GOLDER

REPORT

2020 Annual Groundwater Report

Part B Permit Groundwater Results (January–December 2020) DACWPF Reconstructed Facility – Arapahoe County, Colorado

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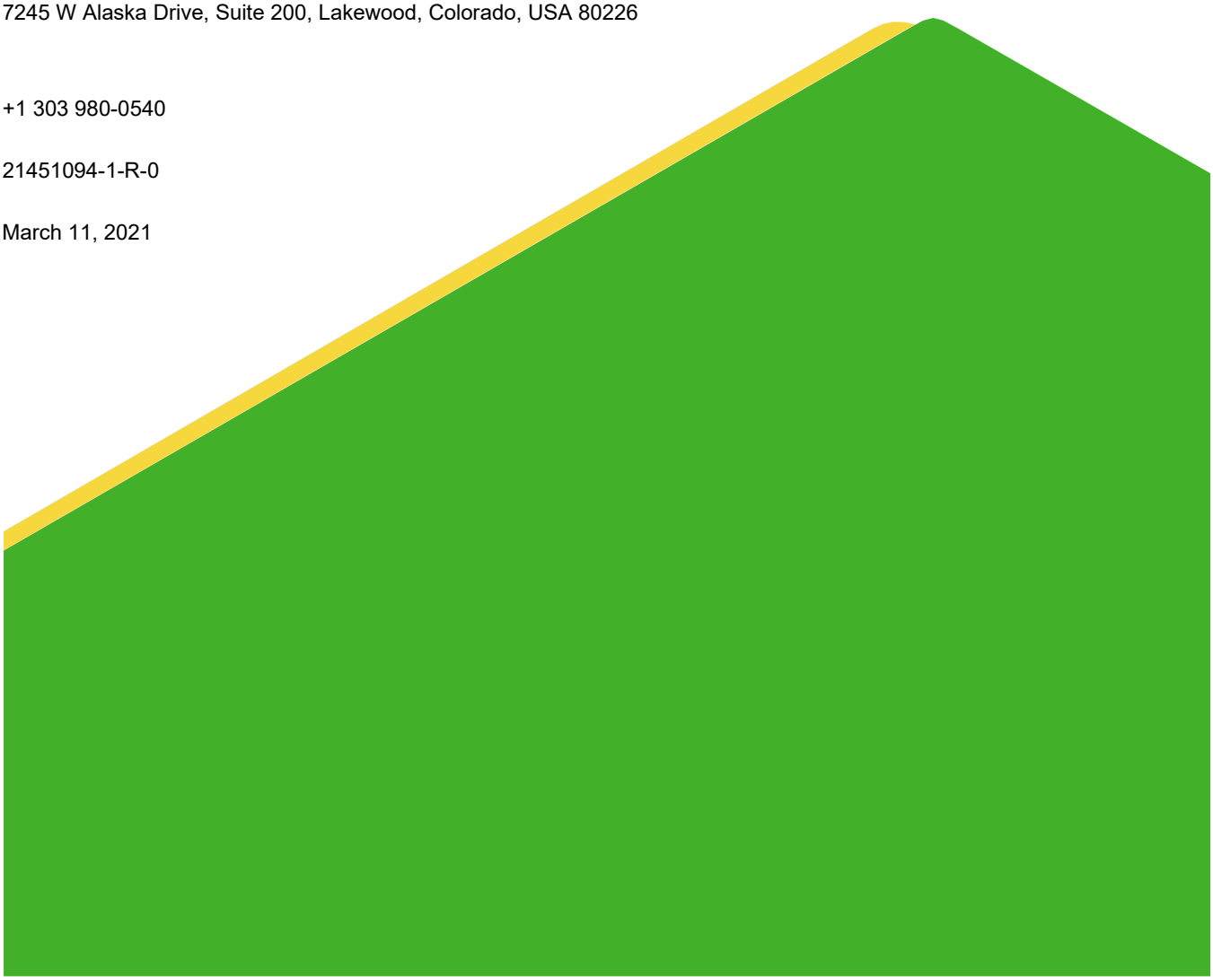

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1.0 INTRODUCTION

The Denver Arapahoe Chemical Waste Processing Facility (DACWPF) is in the southeast quarter of Section 32, Township 4 South, Range 65 West in Arapahoe County, Colorado (Figures 1 and 2). This annual groundwater report for the DACWPF Reconstructed Cell Facility was prepared pursuant to the site's Resource Conservation and Recovery Act (RCