must meet criteria within 3 consecutive measurements)

Sample Time:	1046	**QAQC Sample Time:**	NA

Meters:	**pH**	**Conductivity**	**Turbidity**
	Meter: Extech	Meter: ECtestr 11+	Hach 2100P
	S/N 370573	S/N 7810	S/N ~~940700005619~~/ 24957
	Calib. to 4.0, 7.0 and 10.0	STD. to 700 umhos/cm	STD. to 4.8, 43.8, 420

Lab Analysis:(Check parameters to be analyzed)

		Bottle Batch #
X	3-40ml Glass w/HCl- VOC's (524.2)	
	1-500mL Poly w/H2SO4- TOC/COD/Ammonia (415.1/410.1/350.1)	
	1-500mL Poly unpreserv.- Cl/NO3/NO2/SO4 (300.0/300.0/354.0/300.0)	
	1-500mL Poly w/HNO3 Field Filtered- Fe/Mn/Zn (6010)	
	2-500mL Amber glass unpreserv - 1,4-Dioxane (8270)	

Comments:

COLBERT LANDFILL ANNUAL GROUNDWATER SAMPLING

Date	6-2-2020	Field Personnel:	GF
StationID:	CD-34A1	Weather:	pt ly cldy, 55°
Sample ID:	CD-34A1 -200602	Purge Method:	Disp. bailer, Ded. Grundfos, Ded. Bladder, Ded. Bennett, Env. Tech ES 40, Port. Grundfos, Port. Bennet, PDB, Hydrasleeve
QA/QC Sample ID:	NA		

Well Depth:	Screens from:	To	Casing Size (in)
110	100	110	2.5

− Depth to Water:	Gallons per linear foot:	Calc. Purge vol./casing vol.:	Total Purge Vol. (gal)
96.60'			

= Water Column Depth: 13.40 x 0.26 = 3.5 x3 well volumes = 10.5

Purge Rate	Purge Begin Time
—	0921

CASING INFO

DIA.	VOL. (gal/ft)
1.25	0.08
2.0	0.17
2.5	0.26
4	0.66
6	1.5
8	2.6

Field Parameters

Time	Purge Vol/gal	pH	Cond. (umhos/cm)	Temp. (C)	Turb.	Comments
0933	3.5	7.56	620	10.8		Clear
0941	7.0	7.59	621	10.5		Clear
0950	10.5	7.59	624	10.6		clear
Stabilization Criteria:		+/- 0.1 unit	+/- 5%		0.19	(must meet criteria within 3 consecutive measurements)

Sample Time:	QAQC Sample Time:
0951 —	NA

Meters:	pH	Conductivity	Turbidity
	Meter: Extech	Meter: EC Testr 11+	Hach 2100P
	S/N 370573	S/N 7810	S/N ~~840700005619~~/ 24957
	Calib. to 4.0, 7.0 and 10.0	STD. to 700 umhos/cm	STD. to 4.8, 43.8, 420

Lab Analysis:(Check parameters to be analyzed)		Bottle Batch #
X	3-40ml Glass w/HCl- VOC's (524.2)	
	1-500mL Poly w/H2SO4- TOC/COD/Ammonia (415.1/410.1/350.1)	
	1-500mL Poly unpreserv.- Cl/NO3/NO2/SO4 (300.0/300.0/354.0/300.0)	
	1-500mL Poly w/HNO3 Field Filtered- Fe/Mn/Zn (6010)	
	2-500mL Amber glass unpreserv - 1,4-Dioxane (8270)	

Comments:

COLBERT LANDFILL ANNUAL GROUNDWATER SAMPLING

Date	6-2-2020	**Field Personnel:**	GF
StationID:	CD-36A1	**Weather:**	mstly cldy, 65°
Sample ID:	CD-36A1 -200602	**Purge Method:**	Disp. bailer, Ded. Grundfos, Ded. Bladder, Ded. Bennett, Env. Tech ES 40, Port. Grundfos, Port. Bennet, PDB, Hydrasleeve
QA/QC Sample ID:	NA		

Well Depth: 102 **Screens from:** _____ **To** _____ **Casing Size (in):** 2.5

Depth to Water: 88.16

Water Column Depth: 13.84 x **Gallons per linear foot:** 0.26 = **Calc. Purge vol./casing vol.:** 3.6 use 3.75 **x3 well volumes** = **Total Purge Vol. (gal):** 11.25

Purge Rate: _____ **Purge Begin Time:** 1144

CASING INFO

DIA.	VOL. (gal/ft)
1.25	0.08
2.0	0.17
2.5	0.26
4	0.66
6	1.5
8	2.6

Field Parameters

Time	Purge Vol/gal	pH	Cond. (umhos/cm)	Temp. (C)	Turb.	Comments
1154	3.75	7.84	543	10.4	—	Clear
1204	7.5	7.84	546	10.4		Clear
1214	11.25	7.86	542	10.5		clear
Stabilization Criteria:		+/- 0.1 unit	+/- 5%		0.24	(must meet criteria within 3 consecutive measurements)

Sample Time: 1216 **QAQC Sample Time:** NA

Meters:

pH	Conductivity	Turbidity
Meter: Extech	Meter: EC Testr 11+	Hach 2100P
S/N 370573	S/N 7810	S/N ~~940700005619~~/ 24957
Calib. to 4.0, 7.0 and 10.0	STD. to 700 umhos/cm	STD. to 4.8, 43.8, 420

Lab Analysis:(Check parameters to be analyzed)		Bottle Batch #
X	3-40ml Glass w/HCl- VOC's (524.2)	
	1-500mL Poly w/H2SO4- TOC/COD/Ammonia (415.1/410.1/350.1)	
	1-500mL Poly unpreserv.- Cl/NO3/NO2/SO4 (300.0/300.0/354.0/300.0)	
	1-500mL Poly w/HNO3 Field Filtered- Fe/Mn/Zn (6010)	
	2-500mL Amber glass unpreserv - 1,4-Dioxane (8270)	

X Surface Lid needs 3 replacement bolts

Comments:

COLBERT LANDFILL ANNUAL GROUNDWATER SAMPLING

Date	6-2-2020	Field Personnel:	GF
StationID:	CD-37A1	Weather:	mstly cldy, 68°
Sample ID:	CD-37A1 -200602	Purge Method:	Disp. bailer, Ded. Grundfos, Ded. Bladder, Ded. Bennett, Env. Tech ES 40, Port. Grundfos, Port. Bennet, PDB, Hydrasleeve
QA/QC Sample ID:	NA		

Well Depth:	104	Screens from:		To		Casing Size (in)	2.5		
− Depth to Water:	89.65								
= Water Column Depth:	14.35	x	Gallons per linear foot: 0.26	=	Calc. Purge vol./casing vol.: 3.75	x3 well volumes =	Total Purge Vol. (gal) 11.25		
Purge Rate	—					Purge Begin Time	1231		

CASING INFO

DIA.	VOL. (gal/ft)
1.25	0.08
2.0	0.17
2.5	0.26
4	0.66
6	1.5
8	2.6

Field Parameters

Time	Purge Vol/gal	pH	Cond. (umhos/cm)	Temp. (C)	Turb.	Comments
1241	3.75	7.57	593	10.5		Clear
1250	7.5	7.60	597	10.6		Clear
1259	11.25	7.61	601	10.5		Clear
Stabilization Criteria:		+/- 0.1 unit	+/- 5%		0.19	(must meet criteria within 3 consecutive measurements)

Sample Time:	1301
QAQC Sample Time:	NA

Meters:	pH	Conductivity	Turbidity
	Meter: Extech	Meter: ECTESTR11+	Hach 2100P
	S/N 370573	S/N 7810	S/N 940700005619/24957
	Calib. to 4.0, 7.0 and 10.0	STD. to 700 umhos/cm	STD. to 4.8, 43.8, 420

Lab Analysis:(Check parameters to be analyzed)		Bottle Batch #
X	3-40ml Glass w/HCl- VOC's (524.2)	
	1-500mL Poly w/H2SO4- TOC/COD/Ammonia (415.1/410.1/350.1)	
	1-500mL Poly unpreserv.- Cl/NO3/NO2/SO4 (300.0/300.0/354.0/300.0)	
	1-500mL Poly w/HNO3 Field Filtered- Fe/Mn/Zn (6010)	
	2-500mL Amber glass unpreserv - 1,4-Dioxane (8270)	

Comments:

COLBERT LANDFILL ANNUAL GROUNDWATER SAMPLING

Date	6-2-2020	Field Personnel:	GF
StationID:	CD-38A1	Weather:	ptly cldy, 72°
Sample ID:	CD-38A1-200602	Purge Method:	Disp. bailer, Ded. Grundfos, Ded. Bladder, Ded. Bennett, Env. Tech ES 40, Port. Grundfos, Port. Bennet, PDB, Hydrasleeve
QA/QC Sample ID:	NA		

Well Depth:	111	Screens from:		To		Casing Size (in)	2.5	
− Depth to Water:	89.15'							
= Water Column Depth:	21.85	x	Gallons per linear foot: 0.26	=	Calc. Purge vol./casing vol.: 5.7 use 5.75	x3 well volumes =	Total Purge Vol. (gal) 17.25	
Purge Rate	—					Purge Begin Time	1351	

CASING INFO

DIA.	VOL. (gal/ft)
1.25	0.08
2.0	0.17
2.5	0.26
4	0.66
6	1.5
8	2.6

Field Parameters

Time	Purge Vol/gal	pH	Cond. (umhos/cm)	Temp. (C)	Turb.	Comments
1405	5.75	7.70	533	10.3		clear
1419	11.5	7.73	545	10.4		clear
1433	17.25	7.74	543	10.4		clear
Stabilization Criteria:		+/- 0.1 unit	+/- 5%		0.21	(must meet criteria within 3 consecutive measurements)

Sample Time:	1435
QAQC Sample Time:	NA

Meters:	pH	Conductivity	Turbidity
	Meter: Extech	Meter: ECTESTR 11+	Hach 2100P
	S/N 370573	S/N 7810	S/N ~~940700005619~~/ 24957
	Calib. to 4.0, 7.0 and 10.0	STD. to 700 umhos/cm	STD. to 4.8, 43.8, 420

Lab Analysis:(Check parameters to be analyzed)

		Bottle Batch #
X	3-40ml Glass w/HCl- VOC's (524.2)	
	1-500mL Poly w/H2SO4- TOC/COD/Ammonia (415.1/410.1/350.1)	
	1-500mL Poly unpreserv.- Cl/NO3/NO2/SO4 (300.0/300.0/354.0/300.0)	
	1-500mL Poly w/HNO3 Field Filtered- Fe/Mn/Zn (6010)	
	2-500mL Amber glass unpreserv - 1,4-Dioxane (8270)	

Comments:

COLBERT LANDFILL ANNUAL GROUNDWATER SAMPLING

Date: 6/2/2020
StationID: CD-43C1
Sample ID: CD-43C1 - 200602
QA/QC Sample ID: —

Field Personnel: MT / KM
Weather: CLEAR 50's
Purge Method: Disp. bailer, Ded. Grundfos, Ded. Bladder, Ded. Bennett, Env. Tech ES 40, Port. Grundfos, Port. Bennet, PDB, Hydrasleeve

Well Depth: 230
Depth to Water: 170.67
Water Column Depth: 59.33' x Gallons per linear foot: 0.26 = Calc. Purge vol./casing vol.: 16GAL / 15.48 x3 well volumes = Total Purge Vol. (gal): 48GAL

Screens from: 211 To 230
Casing Size (in): 2.5

CASING INFO

DIA.	VOL. (gal/ft)
1.25	0.08
2.0	0.17
2.5	0.26
4	0.66
6	1.5
8	2.6

Purge Rate: 3 GPM
Purge Begin Time: 0830

Field Parameters

Time	Purge Vol/gal	pH	Cond. (umhos/cm)	Temp. (C)	Turb.	Comments
0836	16GAL	7.61	502	12.7		CLEAR
0842	32GAL	7.65	515	11.4		CLEAR
0848	48GAL	7.64	516	11.3		CLEAR
Stabilization Criteria:		+/- 0.1 unit	+/- 5%		0.31	(must meet criteria within 3 consecutive measurements)

Sample Time: 0850
QAQC Sample Time: —

Meters:

pH	Conductivity	Turbidity
Meter: EXSTIKpH100	Meter: ECTestr 11+	Hach 2100P
S/N 223464	S/N 24B	S/N 940700005619/
Calib. to 4.0, 7.0 and 10.0	STD. to 700 umhos/cm	STD. to 4.8, 43.8, 420

Lab Analysis:(Check parameters to be analyzed)

		Bottle Batch #
X	3-40ml Glass w/HCl- VOC's (524.2)	
	1-500mL Poly w/H2SO4- TOC/COD/Ammonia (415.1/410.1/350.1)	
	1-500mL Poly unpreserv.- Cl/NO3/NO2/SO4 (300.0/300.0/354.0/300.0)	
	1-500mL Poly w/HNO3 Field Filtered- Fe/Mn/Zn (6010)	
	2-500mL Amber glass unpreserv - 1,4-Dioxane (8270)	

Comments: CONTROLLER: NO ISSUES

COLBERT LANDFILL ANNUAL GROUNDWATER SAMPLING

Date: 6/2/2020
StationID: CD-43C2
Sample ID: CD-43C2 -200602
QA/QC Sample ID:

Field Personnel: MT/KM
Weather: CLEAR 50's
Purge Method: Disp. bailer, Ded. Grundfos, Ded. Bladder, Ded. Bennett, Env. Tech ES 40, Port. Grundfos, Port. Bennet, PDB, Hydrasleeve

Well Depth: 299 — Depth to Water: 170.53' = Water Column Depth: 128.47 x Gallons per linear foot: 0.26 = Calc. Purge vol./casing vol.: 35 GAL / 33.40 x3 well volumes = Total Purge Vol. (gal): 105GAL

Screens from: 280 To 299
Casing Size (in): 2.5

CASING INFO

DIA.	VOL. (gal/ft)
1.25	0.08
2.0	0.17
2.5	0.26
4	0.66
6	1.5
8	2.6

Purge Rate: 3 GPM 12 MIN
Purge Begin Time: 0900

Field Parameters

Time	Purge Vol/gal	pH	Cond. (umhos/cm)	Temp. (C)	Turb.	Comments
0912	35 GAL	7.74	313	11.4		CLEAR
0924	70 GAL	7.71	309	11.1		CLEAR
0936	105 GAL	7.73	310	11.1		CLEAR
Stabilization Criteria:		+/- 0.1 unit	+/- 5%		0.32	(must meet criteria within 3 consecutive measurements)

Sample Time: 0940
QAQC Sample Time: —

Meters:

pH	Conductivity	Turbidity
Meter: EXSTIK pH100	Meter: ECTestr 11+	Hach 2100P
S/N 223464	S/N 24B	S/N 940700005619/_____
Calib. to 4.0, 7.0 and 10.0	STD. to 700 umhos/cm	STD. to 4.8, 43.8, 420

Lab Analysis:(Check parameters to be analyzed)

		Bottle Batch #
X	3-40ml Glass w/HCl- VOC's (524.2)	
	1-500mL Poly w/H2SO4- TOC/COD/Ammonia (415.1/410.1/350.1)	
	1-500mL Poly unpreserv.- Cl/NO3/NO2/SO4 (300.0/300.0/354.0/300.0)	
	1-500mL Poly w/HNO3 Field Filtered- Fe/Mn/Zn (6010)	
	2-500mL Amber glass unpreserv - 1,4-Dioxane (8270)	

Comments: CONTROLLER: NO ISSUES

COLBERT LANDFILL ANNUAL GROUNDWATER SAMPLING

Date: 6/2/2020
Field Personnel: KM/MT
StationID: CD-43C3
Weather: CLEAR 50'S
Sample ID: CD-43C3-200602
Purge Method: Disp. bailer, Ded. Grundfos, Ded. Bladder, Ded. Bennett, Env. Tech ES 40, Port. Grundfos, Port. Bennet, PDB, Hydrasleeve
QA/QC Sample ID: —

Well Depth: 401
Screens from: 382 To 401
Casing Size (in): 2.5

CASING INFO

DIA.	VOL. (gal/ft)
1.25	0.08
2.0	0.17
2.5	0.26
4	0.66
6	1.5
8	2.6

Depth to Water: 170.21'
Water Column Depth: 230.79 x Gallons per linear foot: 0.26 = Calc. Purge vol./casing vol.: 60.00 x3 well volumes = Total Purge Vol. (gal): 180GAL

Purge Rate: 3.4GPM 18 MIN PER.
Purge Begin Time: 0855

Field Parameters

Time	Purge Vol/gal	pH	Cond. (umhos/cm)	Temp. (C)	Turb.	Comments
0913	60 GAL	7.62	315	11.7		CLEAR
0931	120 GAL	7.60	318	11.4		CLEAR
0949	180 GAL	7.61	318	11.3		CLEAR
Stabilization Criteria:		+/- 0.1 unit	+/- 5%		0.48	(must meet criteria within 3 consecutive measurements)

Sample Time: 0950
QAQC Sample Time: —

Meters:

pH	Conductivity	Turbidity
Meter: EXSTIK 100	Meter: ECTestr 11+	Hach 2100P
S/N 223464	S/N 248	S/N 940700005619/
Calib. to 4.0, 7.0 and 10.0	STD. to 700 umhos/cm	STD. to 4.8, 43.8, 420

Lab Analysis:(Check parameters to be analyzed)

		Bottle Batch #
X	3-40ml Glass w/HCl- VOC's (524.2)	
	1-500mL Poly w/H2SO4- TOC/COD/Ammonia (415.1/410.1/350.1)	
	1-500mL Poly unpreserv.- Cl/NO3/NO2/SO4 (300.0/300.0/354.0/300.0)	
	1-500mL Poly w/HNO3 Field Filtered- Fe/Mn/Zn (6010)	
	2-500mL Amber glass unpreserv - 1,4-Dioxane (8270)	

Comments: CONTROLLER: NO ISSUES

COLBERT LANDFILL ANNUAL GROUNDWATER SAMPLING

Date: 6/2/2020
Field Personnel: MT / KM
StationID: CD-42C1
Weather: SL CLOUDY UPPER 50'S
Sample ID: CD-42C1 - 200602
Purge Method: Disp. bailer, Ded. Grundfos, Ded. Bladder, Ded. Bennett, Env. Tech ES 40, Port. Grundfos, Port. Bennet, PDB, Hydrasleeve
QA/QC Sample ID: —

Well Depth: 227
Screens from: 208 To 227
Casing Size (in): 2.5

CASING INFO

DIA.	VOL. (gal/ft)
1.25	0.08
2.0	0.17
2.5	0.26
4	0.66
6	1.5
8	2.6

Depth to Water: 173.52'
Water Column Depth: 53.48 x Gallons per linear foot: 0.26 = Calc. Purge vol./casing vol.: 15GAL / 13.90 x3 well volumes = Total Purge Vol. (gal): 45GAL

Purge Rate: 2.6 GPM 6 MPW V
Purge Begin Time: 0955

Field Parameters

Time	Purge Vol/gal	pH	Cond. (umhos/cm)	Temp. (C)	Turb.	Comments
1001	15GAL					
1007	30GAL					
1013	45GAL					
Stabilization Criteria:		+/- 0.1 unit	+/- 5%			(must meet criteria within 3 consecutive measurements)

NO SAMPLE PUMP NEEDS REPLACED

Sample Time: 1015
QAQC Sample Time: —

Meters:

pH	Conductivity	Turbidity
Meter: EXSTIK pH100	Meter: ECTestr 11+	Hach 2100P
S/N 223464	S/N 24B	S/N 940700005619/
Calib. to 4.0, 7.0 and 10.0	STD. to 700 umhos/cm	STD. to 4.8, 43.8, 420

Lab Analysis:(Check parameters to be analyzed)

		Bottle Batch #
X	3-40ml Glass w/HCl- VOC's (524.2)	
	1-500mL Poly w/H2SO4- TOC/COD/Ammonia (415.1/410.1/350.1)	
	1-500mL Poly unpreserv.- Cl/NO3/NO2/SO4 (300.0/300.0/354.0/300.0)	
	1-500mL Poly w/HNO3 Field Filtered- Fe/Mn/Zn (6010)	
	2-500mL Amber glass unpreserv - 1,4-Dioxane (8270)	

HAVING TROUBLE W/ PUMP FAULT → NO SAMPLE

Comments: CONTROLLER: NO ISSUES

COLBERT LANDFILL ANNUAL GROUNDWATER SAMPLING

Date: 6/2/2020
Field Personnel: MT/KM
StationID: CD-42C2
Weather: SLI CLOUDY UPPER 50'S
Sample ID: CD-42C2 - 200602
Purge Method: Disp. bailer, Ded. Grundfos, Ded. Bladder, Ded. Bennett, Env. Tech ES 40, Port. Grundfos, Port. Bennet, PDB, Hydrasleeve
QA/QC Sample ID: —

Well Depth: 312
Screens from: 293 To 312
Casing Size (in): 2.5

CASING INFO

DIA.	VOL. (gal/ft)
1.25	0.08
2.0	0.17
2.5	0.26
4	0.66
6	1.5
8	2.6

Depth to Water: 173.40
Water Column Depth: 138.60 x Gallons per linear foot: 0.26 = Calc. Purge vol./casing vol.: 37GAL / 36.04 x3 well volumes = Total Purge Vol. (gal): 111.0GAL

Purge Rate: 2.1 GPM 17 MPWV
Purge Begin Time: 1003

Field Parameters

Time	Purge Vol/gal	pH	Cond. (umhos/cm)	Temp. (C)	Turb.	Comments
1018	37GAL	7.65	497	13.6		Clear
1035	74 GAL	7.65	500	13.2		Clear
1052	111.0GAL	7.64	500	13.0		CLEAR
Stabilization Criteria:		+/- 0.1 unit	+/- 5%		0.32	(must meet criteria within 3 consecutive measurements)

Sample Time: 1055
QAQC Sample Time:

Meters:

pH	Conductivity	Turbidity
Meter: EXSTIK pH100	Meter: ECTestr 11+	Hach 2100P
S/N 223464	S/N 24B	S/N 94070000561 9/_____
Calib. to 4.0, 7.0 and 10.0	STD. to 700 umhos/cm	STD. to 4.8, 43.8, 420

Lab Analysis:(Check parameters to be analyzed)

		Bottle Batch #
X	3-40ml Glass w/HCl- VOC's (524.2)	
	1-500mL Poly w/H2SO4- TOC/COD/Ammonia (415.1/410.1/350.1)	
	1-500mL Poly unpreserv.- Cl/NO3/NO2/SO4 (300.0/300.0/354.0/300.0)	
	1-500mL Poly w/HNO3 Field Filtered- Fe/Mn/Zn (6010)	
	2-500mL Amber glass unpreserv - 1,4-Dioxane (8270)	

Comments: CONTROLLER: 2.1 GPM MAX

COLBERT LANDFILL ANNUAL GROUNDWATER SAMPLING

Date: 6/2/2020
Field Personnel: MT/KM
StationID: CD-42C3
Weather: SLI CLOUDY UPPER 50'S
Sample ID: CD-42C3-200602
Purge Method: Disp. bailer, Ded. Grundfos, Ded. Bladder, Ded. Bennett, Env. Tech ES 40, Port. Grundfos, Port. Bennet, PDB, Hydrasleeve
QA/QC Sample ID: —

Well Depth: 402
Screens from: 383 To 402
Casing Size (in): 2.5

CASING INFO

DIA.	VOL. (gal/ft)
1.25	0.08
2.0	0.17
2.5	0.26
4	0.66
6	1.5
8	2.6

Depth to Water: 173.12'
Water Column Depth: 228.88' x Gallons per linear foot: 0.26 = Calc. Purge vol./casing vol.: 60GAL / 59.51 x3 well volumes = Total Purge Vol. (gal): 180GAL

Purge Rate: 2.4 GPM
Purge Begin Time: 0955

Field Parameters

Time	Purge Vol/gal	pH	Cond. (umhos/cm)	Temp. (C)	Turb.	Comments
1020	60GAL	7.69	424	13.3		Clear
1045	120GAL	7.71	424	13.3		CLEAR
1110	180GAL	7.71	426	13.2		CLEAR
Stabilization Criteria:		+/- 0.1 unit	+/- 5%		0.79	(must meet criteria within 3 consecutive measurements)

Sample Time: 1115
QAQC Sample Time: —

Meters:

pH	Conductivity	Turbidity
Meter: EXSTIK PH100	Meter: ECTestr 11+	Hach 2100P
S/N 223464	S/N 24B	S/N 940700005619/_____
Calib. to 4.0, 7.0 and 10.0	STD. to 700 umhos/cm	STD. to 4.8, 43.8, 420

Lab Analysis:(Check parameters to be analyzed)

		Bottle Batch #
X	3-40ml Glass w/HCl- VOC's (524.2)	
	1-500mL Poly w/H2SO4- TOC/COD/Ammonia (415.1/410.1/350.1)	
	1-500mL Poly unpreserv.- Cl/NO3/NO2/SO4 (300.0/300.0/354.0/300.0)	
	1-500mL Poly w/HNO3 Field Filtered- Fe/Mn/Zn (6010)	
	2-500mL Amber glass unpreserv - 1,4-Dioxane (8270)	

Comments: CONTROLLER: 2.4 GPM MAX

COLBERT LANDFILL ANNUAL GROUNDWATER SAMPLING

Date: 6/2/2020
StationID: CD-41C1
Sample ID: CD-41C1-200602
QA/QC Sample ID: —

Field Personnel: MT/KM
Weather: SLI CLOUDY 60'S

Purge Method: Disp. bailer, (Ded. Grundfos), Ded. Bladder, Ded. Bennett, Env. Tech ES 40, Port. Grundfos, Port. Bennet, PDB, Hydrasleeve

Well Depth: 233
Screens from: 214 To 233
Casing Size (in): 2.5

CASING INFO

DIA.	VOL. (gal/ft)
1.25	0.08
2.0	0.17
2.5	0.26
4	0.66
6	1.5
8	2.6

Depth to Water: 176.31'
Water Column Depth: 56.69
Gallons per linear foot: x 0.26
Calc. Purge vol./casing vol.: = 15GAL 14.74
x3 well volumes
Total Purge Vol. (gal): = 45GAL

Purge Rate: 2.8 GPM 5 MIN PER
Purge Begin Time: 1115

Field Parameters

Time	Purge Vol/gal	pH	Cond. (umhos/cm)	Temp. (C)	Turb.	Comments
1120	15GAL	7.69	416	13.0		CLEAR
1124	30GAL	7.70	415	12.8		CLEAR
1129	45GAL	7.70	417	12.6		CLEAR
Stabilization Criteria:		+/- 0.1 unit	+/- 5%		091	(must meet criteria within 3 consecutive measurements)

Sample Time: 1130
QAQC Sample Time: —

Meters:

pH	Conductivity	Turbidity
Meter: EXSTIK pH100	Meter: Ectestr 1H	Hach 2100P
S/N 223464	S/N 24B	S/N 940700005619
Calib. to 4.0, 7.0 and 10.0	STD. to 700 umhos/cm	STD. to 4.8, 43.8, 420

Lab Analysis:(Check parameters to be analyzed)

		Bottle Batch #
X	3-40ml Glass w/HCl- VOC's (524.2)	
	1-500mL Poly w/H2SO4- TOC/COD/Ammonia (415.1/410.1/350.1)	
	1-500mL Poly unpreserv.- Cl/NO3/NO2/SO4 (300.0/300.0/354.0/300.0)	
	1-500mL Poly w/HNO3 Field Filtered- Fe/Mn/Zn (6010)	
	2-500mL Amber glass unpreserv - 1,4-Dioxane (8270)	

~~CONTRACTOR SE~~ NO ISSUES

Comments:

COLBERT LANDFILL ANNUAL GROUNDWATER SAMPLING

Date: 6/2/2020 | Field Personnel: MT/KM

StationID: CD-41C2 | Weather: SU CLOUDY 60S

Sample ID: CD-41C2 - 200602 | Purge Method: Disp. bailer, (Ded. Grundfos), Ded. Bladder, Ded. Bennett, Env. Tech ES 40, Port. Grundfos, Port. Bennet, PDB, Hydrasleeve

QA/QC Sample ID: —

Well Depth: 291 | Screens from: 271 To 291 | Casing Size (in): 2.5

CASING INFO

DIA.	VOL. (gal/ft)
1.25	0.08
2.0	0.17
(2.5)	(0.26)
4	0.66
6	1.5
8	2.6

− Depth to Water: 176.63'

= Water Column Depth: 114.37 x Gallons per linear foot: 0.26 = Calc. Purge vol./casing vol.: 30GAL 29.74 x3 well volumes = Total Purge Vol. (gal): 90GAL

Purge Rate: 2.3 GPM 13 MIN PER | Purge Begin Time: 1139

Field Parameters

Time	Purge Vol/gal	pH	Cond. (umhos/cm)	Temp. (C)	Turb.	Comments
1202	30GAL	7.82	453	12.4		Clear
1215	60GAL	7.80	452	12.3		Clear
1228	90GAL	7.80	454	12.3		CLEAR
Stabilization Criteria:		+/- 0.1 unit	+/- 5%		0.48	(must meet criteria within 3 consecutive measurements)

Sample Time: 1230 | QAQC Sample Time: —

Meters:

pH	Conductivity	Turbidity
Meter: EXSTIK pH100	Meter: ECTESTR 1H	Hach 2100P
S/N 223464	S/N 24B	S/N 940700005619/
Calib. to 4.0, 7.0 and 10.0	STD. to 700 umhos/cm	STD. to 4.8, 43.8, 420

Lab Analysis:(Check parameters to be analyzed)

		Bottle Batch #
X	3-40ml Glass w/HCl- VOC's (524.2)	
	1-500mL Poly w/H2SO4- TOC/COD/Ammonia (415.1/410.1/350.1)	
	1-500mL Poly unpreserv.- Cl/NO3/NO2/SO4 (300.0/300.0/354.0/300.0)	
	1-500mL Poly w/HNO3 Field Filtered- Fe/Mn/Zn (6010)	
	2-500mL Amber glass unpreserv - 1,4-Dioxane (8270)	

2.5 GPM ON CONTROLLER

Comments:

COLBERT LANDFILL ANNUAL GROUNDWATER SAMPLING

Date: 6/2/2020 | Field Personnel: MT/KM

StationID: CD-41C3 | Weather:

Sample ID: CD-41C3-200602 | Purge Method: Disp. bailer, (Ded. Grundfos), Ded. Bladder, Ded. Bennett, Env. Tech ES 40, Port. Grundfos, Port. Bennet, PDB, Hydrasleeve

QA/QC Sample ID: —

Well Depth: 403 | Screens from: 384 To 403 | Casing Size (in): 2.5

− Depth to Water: 176.82'

= Water Column Depth: 226.18 x Gallons per linear foot: 0.26 = Calc. Purge vol./casing vol.: 60GAL 58.81 x3 well volumes = Total Purge Vol. (gal): 180 GAL

Purge Rate: 3.1 GPM | Purge Begin Time: 1115

CASING INFO

DIA.	VOL. (gal/ft)
1.25	0.08
2.0	0.17
(2.5)	(0.26)
4	0.66
6	1.5
8	2.6

Field Parameters

Time	Purge Vol/gal	pH	Cond. (umhos/cm)	Temp. (C)	Turb.	Comments
1135	60 GAL	7.64	485	12.9		CLEAR
1155	120 GAL	7.64	471	12.8		CLEAR
1217	180 GAL	7.66	470	12.5		Clear
Stabilization Criteria:		+/- 0.1 unit	+/- 5%		0.38	(must meet criteria within 3 consecutive measurements)

Sample Time: 1220 | QAQC Sample Time: —

Meters:

pH	Conductivity	Turbidity
Meter: EXSTIK pH100	Meter: ECTestr 11+	Hach 2100P
S/N 223464	S/N 24B	(S/N 940700005619/)
Calib. to 4.0, 7.0 and 10.0	STD. to 700 umhos/cm	STD. to 4.8, 43.8, 420

Lab Analysis:(Check parameters to be analyzed)

		Bottle Batch #
X	3-40ml Glass w/HCl- VOC's (524.2)	
	1-500mL Poly w/H2SO4- TOC/COD/Ammonia (415.1/410.1/350.1)	
	1-500mL Poly unpreserv.- Cl/NO3/NO2/SO4 (300.0/300.0/354.0/300.0)	
	1-500mL Poly w/HNO3 Field Filtered- Fe/Mn/Zn (6010)	
	2-500mL Amber glass unpreserv - 1,4-Dioxane (8270)	

CONTROLLER: NO ISSUES

Comments:

COLBERT LANDFILL ANNUAL GROUNDWATER SAMPLING

Date: 6/2/2020
Field Personnel: MT/KM
StationID: CD-48C1
Weather: P CLOUDY 60'S
Sample ID: CD-48C1-200602
Purge Method: Disp. bailer, Ded. Grundfos, Ded. Bladder, Ded. Bennett, Env. Tech ES-40, Port. Grundfos, Port. Bennet, PDB, Hydrasleeve
QA/QC Sample ID: —

Well Depth: 243
Screens from: 220.5 To 240.5
Casing Size (in): 2.5

CASING INFO

DIA.	VOL. (gal/ft)
1.25	0.08
2.0	0.17
2.5	0.26
4	0.66
6	1.5
8	2.6

Depth to Water: 174.72
Water Column Depth: 68.28 x Gallons per linear foot: 0.26 = Calc. Purge vol./casing vol.: 18 GAL / 17.75 x3 well volumes = Total Purge Vol. (gal): 54 GAL

Purge Rate: 2.5 GPM 8 MIN PER
Purge Begin Time: 1243

Field Parameters

Time	Purge Vol/gal	pH	Cond. (umhos/cm)	Temp. (C)	Turb.	Comments
1251	18GAL	7.66	518	13.9		CLEAR
1259	36GAL	7.65	521	13.7		CLEAR
1307	54GAL	7.68	524	12.5		CLEAR
Stabilization Criteria:		+/- 0.1 unit	+/- 5%		0.79	(must meet criteria within 3 consecutive measurements)

Sample Time: 1310
QAQC Sample Time:

Meters:

pH	Conductivity	Turbidity
Meter: EXSTIK 100	Meter: ECTESTR 11+	Hach 2100P
S/N 223464	S/N 24B	S/N 940700005619/
Calib. to 4.0, 7.0 and 10.0	STD. to 700 umhos/cm	STD. to 4.8, 43.8, 420

Lab Analysis:(Check parameters to be analyzed)

		Bottle Batch #
X	3-40ml Glass w/HCl- VOC's (524.2)	
	1-500mL Poly w/H2SO4- TOC/COD/Ammonia (415.1/410.1/350.1)	
	1-500mL Poly unpreserv.- Cl/NO3/NO2/SO4 (300.0/300.0/354.0/300.0)	
	1-500mL Poly w/HNO3 Field Filtered- Fe/Mn/Zn (6010)	
	2-500mL Amber glass unpreserv - 1,4-Dioxane (8270)	

CONTROLLER: MAX SETTING 340

Comments:

COLBERT LANDFILL ANNUAL GROUNDWATER SAMPLING

Date: 6/2/2020
StationID: CD-48C2
Sample ID: CD-48C2
QA/QC Sample ID:

Field Personnel:
Weather:

Purge Method: Disp. bailer, Ded. Grundfos, Ded. Bladder, Ded. Bennett, Env. Tech ES 40, Port. Grundfos, Port. Bennet, PDB, Hydrasleeve

Well Depth: 302
Screens from: 279.7 To 299.7
Casing Size (in): 2.5

CASING INFO

DIA.	VOL. (gal/ft)
1.25	0.08
2.0	0.17
2.5	0.26
4	0.66
6	1.5
8	2.6

− Depth to Water:
= Water Column Depth: ___ -x Gallons per linear foot: ___ = Calc. Purge vol./casing vol.: ___ x3 well volumes = Total Purge Vol. (gal): ___

Purge Rate:
Purge Begin Time:

Field Parameters

Time	Purge Vol/gal	pH	Cond. (umhos/cm)	Temp. (C)	Turb.	Comments
Stabilization Criteria:		+/- 0.1 unit	+/- 5%			(must meet criteria within 3 consecutive measurements)

Sample Time:
QAQC Sample Time:

Meters:

pH	Conductivity	Turbidity
Meter:_____	Meter:_____	Hach 2100P
S/N_____	S/N_____	S/N 940700005619/_____
Calib. to 4.0, 7.0 and 10.0	STD. to 700 umhos/cm	STD. to 4.8, 43.8, 420

Lab Analysis:(Check parameters to be analyzed)

		Bottle Batch #
	3-40ml Glass w/HCl- VOC's (524.2)	
	1-500mL Poly w/H2SO4- TOC/COD/Ammonia (415.1/410.1/350.1)	
	1-500mL Poly unpreserv.- Cl/NO3/NO2/SO4 (300.0/300.0/354.0/300.0)	
	1-500mL Poly w/HNO3 Field Filtered- Fe/Mn/Zn (6010)	
	2-500mL Amber glass unpreserv - 1,4-Dioxane (8270)	

Comments:

WEEK OF MAY 25TH A VEHICLE CRASHED INTO THIS WELL BENDING IT 30° WILL NEED REPAIRED BEFORE SAMPLING. NO SAMPLE AT THIS TIME

COLBERT LANDFILL ANNUAL GROUNDWATER SAMPLING

Date: 6/2/2020 | Field Personnel: MT/KM

StationID: CD-48C3 | Weather:

Sample ID: CD-48C3 - 200602

QA/QC Sample ID: —

Purge Method: Disp. bailer, Ded. Grundfos, Ded. Bladder, Ded. Bennett, Env. Tech ES 40, ~~Port. Grundfos~~, Port. Bennet, PDB, Hydrasleeve

Well Depth: 386 | Screens from: 374 To 384 | Casing Size (in): 2.5

CASING INFO

DIA.	VOL. (gal/ft)
1.25	0.08
2.0	0.17
2.5	0.26
4	0.66
6	1.5
8	2.6

Depth to Water: 175.33'

Water Column Depth: 210.67 x Gallons per linear foot: 0.26 = Calc. Purge vol./casing vol.: 55GAL / 54.77 x3 well volumes = Total Purge Vol. (gal): 165GAL

Purge Rate: 3.1 GPM | Purge Begin Time:

Field Parameters

Time	Purge Vol/gal	pH	Cond. (umhos/cm)	Temp. (C)	Turb.	Comments
	55GAL					
	110GAL	NO SAMPLE				
	165GAL					
Stabilization Criteria:		+/- 0.1 unit	+/- 5%			(must meet criteria within 3 consecutive measurements)

Sample Time: | QAQC Sample Time:

Meters:

pH	Conductivity	Turbidity
Meter: EXSTIK 100	Meter: ECTestr11+	Hach 2100P
S/N 203464	S/N 24B	S/N 940700005619/
Calib. to 4.0, 7.0 and 10.0	STD. to 700 umhos/cm	STD. to 4.8, 43.8, 420

Lab Analysis:(Check parameters to be analyzed)

		Bottle Batch #
X	3-40ml Glass w/HCl- VOC's (524.2)	
	1-500mL Poly w/H2SO4- TOC/COD/Ammonia (415.1/410.1/350.1)	
	1-500mL Poly unpreserv.- Cl/NO3/NO2/SO4 (300.0/300.0/354.0/300.0)	
	1-500mL Poly w/HNO3 Field Filtered- Fe/Mn/Zn (6010)	
	2-500mL Amber glass unpreserv - 1,4-Dioxane (8270)	

Comments:

PUMP FAILURE; NEEDS REPLACED. MT

CONTROLLER: NO ISSUES

COLBERT LANDFILL ANNUAL GROUNDWATER SAMPLING

Date: 6/2/2020
StationID: CD-49
Sample ID: CD-49 - 200602
QA/QC Sample ID: —

Field Personnel: MT
Weather: MOSTLY CLOUDY UPPER 60'S
Purge Method: Disp. bailer, (Ded. Grundfos), Ded. Bladder, Ded. Bennett, Env. Tech ES 40, Port. Grundfos, Port. Bennet, PDB, Hydrasleeve

Well Depth: 241.5
Screens from: 218 To 238
Casing Size (in): 2.5

CASING INFO

DIA.	VOL. (gal/ft)
1.25	0.08
2.0	0.17
2.5	0.26
4	0.66
6	1.5
8	2.6

Depth to Water: 166.01'
Water Column Depth: 75.49' x Gallons per linear foot: 0.26 = Calc. Purge vol./casing vol.: 20GAL / 19.63 x3 well volumes = Total Purge Vol. (gal): 60 GAL

Purge Rate: 2.4GPM 9 MPWV
Purge Begin Time: 1357

Field Parameters

Time	Purge Vol/gal	pH	Cond. (umhos/cm)	Temp. (C)	Turb.	Comments
1408	20 GAL	7.66	471	13.9		CLEAR
1418	40 GAL	7.64	469	13.9		CLEAR
1428	60 GAL	7.67	468	13.7		CLEAR
Stabilization Criteria:		+/- 0.1 unit	+/- 5%		0.79	(must meet criteria within 3 consecutive measurements)

Sample Time: 1430
QAQC Sample Time:

Meters:

pH	Conductivity	Turbidity
Meter: EXSTIK 100	Meter: ECTestr 1H	Hach 2100P
S/N 223464	S/N 24B	S/N 940700005619/
Calib. to 4.0, 7.0 and 10.0	STD. to 700 umhos/cm	STD. to 4.8, 43.8, 420

Lab Analysis:(Check parameters to be analyzed)

		Bottle Batch #
X	3-40ml Glass w/HCl- VOC's (524.2)	
	1-500mL Poly w/H2SO4- TOC/COD/Ammonia (415.1/410.1/350.1)	
	1-500mL Poly unpreserv.- Cl/NO3/NO2/SO4 (300.0/300.0/354.0/300.0)	
	1-500mL Poly w/HNO3 Field Filtered- Fe/Mn/Zn (6010)	
	2-500mL Amber glass unpreserv - 1,4-Dioxane (8270)	

CONTROLLER: 24 MAX GPM

Comments:

COLBERT LANDFILL ANNUAL GROUNDWATER SAMPLING

Date: 6/3/2020
Field Personnel: MTT
StationID: CD-44C1
Weather: ESLI CLOUDY UPPER 50's
Sample ID: CD-44C1-200603
Purge Method: Disp. bailer, Ded. Grundfos, Ded. Bladder, Ded. Bennett, Env. Tech ES 40, Port. Grundfos, Port. Bennet, PDB, Hydrasleeve
QA/QC Sample ID: —

Well Depth: 200
Screens from: 187 To 197
Casing Size (in): 2.5

CASING INFO

DIA.	VOL. (gal/ft)
1.25	0.08
2.0	0.17
2.5	0.26
4	0.66
6	1.5
8	2.6

Depth to Water: 173.51
Water Column Depth: 26.49' x Gallons per linear foot: 0.26 = Calc. Purge vol./casing vol.: 7 GAL / 6.89 x3 well volumes = Total Purge Vol. (gal): 21 GAL

Purge Rate:
Purge Begin Time: 0850

Field Parameters

Time	Purge Vol/gal	pH	Cond. (umhos/cm)	Temp. (C)	Turb.	Comments
0921	7 GAL	7.32	479	15.7		CLEAR
0953	14 GAL	7.37	459	16.1		CLEAR
1025	21 GAL	7.37	461	16.1		CLEAR
Stabilization Criteria:		+/- 0.1 unit	+/- 5%		0.31	(must meet criteria within 3 consecutive measurements)

Sample Time: 1030
QAQC Sample Time: —

Meters:

pH	Conductivity	Turbidity
Meter: EXSTIK 100	Meter: ECTestr 1H	Hach 2100P
S/N 223464	S/N 24B	S/N 940700005619/
Calib. to 4.0, 7.0 and 10.0	STD. to 700 umhos/cm	STD. to 4.8, 43.8, 420

Lab Analysis:(Check parameters to be analyzed)

		Bottle Batch #
X	3-40ml Glass w/HCl- VOC's (524.2)	
	1-500mL Poly w/H2SO4- TOC/COD/Ammonia (415.1/410.1/350.1)	
	1-500mL Poly unpreserv.- Cl/NO3/NO2/SO4 (300.0/300.0/354.0/300.0)	
	1-500mL Poly w/HNO3 Field Filtered- Fe/Mn/Zn (6010)	
	2-500mL Amber glass unpreserv - 1,4-Dioxane (8270)	

CONTROLLER: 0.23 GPM MAX SET @ 298

Comments:

COLBERT LANDFILL ANNUAL GROUNDWATER SAMPLING

Date: 6/3/2020
StationID: CD-44C2
Sample ID: CD-44C2 - 200603
QA/QC Sample ID: —

Field Personnel: MT
Weather: ESLI CLOUDY 60'S

Purge Method: Disp. bailer, ~~Ded. Grundfos~~, Ded. Bladder, Ded. Bennett, Env. Tech ES 40, ~~Port. Grundfos~~, Port. Bennet, PDB, Hydrasleeve

Well Depth: 247 — Depth to Water: 173.21 = Water Column Depth: 73.79

Screens from: 228 To 247

Casing Size (in): 2.5

Gallons per linear foot: 0.26

Calc. Purge vol./casing vol.: 20GAL / 19.19 x3 well volumes

Total Purge Vol. (gal): 60GAL

Purge Rate: 2.5 GPM BMPWV

Purge Begin Time: 0940

CASING INFO

DIA.	VOL. (gal/ft)
1.25	0.08
2.0	0.17
2.5	0.26
4	0.66
6	1.5
8	2.6

Field Parameters

Time	Purge Vol/gal	pH	Cond. (umhos/cm)	Temp. (C)	Turb.	Comments
0948	20 GAL	7.39	449	12.7		CLEAR
0956	40 GAL	7.37	452	12.3		CLEAR
1004	60 GAL	7.37	451	12.1		CLEAR
Stabilization Criteria:		+/- 0.1 unit	+/- 5%		0.17	(must meet criteria within 3 consecutive measurements)

Sample Time: 1005

QAQC Sample Time: —

Meters:

pH	Conductivity	Turbidity
Meter: EXSTIK 100	Meter: ECTestr 1H	Hach 2100P
S/N 223464	S/N 24B	S/N 940700005619/_____
Calib. to 4.0, 7.0 and 10.0	STD. to 700 umhos/cm	STD. to 4.8, 43.8, 420

Lab Analysis:(Check parameters to be analyzed)

		Bottle Batch #
X	3-40ml Glass w/HCl- VOC's (524.2)	
	1-500mL Poly w/H2SO4- TOC/COD/Ammonia (415.1/410.1/350.1)	
	1-500mL Poly unpreserv.- Cl/NO3/NO2/SO4 (300.0/300.0/354.0/300.0)	
	1-500mL Poly w/HNO3 Field Filtered- Fe/Mn/Zn (6010)	
	2-500mL Amber glass unpreserv - 1,4-Dioxane (8270)	

Comments: CONTROLLER: SET @ 350

COLBERT LANDFILL ANNUAL GROUNDWATER SAMPLING

Date: 6/3/2020
Field Personnel: MT
StationID: CD-44C3
Weather: SLI CLOUDY UPPER 50'S
Sample ID: CD-44C3-200603
Purge Method: Disp. bailer, Ded. Grundfos, Ded. Bladder, Ded. Bennett, Env. Tech ES 40, Port. Grundfos, Port. Bennet, PDB, Hydrasleeve
QA/QC Sample ID: —

Well Depth: 295
Screens from: 282 To 292
Casing Size (in): 2.5

CASING INFO

DIA.	VOL. (gal/ft)
1.25	0.08
2.0	0.17
2.5	0.26
4	0.66
6	1.5
8	2.6

Depth to Water: 173.32'
Water Column Depth: 121.68 x Gallons per linear foot: 0.26 = Calc. Purge vol./casing vol.: 32GAL / 31.64 x3 well volumes = Total Purge Vol. (gal): 96GAL

Purge Rate: 2.2GPM 15MPW
Purge Begin Time: 0850

Field Parameters

Time	Purge Vol/gal	pH	Cond. (umhos/cm)	Temp. (C)	Turb.	Comments
0905	32GAL	7.42	453	14.1		CLEAR
0920	64GAL	7.39	449	13.9		CLEAR
0935	96GAL	7.44	451	13.7		CLEAR
Stabilization Criteria:		+/- 0.1 unit	+/- 5%		0.49	(must meet criteria within 3 consecutive measurements)

Sample Time: 0940
QAQC Sample Time:

Meters:

pH	Conductivity	Turbidity
Meter: EXSTIK 100	Meter: ECTestr 11+	Hach 2100P
S/N 223464	S/N 24B	S/N 940700005619/
Calib. to 4.0, 7.0 and 10.0	STD. to 700 umhos/cm	STD. to 4.8, 43.8, 420

Lab Analysis:(Check parameters to be analyzed)

		Bottle Batch #
X	3-40ml Glass w/HCl- VOC's (524.2)	
	1-500mL Poly w/H2SO4- TOC/COD/Ammonia (415.1/410.1/350.1)	
	1-500mL Poly unpreserv.- Cl/NO3/NO2/SO4 (300.0/300.0/354.0/300.0)	
	1-500mL Poly w/HNO3 Field Filtered- Fe/Mn/Zn (6010)	
	2-500mL Amber glass unpreserv - 1,4-Dioxane (8270)	

CONTROLLER: SET e 360

Comments:

COLBERT LANDFILL ANNUAL GROUNDWATER SAMPLING

Date: 6/3/2020 | Field Personnel: MT

StationID: CD-45C1 | Weather: CLEAR 60's

Sample ID: CD-45C1-200603 | Purge Method: Disp. bailer, (Ded. Grundfos), Ded. Bladder, Ded. Bennett, Env. Tech ES 40, Port. Grundfos, Port. Bennet, PDB, Hydrasleeve

QA/QC Sample ID: —

Well Depth: 200 | Screens from: 187 To 197 | Casing Size (in): 2.5

Depth to Water: 170.42

= Water Column Depth: 29.58' x Gallons per linear foot: 0.26 = Calc. Purge vol./casing vol.: 8GAL 7.69 x3 well volumes = Total Purge Vol. (gal): 24GAL

Purge Rate: 2.0GPM 4MRW | Purge Begin Time: 1050

CASING INFO

DIA.	VOL. (gal/ft)
1.25	0.08
2.0	0.17
(2.5)	(0.26)
4	0.66
6	1.5
8	2.6

Field Parameters

Time	Purge Vol/gal	pH	Cond. (umhos/cm)	Temp. (C)	Turb.	Comments
1054	8GAL	7.44	498	12.7		CLEAR
1058	16GAL	7.40	497	12.5		CLEAR
1103	24GAL	7.41	498	12.5		CLEAR
Stabilization Criteria:		+/- 0.1 unit	+/- 5%		0.19	(must meet criteria within 3 consecutive measurements)

Sample Time: 1105 | QAQC Sample Time:

Meters:

pH	Conductivity	Turbidity
Meter: EXSTIK 100	Meter: ECTestr 1H	Hach 2100P
S/N 223464	S/N 248	(S/N 940700005619/)
Calib. to 4.0, 7.0 and 10.0	STD. to 700 umhos/cm	STD. to 4.8, 43.8, 420

Lab Analysis:(Check parameters to be analyzed)

		Bottle Batch #
X	3-40ml Glass w/HCl- VOC's (524.2)	
	1-500mL Poly w/H2SO4- TOC/COD/Ammonia (415.1/410.1/350.1)	
	1-500mL Poly unpreserv.- Cl/NO3/NO2/SO4 (300.0/300.0/354.0/300.0)	
	1-500mL Poly w/HNO3 Field Filtered- Fe/Mn/Zn (6010)	
	2-500mL Amber glass unpreserv - 1,4-Dioxane (8270)	

CONTROLLER: NO ISSUES

Comments:

COLBERT LANDFILL ANNUAL GROUNDWATER SAMPLING

Date: 6/3/2020
Field Personnel: MT
StationID: CD-45C2
Weather: CLEAR 60'S
Sample ID: CD-45C2-200603
Purge Method: Disp. bailer, Ded. Grundfos, Ded. Bladder, Ded. Bennett, Env. Tech ES 40, Port. Grundfos, Port. Bennet, PDB, Hydrasleeve
QA/QC Sample ID:

Well Depth: 247
Screens from: 222 To 246
Casing Size (in): 2.5

CASING INFO

DIA.	VOL. (gal/ft)
1.25	0.08
2.0	0.17
2.5	0.26
4	0.66
6	1.5
8	2.6

Depth to Water: 170.81'
Water Column Depth: 76.19
Gallons per linear foot: x 0.26
Calc. Purge vol./casing vol.: = 20GAL 19.81
x3 well volumes = Total Purge Vol. (gal): 60GAL

Purge Rate: 2.8GPM 8MPWV
Purge Begin Time: 1113

Field Parameters

Time	Purge Vol/gal	pH	Cond. (umhos/cm)	Temp. (C)	Turb.	Comments
1121	20 GAL	7.51	460	11.5		CLEAR
1129	40 GAL	7.49	462	11.3		CLEAR
1138	60 GAL	7.49	460	11.1		CLEAR
Stabilization Criteria:		+/- 0.1 unit	+/- 5%		0.17	(must meet criteria within 3 consecutive measurements)

Sample Time: 1140
QAQC Sample Time: —

Meters:

pH	Conductivity	Turbidity
Meter: EXSTIK100	Meter: ECTestr 11+	Hach 2100P
S/N 223464	S/N 24B	S/N 940700005619/
Calib. to 4.0, 7.0 and 10.0	STD. to 700 umhos/cm	STD. to 4.8, 43.8, 420

Lab Analysis:(Check parameters to be analyzed)

		Bottle Batch #
X	3-40ml Glass w/HCl- VOC's (524.2)	
	1-500mL Poly w/H2SO4- TOC/COD/Ammonia (415.1/410.1/350.1)	
	1-500mL Poly unpreserv.- Cl/NO3/NO2/SO4 (300.0/300.0/354.0/300.0)	
	1-500mL Poly w/HNO3 Field Filtered- Fe/Mn/Zn (6010)	
	2-500mL Amber glass unpreserv - 1,4-Dioxane (8270)	

CONTROLLER: SET @ 375

Comments:

COLBERT LANDFILL ANNUAL GROUNDWATER SAMPLING

Date: 6/3/2020
Field Personnel: MJT
StationID: CD-45C3
Weather: CLEAR 60'S
Sample ID: CD-45C3 - 200603
Purge Method: Disp. bailer, Ded. Grundfos, Ded. Bladder, Ded. Bennett, Env. Tech ES 40, Port. Grundfos, Port. Bennet, PDB, Hydrasleeve
QA/QC Sample ID: —

Well Depth: 339
Screens from: 325.2 To 335.2
Casing Size (in): 2.5

CASING INFO

DIA.	VOL. (gal/ft)
1.25	0.08
2.0	0.17
2.5	0.26
4	0.66
6	1.5
8	2.6

Depth to Water: 170.66'
Water Column Depth: 168.34 x Gallons per linear foot: 0.26 = Calc. Purge vol./casing vol.: 45GAL / 43.77 x3 well volumes = Total Purge Vol. (gal): 135GAL

Purge Rate: 3.2GPM 14 MPWV
Purge Begin Time: 1055

Field Parameters

Time	Purge Vol/gal	pH	Cond. (umhos/cm)	Temp. (C)	Turb.	Comments
1110	45GAL	7.89	378	11.7		CLEAR
1125	90GAL	7.86	376	11.5		CLEAR
1144	135GAL	7.87	377	11.4		CLEAR
Stabilization Criteria:		+/- 0.1 unit	+/- 5%		0.17	(must meet criteria within 3 consecutive measurements)

Sample Time: 1145
QAQC Sample Time:

Meters:

pH	Conductivity	Turbidity
Meter: EXSTIK 100	Meter: ECTestr 11+	Hach 2100P
S/N 223464	S/N 048	S/N 940700005619/
Calib. to 4.0, 7.0 and 10.0	STD. to 700 umhos/cm	STD. to 4.8, 43.8, 420

Lab Analysis:(Check parameters to be analyzed)

		Bottle Batch #
X	3-40ml Glass w/HCl- VOC's (524.2)	
	1-500mL Poly w/H2SO4- TOC/COD/Ammonia (415.1/410.1/350.1)	
	1-500mL Poly unpreserv.- Cl/NO3/NO2/SO4 (300.0/300.0/354.0/300.0)	
	1-500mL Poly w/HNO3 Field Filtered- Fe/Mn/Zn (6010)	
	2-500mL Amber glass unpreserv - 1,4-Dioxane (8270)	

CONTROLLER: SET @ 365 MAX

Comments:

COLBERT LANDFILL ANNUAL GROUNDWATER SAMPLING

Date	6-3-2020	Field Personnel:	GF
StationID:	1073D-1	Weather:	Clear, 68°
Sample ID:	1073D-1 - 200603	Purge Method:	Disp. bailer, Ded. Grundfos, Ded. Bladder, Ded. Bennett, Env. Tech ES 40, Port. Grundfos, Port. Bennet, PDB, Hydrasleeve RES WELL
QA/QC Sample ID:	NA		

Well Depth:	76	Screens from:	58	To	64	Casing Size (in)	6
− Depth to Water:	1.39'						
= Water Column Depth:	74.61	Gallons per linear foot:	1.47	Calc. Purge vol./casing vol.:	110 g/vol Pt vol 63 gal → according to tag on PT *	Total Purge Vol. (gal)	516 g
					x3 well volumes		
Purge Rate	1205					Purge Begin Time	1204

CASING INFO

DIA.	VOL. (gal/ft)
1.25	0.08
2.0	0.17
2.5	0.26
4	0.66
6	1.5
8	2.6

Field Parameters

Time	Purge Vol/gal	pH	Cond. (umhos/cm)	Temp. (C)	Turb.	Comments
1218	172	8.15	382	11.4		Clear
1232	344	8.17	383	11.4		Clear
1246	516	8.16	386	11.5		Clear
Stabilization Criteria:		+/- 0.1 unit	+/- 5%		0.20	(must meet criteria within 3 consecutive measurements)

Sample Time:	1247
QAQC Sample Time:	NA

Meters:	pH	Conductivity	Turbidity
	Meter: Extech	Meter: ECTESTR11+	Hach 2100P
	S/N 370573	S/N 7810	S/N ~~940700005619~~ 24957
	Calib. to 4.0, 7.0 and 10.0	STD. to 700 umhos/cm	STD. to 4.8, 43.8, 420

Lab Analysis:(Check parameters to be analyzed)		Bottle Batch #
	3-40ml Glass w/HCl- VOC's (524.2)	
	1-500mL Poly w/H2SO4- TOC/COD/Ammonia (415.1/410.1/350.1)	
	1-500mL Poly unpreserv.- Cl/NO3/NO2/SO4 (300.0/300.0/354.0/300.0)	
	1-500mL Poly w/HNO3 Field Filtered- Fe/Mn/Zn (6010)	
X	2-500mL Amber glass unpreserv - 1,4-Dioxane (8270)	

1,4 DIOXANE SAMPLE ONLY

Comments:

* PT = Pressure Tank

COLBERT LANDFILL ANNUAL GROUNDWATER SAMPLING

Date: 6-3-2020
Field Personnel: GF
StationID: 1573A-1
Weather: mstly clear, 60°
Sample ID: 1573A-1-200603
Purge Method: Disp. bailer, Ded. Grundfos, Ded. Bladder, Ded. Bennett, Env. Tech ES 40, Port Grundfos, ~~Port.~~ Bennet, PDB, Hydrasleeve (RES WELL)
QA/QC Sample ID: NA

Well Depth: 105
Screens from: To
Casing Size (in): 6

CASING INFO

DIA.	VOL. (gal/ft)
1.25	0.08
2.0	0.17
2.5	0.26
4	0.66
6	~~1.5~~ 1.47
8	2.6

Depth to Water: 92.80
Water Column Depth: 12.2 x Gallons per linear foot: 1.47 = Calc. Purge vol./casing vol.: 18+80=98 (PT volume) x3 well volumes = Total Purge Vol. (gal): 294

Purge Rate: 16.1 gpm
Purge Begin Time: 0903

Field Parameters

Time	Purge Vol/gal	pH	Cond. (umhos/cm)	Temp. (C)	Turb.	Comments
0912	98	7.73	493	11.3		Clear
0921	196	7.70	498	11.1		Clear
0931	294	7.71	503	11.2		Clear
Stabilization Criteria:		+/- 0.1 unit	+/- 5%		0.49	(must meet criteria within 3 consecutive measurements)

Sample Time: 0931
QAQC Sample Time: NA

Meters:

pH	Conductivity	Turbidity
Meter: Extech	Meter: Ectestr 11+	Hach 2100P
S/N 370573	S/N 7810	S/N ~~940700005619~~/24957
Calib. to 4.0, 7.0 and 10.0	STD. to 700 umhos/cm	STD. to 4.8, 43.8, 420

Lab Analysis:(Check parameters to be analyzed)

		Bottle Batch #
X	3-40ml Glass w/HCl- VOC's (524.2)	
	1-500mL Poly w/H2SO4- TOC/COD/Ammonia (415.1/410.1/350.1)	
	1-500mL Poly unpreserv.- Cl/NO3/NO2/SO4 (300.0/300.0/354.0/300.0)	
	1-500mL Poly w/HNO3 Field Filtered- Fe/Mn/Zn (6010)	
X	2-500mL Amber glass unpreserv - 1,4-Dioxane (8270)	

Comments:

COLBERT LANDFILL ANNUAL GROUNDWATER SAMPLING

Date: 6-3-2020 | Field Personnel: GF

StationID: 1473M-1 | Weather: Clear, 68°

Sample ID: 1473M-1-200603

QA/QC Sample ID: MS/MSD

Purge Method: Disp. bailer, Ded. Grundfos, Ded. Bladder, Ded. Bennett, Env. Tech ES 40, Port. ~~Grundfos, Port. Bennet~~, PDB, Hydrasleeve — RES WELL

Well Depth: 110.0' | Screens from: | To | Casing Size (in):

Depth to Water: Assume 80.0'

Water Column Depth: 30.0' x 1.47 = 45 pt vol 50 x3 well volumes = Total Purge Vol. (gal): 285

Gallons per linear foot: 1.47

Calc. Purge vol./casing vol.:

CASING INFO

DIA.	VOL. (gal/ft)
1.25	0.08
2.0	0.17
2.5	0.26
4	0.66
6	~~1.5~~ 1.47
8	2.6

Purge Rate: 8.6 | Purge Begin Time: 1004

Field Parameters

Time	Purge Vol/gal	pH	Cond. (umhos/cm)	Temp. (C)	Turb.	Comments
1016	95	7.74	561	10.5		Clear
1028	190	7.73	558	10.5		Clear
1040	285	7.73	549	10.6		clear
Stabilization Criteria:		+/- 0.1 unit	+/- 5%		0.17	(must meet criteria within 3 consecutive measurements)

Sample Time: 1041 | QAQC Sample Time: MS/MSD Here

Meters:

pH	Conductivity	Turbidity
Meter: Extech	Meter: Ectestr 11+	Hach 2100P
S/N 370573	S/N 7810	S/N ~~940700005619~~ 24957
Calib. to 4.0, 7.0 and 10.0	STD. to 700 umhos/cm	STD. to 4.8, 43.8, 420

Lab Analysis:(Check parameters to be analyzed)

		Bottle Batch #
X	3-40ml Glass w/HCl- VOC's (524.2) x3=9	
	1-500mL Poly w/H2SO4- TOC/COD/Ammonia (415.1/410.1/350.1)	
	1-500mL Poly unpreserv.- Cl/NO3/NO2/SO4 (300.0/300.0/354.0/300.0)	
	1-500mL Poly w/HNO3 Field Filtered- Fe/Mn/Zn (6010)	
X	2-500mL Amber glass unpreserv - 1,4-Dioxane (8270) x3=6	

MS/MSD TAKEN Here

Comments:

COLBERT LANDFILL ANNUAL GROUNDWATER SAMPLING

Date	6-3-20	Field Personnel:	GF
StationID:	CD-40C1	Weather:	mstly clear, 70°
Sample ID:	CD-40C1-200603	Purge Method:	Disp. bailer, Ded. Grundfos, Ded. Bladder, Ded. Bennett, Env. Tech ES 40, Port. Grundfos, Port. Bennet, PDB, Hydrasleeve
QA/QC Sample ID:	CD-50-200603		

Well Depth:	46	Screens from:	36	To	46	Casing Size (in)	2.5		
− Depth to Water:	9.60								
= Water Column Depth:	37.40	x	0.26	=	10	x3 well volumes =	30		
			Gallons per linear foot:		Calc. Purge vol./casing vol.:		Total Purge Vol. (gal)		

CASING INFO

DIA.	VOL. (gal/ft)
1.25	0.08
2.0	0.17
2.5	0.26
4	0.66
6	1.5
8	2.6

Purge Rate: 0.72 Purge Begin Time: 1340

Field Parameters

Time	Purge Vol/gal	pH	Cond. (umhos/cm)	Temp. (C)	Turb.	Comments
1354	10	7.94	531	10.2		Clear
1408	20	7.98	536	10.1		Clear
1422	30	7.99	538	10.2		clear
Stabilization Criteria:		+/- 0.1 unit	+/- 5%		0.21	(must meet criteria within 3 consecutive measurements)

Sample Time: 1423 QAQC Sample Time: 1359

Meters:	pH	Conductivity	Turbidity
	Meter: Extech	Meter: EC TESTR11+	Hach 2100P
	S/N 370573	S/N 7810	S/N ~~940700005619~~ 24957
	Calib. to 4.0, 7.0 and 10.0	STD. to 700 umhos/cm	STD. to 4.8, 43.8, 420

Lab Analysis:(Check parameters to be analyzed)

		Bottle Batch #
X	3-40ml Glass w/HCl- VOC's (524.2) + dupe	
	1-500mL Poly w/H2SO4- TOC/COD/Ammonia (415.1/410.1/350.1)	
	1-500mL Poly unpreserv.- Cl/NO3/NO2/SO4 (300.0/300.0/354.0/300.0)	
	1-500mL Poly w/HNO3 Field Filtered- Fe/Mn/Zn (6010)	
X	2-500mL Amber glass unpreserv - 1,4-Dioxane (8270) + dupe	

Comments: X DUPE TAKEN HERE

COLBERT LANDFILL ANNUAL GROUNDWATER SAMPLING

Date: 6-3-2020 | Field Personnel: KM

StationID: CP-S1 | Weather: Lt. Clouds 58° F

Sample ID: CP-S1 200603

QA/QC Sample ID: [redacted] MT

Purge Method: Disp. bailer, Ded. Grundfos, Ded. Bladder, Ded. Bennett, Env. Tech ES 40, Port. Grundfos, Port. Bennet, PDB, Hydrasleeve

Well Depth: 103 | Screens from: 104 To 109 | Casing Size (in): 6

Depth to Water: 77.23

= Water Column Depth: 25.77 x 1.5 (Gallons per linear foot) = 38.65 = 40 Gal (Calc. Purge vol./casing vol.) x3 well volumes = 120 (Total Purge Vol. (gal))

Purge Rate: 40 GPM @ 40 Hz | Purge Begin Time: 0850

CASING INFO

DIA.	VOL. (gal/ft)
1.25	0.08
2.0	0.17
2.5	0.26
4	0.66
6	1.5
8	2.6

Field Parameters

Time	Purge Vol/gal	pH	Cond. (umhos/cm)	Temp. (C)	Turb.	Comments
0852	80	7.40	551	12.4		Clear
0854	160	7.41	553	12.4		Clear
0856	240	7.40	554	12.3		Clear
Stabilization Criteria:	√ OK	+/- 0.1 unit	+/- 5%		0.86	(must meet criteria within 3 consecutive measurements)

Sample Time: 0901 | QAQC Sample Time:

Meters:

pH	Conductivity	Turbidity
Meter: ExTech 100	Meter: EcTestr 11+	Hach 2100P
S/N 346697	S/N 4GA	S/N 940700005619/
Calib. to 4.0, 7.0 and 10.0	STD. to 700 umhos/cm	STD. ~~to 4.8, 43.8~~, 420

Lab Analysis:(Check parameters to be analyzed)

		Bottle Batch #
X	3-40ml Glass w/HCl- VOC's (524.2)	
	1-500mL Poly w/H2SO4- TOC/COD/Ammonia (415.1/410.1/350.1)	
	1-500mL Poly unpreserv.- Cl/NO3/NO2/SO4 (300.0/300.0/354.0/300.0)	
	1-500mL Poly w/HNO3 Field Filtered- Fe/Mn/Zn (6010)	
X	2-500mL Amber glass unpreserv - 1,4-Dioxane (8270)	

[redacted]

Comments:

COLBERT LANDFILL ANNUAL GROUNDWATER SAMPLING

Date: 6-3-2020
StationID: CP-S4
Sample ID: CP-S4 200603
QA/QC Sample ID: —

Field Personnel: KM
Weather: Sunny 61°F

Purge Method: Disp. bailer, ~~Ded. Grundfos~~, ~~Ded. Bladder~~, Ded. Bennett, Env. Tech ES ~~40~~, ~~Port. Grundfos~~, Port. Bennet, PDB, Hydrasleeve

Well Depth: 104
Screens from: ____ To ____
Casing Size (in): 6

CASING INFO

DIA.	VOL. (gal/ft)
1.25	0.08
2.0	0.17
2.5	0.26
4	0.66
6	1.5
8	2.6

Depth to Water: 79.28
Water Column Depth: 24.72 x Gallons per linear foot: 1.5 = Calc. Purge vol./casing vol.: 37.08 = 40 gal x3 well volumes = Total Purge Vol. (gal): 120

Purge Rate: 27 GPM @ 27 Hz
Purge Begin Time: 0925

Field Parameters

Time	Purge Vol (gal)	pH	Cond. (umhos/cm)	Temp. (C)	Turb.	Comments
0927	81	7.22	765	12.3		Clear
0929	162	7.19	768	12.3		↓
0931	216	7.20	769	12.2		↓
Stabilization Criteria:	✓ OK	+/- 0.1 unit	+/- 5%		0.63	(must meet criteria within 3 consecutive measurements)

Sample Time: 0933
QAQC Sample Time:

Meters:

pH	Conductivity	Turbidity
Meter: Extech 100	Meter: EC testr 11+	~~Hach 2100P~~
S/N 346697	S/N 4 GA	S/N 940700005619/____
Calib. to 4.0, 7.0 and 10.0	STD. to 700 umhos/cm	~~STD. to 4.8, 43.8, 420~~

Lab Analysis:(Check parameters to be analyzed)

		Bottle Batch #
X	3-40ml Glass w/HCl- VOC's (524.2)	
	1-500mL Poly w/H2SO4- TOC/COD/Ammonia (415.1/410.1/350.1)	
	1-500mL Poly unpreserv.- Cl/NO3/NO2/SO4 (300.0/300.0/354.0/300.0)	
	1-500mL Poly w/HNO3 Field Filtered- Fe/Mn/Zn (6010)	
	2-500mL Amber glass unpreserv - 1,4-Dioxane (8270)	

Comments:

COLBERT LANDFILL ANNUAL GROUNDWATER SAMPLING

Date	6-3-2020	Field Personnel:	KM
StationID:	CP-S5	Weather:	Sunny 63° F
Sample ID:	CP-S5 200603	Purge Method:	Disp. bailer, Ded. Grundfos, Ded. Bladder, Ded. Bennett, Env. Tech ES 40, Port. Grundfos, Port. Bennet, PDB, Hydrasleeve
QA/QC Sample ID:	—		

Well Depth:	101	Screens from:		To		Casing Size (in)	6

CASING INFO

DIA.	VOL. (gal/ft)
1.25	0.08
2.0	0.17
2.5	0.26
4	0.66
6	1.5
8	2.6

− Depth to Water:	NT 79'						
= Water Column Depth:	22'	x Gallons per linear foot:	1.5	= Calc. Purge vol./casing vol.:	33.0 = 40 Gal	x3 well volumes = Total Purge Vol. (gal)	120

Purge Rate	40 GPM @ 40 Hz	Purge Begin Time	0950

Field Parameters

Time	Purge Vol (gal)	pH	Cond. (umhos/cm)	Temp. (C)	Turb.	Comments
0953	120	7.16	665	12.3		Clear
0955	200	7.18	669	12.3		Clear
0958	280	7.18	670	12.3		Clear
Stabilization Criteria:	✓ OK	+/- 0.1 unit	+/- 5%		0.51	(must meet criteria within 3 consecutive measurements)

Sample Time:	1001	QAQC Sample Time:	

Meters:	pH	Conductivity	Turbidity
	Meter: Extech 100	Meter: Ectestr 11+	Hach 2100P
	S/N 346697	S/N 4GA	S/N 940700005619/
	Calib. to 4.0, 7.0 and 10.0	STD. to 700 umhos/cm	STD. to 4.8, 43.8, 420

Lab Analysis:(Check parameters to be analyzed)

		Bottle Batch #
X	3-40ml Glass w/HCl- VOC's (524.2)	
	1-500mL Poly w/H2SO4- TOC/COD/Ammonia (415.1/410.1/350.1)	
	1-500mL Poly unpreserv.- Cl/NO3/NO2/SO4 (300.0/300.0/354.0/300.0)	
	1-500mL Poly w/HNO3 Field Filtered- Fe/Mn/Zn (6010)	
	2-500mL Amber glass unpreserv - 1,4-Dioxane (8270)	

Comments:

COLBERT LANDFILL ANNUAL GROUNDWATER SAMPLING

Date: 6-3-2020
StationID: CP-S6
Sample ID: CP-S6 200603
QA/QC Sample ID: —

Field Personnel: KM
Weather: Sunny 63° F

Purge Method: Disp. bailer, Ded. Grundfos, Ded. Bladder, Ded. Bennett, Env. Tech ES-40, Port. Grundfos, Port. Bennet, PDB, Hydrasleeve

Well Depth: 106
Screens from: ____ To ____
Casing Size (in): 6

CASING INFO

DIA.	VOL. (gal/ft)
1.25	0.08
2.0	0.17
2.5	0.26
4	0.66
6	1.5
8	2.6

Depth to Water: 82.08

Water Column Depth: 23.92 x Gallons per linear foot: 1.5 = Calc. Purge vol./casing vol.: 35.88 = 40 Gal x3 well volumes = Total Purge Vol. (gal): 120

Purge Rate: 80 gpm @ 40 Hz
Purge Begin Time: 1010

Field Parameters

Time	Purge Vol/gal	pH	Cond. (umhos/cm)	Temp. (C)	Turb.	Comments
1013	108	7.23	680	12.3		Clear
1016	216	7.24	680	12.2		Clear
1019	324	7.24	679	12.3		Clear
Stabilization Criteria:	√ OK	+/- 0.1 unit	+/- 5%		0.51	(must meet criteria within 3 consecutive measurements)

Sample Time: 1023
QAQC Sample Time: —

Meters:

pH	Conductivity	Turbidity
Meter: Extech 100	Meter: EC tester 11+	Hach 2100P
S/N 346697	S/N 46nA	S/N 940700005619/____
Calib. to 4.0, 7.0 and 10.0	STD. to 700 umhos/cm	STD. to 4.8, 43.8, 420

Lab Analysis:(Check parameters to be analyzed)

		Bottle Batch #
X	3-40ml Glass w/HCl- VOC's (524.2)	
	1-500mL Poly w/H2SO4- TOC/COD/Ammonia (415.1/410.1/350.1)	
	1-500mL Poly unpreserv.- Cl/NO3/NO2/SO4 (300.0/300.0/354.0/300.0)	
	1-500mL Poly w/HNO3 Field Filtered- Fe/Mn/Zn (6010)	
	2-500mL Amber glass unpreserv - 1,4-Dioxane (8270)	

Comments:

COLBERT LANDFILL ANNUAL GROUNDWATER SAMPLING

Date	6-3-2020	**Field Personnel:**	KM
StationID:	CP-W1	**Weather:**	Sunny 71°F
Sample ID:	CP-W1 20006003	**Purge Method:**	Disp. bailer, Ded. Grundfos, Ded. Bladder, Ded. Bennett, Env. Tech ES 40, Port. Grundfos, Port. Bennet, PDB, Hydrasleeve
QA/QC Sample ID:	—		

Well Depth:	301	**Screens from:**	280	**To**	300	**Casing Size (in)**	8
Depth to Water:	174.54						
Water Column Depth:	126.46	**Gallons per linear foot:**	2.6	**Calc. Purge vol./casing vol.:**	328.80 = 330 gal	**x3 well volumes**	**Total Purge Vol. (gal)** 990 gal
Purge Rate	180 gpm	**Purge Begin Time**	1238				

CASING INFO

DIA.	VOL. (gal/ft)
1.25	0.08
2.0	0.17
2.5	0.26
4	0.66
6	1.5
8	2.6

Field Parameters

Time	Purge Vol/gal	pH	Cond. (umhos/cm)	Temp. (C)	Turb.	Comments
1241	540	7.60	530	12.6		Clear
1244	1080	7.60	531	12.6		Clear
1247	1620	7.59	530	12.6		Clear
Stabilization Criteria:	✓ OK	+/- 0.1 unit	+/- 5%		0.66	(must meet criteria within 3 consecutive measurements)

Sample Time:	1249	**QAQC Sample Time:**	—

Meters:

pH	Conductivity	Turbidity
Meter: Extech 100	Meter: Ectestr 11+	Hach 2100P
S/N 346697	S/N 4GA	S/N 940700005619/
Calib. to 4.0, 7.0 and 10.0	STD. to 700 umhos/cm	STD. to 4.8, 43.8, 420

Lab Analysis:(Check parameters to be analyzed)

		Bottle Batch #
X	3-40ml Glass w/HCl- VOC's (524.2)	
	1-500mL Poly w/H2SO4- TOC/COD/Ammonia (415.1/410.1/350.1)	
	1-500mL Poly unpreserv.- Cl/NO3/NO2/SO4 (300.0/300.0/354.0/300.0)	
	1-500mL Poly w/HNO3 Field Filtered- Fe/Mn/Zn (6010)	
	2-500mL Amber glass unpreserv - 1,4-Dioxane (8270)	

Comments:

COLBERT LANDFILL ANNUAL GROUNDWATER SAMPLING

Date	6-3-2020	Field Personnel:	KM
StationID:	CP-W2	Weather:	Sunny 69° F
Sample ID:	CP-W2-200603	Purge Method:	Disp. bailer, Ded. Grundfos, Ded. Bladder, Ded. Bennett, Env. Tech ES 40, Port. Grundfos, Port. Bennet, PDB, Hydrasleeve
QA/QC Sample ID:	CD-52-200603		

Well Depth:	278	Screens from:		To		Casing Size (in)	8	
Depth to Water:	169.41							
= Water Column Depth:	108.59	x Gallons per linear foot:	2.6	= Calc. Purge vol./casing vol.:	282.33 = 285 gal	x3 well volumes = Total Purge Vol. (gal)	855	
Purge Rate	200 gpm	Purge Begin Time	1145					

CASING INFO

DIA.	VOL. (gal/ft)
1.25	0.08
2.0	0.17
2.5	0.26
4	0.66
6	1.5
8	2.6

Field Parameters

Time	Purge Vol/gal	pH	Cond. (umhos/cm)	Temp. (C)	Turb.	Comments
1147	400	7.66	589	12.5		
1149	1000	7.68	591	12.5		
1151	1400	7.68	591	12.5		
Stabilization Criteria:	√OK	+/- 0.1 unit	+/- 5%		0.91	(must meet criteria within 3 consecutive measurements)

Sample Time:	1153
QAQC Sample Time:	1303

Meters:	pH	Conductivity	Turbidity
	Meter: Extech 100	Meter: Ectestr 11+	Hach 2100P
	S/N 346097	S/N 4GA	S/N 940700005619/
	Calib. to 4.0, 7.0 and 10.0	STD. to 700 umhos/cm	STD. to 4.8, 43.8, 420

Lab Analysis:(Check parameters to be analyzed)

		Bottle Batch #
X	3-40ml Glass w/HCl- VOC's (524.2)	
	1-500mL Poly w/H2SO4- TOC/COD/Ammonia (415.1/410.1/350.1)	
	1-500mL Poly unpreserv.- Cl/NO3/NO2/SO4 (300.0/300.0/354.0/300.0)	
	1-500mL Poly w/HNO3 Field Filtered- Fe/Mn/Zn (6010)	
	2-500mL Amber glass unpreserv - 1,4-Dioxane (8270)	

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Comments:

COLBERT LANDFILL ANNUAL GROUNDWATER SAMPLING

Date	6-3-2020	Field Personnel:	KM
StationID:	CP-W3	Weather:	Sunny 70°F
Sample ID:	CP-W3 200603	Purge Method:	Disp. bailer, Ded. Grundfos, Ded. Bladder, Ded. Bennett, Env. Tech ES 40, Port. Grundfos, Port. Bennet, PDB, Hydrasleeve
QA/QC Sample ID:	—		

Well Depth:	Screens from:	To	Casing Size (in)
275			8

Depth to Water:	Water Column Depth:	Gallons per linear foot:	Calc. Purge vol./casing vol.:		Total Purge Vol. (gal)
172.30	102.7	x 2.6	= 267.02 = 270 gal	x3 well volumes =	810 gal

Purge Rate	Purge Begin Time
200 gpm	1215

CASING INFO

DIA.	VOL. (gal/ft)
1.25	0.08
2.0	0.17
2.5	0.26
4	0.66
6	1.5
8	2.6

Field Parameters

Time	Purge Vol/gal	pH	Cond. (umhos/cm)	Temp. (C)	Turb.	Comments
1218	600	7.36	6161	12.5		Clear
1222	1400	7.38	6160	12.5		Clear
1226	2400	7.39	6162	12.5		Clear
Stabilization Criteria:	√ OK	+/- 0.1 unit	+/- 5%		0.56	(must meet criteria within 3 consecutive measurements)

Sample Time:	QAQC Sample Time:
1229	—

Meters:

pH	Conductivity	Turbidity
Meter: Extech 11+	Meter: Ectestr 11+	Hach 2100P
S/N 3461697	S/N 4 GA	S/N 940700005619/
Calib. to 4.0, 7.0 and 10.0	STD. to 700 umhos/cm	STD. to 4.8, 43.8, 420

Lab Analysis:(Check parameters to be analyzed)

		Bottle Batch #
X	3-40ml Glass w/HCl- VOC's (524.2)	
	1-500mL Poly w/H2SO4- TOC/COD/Ammonia (415.1/410.1/350.1)	
	1-500mL Poly unpreserv.- Cl/NO3/NO2/SO4 (300.0/300.0/354.0/300.0)	
	1-500mL Poly w/HNO3 Field Filtered- Fe/Mn/Zn (6010)	
	2-500mL Amber glass unpreserv - 1,4-Dioxane (8270)	

Comments:

COLBERT LANDFILL ANNUAL GROUNDWATER SAMPLING

Date	6-3-2020	Field Personnel:	KM
StationID:	CP-E1	Weather:	Sunny 67° F
Sample ID:	CP-E1 2006003	Purge Method:	Disp. bailer, Ded. Grundfos, Ded. Bladder, Ded. Bennett, Env. Tech ES-40, Port. Grundfos, Port. Bennet, PDB, Hydrasleeve
QA/QC Sample ID:	—		

Well Depth:	Screens from:	To	Casing Size (in)
257	235	258	8

Depth to Water:	Water Column Depth:	Gallons per linear foot:	Calc. Purge vol./casing vol.:	Total Purge Vol. (gal)
182.80	74.2 x	2.6 =	192.92 = 200 gal x3 well volumes =	600 Gal

CASING INFO

DIA.	VOL. (gal/ft)
1.25	0.08
2.0	0.17
2.5	0.26
4	0.66
6	1.5
8	2.6

Purge Rate	Purge Begin Time
130 gpm	1120

Field Parameters

Time	Purge Vol/gal	pH	Cond. (umhos/cm)	Temp. (C)	Turb.	Comments
1123	2600	6.81	1082	12.4		Clear
1126	6500	6.81	1086	12.4		clear
1129	1040	6.79	1086	12.4		Clear
Stabilization Criteria:	V OK	+/- 0.1 unit	+/- 5%		1.09	(must meet criteria within 3 consecutive measurements)

Sample Time:	QAQC Sample Time:
1131	—

Meters:	pH	Conductivity	Turbidity
	Meter: Extech 100	Meter: Ecotestr 11+	Hach 2100P
	S/N 3466697	S/N 4GA	S/N 940700005619/_____
	Calib. to 4.0, 7.0 and 10.0	STD. to 700 umhos/cm	STD. to 4.8, 43.8, 420

Lab Analysis:(Check parameters to be analyzed)

		Bottle Batch #
X	3-40ml Glass w/HCl- VOC's (524.2)	
	1-500mL Poly w/H2SO4- TOC/COD/Ammonia (415.1/410.1/350.1)	
	1-500mL Poly unpreserv.- Cl/NO3/NO2/SO4 (300.0/300.0/354.0/300.0)	
	1-500mL Poly w/HNO3 Field Filtered- Fe/Mn/Zn (6010)	
	2-500mL Amber glass unpreserv - 1,4-Dioxane (8270)	

Comments:

COLBERT LANDFILL ANNUAL GROUNDWATER SAMPLING

Date: 6-3-2020
Field Personnel: KM
StationID: CP-E2
Weather: Sunny 60°F - 65°F
Sample ID: CP-E2 200603
Purge Method: Disp. bailer, (Ded. Grundfos,) Ded. Bladder, Ded. Bennett, Env. Tech ES ~~40, Port. Grundfos~~, Port. Bennet, PDB, Hydrasleeve
QA/QC Sample ID: —

Well Depth: 188
Screens from: ____ To ____
Casing Size (in): 6

CASING INFO

DIA.	VOL. (gal/ft)
1.25	0.08
2.0	0.17
2.5	0.26
4	0.66
6	1.5
8	2.6

— Depth to Water: 150.63
= Water Column Depth: 37.37 x Gallons per linear foot: 1.5 = Calc. Purge vol./casing vol.: 56.05 = 60 x3 well volumes = Total Purge Vol. (gal): 180 gal

Purge Rate: 2 gpm
Purge Begin Time: 0840

Field Parameters

Time	Purge Vol (gal)	pH	Cond. (umhos/cm)	Temp. (C)	Turb.	Comments
1020	230	7.02	1180	12.4		Clear
1158	475	7.01	1189	12.5		Clear
1304	528	7.01	1194	12.6		Clear
Stabilization Criteria:	OK ✓	+/- 0.1 unit	+/- 5%		1.21	(must meet criteria within 3 consecutive measurements)

Sample Time: 1307
QAQC Sample Time: —

Meters:

pH	Conductivity	Turbidity
Meter: Extech 10	Meter: Ecotestr 11+	~~Hach 2100P~~
S/N 346697	S/N 46nA	S/N 940700005619/____
Calib. to 4.0, 7.0 and 10.0	STD. to 700 umhos/cm	STD. to ~~4.8, 43.8, 420~~

Lab Analysis:(Check parameters to be analyzed)

		Bottle Batch #
X	3-40ml Glass w/HCl- VOC's (524.2)	
	1-500mL Poly w/H2SO4- TOC/COD/Ammonia (415.1/410.1/350.1)	
	1-500mL Poly unpreserv.- Cl/NO3/NO2/SO4 (300.0/300.0/354.0/300.0)	
	1-500mL Poly w/HNO3 Field Filtered- Fe/Mn/Zn (6010)	
	2-500mL Amber glass unpreserv - 1,4-Dioxane (8270)	

Comments:

COLBERT LANDFILL ANNUAL GROUNDWATER SAMPLING

Date: 6-3-2020 | Field Personnel: KM

StationID: CP-E3 | Weather: Sunny 64°F

Sample ID: CP-E3 200603

QA/QC Sample ID: —

Purge Method: Disp. bailer, ~~Ded. Grundfos,~~ Ded. Bladder, Ded. Bennett, Env. Tech ES 40, ~~Port. Grundfos~~, Port. Bennet, PDB, Hydrasleeve

Well Depth: 264 | Screens from: ____ To ____ | Casing Size (in): 8

\- Depth to Water: 181.81

= Water Column Depth: 82.19 x Gallons per linear foot: 2.6 = Calc. Purge vol./casing vol.: 213.70 = 214 gal x3 well volumes = Total Purge Vol. (gal): 642

Purge Rate: 145 gpm | Purge Begin Time: 1040

CASING INFO

DIA.	VOL. (gal/ft)
1.25	0.08
2.0	0.17
2.5	0.26
4	0.66
6	1.5
8	2.6

Field Parameters

Time	Purge Vol/gal	pH	Cond. (umhos/cm)	Temp. (C)	Turb.	Comments
1043	290	7.10	950	12.2		Clear
1046	725	7.10	948	12.2		Clear
1049	1305	7.09	947	12.2		Clear
Stabilization Criteria:	√OK	+/- 0.1 unit	+/- 5%		1.68	(must meet criteria within 3 consecutive measurements)

Sample Time: 1051 | QAQC Sample Time: —

Meters:

pH	Conductivity	Turbidity
Meter: Extech 100	Meter: Ectestr 11+	~~Hach 2100P~~
S/N 346697	S/N 4 GA	S/N 940700005619/____
Calib. to 4.0, 7.0 and 10.0	STD. to 700 umhos/cm	~~STD. to 4.8, 43.8, 420~~

Lab Analysis:(Check parameters to be analyzed)

		Bottle Batch #
X	3-40ml Glass w/HCl- VOC's (524.2)	
	1-500mL Poly w/H2SO4- TOC/COD/Ammonia (415.1/410.1/350.1)	
	1-500mL Poly unpreserv.- Cl/NO3/NO2/SO4 (300.0/300.0/354.0/300.0)	
	1-500mL Poly w/HNO3 Field Filtered- Fe/Mn/Zn (6010)	
	2-500mL Amber glass unpreserv - 1,4-Dioxane (8270)	

Comments:

COLBERT LANDFILL ANNUAL GROUNDWATER SAMPLING

Date: 6-4-2020 | Field Personnel: KM

StationID: CP-S3 | Weather: Fair 63° F

Sample ID: CP-S3 200604

QA/QC Sample ID: —

Purge Method: Disp. bailer, Ded. Grundfos, Ded. Bladder, ~~Ded. Bennett~~, Env. Tech ES 40, Port. Grundfos, Port. Bennet, PDB, Hydrasleeve

Well Depth: 99 | Screens from: ____ To ____ | Casing Size (in): ____

\- Depth to Water: 85.37'

= Water Column Depth: 13.63 x Gallons per linear foot: 1.5 = Calc. Purge vol./casing vol.: 20.44 = 20 Gal x3 well volumes = Total Purge Vol. (gal): ~~60~~ 60 gal

Purge Rate: 1.34 GPM | Purge Begin Time: 0905

CASING INFO

DIA.	VOL. (gal/ft)
1.25	0.08
2.0	0.17
2.5	0.26
4	0.66
6	1.5
8	2.6

Field Parameters

Time	Purge Vol/gal	pH	Cond. (umhos/cm)	Temp. (C)	Turb.	Comments
0931	20	7.40	612	12.4		a little Cloudy
0957	40	7.41	617	12.2		Clear'ish"
1023	60	7.43	619	12.2		Clear
Stabilization Criteria:	√ OK	+/- 0.1 unit	+/- 5%		2.93	(must meet criteria within 3 consecutive measurements)

Sample Time: 1025 | QAQC Sample Time: ____

Meters:

pH	Conductivity	Turbidity
Meter: Extech 100	Meter: Ectestr 11+	Hach 2100P
S/N 346697	S/N 4GA	S/N 940700005619/____
Calib. to 4.0, 7.0 and 10.0	STD. to 700 umhos/cm	STD. to 4.8, 43.8, 420

Lab Analysis:(Check parameters to be analyzed)

		Bottle Batch #
*	3-40ml Glass w/HCl- VOC's (524.2)	
	1-500mL Poly w/H2SO4- TOC/COD/Ammonia (415.1/410.1/350.1)	
	1-500mL Poly unpreserv.- Cl/NO3/NO2/SO4 (300.0/300.0/354.0/300.0)	
	1-500mL Poly w/HNO3 Field Filtered- Fe/Mn/Zn (6010)	
	2-500mL Amber glass unpreserv - 1,4-Dioxane (8270)	

* 94

Comments:

COLBERT LANDFILL ANNUAL GROUNDWATER SAMPLING

Date	6-4-2020	Field Personnel:	GF
StationID:	CD-03A1	Weather:	clear, 55°
Sample ID:	CD-03A1 -200604	Purge Method:	Disp. bailer, Ded. Grundfos, Ded. Bladder, Ded. Bennett, Env. Tech ES 40, Port. Grundfos, Port. Bennet, PDB, Hydrasleeve
QA/QC Sample ID:	NA		

Well Depth:	98	Screens from:	70	To	90	Casing Size (in)	2	
− Depth to Water:	70.79'							
= Water Column Depth:	27.21	x Gallons per linear foot:	0.17	= Calc. Purge vol./casing vol.:	4.6 use 4.75	x3 well volumes =	Total Purge Vol. (gal)	14.25

CASING INFO DIA.	VOL. (gal/ft)
1.25	0.08
2.0	0.17
2.5	0.26
4	0.66
6	1.5
8	2.6

Purge Rate	- —	Purge Begin Time	0931

Field Parameters

Time	Purge Vol/gal	pH	Cond. (umhos/cm)	Temp. (C)	Turb.	Comments
0949	4.75	8.28	364	10.0		Clear
1006	9.5	8.31	369	9.9		clear
1027	14.25	8.34	355	10.0		clear
Stabilization Criteria:		+/- 0.1 unit	+/- 5%		1.31	(must meet criteria within 3 consecutive measurements)

Sample Time:	1020
QAQC Sample Time:	NA

Meters:	pH	Conductivity	Turbidity
	Meter: Extech	Meter: ECTESTR11+	Hach 2100P
	S/N 370573	S/N 7810	S/N ~~940700005610~~ 23474
	Calib. to 4.0, 7.0 and 10.0	STD. to 700 umhos/cm	STD. to 4.8, 43.8, 420

Lab Analysis:(Check parameters to be analyzed)

		Bottle Batch #
✓	3-40ml Glass w/HCl- VOC's (524.2)	
✓	1-500mL Poly w/H2SO4- TOC/COD/Ammonia (415.1/410.1/350.1)	
✓	1-500mL Poly unpreserv.- Cl/NO3/NO2/SO4 (300.0/300.0/354.0/300.0)	
✓	1-500mL Poly w/HNO3 Field Filtered- Fe/Mn/Zn (6010)	
	2-500mL Amber glass unpreserv - 1,4-Dioxane (8270)	

Comments: This bladder pump may need a rebuild — pull it from the well & verify/test bladder integrity before next sample round. Put on O&M list so it's not forgotten GF

COLBERT LANDFILL ANNUAL GROUNDWATER SAMPLING

Date: 6-4-2020 | Field Personnel: GF

StationID: CS-04A1 | Weather: mstly clear, 69°

Sample ID: CS-04A1 ~200604 | Purge Method: Disp. bailer, Ded. Grundfos, Ded. Bladder, Ded. Bennett, Env. Tech ES 40, Port. Grundfos, Port. Bennet, PDB, Hydrasleeve

QA/QC Sample ID: NA

Well Depth: 89.51 | Screens from: | To | Casing Size (in):

Depth to Water: * 85.21

Water Column Depth: 4.3 x Gallons per linear foot: 0.17 = Calc. Purge vol./casing vol.: 0.73 use 0.75 x3 well volumes = Total Purge Vol. (gal): 2.25

Purge Rate: slow :) | Purge Begin Time: 1148

CASING INFO

DIA.	VOL. (gal/ft)
1.25	0.08
2.0	0.17
2.5	0.26
4	0.66
6	1.5
8	2.6

Field Parameters

Time	Purge Vol/gal	pH	Cond. (umhos/cm)	Temp. (C)	Turb.	Comments
1155	0.75	6.84	721	15.4		Sl. tan color
1202	1.5	6.85	716	11.2		very Sl. tan color
1210	2.25	6.87	723	11.1		clear
Stabilization Criteria:		+/- 0.1 unit	+/- 5%		1.63	(must meet criteria within 3 consecutive measurements)

Sample Time: 1211 | QAQC Sample Time: NA

Meters:

pH	Conductivity	Turbidity
Meter: Extech	Meter: ECTESTR 11+	Hach 2100P
S/N 370573	S/N 7810	S/N ~~940700005619~~/ 24957
Calib. to 4.0, 7.0 and 10.0	STD. to 700 umhos/cm	STD. to 4.8, 43.8, 420

Lab Analysis:(Check parameters to be analyzed)

		Bottle Batch #
✓	3-40ml Glass w/HCl- VOC's (524.2)	
✓	1-500mL Poly w/H2SO4- TOC/COD/Ammonia (415.1/410.1/350.1)	
✓	1-500mL Poly unpreserv.- Cl/NO3/NO2/SO4 (300.0/300.0/354.0/300.0)	
✓	1-500mL Poly w/HNO3 Field Filtered- Fe/Mn/Zn (6010)	
	2-500mL Amber glass unpreserv - 1,4-Dioxane (8270)	

* SWL Below pump & SWL will not fit past it
Assume SWL from 7/15/19 @ 85.21'

Comments:

COLBERT LANDFILL ANNUAL GROUNDWATER SAMPLING

Date: 6/4/2020
Field Personnel: M. TERRIS
StationID: CD-60A1
Weather: CLEAR 50S
Sample ID: CD-60A1 - 200604
Purge Method: Disp. bailer, Ded. Grundfos, Ded. Bladder, Ded. Bennett, Env. Tech ES 40, Port. Grundfos, Port. Bennet, PDB, Hydrasleeve
QA/QC Sample ID: CD-51-200604

Well Depth: 96.2
Screens from: To
Casing Size (in):

CASING INFO

DIA.	VOL. (gal/ft)
1.25	0.08
2.0	0.17
2.5	0.26
4	0.66
6	1.5
8	2.6

− Depth to Water: 79.63'
= Water Column Depth: 16.57 x Gallons per linear foot: 0.17 = Calc. Purge vol./casing vol.: 3GAL / 2.82 x3 well volumes = Total Purge Vol. (gal): 9 GAL

Purge Rate: 1.0 GPM
Purge Begin Time: 0915

Field Parameters

Time	Purge Vol/gal	pH	Cond. (umhos/cm)	Temp. (C)	Turb.	Comments
0918	3GAL	7.00	547	13.9		CLEAR
0922	6GAL	6.97	540	13.6		CLEAR
0927	9GAL	6.99	541	13.7		CLEAR
Stabilization Criteria:		+/- 0.1 unit	+/- 5%		0.32	(must meet criteria within 3 consecutive measurements)

Sample Time: 0930
QAQC Sample Time: 1000

Meters:

pH	Conductivity	Turbidity
Meter: EXSTIK 100	Meter: ECTestr 11+	Hach 2100P
S/N 223464	S/N 24B	S/N 940700005619/
Calib. to 4.0, 7.0 and 10.0	STD. to 700 umhos/cm	STD. to 4.8, 43.8, 420

Lab Analysis:(Check parameters to be analyzed)

		Bottle Batch #
X	3-40ml Glass w/HCl- VOC's (524.2)	
X	1-500mL Poly w/H2SO4- TOC/COD/Ammonia (415.1/410.1/350.1)	
X	1-500mL Poly unpreserv.- Cl/NO3/NO2/SO4 (300.0/300.0/354.0/300.0)	
X	1-500mL Poly w/HNO3 Field Filtered- Fe/Mn/Zn (6010)	
	2-500mL Amber glass unpreserv - 1,4-Dioxane (8270)	

- DUPE TAKEN HERE

Comments:

COLBERT LANDFILL ANNUAL GROUNDWATER SAMPLING

Date: 6/4/2020 | Field Personnel: M. TERRIS

StationID: CD-61A1 | Weather: CLEAR 60S

Sample ID: CD-61A1 - 200604

QA/QC Sample ID: MS/MSD

Purge Method: Disp. bailer, ~~Ded. Grundfos~~, Ded. Bladder, Ded. Bennett, Env. Tech ES 40, ~~Port. Grundfos~~, Port. Bennet, PDB, Hydrasleeve

Well Depth: 75.9 | Screens from: | To: | Casing Size (in): 2.0

Depth to Water: 68.71'

= Water Column Depth: 7.19' x Gallons per linear foot: 0.17 = Calc. Purge vol./casing vol.: 2 GAL 1.22 x3 well volumes = Total Purge Vol. (gal): 6 GAL

Purge Rate: 1.0 GPM | Purge Begin Time: 1000

CASING INFO

DIA.	VOL. (gal/ft)
1.25	0.08
2.0	0.17
2.5	0.26
4	0.66
6	1.5
8	2.6

Field Parameters

Time	Purge Vol/gal	pH	Cond. (umhos/cm)	Temp. (C)	Turb.	Comments
1005	5 GAL	7.30	410	12.9		CLEAR
1009	9 GAL	7.34	407	12.6		CLEAR
1014	15 GAL	7.32	407	12.5		CLEAR
Stabilization Criteria:		+/- 0.1 unit	+/- 5%		0.21	(must meet criteria within 3 consecutive measurements)

Sample Time: 1015 | QAQC Sample Time: SAME AS SAMPLE

Meters:

pH	Conductivity	Turbidity
Meter: EXSTIK100	Meter: ECTestr11+	~~Hach 2100P~~
S/N 223464	S/N 24B	S/N 940700005619/
Calib. to 4.0, 7.0 and 10.0	STD. to 700 umhos/cm	STD. to 4.8, 43.8, 420

Lab Analysis:(Check parameters to be analyzed)

		Bottle Batch #
X	3-40ml Glass w/HCl- VOC's (524.2)	
X	1-500mL Poly w/H2SO4- TOC/COD/Ammonia (415.1/410.1/350.1)	
X	1-500mL Poly unpreserv.- Cl/NO3/NO2/SO4 (300.0/300.0/354.0/300.0)	
X	1-500mL Poly w/HNO3 Field Filtered- Fe/Mn/Zn (6010)	
	2-500mL Amber glass unpreserv - 1,4-Dioxane (8270)	

MS/MSD TAKEN HERE

Comments:

COLRES
MAY 2019

DATE: 5/21/2019 / 5/22/19 (TUES/WED)
WEATHER: P. CLOUDY 60S-70S
TECH: M. TERRIS

THE FOLLOWING LOCATIONS WERE SAMPLED:

OWNER	SAMPLE ID	TIME	WL	DATE	COMM
CLARK	1073E-3-190521	1040	13.01'	5/21	
ANDERSON	1073L-3-190521	1200	NT	5/21	
GREENEN	1073P-1-190521	1400	NT	5/21	
WARDIAN	1473D-2-190521	1500	NT	5/21	MS/MSD
HUNTER K	1573H-1-190522	1055	NT	5/22	
HUNTER D	1573R-2-190522	1130	NT	5/22	
NERREN	1073D-1-190522	1215	1.29	5/22	DUPE HERE
"DUPE	2073D-1-190522	1300			DUPE ID

* ALL SAMPLES WERE PLACED INTO COOLER #21 ALONG W/ 6 DOUBLE ZIP LOCK BAGS OF REG. WET ICE PACKS TO TRY TO KEEP SAMPLES AT/BELOW 4°C. MT HAND DEL. COOLER #21 TO UPS FOR OVERNIGHT TO ANATEK LAB ON 5/23/19

MT

COLRES
"6/2019"

DATE: 6/13/2019 (THURS)
WEATHER: SLI CLOUDY TO P. CLOUDY MID-80'S
TECH: MT/GF/KM

THE FOLLOW LOCATION WERE SAMPLED TODAY 6/13/19

OWNER	SAMPLE ID	TECH	TIME	COMM MS/MSD
RUX	1073G-1-190613	MT	1105	
LAKE	1573C-10-190613	GF	1117	
GANDER	0273F-4-190613	KM	1122	
N. MEADOW	1073Q-4-190613	MT	1145	DUPE HERE
"DUPE	2073Q-4-190613	MT	1200	DUPE 11)
KRAMER	0273C-3-190613	KM	1158	
HALPIN	1073L-1-190613	GF	1201	
BISE	1173B-1-19063	MT	1230	
LANE	1073M-3-190613	GF	1246	

TRIPS (2)

* ALL SAMPLES TAKEN TODAY (6/13) WERE SHIP TODAY IN COOLER #21 ALONG W/ 8 DOUBLE BAGGED REG. WET ICE PACKS AND COC TAPED TO INSIDE LID. GF HAND DEL. COOLER TO UPS FOR OVERNIGHT TO ANATEK LAB ON 6/14 AM.

"7/2019"

DATE: 7/17/2019 (WED)
TECHS: MT/GF
WEATHER: CLOUDY COOL A FEW SHOWER MID-60's

THE FOLLOWING LOCATIONS WERE SAMPLED:

LOCATION	SAMPLE ID	TECH	TIME	POMPON	COMM
STERLING	0373L-1-190717	MT	1030	—	DIP-SA-CMS/MSD
MORENO	1073J-1-190717	MT	1115	YES	
ENNIS	1473M-1-190717	MT	1000	NO	DUPE
" DUPE	2473M-1-190717	MT	1030		DUPE ID
PULLEN	1073E-2-190717	GF	1121	NO	
BERHOLF	1073M-1-190717	GF	1038	NO	
SAUNDER	1573Q-1-190717	GF	0954	NO	

COURES TRIPS (2)

- MT/GF PACKED ABOVE COOLER #115 ~~F~~SAMPLES OF COURES / COLBENT QT ALONG W/ 8 DOUBLE BAGGED REG. WET ~~FEE~~ ICE PACKS GF HAND DEL COOLER #115 TO UPS FOR OVERNIGHT TO ANATEK LAB IN MOSCOW ID.

- 2 SEPERATE COC IN COOLER 1 FOR COURES & 1 FOR COLBENT QT.

Rite in the Rain

COLRES
8/2019

DATE: 8/20 & 8/21/2019 (TUES/WED)
WEATHER: P. CLOUDY 60 AM 80 PM
TECH: MT

THE FOLLOWING LOCATIONS WERE SAMPLED:

OWNER	SAMPLE ID	DATE	TIME	WL	PUMP	COMM
THORNTON	0273D6-190820	8/20	1430	NT	YES	MS/MSD
OVERMYER	1473C-5-190820	8/20	1530	NT	NO	
CLARK	1073E-3-190821	8/21	0920	4.75	NO	
PETRILLI	1073P-2-190821	8/21	1005	79.99	NO	HOME OWNER WL
NELSON	1573C-5-190821	8/21	1035	NT	YES	
WARDIAN	1473D-2-190821	8/21	1120	NT	YES	
NERREN	1073D-1-190821	8/21	1210	4.01	NO	DUPE
"DUPE	2073D-1-190821	8/21	1300	—	—	DUPE ID

COLRES TRIPS (2)

SAMPLE TAKEN ON 8/20 HELD OVER NIGHT IN PLANT REFER.

ON 8/21 MT PACKED ALL SAMPLES TAKEN ABOVE INTO COOLER ALONG WITH COC AND 8 DOUBLE BAGGED REG. WET ICE PACKS TO TRY TO KEEP SAMPLES AT/BELOW 4°C WHILE IN SHIPMENT. MT HAND DEL COOLER #1 TO UPS FOR OVERNIGHT TO ANATEK LAB IN MOSCOW ID.

COLRES

9/18/2019 (WED)
WEATHER: P- CLOUDY SHOWERS 50'S
TECH: M. TERRIS

THE FOLLOWING LOCATION WERE SAMPLED:

LOCATION	SAMPLE ID	TIME	WL	PUMP ON	COM
N. MEADOWS	1073Q-4-190918	0900	NT	~~YES~~	MS/MSD
ROX	1073G-1-190918	1000	17599	NO	
CRABB	1073L-4-190918	1120	164.7'	NO	
HALPIN	1073L-1-190918	1145	NT	YES	
RESSEMAN	0373A-2-190918	1230	NT	YES	DUPE
"DUPE	2373A-2-190918	1300			DUPE II)

COLRES TRIPS (2)

* MT PACKED ABOVE SAMPLES INTO COOLER #101 ALONG W/ 8 DOUBLE BAGGED REG WET ICE TO KEEP SAMPLES AT BELOW 4°C DURING SHIPMENT. MT HAND DEL. COOLER #101 TO UPS FOR OVERNIGHT TO ANATEK LAB IN MOSCOW ID ON 9/19/19 AM

COLRES

DATE: 10/2 & 10/3/2019 (WED & THURS)
WEATHER: P. CLOUDY TO CLOUDY MID-50S
TECH: M. TERRIS

THE FOLLOWING LOCATIONS WERE SAMPLED:

OWNER	SAMPLE ID	DATE	TIME	PUMP ON	WL	COMM
POLLEN	1073E-2-191002	10/2	1130	N	13.21'	MS/MSD
VANSICKEL	*NO SAMPLE LOCKED GATE*					
COUNTRYMAN	1073L-2-191002	10/2	1225	N	15.71'	
GREENEN	1073P-1-191002	10/2	1330	Y	N	
ENNIS	1473M-1-191002	10/2	1405	N	N	
ESCHENBACKER	1573K-1-191003	10/3	0915	N	90.02'	
BROWN	1573C-7-191003	10/3	1055	N	83.72'	
MORENO	1073J-1-191003	10/3	1130	Y	N	DUPE
"DUPE	2073J-1-191003	10/3	1200			DUPE II)
TRIPS	(1)					

* MT PACKED ABOVE SAMPLES INTO COOLER #17 ALONG WITH COLBERT QT SAMPLES (W/SEPARATE COC) WORK ORDERS. MT PACKED 12 DOUBLE BAGGED REG. WET ICE PACKS TO KEEP SAMPLES AT/BELOW 4°C HAND DEL COOLER #17 TO UPS FOR OVERNIGHT TO ANATEK LAB IN MOSCOW ID ON 10/4/19 AM

COLRES

"11/2019"

DATE(S) 11/13/2019 & 11/14/2019
WEATHER P.CLOUDY 40S BOTH DAYS
TECH: M. TERRIS

- THE FOLLOWING LOCATIONS WERE SAMPLED:

LOCATION	S.ID	STIME	DATE	WL	COMM
MCQUESTEN	0273C-4-191113	1100	11/13	NT	
CLARK	1073E-3-191113	1200	11/13	17.41	MS/MS
ANDERSON	1073L-3-191113	1410	11/13	NT	
WARDIEN	1473D-2-191113	1500	11/13	NT	
HUNTER	1573R-2-191114	1020	11/14	NT	
NERREN	1073D-1-191114	1110	11/14	8.49	DUPE
"DUPE	2073D-1-191114	1200	11/4		DUPE
TRIPS	COLRES TRIPS (2)				

ALL SAMPLES TAKEN ON 11/13/19 HELD OVERNIG IN REFER @ COLBERT

11/14 MT PACKED ALL SAMPLES TAKEN ABOVE PLACED INTO COOLER #17 ALONG W/8 DOUBLE REG. WET ICE PACKS TO KEEP SAMPLES AT/BELOW 4°C MT HAND DEL COOLER #17 TO UPS FOR OVERNIGHT TO ANATEK LAB IN MOSCOW ID ON 11/15 AM

COLRES
"12/2019"

DATE(S) 12/4 & 12/5/19 (WED & THURS)
WEATHER: CLOUDY 40S BOTH DAYS
TECH: M. TERRIS

- THE FOLLOWING LOCATION WERE SAMPLED

OWNER	SAMPLE ID	DATE	TIME	WL	COMM
N. MEADOWS	1073Q-4-191204	12/4	1345	NT	MS/MSD
GANDER	0273F-4-191204	12/4	1435	90.12'	
HALPIN	1073L-1-191204	12/4	1530	12.01'	DUPE HERE
"DUPE	2073L-1-191204	12/4	1600	-	DUPE ID
RUX	1073G-1-191205	12/5	1100	176.47'	
BISE	1173B-1-191205	12/5	1145	NT	
COLRES	COLRES TRIPS (2)				

- MT PACKED ABOVE SAMPLES INTO COOLER #1001 ALONG W/ 6 DOUBLE BAGGED REG. ICE PACKS TO TRY TO KEEP TEMP IN COOLER @ 4°C +/- DURING SHIPMENT. MT HAND DEL. COOLER #1001 TO UPS FOR PRIORITY OVERNIGHT TO ANATEK LAB IN MOSCOW ID ON 12/6 AM.

COLRES
01/2020

* NOT ABLE TO SAMPLE COLRES THIS MONTH 3 OUT OF 4 LOCATION HAD TURNED OFF THEIR OUTSIDE WATER, MT WAS NOT ABLE TO ACCESS TO GET SAMPLES FROM THOSE LOCATIONS. WILL CONTACT OWNERS NEXT MONTH 2/2020 TO GAIN ACCESS W/ FEB. ROUND.

COLRES
JAN/FEB 2020

DATE: (S) 2/11/2020 - 2/12/2020
WEATHER: P CLOUDY 40'S BOTH DAYS
TECH: M. TERRY

LOCATION	DATE	SAMPLE ID	TIME	WL	COMM.
STERLING	2/11	0373L-1-200211	0900	SPRING	MS/MSD
CLARK	2/11	1073E-3-200211	1030	9.41'	
WARDIAN	2/11	1473D-2-200211	1130	NT	
WILLIAMS	2/11	1573C-8-200211	1300	NT	
ENNIS	2/11	1473M-1-200211	1350	NT	
MORENO	2/11	1073J-1-200211	1445	NT	(INSIDE
POLLEN	2/12	1073E-2-200212	1010	12.99'	
NERREN	2/12	1073D-1-200212	1050	2.99'	
"DUPE	2/12	2073D-1-200212	1200	-	DUPE 1 D
COLRES TRIP (2)					

* MT PACKED ABOVE SAMPLES INTO COOLER #21 ALONG W/ 8 DOUBLE BAG REG. WET ICE PACKS TO KEEP SAMPLES AT/BELOW 4°C SHIPPMENT. MT HAND DEL. COOLER #21 TO UPS FOR OVERNIGHT TO ANATEK LAB ON 2/13/20 AM.

COLRES

SINCE WE ~~ARE~~ WERE IN A LOCK-DOWN FOR THE COVID 19 VIRUS. WE COULD NOT SAMPLE IN MARCH, APRIL, SO WE ARE MAKING UP THESE TWO MONTHS.

SAMPLING MARCH, APRIL & MAY 2020

DATE: 5/12 & 5/13/2020 (TUES & WED)
WEATHER: P. CLOUDY / CLOUDY 50S & 60S
TECHS: MT / KM / GF

THE FOLLOWING LOCATIONS WERE SAMPLED:

OWNER	SAMPLE ID	DATE	TIME	TECH	WL	COMM
ENNIS	1473M-1-200512	5/12	1100	MT	NT	MS/MSD
RESIDENT	1573C-17-200512	5/12	1119	KM	NT	
WARDIAN	1473D-2-200512	5/12	1128	GF	NT	
BROWN	1573C-7-200512	5/12	1150	MT	81.01	
HUNTER(CD)	1573R-2-200512	5/12	1151	KM	NT	
HUNTER(CK)	1573H-1-200512	5/12	1212	GF	NT	
YANNATTER	0373C-2-200512	5/12	1237	KM	99.01	
GREENE	1073P-1-200512	5/12	1300	MT	SPRING	
RUX	1073G-1-200512	5/12	1327	GF	NT	
RESSEMAN	0373A-2-200512	5/12	1330	KM	NT	
HALPIN	1073L-1-200512	5/12	1345	MT	10.79	
ESCHENBACHER	1573K-1-200512	5/12	1401	GF	87.67	
CLARK	1073E-3-200512	5/12	1413	KM	9.41	
COUNTRYMAN	1073L-2-200513	5/13	1009	GF	NT	
ANDERSON	1073L-3-200513	5/13	1015	KM	NT	
POLLEN	1073E-2-200513	5/13	1035	MT	12.99	
NERREN	1073D-1-200513	5/13	1120	MT	2.11	DUPE
"DUPE	2073D-1-200513	5/13	1200	MT		DUPE ID
TRIPS	COLRES TRIPS (2)					
MORENO	(NO SAMPLE)					

* MT PACKED ABOVE SAMPLES INTO COOLER #21 ALONG W/ 8 DOUBLE BAG REG WET ICE PACKS TO KEEP AT/BELOW 4° C DURING SHIPPMENT TO ANATEK LAB IN MOSCOW ID ON 5/14/2020

COURES
" 6/2020 "

DATE(S): 6/16 & 6/17/2020
TECH: M. TERRIS
WEATHER: P. CLOUDY 60S/70S

THE FOLLOWING LOCATIONS WERE SAMPLED:

OWNER	SAMPLE ID	DATE	TIME	WL	COMM
WARDEN	0273C-3-200616	6/16	1315	96.07'	
VANSICKEL NEW OWNER	0373A-4-200616	6/16	1420	NT	
RUX	1073G-1-200617	6/17	1200	177.41	
HALPIN	1073L-1-200617	6/17	1255	20.01'	MS/MSD
LANE	1073M-3-200617	6/17	1335	12.01'	
LAKE	1573C-10-200617	6/17	1430	NT	
RESSEMAN	0373A-2-200617	6/17	1515	NT	DUPE
"DUPE	2373A-2-200617	6/17	1600		DUPE ID

COURES TRIPS (2)

MT PACKED ABOVE SAMPLES INTO COOLER #17 ALONG W/ 8 DOUBLE BAGS OF REG. WET ICES AND COC TAPED TO TOP OF INSIDE LIDE. COOLER WAS TAPED UP W/ COC SEALS. MT HAND DEL. COOLER #17 TO UPS FOR OVERNIGHT TO ANATEL LAB IN MOSCOW ID ON 6/18/20

COLRES
"7/2020"

DATE(S) 7/14/2020 & 7/15/2020
WEATHER: CLEAR 70S/80S
TECH. M. TERRIS

THE FOLLOWING LOCATIONS WERE SAMPLED:

LOCATION	SAMPLE ID	DATE	TIME	WL	COMM
ENNIS	1473M-1-200714	7/14	1430	NT	MS/MSD
STERLING	0373L-1-200714	7/14	1500	NT	SPRING
N. MEADOWS	1073Q-4-200715	7/15	~~0915~~	NT	
SAUNDER	1573Q-1-200715	7/15	1100	NT	
BENTHOLF	1073M-1-200715	7/15	1140	16.99'	
POLLEN	1073E-2-200715	7/15	1230	NT	DUPE
"DUPE	2073E-2-200715	7/15	1300		DUPE ID

COLRES TMPS (2)

* MT PLACED ABOVE SAMPLES INTO COOLER #5 ALONG W/ 8 DOUBLE BAG REG. WET ICE PACKS TO KEEP AT 4°C WHILE SHIPPMENT. MT HAND DEL. COOLER #5 TO UPS OR OVERNIGHT ON 7/16/20. TO ANATEK IN MOSCOW ID

COLBERT ANNUAL SAMPLING
"4-2019"

4/25/19 (THURS)
WEATHER: P. CLOUDY 50'S AM 60'S PM
TECH: MT/GF/KM

THE FOLLOWING LOCATIONS WERE SAMPLED TODAY:

LOCATION	SAMPLE ID	TIME	TECH	VOC	1,4 DIOX	CONV.	COM
CD-03A1	CD-03A1-190425	0945	MT	*		*	✓
CS-04A1	CS-04A1-190425	1030	MT	*		*	✓
CD-49	CD-49-190425	1127	GF	*			✓
CD-60A1	CD-60A1-190425	0951	GF	*		*	MS/MSD
CD-61A1	CD-61A1-190425	0849	GF	*		*	DUPE HERE
"DUPE	CD-51-190425	0831	GF	*		*	DUPE ID
CP-S1	CP-S1-190425	0903	KM	*	*		MS/MSD ✓
CP-S4	CP-S4-190425	0729	KM	*			✓
CP-S5	CP-S5-190425	0937	KM	*			✓
CP-S6	CP-S6-190425	1009	KM	*			✓
CP-E1	CP-E1-190425	1129	KM	*			✓
CP-E2	CP-E2-190425	1219	KM	*			✓
CP-E3	CP-E3-190425	1047	KM	*			✓
CP-W3	CP-W3-190425	1207	KM	*			✓

COLBERT TRIPS (2)

* ALL VOC'S TAKEN THE LAST 3 DAYS WERE PLACED INTO COOLER #17 ALONG & DOUBLE BAGGED REG. ICE PACKS. KM HAND DEL. COOLERS TO UPS FOR OVERNIGHT TO ANATEL IN MOSCOW ID ON 4/26/19 (AM)

* ALL CONV. / AMMONIA / METALS SAMPLES WERE PLACED INTO COOLER #8 ALONG W/ 8 DOUBLE BAGGED REG. WET ICE PACKS TO KEEP SAMPLES AT/BELOW 4° KM HAND DEL. COOLER #8 TO UPS FOR OVERNIGHT TO SVL ON 4/26

* ALL 1,4 DIOXANE SAMPLES WERE PLACED INTO ARI COOLER ALONG W/ 6 DOUBLE BAGGED REG. WET ICE PACKS KM HAND DEL COOLER TO UPS FOR PRIORITY OVERNIGHT TO ARI IN SEATTLE (KENT) ON 4/26 AM

COLBERT SAMPLING

- 5/21/19
WEATHER P. CLOUDY 70'S
TECH. KM

FOLLOWING LOCATION WAS SAMPLED:

LOCATION SAMPLED	ID	TIME	TECH	VOC'S	COMM
CD-48C3	CD-48C3	1905 21	1020	KM	X	*1

*1 PUMP FAILURE DURING SAMPLE RD (ANNUAL) LAST MONTH. KM/GF REPLACED PUMP 5/20/19 RAN FOR 2 HOURS. ~~RE~~.

MT ADDED THIS SAMPLE TO COLRES SAMPLES BEING SHIP IN COOLER #21 WITH SEPARATE COC'S

COLBERT QT WATERLEVELS

7-15-2019 (MONDAY)
WEATHER: P.CLOUDY → CLOUDY COOL MID-60S
TECH: MT/KM

- ALL QT WATERLEVELS WERE TAKEN ALL BUT RES. WELLS.

COLBERT QT SAMPLING
"JULY 2019"

DATE: 7/16/2019 (TUES)
WEATHER: ~~PEP~~ CLOUDY 60S/70S
TECHS: MT/GF/KM

THE FOLLOWING LOCATIONS WERE SAMPLED:

LOCATION	SAMPLE ID	TIME	TECH	VOCS	COMM
CP-S1	CP-S1-190716	0900	MT/KM	*	MS/MSD
CP-S4	CP-S4-190716	0930	MT/KM	*	
CP-S5	CPS5-190716	0945	MT/KM	*	
CP-S6	CP-S6-190716	1000	MT/KM	*	
CP-E1	CP-E1-190716	1025	MT/KM	*	
CP-E2	CP-E2-190716	1150	MT/KM	*	
CP-E3	CP-E3-190716	1045	MT/KM	*	
CP-W1	CP-W1-190716	1105	MT/KM	*	
CP-W2	CP-W2-190716	1125	MT/KM	*	DUPE HERE
"DUPE	CD-50-190716	1200	MT/KM	*	DUPE (1)
CP-W3	CP-W3-190716	1140	MT/KM	*	
CD-49	CD-49-190716	0955	GF	*	
CD-43C1	CD-43C1-190716	1033	GF	*	
TRIPS	COLBERT TRIPS (2)				

*ALL SAMPLE HELD OVERNIGHT IN REFER @ COLBERT.

GF WENT OUT FINISHED QT WL W/RES.

7-17-19 (WED)
TECH: MT/GF

* MT/GF PACKED SAMPLES INTO COOLER #115 ALONG W/ 8 DOUBLE BAGGED REG. WET ICE PACKS TO KEEP SAMPLES AT/BELOW 4°C. GF HAND DEL. COOLER #115 TO UPS FOR OVERNIGHT TO ANATEK LAB IN MOSCOW ID. MT PACKED COLBERT QT & COURES SAMPLES INTO SAME COOLER WITH SEPERATE COC'S

8/29/19 (THURS)

GF/KM REPLACED PUMP IN ~~GD-4363~~ GD-4103 WHICH HAS BEEN ACTING UP FOR SOMETIME NOW. AFTER REPLACING THE PUMP GF/KM RAN FOR A WHILE AT VAR. SPEEDS FOR 45 MIN PURGING WATER THRU THE PUMP/LINES.

10/1/2019 (TUES)

* QT WL'S TAKEN BY ALL 3 TECHS

COLBERT QT
10/2019

DATE: 10/2/2019 (WED)
WEATHER: P CLOUDY MID-50'S
TECHS: M. TERRIS | K. MCCLARTY / G. FISETTE

WELL	SAMPLE ID	TECH	TIME	WL	COMM
CP-S1	CP-S1-191002	MT	0755	79.61'	MS/MSD
CP-S4	CP-S4-191002	MT	0815	NT	
CP-S5	CP-S5-191002	MT	0835	78.51'	
CP-S6	CP-S6-191002	MT	0850	86.00	
CP-E1	CP-E1-191002	KM	1109	182.99'	
CP-E2	CP-E2-191002	KM	1237	148.72	5-HR PUR
CP-E3	CP-E3-191002	KM	1022	183.21'	
CP-W1	CP-W1-191002	KM	1221	174.79'	
CP-W2	CP-W2-191002	KM	1132	170.82'	DUPE HERE
"DUPE	CD-50-191002	KM	1255		DUPE ID
CP-W3	CP-W3-191002	KM	1155	172.01'	
CD-49	CD-49-191002	GF	0916	167.02'	CONTROLLER ISSUES
CD-43C1	CD-43C1-191002	GF	1033	171.40'	"
TRIPS	COLBERT TRIPS (2)				

* MT PACKED ABOVE SAMPLES INTO COOLER #17 ALONG W/ COLRES SAMPLE WITH SEPARATE COC (WORK ORDERS) PACKED IN DOUBLE BAGGED REG. WET ICE TO KEEP SAMPLES AT/BELOW 4°C. MT HAND DEL COOLER #17 TO UPS FOR OVERNIGHT TO ANATEK LAB IN MOSCOW ID ON 10/4 AM

COLBERT QT
01/2020

DATE: 1/7/2020 (TUES)
WEATHER: P. CLOUDY 40'S
TECH: MT/KM

- ALL QT WATER LEVELS WERE TAKEN TODAY BEFORE WE START SAMPLING AM ON 1/8/2020

COLBERT QT
01/2020

DATE: 1/8/2020 (WED)
TECH: MT/KM/GF
WEATHER P. CLOUDY COOL AM MID-30'S

THE FOLLOWING LOCATIONS WERE SAMPLED:

WELL ID	SAMPLED ID	TIME	TECH	COMM
CP-S1	CP-S1-200108	0810	KM/MT	MS/MSD
CP-S4	CP-S4 200108	0830	KM/MT	✓
CP-S5	CP-S5-20D108	0845	KM/MT	✓
CP-S6	CP-S6-200108	0900	KM/MT	✓
CP-E1	CP-E1-200108	0950	KM/MT	DUPE PAIR
"DUPE	CD-50-200108	1030	KM/MT	DUPE ID
CP-E2	CP-E2-200108	1130	KM/MT	ACTUAL 1200
CP-E3	CP-E3-200108	0930	KM/MT	✓
CP-W1	CP-W1-200108	1040	KM/MT	✓
CP-W2	CP-W2-200108	1005	KM/MT	✓
CP-W3	CP-W3-200108	1105	KM/MT	✓
CD-49	CD-49-200108	0914	GF	✓
CD-43C1	CD-43C1-200108	1016	GF	✓
TRIPS	COLBERT TRIPS			

- ALL SAMPLE TAKEN ABOVE WERE PLACED INTO COOLER # 17 ALONG W/ 8 DOUBLE REG. WET ICE PACK TO TRY TO KEEP SAMPLES AT/BELOW 4°C DURING SHIPMENT. MT HAND DEL COOLER #17 TO UPS ON 1/9/2020 FOR PRIORITY OVERNIGHT TO ANATEC LAB ON 1/10/19 AM

COLBERT

5/27/2020 (WED)

- WENT TO THE STORE FOR SUPPLIES, DRIVING SOUTH ON HYW 2 SAW SOME SKID MARKS GOING ACROSS HYW TOWARD OUR COMP MONITORING WELLS, SAW CD-48CQ HAD BEEN STRUCK BY A VEHICLE. AFTER FURTHER REVIEW FOUND INDEED A VEHICLE HAD STRUCK THE WELL DOT HAD MARKED IT AND SENT A REPORT TO DEB. DG HAD BEEN TRYING TO CONTACT ME ABOUT THE WELL.

AFTER FURTHER DISCUSSION W/GF FELT THE WELL CAN BE REPAIRED.

*FIXING IT ON 6/11/2020 (THURS)

WILL HAVE TO DELAY SAMPLING UNTL AFTER THAT DATE. AUSTIN HAS BEEN NOTIFIED. TO LET DOE KNOW

6/1/2020 (MON)

ALL QT WATER LEVELS HAVE BEEN RECORDED BEFORE SAMPLE EVENT (COLBERT ANNUAL)

COLBERT ANNUAL

→ SAMPLE ROUND HAS BEEN DELAY SINCE 4/2020 → 6/2020

6/2/2020 (TUES)
TECHS: MT/KM/GF
WEATHER: P. CLOUDY 60'S → 70'S

THE FOLLOWING WELLS HAVE BEEN SAMPLED:

WELL	SAMPLE ID	TIME	TECH	VOC'S	COMM
CD-31A1	CD-31A1-200602	1046	GF	X	
CD-34A1	CD-34A1-200602	0951	GF	X	
CD-36A1	CD-36A1-200602	1216	GF	X	(NEED) BOLTS(NEW
CD-37A1	CD-37A1-200602	1301	GF	X	
CD-38A1	CD-38A1-200602	1435	GF	X	
CD-43C1	CD-43C1-200602	0850	MT/KM	X	NO ISSUES
CD-43C2	CD-43C2-200602	0940	MT/KM	X	NO ISSUES
CD-43C3	CD-43C3-200602	0950	MT/KM	X	NO ISSUES
CD-42C1	CD-42C1 → NO SAMPLE	PUMP FAILURE			NO SAMPLE
CD-42C2	CD-42C2-200602	1055	MT/KM	X	2.1 GPM MA
CD-42C3	CD-42C3-200602	1115	MT/KM	X	2.4 GPM MA
CD-41C1	CD-41C1-200602	1130	MT/KM	X	NO ISSUES
CD-41C2	CD-41C2-200602	1230	MT/KM	X	2.5 GPM MA
CD-41C3	CD-41C3-200602	1220	MT/KM	X	NO ISSUES
CD-48C1	CD-48C1-200602	1310	MT/KM	X	340 MAX
CD-48C2	NO SAMPLE HIT BY VEHICLE				
CD-48C3	PUMP FAILURE NO SAMPLE (PUMP NEED REPLACED)				2.4 GPM
CD-49	CD-49-200602	1430	MT		NO ISSUES

* ALL VOC'S SAMPLE HELD IN REFER @ COLBERT TO BE SHIPPED 6/4/20 AS A BATCH.

COLBERT ANNUAL (CONT)

DATE: 6/3/2020
TECH: MT | KM | GF
WEATHER: SLI CLOUDY TO MOSTLY 50S | 60S

THE FOLLOWING LOCATIONS WERE SAMPLED:

LOCATION	SAMPLE ID	TIME	TECH	VOC	1,4 DIOX	COMM
CD-44C1	CD-44C1-200603	1030	MT	X		0.23 GPM
CD-44C2	CD-442C-200603	1005	MT	X		2.5 GPM
CD-44C3	CD-44C3-200603	0940	MT	X		2.6 GPM
CD-45C1	CD-45C1-200603	1105	MT	X		NO ISSUES
CD-45C2	CD-45C2-200603	1140	MT	X		3.0 GPM
CD-45C3	CD-45C3-200603	1145	MT	X		3.2 GPM
1073D-1	1073D-1-200603	1247	GF		X	RES WELL
1573A-1	1573A-1-200603	0931	GF	X	X	RES WELL
1473M-1	1473M-1-200603	1041	GF	X	X	MS/MSD
CD-40C1	CD-40C1-200603	1423	GF	X	X	DUPE HERE
"DUPE	CD-50-200603	1359	GF	X	X	DUPE ID
CP-S1	CP-S1-200603	0901	KM	X	X	
CP-S4	CP-S4-200603	0933	KM	X		
CP-S5	CP-S5-200603	1001	KM	X		
CP-S6	CP-S6-200603	1023	KM	X		
CP-W1	CP-W1-200603	1249	KM	X		
CP-W2	CP-W2-200603	1153	KM	X		DUPE HERE
"DUPE	CD-52-200603	1303	KM	X		DUPE ID
CD-W3	CP-W3-200603	1229	KM	X		
CP-E1	CP-E1-200603	1131	KM	X		
CP-E2	CP-E2-200603	1307	KM	X		
CP-E3	CP-E3-200603	1051	KM	X		

* ALL VOCS HELD IN FRIDGE @ COLBERT UNTIL 6/4/20

ALL 1,4 DIOXANE SAMPLE SAMPLE TODAY WERE PLACED INTO 2 ARI COOLERS W/ 8 DOUBLE BAG REG. WET ICE PACKS TO KEEP AT/BELOW 4°C. COC WAS PLACED INTO BOTH COOLER, TAPED AND SEALED W/ COC SEALS. KM HAND DEL COOLER TO UPS FOR PRIORITY OVERNIGHT TO ARI IN SEATTLE WA 6/4/2020

COLBERT ANNUAL
6/2020 (CONT.)

DATE: 6/4/2020 (THURS)
WEATHER: FAIR → P. CLOUDY 60'S
TECH'S MT / KM / GF

THE FOLLOWING LOCATIONS WERE SAMPLED:

LOCATION	SAMPLE ID	TIME	TECH	VOCS	TOC/COD AMM	CONV.	METAL	COMM
CP-S3	CP-S3-200604	1025	KM	X				
CD-03A1	CD-03A1-200604	1028	GF	X	X	X	X	PUMP-RED
CS-04A1	CS-04A1-200604	1211	GF	X	X	X	X	
CD-60A1	CD-60A1-200604	0930	MT	X	X	X	X	DUPE HERE
"DUPE	CD-51-200604	1000	MT	X	X	X	X	DUPE ID
CD-61A1	CD-61A1-200604	1015	MT	X	X	X	X	MS/MSD

* ALL VOCS TAKEN THE LAST 3 DAYS WERE PLACED INTO COOLER #19 ALONG W/ 8 DOUBLE BAG. REG. WET ICE PACKS TO KEEP SAMPLES AT/BELOW 4°C. COC WAS PLACED IN COOLER, TAPED & SEALED W/ COC SEALS. MT HAND DEL. COOLER #19 TO UPS FOR OVERNIGHT TO ANATEK LAB ON 6/5/20 AM.

* ALL TOC/COD/AMM, CONVENTIONALS & METALS SAMPLES WERE PLACED INTO COOLER #15 ALONG W/ 8 DOUBLE BAGS OF REG. WET ICE PACKS TO KEEP SAMPLES AT/BELOW 4°C. COC WAS PLACED INTO COOLER, COOLER WAS THEN TAPED AND SEALED WITH COC SEALS. MT HAND DEL COOLER #15 TO UPS FOR OVERNIGHT TO SVL. TO BE DEL ON 6/5/2020 AM.

6/11/2020
TECHS (MT/GF/KM) WEATHER: P. CLOUD 60'S

- REPAIRED CD-48C2 MONUMENT HIT BY CAR OFF OF HIGHWAY. INSTALLED NEW 6' ALL CASING / NEW CONCRETE PAD.

PUMP REPLACEMENTS

6/18/2020
TECHS MT | GF | KM

- REPLACED PUMPS IN CD-48C2 & CD-48C3 AFTER REPLACING PUMPS BOTH WELLS WERE PURGED FOR 2 HOURS APIECE.

* MT WILL HAVE TO ORDER NEW PUMPS AS BACK-UPS

4/26/19 CONT.

- GAS FAN WAS TURNED OFF DID SEMI-ANNUAL MAINT. CLEANED BEARING EXTRA GREASE OFF. REGREASED BEARING TO NORMAL MOTOR BEARINGS GREASED CLEANED BELT ✓ TENSION & WEAR TENSION @ 5.5 lbs. A LITTLE WEAR IN BELT WAS OBSERVED.

* Ø COND IN EFF LINE

* KNOCKOUT @ 5 RESET TO Ø
* TANK LEVELS 2.75-3.00" IS 9.5
* ✓ SUMPS IN LINE OK.

5/1/2019 (WED)

- GAS FLOW 55CFM @ 17.9°C Ø COND

5/10/2019 (FRI)

- GAS FLOW 56 CFM @ 20.0°C Ø COND
  GREASE BEARING ON GAS FAN - NOISE

*5/1/19 CALLED DAVE BERTO FOR SCHEDULING OF MARKERS ON SITE, ALLEN BERRY CALLED WILL SCHEDULE. (NEED MAP)

5/15/19 PROCARE ON SITE TO SPRAY ROADS

5/16/19
- GAS FLOW 55CFM @ 19.7°C Ø

COLGAS PROBES

5/20/2019 (MON) FAN HR. 34904
GAS FLOW: 56 CFM @ 14.8°
~~SE~~ WEATHER: P.CLOUDY 60S NE W.ND 10-15 MPH
B. PRESS 30.00V

GAS CALIB. HAD TO RESET TO FACTORY SETTINGS THEN CALIB METER.

ZERO CH_4 TO AB AIR → CALGAS → CH_4 READING 14.1% CALIB TO 15.0%; CO_2 READING 14.4% CALB TO 15.0%; ZEROED O_2 TO CALGAS → O_2 READI 20.1% CALIB TO 20.9%

MT SAMPLED @ ALL 21 GP LOCATION ON SITE + 4 GAS EXTRACTION LOCATION; FOR %CH_4, %CO_2; O_2 & PRESSURE. ALL READINGS ARE IN NORMAL RANGE. NOTHING OUT OF THE ORDINARY WAS OBSERVED NO ADJUSTMENT WERE MADE.

- MAINT ON GAS FAN GREASED BEARING
- KNOCKOUT @ Ø
- NO COND IN GAS LINE
- TANK LEVELS AT 2-50"-2.75" IS 9.5"

6-5-2019 (WED)

- GAS FLOW 53CFM @ 20.5° Ø (COND).

6-14-19 (FRI)

- GAS FLOW 53CFM @ 21.7°C Ø

6-21-19 (FRI)

- GAS FLOW 52CFM @ 18.7°C Ø

MONTHLY GAS PROBES
6/2019

6/26/2019 (WED)
TECH: M. TERRIS WEATHER P-CLOUDY 70'S BP 30.01N
GAS FLOW 59 CFM GAS TEMP 25.1°C
FAN HR.: 35772 GEM 500 #410

GAS CALIBRATION:
ZEROED CH4 AB AIR → CALGAS CH4 READING 14.5 CALIB TO 15.0%; CO_2 READING 14.7% CALIB TO 15.0%; ZEROED O_2 TO CALGAS → O_2 READING 21.1% CALIB. TO AB AIR 20.9%

- MT SAMPLED ALL 21 GP LOCATIONS + 4 GAS EXTRACTION LOCATIONS. NOTHING OUT OF THE ORDINARY WAS OBSERVED ALL READING ARE IN THE NORMAL RANGE SO NO ADJUSTMENTS WERE MADE. ALL LOOKS GREAT!!

- GAS FAN MAINT CLEANED / GREASED MOTOR BEARINGS / SHAFT BEARINGS / NEVORS BELT TENSION @ 6 lbs
- ✓ SUMPS TRAPS
- COND TANK LEVELS @ 2.75" 1S 9.5"

7-10-19 (wed)

- Gas flow 53 cfm @ 19.4°c ϕ Cond.

7-19-19 (Fri)

- Gas flow 56 cfm @ 21.7°c ϕ Cond

7-23-19 (Tues)

- Work on Back Hoe today fixing landfill roads filling holes smoothing out roads ~~PM~~ AM only

7-24-19 (Wed)

- Back Hoe work today roads / parking lot

7-25-19 (Thurs)

- Backhoe work pimple / depression next to it. filled in depression / scrapped pimple for seeding purposes.

- Mark w/ ~~stakes~~ stakes surv. markers

- Gas RD

GAS RD.
7/2019

7/25/2019 (THURS) WEATHER SU CLOUDY 80'S
GAS flow 58 cfm @ 22.7°C FAN HR 36485
GEM 500 #410 TECH MT.

CAL GAS: ZEROED CH_4 TO AB AIR CALGAS → CH_4 READING 14.9% CALIB TO 15.0%, CO_2 READING 14.7% CALIB. TO 15.%; ZEROED O_2 TO CALGAS → O_2 READING 20.5% CALIB TO 20.9%

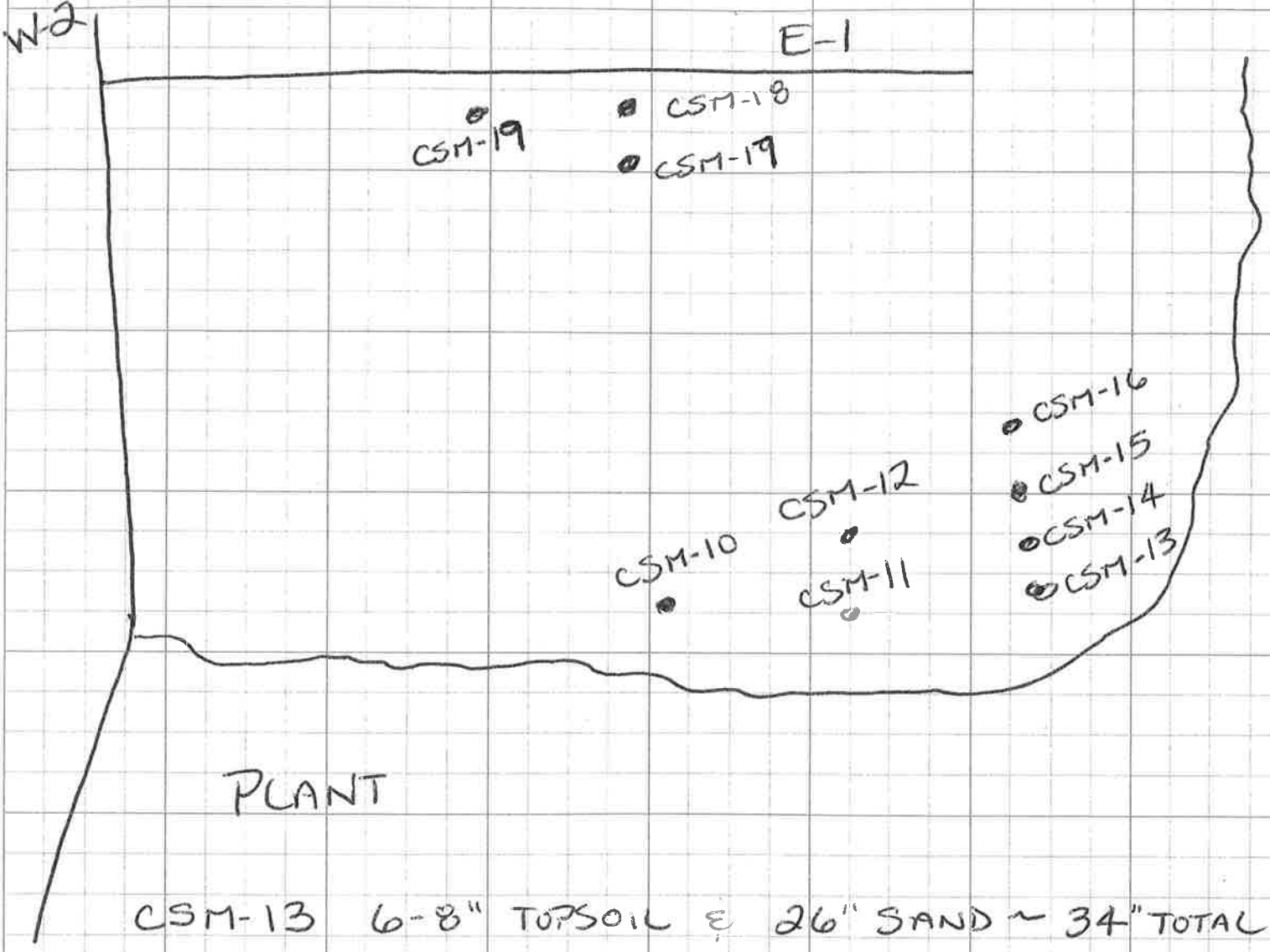
- MT SAMPLED ALL 4 GAS EXTRACTION GAS PORTS + 21 GAS PROBE LOCATIONS ON SITE PER OUR REQUIREMENTS. ALL READING ARE IN NORMAL RANGES NO ADJUSTMENT WERE MAIKE. DRIVING AROUND LANDFILL ALL IS NORMAL.

- GAS FAN MAINT 45lbs BELT GREASED
- COND TANK LEVELS 2.5" TO 9.5"
- MARKED FOR SURVEY MARKERS
- KNOCKOUT @ Ø NO COND IN EFF GAS LINE
- BACK HOE WORK ON SITE / PIMPLE

7/30/2019 (TUES) WEATHER CLEAR/WARM
70'S AM; UPPER 80'S PM

TECHS: MT / GF / KM / AS

-ON SITE TO PLACE SETTLEMENT MARKERS WHERE SETTLEMENT SEEMS TO BE AN ISSUE.



CSM-13 6-8" TOPSOIL & 26" SAND ~ 34" TOTAL

CSM-10, 11, 12, 14, 15, 16, 17, 18 & 19
6" TOPSOIL 18~20" SAND APPROX 24-26" DEEP.

7/31/2019

- CALLED ALLEN BARRY W/ DAVE BERTOS GROUP TO SCHEDULE SURVEY

8/22/2019 (THURS)

- MT PLACED A 1/2 YARD A GRAVEL AROUND EACH SETTLEMENT MARKER TO LEVEL @ SURFACE + TO KEEP VEGITATION FROM GROWING UP AROUND MARKER.

COLBERT MONTHLY GAS SAMPLING
TR / PROBES

DATE: 8/23/2019 (FRI)
WEATHER: P.C. 60S → 70S LT WIND
B. PRESSURE 30.01 ↓ GEM 500 #410
FAN FLOW 52 CFM GAS TEMP 21.7°F
FAN HRS: 37156

* MT SAMPLED FROM THE FOLLOWING LOCATION

LOCATIONS	%CH4	%CO2	%O2	FLOW	PRESS.	TEMP
13 TR'S	X	X	X	X	X	X
21 GP'S	X	X	X		X	
4 EXTRACTION	X	X	X		X	

MT SAMPLE A EACH LOCATION ABOVE PARAMETERS NOTED. FOLLOWED NORMAL PROTCOL AT EACH LOCATION. ALL READING ARE IN NORMAL RANGE AND NOTHING OUT OF THE ORDINARY WAS OBSERVED NO ADJUSTMENT WERE MADE ALL LOOKS GOOD

- MONTHLY MAINT PERFORMED ON GAS FAN BELT TENSION @ 5 lbs GREESED ALL BEARING

- KNOCKOUT TANK @ Ø
- COND TANKS @ 2.75" IS @ 9"

8/2/19

GAS FLOW 56 CFM 22.9°C

8/9/19

GAS FLOW 55 CFM @ 21.9°C ∅ (CONT)

8/15/19

GAS FLOW 57 CFM @ 22.9°C ∅ CONT

8/29/19

GAS FLOW @ 57 CFM @ 21.7°C ∅ (CONT)

- TO-15 SAMPLED ; SHIP TODAY

IN. PRESS	END PRESS
1050	1145
28.8	∅

eurofins | Air Toxics

FIELD SAMPLE I.D. #: CGI-003-190829
CLIENT NAME: SPOKANE COUNTY
PROJECT: COLBENT
SAMPLERS NAME: M. TERRIS
DATE: 8/29/2019 TIME: 1100
CANISTER #: N0892
COMMENTS:
ANALYSES: TO-15

IN. PRESS	END PRESS
28.2	∅

eurofins | Air Toxics

FIELD SAMPLE I.D. #: CGE-DO1-190829
CLIENT NAME: SPOKANE COUNTY
PROJECT: COLBENT
SAMPLERS NAME: M. TERRIS
DATE: 8/29/2019 TIME: 1105
CANISTER #: N1850
COMMENTS:
ANALYSES: TO-15

COLBERT GAS PROBES

9/6/2019 (FRI) TECHI M. TERRIS
WEATHER: CLOUDY A FEW SHOWER IN AREA
B.P. 30.08 GEM 500 #410
GAS FAN FLOW 55 CFM @ 20.5°C
FAN HR: 37492

GAS CALIBRATION:
ZEROED CH_4 TO AB AIR → CALGAS → CH_4 READS 14.7% CALIB TO 15.0% IN BOTTLE; CO_2 READING 14.9% CALIB TO 15.0% IN BOTTLE; ZEROED O_2 TO CALGAS → O_2 READ 20.6% CALIB TO 20.9% AB AIR.

MT SAMPLED ALL 21 COLBERT LANDFILL GAS PROBES PERIMETER & INTERIOR PLUS THE 4 GAS EXTRACTION LOCATIONS. ALL READING ARE IN NORMA RANGE. SO NO ADJUSTMENTS NEEDED TO BE MADE. NOTHING OUT OF THE ORDINARY WAS OBSERVED

- MONTHLY GAS FAN MAINT PERFORMED AS NORMAL PROTOCOL
  ✓ BELT; HAS A LITTLE WEAR TENSION WAS @ 5 lbs.

- KNOCK OUT @ Ø
- COND TANK STILL LOW 2.5-2.75" IS 9.5"

* MT ADDED TOPSOIL TO PITCHER MOUND (EX PIMPLE) ON COLBERT LANDFILL TRYING TO GET VEG. TO GROW

9/13/19

* GAS FLOW 52 CFM @ 19.7°C ∅ COND

9/20/19

* GAS FLOW 51 CFM @ 18.9°C ∅ COND IN LINE

9/27/19

* GAS FLOW 52 CFM @ 18.6°C ∅ COND IN LINE

10/4/19

* GAS FLOW 54 CFM @ 19.7°C ∅ COND IN LINE

10/10/19 KM

* GAS FLOW 55 CFM @ 20.7°C ∅ COND IN LINE

10/16/19 KM

* GAS FLOW 56 CFM @ 21.2°C ∅ COND IN LINE

10/23/19 - SURVEY CREW ON SITE TO DO ANNUAL SURVEY WITH OLD & NEW MARKERS

MONTHLY GP

10/23/19 (WED) WEATHER P. CLOUDY 50'S
TECH: MT GEM 500 #410
GAS FAN HR: 38644 GAS FLOW: 52 CFM
GAS TEMP 20.9°C B.P 30.01↓

GAS CALIBRATION ZEROED CH4 TO AB AIR → CALGAS → CH4 READING 14.8% CALIB TO 15.0%; CO2 READING 14.9% CALIB TO 15.0% ZEROED O2 TO CALGAS → O2 READING 20.6 CALIB TO 20.9%

MT SAMPLED ALL 21 COLBERT GAS PROBE LOCATION + 4 GAS EXTRACTION LOCATIONS. ALL READINGS ARE IN THEIR NORMAL RANGE SO NO ADJUSTMENTS WERE MADE TO THE SYSTEM. MT FOLLOWED NORMAL PROTOCOL WHILE SAMPLING AT EACH LOCATION. NOTHING OUT OF THE ORDINARY WAS OBSERVED.

- GAS FAN MONTHLY MAINT.
  - ✓ BELTS TENSION @ 5 lbs w/ LITTLE WEAR SHOWING
  - GREASED BEARINGS
- ✓ COND LINE 4 GAL
- ✓ COND KNOCKOUT COUNTY @ Ø
- ✓ COND TANK NE CORNER 253" ON COW IS 9.5'

10/29/19

- SURVEY BACK OUT TO ✓ READINGS

11/1/19 (FRI)
- WEEKLY GAS FLOW 51 CFM @ 15.9°C 2 GAL IN

11/8/19 (FRI)
- WEEKLY GAS FLOW 51 CFM @ 11.1°C 6 GAL IN LINE

11/15/19 (FRI)
WEEK GAS FLOW READING
GAS FLOW 52 CFM @ 10.3°C 2 GAL IN EFF GASLINE

COLBERT GAS RD
11/18/2019 (MON) WEATHER: CLOUDY/SHOWERS 40S
TECH: MT GEM 500 #410 FAN HR. 39251
GAS FLOW 52 CFM @ 10.1°C B.P 29.91 S

GAS CALIB: ZEROED CH_4 TO AB AIR → CALGAS → CH_4 READING 14.9% CALIB TO 15.0%; CO_2 READING 14.8% CALIB TO 15.0% ZEROED O_2 TO CALGAS → O_2 READING 20.6% @ AB AIR CALIB TO 20.9%

MT SAMPLED:

LOCATION	%CH_4	%CO_2	%O_2	FLOW	PRESS	TEMP
13 TRS	X	X	X	X	X	X
21 GP'S	X	X	X	X		
4 EXTRACTION	X	X	X	X		X

MT SAMPLED @ EACH LOCATION ABOVE. MT TWEAKED THE SYSTEM ABITE TO ADJUST TO DIFFERENT TEMP IN ATMOSPHERE CRANKED TR-3 BACK A 1/4 TURN BEAUSE OF ALITTE MORE O_2, OPENED TR-8 & TR-10 1/4 TURN ~~MORE~~ HIGHER CH_4 READING. OTHER THAN THOSE 3 CHANGES ALL READING ARE IN NORMAL RANGE AND NO OTHER ADJSTMENTS WERE MADE. MT FOLLOW NORMAL PROTOCOL

- ✓ FAN DID NORMAL MONTHLY MAINT. ON FAN
- KNOCKOUT @ Ø
- 3 GAL IN EFF. GAS LINE

11/27/19 (WED)
* GAS FLOW 53 CFM @ 11.1°C Ø COND

12/6/19 (FRI)

* GAS FLOW THIS MORNING 52 CFM @ 10.1°C 6 GAL

COLBERT GAS RD

12/10/19 (TUES) GAS FLOW 51 CFM @ 10.5°C
FAN HRS 39779 GEM500 #410
BP 29.99↓ WEATHER CLOUDY MID-30S
KNOCKOUT @ 1 RESET TO Ø

- MT SAMPLED ALL 21 GAS PROBE LOCATIONS + 4 GAS EXTRACTION LOCATIONS ALL READING ARE IN THE NORMAL RANGE, SO, NO ADJUSTMENTS WERE MADE. DRIVING AROUND LANDFILL NOTHING OUT OF THE ORDINARY WAS OBSERVED

- TANK LEVELS @ 2.60" TO 9.5"
- √ SUMP PUMP RUNNING
- MONTHLY MAINT ON GAS FAN
  BELT TENSION OK + GREASED FAN

12/20/19 (FRI)

- GAS FLOW READING 51 CFM @ 9.9°C 1 GAL (COND)

12/26/19 (THURS)
- GAS FAN FLOW 51 CFM @ 11.1°C 2 GAL (COND)

1/10/2020 (FRI)

- GAS FLOW 51 CFM @ 10.2°C Ø COND

1/17/2020 (FRI)

- GAS FLOW 51 CFM @ 9.9°C Ø COND.

1/24/2020 (FRI)

- GAS FLOW 51-54 CFM @ 10.9°C Ø COND

COLBERT GAS PROBES
"1/2020"

DATE: 1/30/2020
WEATHER P.C. 40S BP 30.05 ↓ GEM 500 #410
GAS FLOW 54 CFM GAS TEMP 109°C FAN HR 41003

GAS CALIBRATION:
ZEROED CH_4 TO AB AIR → CALGAS → CH_4 READ 15.0%
NO CAL NEED; CO_2 READING 14.7°C CALIB. TO 15.0%;
O_2 0.1% ZEROED USING CALGAS → O_2 READING
21% @ AB AIR CALIB. TO 20.9%

- MT SAMPLED ALL 21 GP LOCATIONS ON SITE + 4 GAS EXTRACTION LOCATIONS ON GAS SYSTEM. MT DOWNLOADED MONTHLY REPORT AFTER ENTERING INTO DB. ALL READING ARE WITHIN NORMAL RANGE NO ADJUSTMENTS WERE MADE. MT DROVE (MICA) TRAC 4 WHEELER AROUND ✓ ON SITE ALOT OF STANDING WATER IN PLACES.

- TANK LEVEL ✓ 2.50-2.60" IN TANK @ 9.5" IS.
- MONTHLY MAINT ON GAS FAN 5.5 lbs TENSION
- KNOCK-OUT @ 1 RESET TO Ø

* SPECIAL NOTE NEED TO TALK W/ GROUP ABOUT (LAKE COLBERT) SE CORNER A LOT OF STANDING WATER & NEW SETTLEMENT MARKER UNDER WATER!! STAY TUNE

2/7/2020 (FRI)

- GAS FLOW 54 CFM 10.9°C

2/13/20 (THURS)

- GAS FLOW 54 CFM @ 10.9°C

2/21/2020 (FRI)
GAS TEMP 11.1°C
BP 30.01 S
KNOCKOUT WAS @ Ø
HEAT TRACE IS

GAS ROUND
GAS FLOW 52-54 CFM
FAN HRS 41524
WEATHER: P.CLOUDY LOW 40'S
NO COND IN EFF LINE
STILL ON

MT SAMPLED ALL 21 GP LOCATION + 4 GAS EXTRACTION LOCATIONS FOR %CH4, %CO2, %O2 & PRESSURE. ALL READING ARE IN NORMAL RANGE, NO ADJUSTMENTS WERE MADE. NOTHING OUT OF THE ORDINARY WAS OBSERVED DURING SAMPLING.

✓ LEVEL ✓ SE CORNER TANK
8.75" COND LEVEL @ 9.5 IS.

- MONTHLY GAS FAN MAINT. BELT/GREASE

2/24/2020

MT SAMPLED FROM COLBERT-UNIT3 A PROFILLE. BAGGING UP 2-1GAL ZIP LOCK BAGGIES WITH TITE ID COLBERT-UNIT3 TIME & LAB ANALYSIS. FOR A PROFILE. ONCE WE GET RESULTS WE WILL NEED TO ORDER A CLEAN OUT OF UNITS #3 & #1 WERE ARE BOTH SPENT. UNITS #2 & #4 ARE CLEAN AND ARE ON LINE 1 OPEN USING (#4) AND UNIT 2 IS ON LINE VALVES CLOSED

VOQUA WATER TECHNOLOGIES

CHAIN OF CUSTODY RECORD

Activated Carbon Laboratory
5375 South Boyle Ave., Los Angeles, CA 90058
Phone: (323) 277-3083
Fax: (323-277-3080

Page 1 Of 1

GENERATOR: COLBERT LANDFILL
SITE ADDRESS: SPOKANE COUNTY 22515 N. ELK-CHATTAROY RD COLBERT, WA 99005
ACCOUNT MANAGER: Jacquie Burgard

CONSULTANT: None
PHONE: 509-238-6607
FAX:
EMAIL: mterrise SPOKANE COUNTY. GOV
SAMPLER: MIKE TERRIS

ANALYSES REQUESTED: TCLP (1311 and 8260B); EPA 8260B; 11 RCRA; Metals (Specify); VM / XM

SPECIAL HANDLING: Same Day Rush; 24 Hour Rush; 48-72 Hour Rush; 4 - 5 Day Rush; Rush Extractions; (10 - 15 Business Days); other (specify)

Method of Shipment:

ID# (For lab Use Only)	DATE SAMPLED	TIME SAMPLED	SMPL TYPE	SAMPLE IDENTIFICATION/SITE LOCATION	# OF CONT.	TCLP (1311 and 8260B)	EPA 8260B	11 RCRA	Metals (Specify)	VM / XM	COMMENTS
	2/24/20	1000	V	COLBERT-UNIT3	2	x	x				W90167AC

RELINQUISHED BY	DATE / TIME	RECEIVED BY
[signature]	2/25/20 1000	
RELINQUISHED BY	DATE / TIME	RECEIVED BY
RELINQUISHED BY	DATE / TIME	RECEIVED BY
RELINQUISHED BY	DATE / TIME	RECEIVED BY

SAMPLE CONDITION:
Actual Temperature:
Received On Ice Y / N
Preserved Y / N
Evidence Seals Present Y / N
Container Attacked Y / N
Preserved at Lab Y / N

SAMPLE TYPE CODE:
AQ=Aqueous
NA= Non Aqueous
SL = Sludge
DW = Drinking Water
WW = Waste Water
RW = Rain Water
GW = Ground Water
SO = Soil
SW = Solid Waste
OL = Oil
GAC = Carbon

PRESCHEDULED RUSH ANALYSES WILL TAKE PRIORITY OVER UNSCHEDULED RUSH REQUESTS

SPECIAL REQUIREMENTS / BILLING INFORMATION

2/26/2020 (WED)

- GAS FLOW 53 CFM @ 11.3% @ CON.

- MT DID QT GAS FAN MAINT
  * REMOVED ALL GUARD CLEANED EX GREASE FROM BEARINGS CLEANED UNIT.
  * REMOVED GUARD BACK OF MOTOR FAN TO GREASE / CLEAN MOTOR BEARINGS.
  * CLEANED ALL GUARDS
  * V BELT FOR WEAR & TENSON @ 5lbs STILL OK
  * REPLACED GUARDS TURN MOTOR BACK ON GREASED ALL BEARINGS.

< SOUNDS AND RONNING GREAT.

COLBERT GAS

PROBES / EXTRACTION SYSTEM

3/6/2020 (FRI) TECH: M. TERRIS
WEATHER: P. CLOUDY MID-40S BP @30.01↓
GAS FLOW 56 CFM 11.2°C TEMP
FAN HR: 41861

GAS CALIBRATION:
ZERO CH_4 AB AIR → CALGAS → CH_4 READING 14.9% CAL TO 15.0%; CO_2 READING 14.9% CALIB TO 15.0%; ZEROED O_2 TO CALGAS → O_2 READING 20.8% AB AIR CALIB TO 20.9%

* MT TOOK READING (GAS) FROM ALL 4 GAS EXTRACTION LOCATION AND 2 INT. & EXT GAS PROBES FOR %CH_4, %CO_2 %O_2 AND PRESSURE. ALL READING ARE IN NORMAL RANGE NO ADJUSTMENT WERE MADE DURING MY DRIVE AROUND COLBERT LANDFILL NOTHING WAS OUT OF THE ORDINARY

- GAS FAN MAINT ✓ BEARING / BELT 5 LBS BELT OK
- TANK LEVELS 25" IS 9.5"
- KNOCKOUT @ Ø

3/13/2020 GAS FLOW 54 CFM @ 11.0°C 50S

3/20/2020 (FRI) GAS FLOW 52 CFM @ 12.1°C 50S

3/26/2020 (THURS) GAS FLOW 54 CFM @ 11.7°C 50S

4/3/2020 (FRI) GAS FLOW 52 CFM 11.1°C PM

4/10/2020 (FRI) GAS FLOW 54 CFM 11.9°C AM

4/24/2020 (FRI) GAS FLOW 56 CFM @ 12.7°C PM

COLBERT GAS MONITORING

DATE: 4/24/2020 (FRI)
TECH: M. TERRIS GAS FLOW 54 CFM 12.9°C
GEM 500 #410 B.P 29.98 ↑
WEATHER P. CLOUDY LOW 60'S FAN HR. 43038

GAS CALIBRATION

ZEROED CH_4 TO AB AIR → CALGAS → CH_4 READING
1.48% CALIB TO 15.0% ; CO_2 READING
1.49% CALB TO 15.0% ; ZEROED O_2 CALGAS →
O_2 READING 20.6% AB AIR CALIB. TO 20.9%

GAS READINGS

LOCATION	%CH_4	%CO_2	%O_2	PRES	FLOW	TEMP
13 TR	*	*	*	*	*	*
4 EXTRACTION	*	*	*	*		
21 GP	*	*	*	*		

MT TOOK READING AT ALL LOCATION ABOVE ALL READING ARE IN NORMAL RANGE. NO ADJUSTMENTS WERE MADE. NOTHING OUT OF THE ORDINARY WAS OBSERVED. AFTER DRIVING AROUND LANDFILL NOTICED SOME MAINTAINCE THINGS THAT WILL NEED ADDRESSED THIS SPRING/SUMMER/FALL

- INSULATION ON GAS SYSTEM
- GREEN LID REPAIRS
- ROAD REPAIR
- FENCE REPAIR

MONTHLY MAINT

- GAS FAN MAINT
  - BELT TENSION @ 5 LBS
  - GREASED ALL BEARING
- TANK LEVELS 2.5' IS 9.5" HOLD LIKE NORMAL
- KNOCKOUT @ GP

4/8/2020
RECEIVED PROFILE FROM CARBON UNIT 3

5/1/2020 (FRI)

* GAS FLOW WEEKLY 52 CFM @ 11.9°C

5/8/2020 (FRI)
* GAS FLOW WEEKLY 54 CFM @ 12.1°C

COLBERT MONTHLY GP

5/15/2020 (FRI) GEM 500 #410
TECH: M. TERRIS GAS FLOW 55 CFM GAS TEMP: 13.1°C
B. PRESS 30.01↓ WEATHER: P. CLOUDY UPPER 50'S LOW 60'S
FAN HRS: 43537

GAS CALIBRATION:
ZEROED CH_4 TO AB AIR → CALGAS → CH_4 READING 14.9% CALIB TO 15.0%; CO_2 READING 15.1% CALIB. TO 15.0%; ZEROED O_2 TO CALGAS → O_2 READING 20.6% CALIB. TO 20.9% AB AIR.

MT SAMPLED ALL 4 GAS EXTRACTION LOCATION AND 21 GAS PROBE LOCATION FOR %CH_4, %CO_2, %O_2 & PRESSURE. ALL READINGS ARE IN NORMAL RANGE, NO ADJUSTMENTS WERE MADE TO SYSTEM. NOTHING OUT OF THE ORDINARY WAS OBSERVED ON SITE. MT DID PULL SAPLING OFF OF LANDFILL WHILE DRIVING AROUND ON 4-WHEELER.

MONTHLY MAINT. PERFORMED ON LANDFILL:

- GAS FAN MAINT.
  * BELT TENSION NOTED 5 LBS TENSION WEAR ON BELT OBSERVED
  * GREASED ALL PORTS.

- TANK LEVELS 2.5" @ 9.5" HOLDING LIKE NORMAL
- KNOCKOUT @ Ø
- √ SUMPS

5/22/2020 (CFRI)

- GAS FLOW 54 CFM @ 12.9°C

5/26/2020 (CTVES)

- GAS FLOW READING 56 CFM @ 13.1°C

6/5/2020 (CFRI)

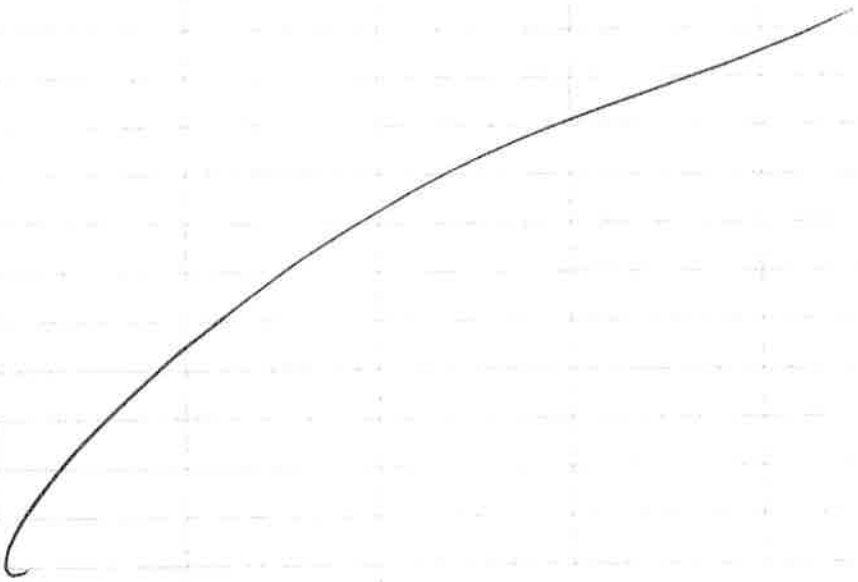
- GAS FLOW READING 56 CFM @ 12.1°C

6/12/2020 (CFRI)

- GAS FLOW READING 55 CFM @ ~~21.1°C~~ 19.1°C

6/19/2020 (CFRI)

- GAS FLOW READING 57 CFM @ 21.1°C



COLBERT GAS MONITORING

"@ JUNE 2020"

DATE: 6/25/2020 (THURS)
WEATHER: SU CLOUDY 80S (WARM)
TECH: M. TERRIS B.P. 30.10↑ FAN HR: 44495
GEM 500 #410 GAS FLOW 59 CFM GAS TEMP: 23.1C

GAS CALIB: ZEROED CH_4 TO AB AIR → CALGAS
CH_4 READING 14.7% CALIB TO 15.0%;
CO_2 READING 14.8% CALIB TO 15.0%;
ZEROED O_2 TO CALGAS → O_2 READING
20.6% AB AIR, CALIB TO 20.9% AB AIR.

- MT SAMPLED ALL 4 GAS EXTRACTION LOCATIONS + 21 GAS PROBE LOCATIONS FOR %CH_4, %CO_2, %O_2 AND PRESSURE. ALL READING ARE IN THE NORMAL RANGE SO NO ADJUSTMENT WERE MADE TO GAS SYSTEM. NOTHING OUT THE ORDINARY WAS OBSERVED ON SIDE. POLLED SAPLING ON COVER.

- MONTHLY GAS MAINT. PERFORMED!
  - KNOCK OUT @ 2 RESET TO 0
  - SET BEE TRAPS
  - GAS FAN MAINT.
    - ✓ BELT OK TENSION @ 5 lbs
    - ✓ ? GREASED ALL BEARINGS
  - TANK LEVELS 2.5" ? IS SPACE @ 9.5"

7-1-2020 (WED)

- GAS FLOW 60 CFM @ 20.1°C

7-10-2020 (FRI)

* GAS FLOW WEEKLY READING ~ 57 CFM
GAS TEMP @ 21.1°C PM

* COLBERT ANNUAL GAS ROUND *

DATE: 7-14-2020 (TUES) TECH: M. TERRIS
GAS FILE NAME: CA200714 GAS FLOW 56 CFM
GAS TEMP 23.4°C GEM 500 #410
B.P. 30.12 S WEATHER: CLEAR WARM 70°F
FAN HRS: 44658

GAS CALIBRATION:

ZEROED CH4 TO AB AIR → CALGAS →
CH4 READING 14.9% CALIB TO 15.0%;
CO2 READING 14.8% CALIB TO 15.0%;
ZEROED O2 TO CALGAS → O2 READ 20.4%
AB AIR CALIB. 20.9%.

GAS READINGS:

LOCATION	%CH4	%CO2	%O2	PRESS	FLOW	TEMP
13 TR's	X	X	X	X	X	X
4 EXTRACTION	X	X	X	X		
21 GP's	X	X	X	X		
2 MV's	X	X	X	X		
5 MS's	X	X	X	X		
5 TS's	X	X	X	X		

* MT SAMPLED AT ALL LOCATIONS ABOVE, ALL READINGS SEEM TO BE IN NORMAL RANGE
NO ADJUSTMENTS WERE MADE TO THE SYSTEM
NOTHING OUT OF THE ORDINARY WAS OBSERVED AFTER DRIVING AROUND LANDFILL

* FAN MAINT PERFORMED MONTHLY
VOLTAGE LEVELS NORMAL

7/21/2020 (Tues)

* Gas Flow weekly reading → 55 cfm
  Gas temp → 20.9°c @ 0700

7/29/2020 (Wednsday)

* Gas Flow weekly reading → 56 cfm
  Gas temp → 21.1°c @ 0910

4-26-19 (FRI)

BOTTLE FOR GA SAMPLING ORDERED

- COLBERT GAS ROUND
- COLBERT GAS FAN MAINT.
- COLBERT MONTHLY MAINT

4/30/19 (TUES)

* SAMPLED BOTH VALLEY & NORTHSIDE (COLBERT) SUMPS + SHIPPED

5/1/19 (WED)

- GPS ALL RES/MON WELLS AROUND COLBERT THAT WE DO NOT ALREADY HAVE IN DATABASE.
- GAS FAN MAINT. → TURNED OFF GAS FAN DID EXTREAME CLEAN/GREASE BEARINGS
- GAS FLOW

5/2/19 (THURS)

* MARSHALL LANDFILL W/DOE

5/3/2019

- LAWN
- PARKING LOT
- SPRING CLEANING

5/7/19
PREP GA & GA

5/8/19
- GA SAMPLING

5/9/19 (THURS)

DATA ENTRY GA / PAPERWORK FILED / DOWNLOADED)

- FIXED SPRINKLER SYSTEM.

5/10/19 PP RM MILA WORKING CLOSE W/ AUSTIN & LAB TO MAKE SURE WE HAVE ALL PRIORITY TAKEN CARE OF

- GAS FLOW
- LAWN
- GARBAGE
- OFFICE

5/14/19

- REPLACED PUMP @ CD-48C1
- FIXED BROKEN PIPE ON DEFOAMER

5/15/19

- PROCARE OUT TO SPRAY, MISCOMMUNICATION ONLY SPRAYED ROADS (NO LANDFILL) SCHEDULED ANOTHER DAY
- WORKED FIXING SIGNS FOR TRANSFER STATION

5/17/19

- BANNONS @ VALLEY / NORTH TRANSFOR STATION
- LAWN
- OFFICE
- GARBAGE
- GAS FLOW

5/20/19

RACEWAY PARK STARTED SAMPLING HAD TO CANCEL ROUND CONTROLLER ISSUES RESCHEDULE

5/21/19

- ALL SECURE LOAD BANNERS UP @ EACH SITE

- CORES SAMPLED + ~~RESAMPLE~~ SAMPLE CD-48H (NEW PUMP)

5/22/19

- PRO-CARE OUT TO FINISH JOB STERIZING LANDFILL.

- FINISHED CORES SHIPPED.

5/23/19

- GARBAGE
- OFFICE
- LAWN

VAC 5/24 - 6/4

6/5/2019

- GAS FLOW
- FIXED LIGHT BULB OUT IN PLANT
- FIXED SPRINKLER
- FIXED BOTTLE MIXUP LAB (SVL)

6/6/19

- ORDER / FINALIZED PP FOR MICA
- FIXED ALL PAPER TO REFLECT NOW PP FOR MICA

6/7/19 (FRI)

- LAWN
- PARKING LOT
- OFFICE
- GARBAGE
- SHOP

6/11/19

- RACEWAY PARK

6/12/19

PLANT MAINT.

* SUMP / CONTAINMENT AREA
* SHOWERS
* CONTROL ROOM
* PROCESS AREA
* PARKING LOT - STEAM CLEANER / POWERWASH BUILDING.

6/13/19 (THURS)

- CORES KM/GF/MT SHIPPED

- SECTION MEETING W/ KEVIN COOK

6/14/19

- CORES DATA ENTRY → FILED
- LAWN
- GAS FLOW
- OFFICE

6/15/19

PLANT O/M

* CONV. PIPE LINE MARKED VALVES EXC.

6/16/19

PLANT O/M
GW MONT. MAINT.

6/21

NORMAL FRIDAY PROTOCAL.
CLEANING OFFICE

6/27/19

TEAM DAY - ENVIRO SERV.

OFF 7/4 - 7/15

7/15/19 (MON)

- COLBERT QT WATER LEVELS

KM/MT

7/16/19

- EXTRACTION WELL SAMPLING
- CD-49
- CD-43C1

7/17/19

CORES SAMPLED GF/MT

7/18/19

DATA ENTRY → FILED

7/19/19

- LAWN
- OFFICE
- PARKING LOT
- GAS FLOW
- O/M BUILDING MAINT MONTLY (FILTER)

7/23/19 (TUES)

- GW MONUMENT MAINT.
- CAUGHT UP FIELD BOOK
- BACK HOE WORK ON SITE
  * FIXING ROADS, HOLES IN FENCE LINE
-

7/24/19

- BACK HOE WORK ON ROAD BACK NW CORNER OF LANDFILL
- DIRT PILES LEVELS & FIXED
- LANDFILL MOUND (PIMPLE) NEED TOP SOIL.
- PARKING GRAVEL LOTS WERE SNOW PLOW PILED GRAVEL (LEVELED OUT)

7-25-19 (THURS)
TECH: MT WEATHER CLEAR WARM

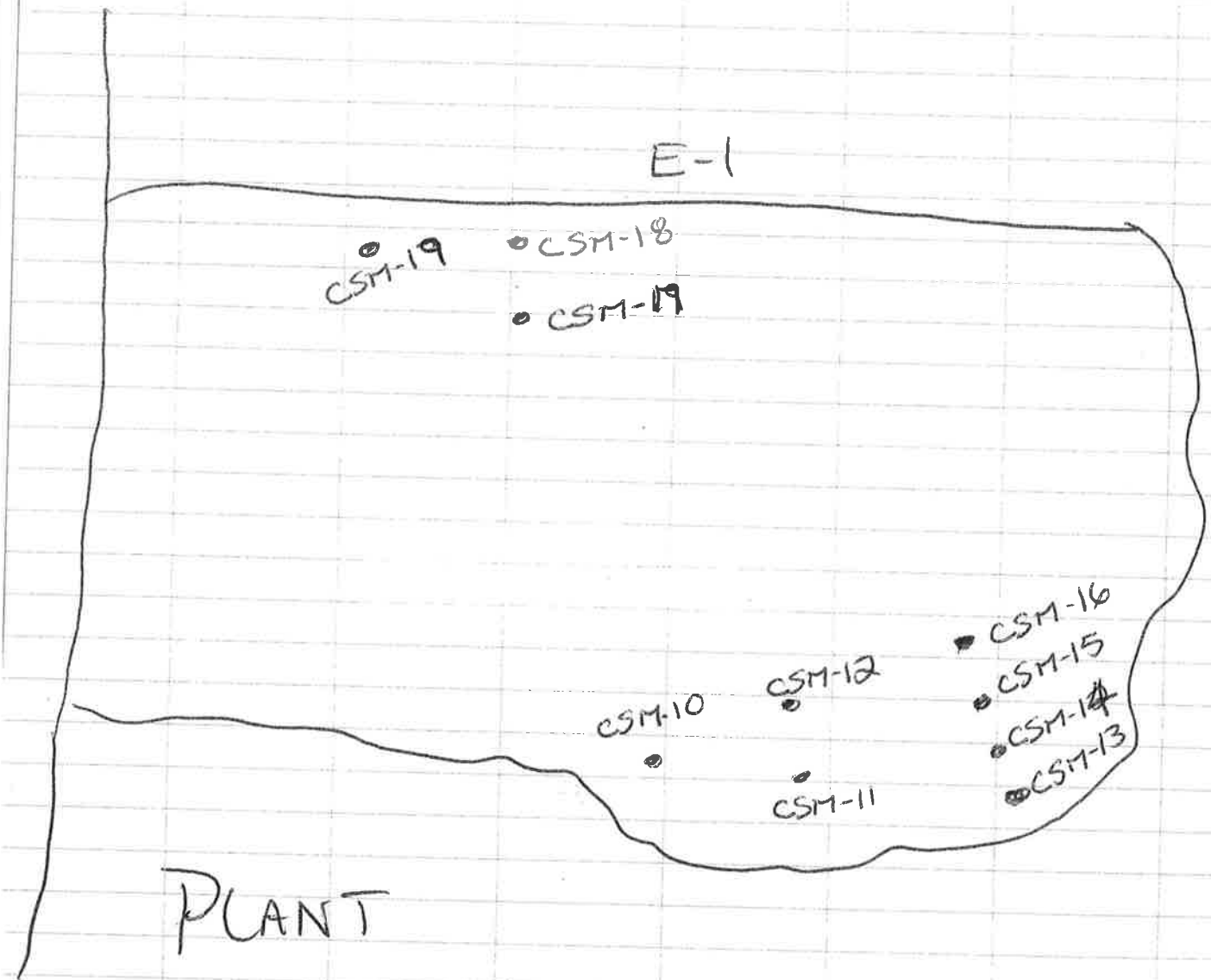
* AS/MT MARKED WERE WE WANT SETTLEMENT MARKER WHERE DEPRESSONS ARE VISABLE

* GAS ROUND COMPLETED
  - GP/EXTRACTION
  - MONTHLY MAINT

7-29-2019 (MON)
TECHS: MT/KM WEATHER: MOSTLY CLEAR 70/80S
- SUMP BOTH VALLEY & NORTH COLBERT SAMPLED/SHIPED

7-30-19 (TUES)
TECHS: MT/GF/AS/KM
WEATHER: CLEAR/WARM 70S AM 80S PM

PLACE SETTLEMENT MARKERS ON LANDFILL COVER WHERE SETTLEMENT SEEMS TO BE A ISSUE.



CSM-10, 11, 12, 14, 15, 16, 17, 18 & 19: HAD 6" TOP SOIL 18-20" OF SAND
CSM-13 HAD 6-8" TOPSOIL & 26" OF SAND.

7-31-2019

CALL ALLEN BARRY (DAVE BERTO'S GROUP) TO ADD TO SCHEDULE FOR SURVEY IN LANDFILL

CALLED EUROFINS TO FIND OUT WERE SUMMAS ARE; HAD TO RESCHEDULE SHIPMENT.

8-1-2019 (THURS)

- PAPERWORK ON SETTLEMENT MARKERS

8-2-2019 (FRI)

- CLEANED PROCESS AREA FLOOR/PARKING LOT
- CLEANED WEBS FROM WALLS/DOORS
- OFFICE
- GARBAGE
- FLOW TAKEN 56 CFM @ 22.9°C

8/9/2019 (FRI)

- FLOW TAKEN 55 CFM @ 21.9°C
- GARAGE/SHOP CLEANED (COLD DESK GARBAGE)
- CLEAN OFFICE

8/12/2019 Tech. GF/MT/AS/KM

SCRWP SAMPLED TODAY. MT HIT ROCK ON SITE PUNCHED HOLE IN OIL PAN LEAKED A TRAIL OF OIL FROM MW-5 TO MW-4. HAD TO HAVE TRUCK TOWED TO WENDLE FORD. FOR REPAIRS.

WHILE GF SAMPLED MW-4 KM/MT/AS WENT OUT TO CLEAN SOIL TO NOT CONTAMINATE SOIL.

8/14/2019 (WED)

- LAWN MOWED
- PARKING LOT CLEANED FREE OF DEBRIS
- ORDER TOPSOIL FOR OUR PITCHER MOUND (OLD PIMPLE)
- ORDERED GAVEL FOR LANDFILL (ROAD REPAIR & SETTLEMENT MARKERS

8/15/2019 (THURS)

- ✓ GRAVEL ARRIVAL
- GAS FLOW 57CFM @ 22.9°C

8/16/19 (FRI)

- TOPSOIL ARRIVAL
- OFFICE CLEAN
- GARBAGE

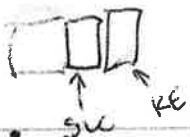
8/20/2019 (TUES)

- RAN TO MICA TO DOE WEEKLY READING/MAINT SINCE GF IS ON VACATION

- STARTED COURES

8/21/19 (WED)

FINISHED COURES → PW → SHIPED



W-1
W-3 CPU FAULTS ALREADY

① With power on - Change out SLC Battery (battery is on face)

② Turn off power to cards (UPS) and change out battery in KE card (Pull out card to find battery)

③ MAKE Sure card is snapped all the way in

④ Return Power (RESET EVERYTHING)

8/22/19 (THURS)

COLBERT PW → DATA ENTRY → FILED

- COLBERT LANDFILL SETTLEMENT MARKERS FINISH GRADE 5/8 MIN GRAVEL.
- COLBERT ROAD REPAIR.

8/23/19 (FRI)

- PARKING LOT CLEANED FREE OF DEBRIS
- GAS ROUND COMPLEATED (TR/GD)
- GAS FAN MAINT (MONTHLY)
- OFFICE / GARBAGE

8/26/19 (MON)

- GAS ROUND PW → FILED) REPORT GEN.

8/28/19 (WED)

- ORDER BOTTLES FOR NEXT WEEK MICA/COLBERT
- COUNTY PICNIC

8/29/19

- ~~IE~~ SECTION MEETING THIS AM
- TO-15 SAMPLED
- GAS FLOW READING 57 CFM @ 21.7°C
- REPLACED PUMP IN ~~CD4BC~~ CD4IC3 GF/KM RAN WATER THRU FOR 45 MIN TO CLEAR WATER IN LINES AND IN PUMP

8/30/19 (FRI)

- CLEANED OFFICE / GARBAGE

9-4-19 (WED)

MICA PAPERWORK SEMI-ANNUAL SAMPLE RD 9/2019

9-5-19 (THURS)

- LAWN PARKING LOT FREE OF DEBRIS
- SPREAD TOP SOIL OVER ~~PIT~~ PITCHER MOUND (COLD PIMPLE)

9-6-19 (FRI)

- FINISHED TOP SOIL OVER MOUND ON LANDFILL
- GARBAGE
- SAMPLED GAS SYSTEM (GP/EXTRACTION SYSTEM)

9-9-19 (MON)

- LABEL BOTTLES / MICA FINALIZED PAPER WORK SEMI-ANNUAL ROUND 9/2019

9-10-19 (TUES)

- MICA SEMI-ANNUAL RD

9-11-19 (WED)

- MICA SEMI-ANNUAL RD

- SHIPPED -

9-12-2019 (THURS)

- ~~GA BIO-FILTER~~ MICA POND CLEANING SW POND / NW POND / FLUME

9-13-2019 (FRI)

- GAS FLOW 52 CFM @ 19.7°C (COND)
- OFFICE CLEANED
- MICA PW FILED / DATA ENTRY

9-17-2019 (TUES)

- MICA 5-YEAR REVIEW

STARTED COURES

9-18-2019 (WED)

FINISHED COURES / SHIPPED

9-19-2019 (THURS)

BIO-FILTER MEDIA CHANGE OUT @ GA

COURES PAPERWORK FILED / DATA ENTRY

9-20-2019

GAS FLOW 51CFM @ 18.9%

- OFFICE CLEANED
- PARKING LOT CLEANED
- GARBAGE
- PAPER WORK FOR ANNUAL MAINT.

9-23-2019 (MON)

- ANNUAL MAINT
  - FAN ROOM
  - CONTAINMENT AREAS (SUMP/TOWER)
    * SUMPS
    * SHOWERS

9-24-2019 (TUES)

* ANNUAL MAINT.
  - ROOF/GUTTERS FAN MAINT
  - SUMPS
  - BUILDING
  - PARKING LOT FREE OF DEBRIS
  - CONV. LINE EXT.

9-25-2019 (WED)

- EXTRACTION WELLS
  * MAINT & CLEAN
- GF WORKED ON BUILDING (INSIDE/OUTSIDE)

9-26-2019 (THURS)

NW POND INTAKE TO STILL WELL REPAIR

10/1/2019 GOES)

TECHS: M. TERRIS K. MCCLARTY G FISETTE
WEATHER. P-CLOUDY 50S-60S

- QT WATER LEVELS

- GF RES WELLS
- MT MONITORING WELLS
- KM CLUSTERS / EXTRACTION WELLS

10/2/2019 (WED)
TECHS: MT / KM / GF
WEATHER. P. CLOUDY 60S

GF SAMPLED CD-43C1 + CD-49
MT/KM SAMPLED EXTRACTION WELLS

MT ALSO STARTED CORES SAMPLING
CHELD ALL SAMPLES OVERNIGHT TO BE SHIP ON 10/3)
PLEASE SEE COLBENT FEED NOTEBOOKS

10/3/19 (THURS)
TECH: M. TERRIS
WEATHER: CLOUDY 50S

- MT FINISHED CORES
* SHIPPED ALL SAMPLES ALL IN 1 COOLER
SEPARATE COC (CORES + COLBENT COMP)

10/4/2019 (FRI)

COLBENT QT PAPERWORK COMPLETED
ALL PARAMETERS ENTERED, PAPER FILED
AWM DOWNLOADED.

- WEEKLY GAS FLOW 54 CFM @ 19.7°C
- WEEKLY OFFICE CLEAN
- GARBAGE
- ORDERED BOTTLES FOR GA/COL FOR 11/2019
- PREP PLANT FOR 2 WEEK VAC

MT OFF 10/7 – 10/21/19
* GAS FLOW READING RECORDED BY KM

10/22/19 (TUES)

- SURVEY CREW ON SITE TO SURVEY SETTLEMENT MARKERS MT WENT OUT TO MARK ALL LOCATIONS WITH RED/ORG. MARKING TAPE. MT WALK SITE W/SURVEYORS

10/23/19 (WED)

- GAS ROUND COMPLETED
  - MONTHLY GP/EXTRACTION SYSTEM
  - FAN MAINT (MONTHLY)
  - TANK LEVELS
  - GAS FLOW
  - 6 GAL COND IN EFF GAS LINE

10/24/19 (THURS)

- STARTED WINTERIZING PLANT IN PREP FOR COLD WEATHER.

- RAN TO MICA TO ASSIST GF ON PUMPING EQUIPMENT

10/25/19 (FRI)

- WEEKLY OFFICE CLEAN
- GARBAGE
- CLEAN PARKING LOT

10/29/19 (TUES)

- WINTERIZING EQUIPMENT
- WINTERIZING SPRINKLER SYSTEM
- STEAM ~~CLEANER~~ CLEANER
- HEAT TRACE
- TOWER
- SUMPS

10/30/9

- WORKED ON 2020 CALL (STANDBY LIST)
- NORMAL PROTOCOL MOUND PLANT
- PAPER WORK.

10/31/19 (THURS)

- GENERAL FIRE ON SITE FOR FIRE EXT.

MT/HALEY

* ANNUAL INVENTORY ALL 3- SITES
  TALKED TO DANI ABOUT GETTING RID OF SNOW THROWER FOR 4-WHEELER SHE IS LOOKING INTO @ IT.

11/1/19 (FRI)

- GA PREP & GA
  * PAPER WORK
  * BOTTLES
  * ICE

- COLBENT GAS FLOW 51 CFM @ 20.1°C
- CLEAN OFFICE (WEEKLY) PARKING LOT FREE OF DEBRIS
- 6 GAL OF COND IN EFFIC GAS LINE

11/4/19

- WINTERIZING COLBENT PLANT SUMP
- PUT ALL HOSE & OUTSIDE EQU AWAY FOR WINTER
- FINISHED WINTER LIST.

11/5/2019 (TUES)

- GA SAMPLED (ANNUAL ROUND)
  * SHIPPED

11/6/2019 (WED)

- PARK/REC COME OUT PICK UP SNOWTHROWER
- CLEANED SHOP

11/7/2019 (THURS)

- RACEWAY PARK SAMPLED

11/8/19 (FRI)

- DATA ENTRY GA
- DATA FILED / SCANNED GA / RACEWAY + FILED)
- WEEKLY GARBAGE OFFICE CLEAN

- COLBERT GAS FLOW 51CFH @ 11.1°C (6 GAL CONDS.

11/13/19 (WED)

- CORES STARTED
  (HELD OVERNIGHT)

11/14/19 (THURS)

- FINISHED CORES
  * SHIPPED

11/15/19

- COLRES DATA ENTRY / SCANNED / FILED
- WEEKLY OFFICE CLEAN
- FINISHED WINTERIZING LIST.
- GAS FLOW 52 CFM @ 10.3# 2 GAL. COND

11/18/19

- COLBERT GAS ROUND QT
  * TR's, EXTRACTION SYSTEM & GP

* GAS FAN MAINT ~~WOR~~ QT.
* SUMPS ✓✓
* COND. TANKS

11/19/19

* CLEANED SITE
* CLEANED PARKING LOT OF DEBRIS

11/20/19

- TOOL 6 WITEELER TO MICA
  WORKED WITH GF ON SUMPS

- FIRE EXT ON SITE~~S~~ BRINGING BACK.

11/26/19

- TECH MEETING DOWNTOWN
-

11/27/2019)

- GATE ~~LOOKS DAMAGE REPAIR~~ BRACKETS NEED RAISED.

12/2/19

- GF CAME OUT TO HELP fix GATE THAT GOT DAMAGED DURNING WIND STORM. WE HAD TO STRAIGHTEN PIN SET WHICH ~~is~~ BENT.

- GF ALSO LOOKED AT OUR PIPE LEAKS ORDER PART THAT WE DID NOT ALREADY HAVE. I HAD THE V VALVE ? GATE VALVE

12/3/19 (TUES)

- MT WENT TO MICA TO BE RETAUGHT ON PLUME SIGMA DATA. WHILE OUT THERE HELP KM SAMPLE MW-16.

12/4/19 (WED)

* HURLIMAN HVAC WAS OUT TO LOOK AT OUT HEAT PUMP (NOT DEFROSTING)

- MT STARTED COURES
  HELD SAMPLES OVERNIGHT

12/5/2019

- FINISHED COLRES + SHIPPED

12/6/19

- AM MEETING W/DEB
- COLRES PAPERWORK DOWNLOADED/SCANNED/FILED
- GAS FLOW 52 CFM @ 10.9°C 6 GAL CON
- HAD TO ~~DOOR~~ DO DOOR MAINT. SWEEPS
  - OFFICE CLEAN WEEKLY)
  - GARBAGE

12/10/19

- COLBERT GAS RD - EXTRACTION SYSTEM & GD
- GAS FLOW 53CFM @ 9.9°C 2 GAL. CONS
- FOUND HEAT TRACE OFF @ CARBON UNIT REST BREAKER
- FAN HR 39779 KNOCKOUT @ 1 RESET
- 3 GAL CON. IN EFF GAS LINE
- GAS FAN MAINT.
- ✓ TANKS

12/11/19

- 6AM PLOWING
- SHOP
- GOT NEW CALIPERS

12/12/19 (THURS)

- HURLIMAN BACK OUT TO V HEAT PUMP SINCE ICE IS ALL REMOVED

  * FOUND DEFROST BOARD IS FRIED HAVE TO ORDER NEW ONE

12/13/19 (FRI)

- MW-16 PAPERWORK DOWNLOADED/SCAN/FILED
- OFFICE CLEAN
- GARBAGE
- GAS ROUND PAPERWORK

12/16/19 (MON)

- SECTION CHRISTMAS MEETING
- WORK ON 4 WHEELER
- SHOP

12/18/19 (WED)

- FILLING OUT ACL COC/FS PAPER 2020 COMPUTER SHEETS & FOLDERS

- PUT PLOW ON TRUCK
- REPAIRED PLOW READY FOR SNOW

12/19/19

- MICA TRAINING ALL DAY W/GF

12/26/19

- GAS FLOW 51CFM @ 11.1°C 2 GAL COND
- GARBAGE
- OFFICE CLEAN
- RVC CENTER

1/7/2020 (TUES)

* MT/KM ON SITE FOR ALL COLBERT QT WATER LEVEL PRIOR TO SAMPLING THIS WEEK.

- MT ALSO DID SITE DRIVE AROUND. FOUND TREES FROM LAST WIND STORM FALLEN ON FENCE NW CORNER HEADING OVT TO CD-3

1/8/2020 (WED) TECHS: MT/KM/GF
WEATHER: CLOUDY LIGHT RAIN SHOWERS 40S
- EXTRACTION WELLS SAMPLED
- CD-49 SAMPLED
- CD-43(1 SAMPLED

ALL SAMPLES HELD OVERNIGHT

1/9/2020 (THURS)

- SHIPPED SAMPLES TO ANTEK LAB FROM THIS WEEKS SAMPLING.

- PREP PLANT FOR UPCOMING COLD SNAP SUB ZERO TEMPS/SNOW.

* PUT PLOW ONTO TRUCK
* LOWERED SUMP LEVELS
* EMPTIED TOWER OF ANY WATER FROM SAMPLING, CLEARING LINES
* INSTALLED HEATER TO OUTSIDE SUMPS
* MADE SURE ALL HEAT TRACE IS ON.

1/10/2020 (FRI)

- GAS FLOW 51 CFM @ 10.2° Ø COND.
- OFFICE CLEAN
- DW FOR COLBERT ROUND COMPLETE
* FILE / DOWNLOADED PARAMETERS

- GARBAGE

* STARTED SNOWING PLOWED 1 TIME BEFORE I LEFT FOR DAY

1/11/2020 (SAT.)

- CAME IN TO PLOW OUT COLBERT

* 8 IN. OF SNOW OVERNIGHT 4 HRS.

1/13/2020 (MON) CLOUDY SNOW TEENS
MT

4 IN. OF SNOW PLOWED OUT (ALL)
OF COLBERT.
* COLD SINGLE DIGITS @ NIGHT MADE SURE
PLANT IS OK.

1

1/14/2020 (TUES) CLOUDY SNOW LOW TEENS
MT

4 INCH OF SNOW PLOWED OUT ALL OF
COLBERT

1/15/2020 (WED) CLOUDY SNOW 20S
MT

* PLOWED AM 2" OF FRESH SNOW

✓ COLBERT DRIVE AROUND

- CHAD W/IT WAS OUT TO ✓ TREES
BY W-1

1/16/2020 (THURS) SNOW P. CLOUDY LOW 30S
MT

- PLOWED AM
- GULLIP SURVEY.

1/17/2020 (FRI) AM SNOW CLOUDY 30S
MT

- AM PLOWING
- OFFICE CLEAN
- CLEAN RESTOCKED SAMPLE AREA
- GAS FLOW 51 CFM @ 8.9% of CAN

1/21/2020 CLOUDY LOW 30'S MT

- CAUGHT UP ON ALL PAPER WORK / CALIDATIONS
- DRIVEAROUND COLBERT ✓ (WEEKLY)
- ORGANIZED OFFICE FILES

1/22/2020 CLOUDY 40S LT RAIN MT

- CLEANED SHOP / ORG.
- STARTED TO FIX TOILET (URNIAL) FOUND ANOTHER LEAK. HAD 8 KM BUT A WHOLE NEW FLUSHING UNIT.

- NEW WATER TO ICE MAKER FILTER INSTALLED

1/23/2020 (THURS) CLOUDY (RAIN) MT
40S
MT FOUND SUMP SYSTEM WERE OFF CONTAINMENT AREAS HAD 2' OF WATER FROM MELTING SNOW MT DRAINED SUMP INTO PARKING LOT MADE SURE SUMP WERE ON AUTO

- FINISHED INSTALLING NEW FLUSHING SYSTEM ON URNIAL WORKS GREAT!!!

1/24/2020

- MT TALKED TO COURTNEY NGUYEN ~~02/60~~ W/ ENVOQUA WATER TECHNOLOGIES ABOUT PROFILES ON OUR CARBON UNIT.
  * WILL SAMPLE NEXT WEEK

- GAS FLOW 51-54 CFM @ 109% Ø CORE
- GARBAGE HAULED
- OFFICE CLEANED

1/28/2020

* PLOWED AM LOTS OF SNOW

- WAS ABLE TO GET OUT TO SAMPLE GP & AND EXTRACTION SYSTEM PM

1/29/2020

- DEEP CLEAN PLANT.

2/4/2020 (TUES)

* SECTION MEETING
* REPLACED BATT IN UPS FOR PLANT PC. (2 BATT.)

* WORKED ON GATE TIGHTEN DOWN ALL BOLTS

2/5/2020 (WED)

* PLOWING COLD / SNOW
* ADDED WATER COLBERT TRANSFER STATION SUMP 200lbs LIMSTONE FLOUR (4 BAGS) + 1200 GAL OF H_2O TO RAISE pH FROM 3.91 TO 4.99-5.00 OK TO PUMP

* FINISHED FIXING PLANT GATE 2 BOLTS SHEERED OFF REPLACE BOLTS

2/13/2020 (THURS)

- TOOK A CARBON UNIT PROFILE ~~from~~ OF UNIT 3. CLOSED VALVES OPEN VALVES ON UNIT #4 WHICH IN NOW ACTIVE.

  (WILL NEED TO TAKE UNIT #3 OFF LINE REPLACE IT WITH UNIT #1)

  UNIT'S #3 & #2 ARE SPENT AND WILL NEED TO HAVE A SCHEDULE CHANGE OUT OF MEDIA ONCE PROFILE COME BACK

2/14/2020 (FRI)

- COLES P.W DOWNLOADED DB FILED/SCAN
- CLEAN OFFICES
- GARBAGE

2/19/2020 (WED)

- RACEWAY PARK SAMPLING.

2/20/2020 (THURS)

COLES REVIEW W/ AS

2/21/2020 (FRI)

- COLGAS SAMPLED flow 55cfm @ 10.9°c
- OFFICE CLEANED
- WEEKLY

2/25/2020 (TUES)

- SHIPPED CARBON PROFILE TO LAB
- ORDERED UPS BACK-UPS FOR SCALE HOUSE

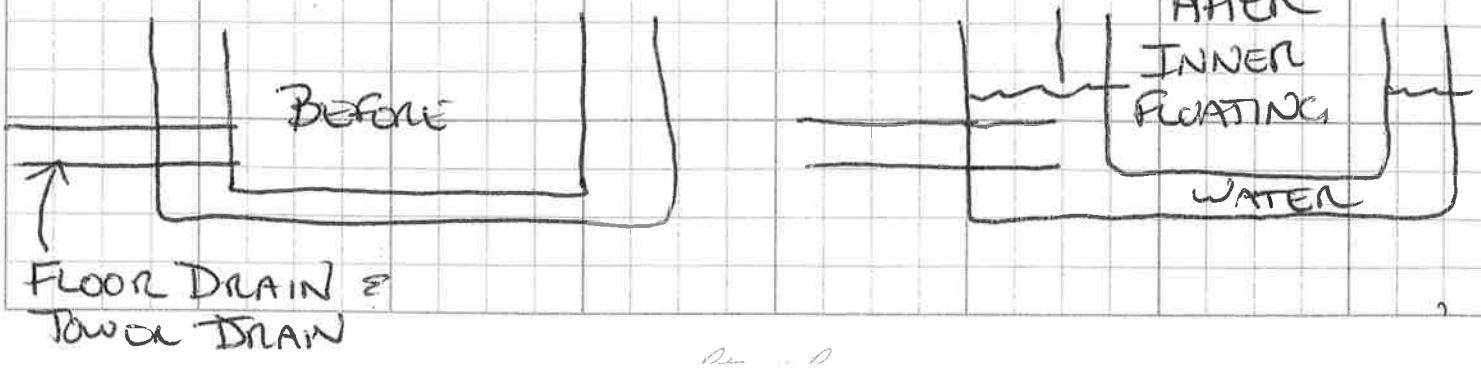
2/26/2020 (WED)

- PW GAS ROUND DOWNLOADED FILED.
- GARBAGE
- GAS FLOW 53 CFM @ 11.3°C ∅
- QT GAS FAN MAINT
  - * CLEANED EX GREASE
  - * GREASED BEARINGS
  - * V BELT TENSION + WEAR OK 5-6 lbs
  - * CLEAN GUARD.
  - * V FOR UNUSUAL NOISES

3/3/2020 (TUES)

* COMPUTER (NETWORK) DOWN
  DG WORKING ON IT.

MT FOUND BULDING SUMP BOTTOM LINER FULL OF WATER



3/3/2020 (TUES) (CONT)

MT DRAINED WATER BETWEEN INNER AND OUTER LINER. USING SHOP VAC AND SUCKING IT OUT PUTTING DISCHARGE WATER INNER SUMP TANK.

3/4/2020

* MT CONTINUED WORKING ON BUILDING SUMP CLEANED OUT BOTH~~HIT~~ INNER LINER SO IT WAS DRY AND INNER TANK FREE OF ALL WATER/DIRT.

LINED UP TANK WITH FLOOR DRAIN DISCHARGE RECONNECT FLANGE FROM FLOOR DRAIN AND INNER TANK. WE WILL NEED TO MAKE SURE ANNUAL MAINT THAT THERE IS NO WATER BETWEEN LINER AND TANK TO PREVENT THIS FROM OCCURING.

3/5/2020

* MT FINISHED BUILDING SUMP REPAIR ~~THAT~~ MOVING INNER HARD LINER IN PLACE TO PUT FLANG BACK ON FROM OUTER LINE TO CONNECT WITH INNER LINER.

* START QT EXTRACTION WELL MAINT.

* CUT DOWN TREE NW OF CONTAINMENT AREA

* CUT TREE OFF OF FENCE W/ HELP FROM KM

3/6/2020 (FRI)

* COLBERT GP/EXTRACTION SYSTEM TESTED TODAY
  - MONTHLY MAINT ALSO PERFORM (PLEASE SEE GAS BOOK FIELD)
* GAS FLOW TAKEN + TEMP

* PREP FOR VALLEY SUMP NEXT WEEK
* WEEKLY CLEANING
* GARBAGE

3/9/2020 (MON)

* VALLEY SUMP SAMPLED TODAY / SHIP
* PREP MICA SAMPLING (ANNUAL)

3/10/2020 (TUES)

* PLAN TO MICA LABEL BOTTLES / PAPERWORK

3/11/2020 (WED)

* MICA SAMPLING ANNUAL

3/12/2020 (THURS)

* MICA SAMPLING FINISHED SHIP

3/13/2020 (FRI)
* CHANGED OUT UPS @ COLBERT TRANSFER STATION PER CLAUDIA
* GARBAGE
* WEEKLY MAINT. → CLEAN

3/17/2020

* QUARANTINE @ COLBERT ONLY PER DEB FOR NEXT 2-3 WEEKS UNTIL FURTHUR NOTICE. COV-19

MICA - GF
COLBERT - MT
GA - KEVAN

3/18/2020

* COLBERT O&M
  * LIGHTS
  * FAN ROOM
  * CONVENG. DRIVE AROUND

3/19/2020

* CONF. CALL ABOUT SHELTER IN PLACE.
* WASH BUILDING W/STEAM CLEANER.

3/20/20

* WEEKLY MAINT
* USED BLOWER PARKING LOT
* GARBAGE
* FILTERS INSIDE/OUT
* GAS FLOW/TEMP
* OFFICE CLEAN

3/24/2020

* MICA PAPERWORK DOWNLOAD / FILED / SCAN

3/25/2020

- PER DEB HAD TO RUN AROUND GET CLEANING SUPPLIES PPE FOR SCALE HOUSES.

3/26/2020

- ORDERED BOTTLES FOR GF BTEX FOR HIS SAMPLING OF NW POND.
  * DROP SHIP DIRECTLY TO HIM & MICA
- ORDER ANNUAL SAMPLING SUPPLIES. MICA / COLBERT.

3/27/2020 (FRI)

- WEEKLY MAINT
  * CLEANING
  * GARBAGE
  * DRIVE AROUND SITE
  * GAS FLOW / TEMP

3/31/2020 (TUES

* FIXED HEATER IN SHOP ~~CLEAR~~
* STRAIGHTEN UP SHOP
* STRAIGHTEN UP FILE RM.

4/1/2020

- CAUGHT UP ALL DATABASE / PW / TIMECARDS
- LOOKED ON FRONT GATE (NOT ALIGNED)
- LOOKED AT TIGHTEN BOLTS ON ALL GATES
- DRIVE AROUND

4/3/2020 (FRI)

* GAS FLOW 52CFM @ 11.1%
* GARBAGE
* WEEKLY PLANT
* PARKING LOT

4/6/2020 (MON

HAD TO DEL. GLOVES TO ALL LOCATION
GA/MICA/TRANSFER STATION COVID-19

4/7/2020

- WORK ON LANDFILL SETTLEMENT MARKERS SPREADING GRAVEL
- PULLING SAPPLINGS
- LANDFILL MAINT.

4/8/2020

* SCALE HOUSE MEASURING PLEX GLASS GF FOR SAFETY @ SCALE HOUSES.

4/9/2020 (THURS)

- MEET GF & VALLEY TS TO INSTALL PLEX GLASS ON SITE.

- MT INSTALLED PLEXI GLASS & COLBOLT LATE DAY EVEING WHEN TS CLOSED

4/10/2020 (FRI)

* WEEKLY PLANT
* GARBAGE
* SIGNS & T.S.
X GAS FLOW/TEMP

4/17/2020 WEEKLY GAS FLOW/TEMP

4/23/2020

- LAWN/PARKING LOT.
- GARBAGE
- WEEKLY PLANT

4/24/2020

- QT GAS ROUND
- WEEK GAS FLOW/TEMP
- WEEKLY PLANT
- OFFICE CLEAN

5/5/2020

* PLANT MAINT.
  - TURNED ON SPRINKLER SYSTEM
  - FAN ROOM MAINT.

* LAWN FERTILIZED

5/6/2020

* PREP ALL SAMPLE ROUND
  - ORDER BOTTLES

5/7/2020

- GARBAGE
- BUILDING CLEAN DISANFECTED
- CONTAINMENT AREA / SUMPS MAINT.
- PARKING LOT CLEANED

5/8/2020

- GAS FLOW / TEMP
- PLANT MAINT.
-

5/12/2020

- CAUGHT UP ON COURES SAMPLING
  MARCH / APRIL / MAY

5/13/2020

- COURES
  MARCH / APRIL / MAY

5/14/2020

- MICA / COLRES DATA ENTRY
- MOWED LAWN
- PARKING LOT

5/15/2020

- COLBERT GAS ROUND
- COLBERT GAS FLOW/TEMP

- T.S. & TREE REMOVAL

5/19/2020

- SPOKANE RIVERWAY SAMPLING

6/1/2020 (MON)

CEMER DAM OFF RIOTS)

- BOT UNABLE TO TAKE DAM OFF SINCE WE ARE A ~~SAT~~ (S.L) OFFICE WE WORKED

- COLBERT WLS (KM & MT)

6/2/2020 (TUES)

- COLBERT ANNUAL SAMPLING

6/3/2020 (WED)

- COLBERT ANNUAL SAMPLING
  SHIP 1,4 DIOXANE SAMPLES TODAY

6/4/2020 (THURS)

- FINAL DAY OF SAMPLING
  - SHIP TODAY

* PLEASE SEE COLBERT COMP BOOK *

6/5/2020 (FRI)

- GAS FLOW / TEMP
- LAWN
- PARKING LOT

6/9/2020 (TUES)

SAMPLED BOTH SUMPS (TRANSFER STATION)

6/10/2020

- ALL DATA ENTRY for PAST SAMPLE ROUND (CALL DAY)

6/11/2020
MT/GF REPAIRED CD 48C2 HIT BY CAR

6/12/2020

- SHOP CLEAN
- GAS FLOW
- GARBAGE
- LAWN / PARKING LOT
- OFFICE CLEANED

6/16/2020

- CHANGED OUT PLANT USP BATT.
- STARTED CORES

6/17/2020

FINISHED CORES (6/2020) SHIP SAMPLES
* PLEASE SEE CORES FIELD BOOK FOR MORE DETAILS

T.S. SOLVENT (NORTH) HAULING

6/18/2020
WEATHER: P. CLOUDY, WARM
TECHS (MT/GF/KM)

- INSTALING NEW GRUNDFOS 2" PUMP INTO DEDICATED MON. WELLS CD-48C2 & CD-48C3 AFTER INTALLING NEW PUMP BOTH WELLS WERE RON FOR 2 HOURS EACH FOR PURGING.

- PULLED PUMP FROM CD-3A1 GF TO REPLACE

6/19/2020 (FRI)

- GAS FLOW/TEMP (WEEKLY)
- OFFICE
- GARBAGE

6/23/2020 (TUES)

- INSTALLED IN PUMP INTO CD-3A1 + PURGED FOR 2 HOURS

- LAWN/FENT.

- SHOP CLEANED

6/25/2020

- GAS ROUND GP'S/EXTRACTION SYSTEM
- ORDER NEW BACK-UP GRUNDFOS PUMPS

6/26/2020

- GAS REPORTS
- GAS FAN MAINT. → STOP FAN ✓ BELT CLEANED EXCESSIVE GREASE FROM BEARINGS.
- OFFICE CLEANED
- BEE/FLY TRAPS SET
  - LAWN
  - PARKING LOT
- GARBAGE.

6/30/2020

- COMPUTER WORK
  - MOVING FILES
- UPDATING THE BOOK (~~LOG~~) FROM CAL.
- BUYER BID SHEET FOR DANI ON PUMPS
- ORDERING BOTTLES FOR UPCOMING SAMPLING.
- LAWN
- PARKING LOT.

- FOUND BATCH SUMP GO INTO ALARM ON LOW FLOW, SO NEED TO KEEP AT A NORMAL ~~RATE~~. E LEVEL, KEEP IT OUT OF ALARM

7/21/2020

- Colbert office → carpet cleaning
  * All around carpet cleaning service, is cleaning our carpets today

- Pro Care weed spraying → 3.5 acres

7/29/2020

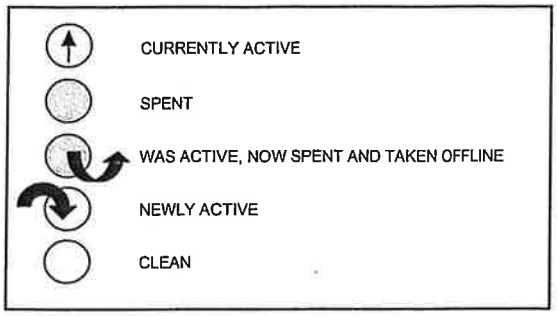
KM - recieved bottles from SVL today, but they forgot our VOC tubes. Called Cindy and she is getting those out to us ASAP!!

- Picked up Paper towel & TP that was delivered to TS
- Called EnviroTech to see were ~~a~~ our PumPS are → That Should have been here by now. *there working on tracking them down + And will call me as soon as they figure it out...
- Site tour / inspection completed, nothing unusual observed. ✓ OK
- took weekly GAS Flow ready (0910) 56 cfm 21.1°F → (gas temp)
- EnviroTech called back (Todd) and said they should be coming today (7/29) → UPS

CARBON TUB INFORMATION

DATE:	2-13-2020
FAN HOURS:	41335
FAN FLOW:	54 CFM
GAS TEMP:	10.9°C
INLET TUBE READ:	- NA-

DIRECTIONS



	TUB 1	TUB 2	TUB 3	TUB 4
STATUS BEFORE CHANGES:				
TUBE READINGS:				
PRESSURE:				

	TUB 1	TUB 2	TUB 3	TUB 4
STATUS AFTER CHANGES:				
TUBE READINGS:				
PRESSURE:				

COMMENTS: TURNED VALVES off of TUB #3 (STILL ON LINE) OPENED VALVES ON TUB #4 NOW ACTIVE

*SAMPLE A PROFILE FROM TUB # 3

TECHS: MT
DATE(S): 6/1/20

EXTRACTION WELL MAINTENANCE
QUARTERLY INSPECTION

TASK	MAINTENANCE	CP-S1	CP-S4	CP-S5	CP-S6	CP-E1	CP-E2	CP-E3	CP-W1	CP-W2	CP-W3
SUMP:											
	VERIFY HI FLOAT ALARM	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	CLEAN AS NEEDED (SHOPVAC)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NOTES:											
VFD:											
	CLEAN FILTER	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	INSPECT WIRING/COMPONENTS	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NOTES:											
PIPING:											
	EXERCISE GATE VALVE (2X)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	INSPECT PIPING FOR LEAKS	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	INSPECT AIR/VAC VALVE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NOTES:											
PIT:											
	INSPECT FOR LEAKS	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	CHECK ZERO READING	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NOTES:											
PCP:											
	CLEAN (SHOPVAC)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	INSPECT ALL WIRING/RELAYS/COMP	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	CHECK INDICATOR LIGHTS/REPLACE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	CHECK SLC/KE CARD LIGHTS BATT	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	TURN FAN TO WARM/COOL	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	CLEAN FILTERS	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	CHECK/TIGHTEN ALL CABLES/RADIO	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	DESSICANT CHANGE OUT	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	UPS BATTERY CHECK	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NOTES:											
VAULT:											
	CLEAN AND INSPECT (SHOPVAC)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	INSPECT LADDER BOLTS/RUNGS	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	INSPECT LID BOLTS UPPER/LOWER	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	CHECK/TIGHTEN MAGNET WELL/LID	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NOTES:											
FINAL:											
	RESET RADIO	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	RESET WELL	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	IS PIT OPEN?	O	O	O	O	O	O	O	O	O	O
	IS GATE VALVE OPEN?	C	C	C	C	C	C	C	C	C	C

QUARTERLY PRE SAMPLE INSPECTION & CLEAN

EXTRA NOTES:

TECHS: MT
DATE(S): 8/7/20

EXTRACTION WELL MAINTENANCE
QUARTERLY INSPECTION

TASK	MAINTENANCE	CP-S1	CP-S4	CP-S5	CP-S6	CP-E1	CP-E2	CP-E3	CP-W1	CP-W2	CP-W3
SUMP:											
	VERIFY HI FLOAT ALARM	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	CLEAN AS NEEDED (SHOPVAC)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NOTES:											
VFD:											
	CLEAN FILTER	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	INSPECT WIRING/COMPONENTS	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NOTES:											
PIPING:											
	EXERCISE GATE VALVE (2X)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	INSPECT PIPING FOR LEAKS	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	INSPECT AIR/VAC VALVE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NOTES:											
PIT:											
	INSPECT FOR LEAKS	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	CHECK ZERO READING	A	A	A	A	A	A	A	A	A	A
NOTES:	A = ANNUAL										
PCP:											
	CLEAN (SHOPVAC)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	INSPECT ALL WIRING/RELAYS/COMP	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	CHECK INDICATOR LIGHTS/REPLACE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	CHECK SLC/KE CARD LIGHTS BATT	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	TURN FAN TO WARM/COOL	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	CLEAN FILTERS	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	CHECK/TIGHTEN ALL CABLES/RADIO	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	DESSICANT CHANGE OUT	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	UPS BATTERY CHECK	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NOTES:	CHANGED OUT BATT IN SLC / KE CARDS & UPS BATTERY IN ALL VAULTS										
VAULT:											
	CLEAN AND INSPECT (SHOPVAC)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	INSPECT LADDER BOLTS/RUNGS	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	INSPECT LID BOLTS UPPER/LOWER	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	CHECK/TIGHTEN MAGNET WELL/LID	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NOTES:	NEED NEW FANS IN E-3 & W-1										
FINAL:											
	RESET RADIO	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	RESET WELL	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	IS PIT OPEN?	O	O	O	O	O	O	O	O	O	O
	IS GATE VALVE OPEN?	C	C	C	C	C	C	C	C	C	C

EXTRA NOTES: QUARTERLY PRE-SAMPLE INSPECTION & CLEANING OF EXTRACTION WELLS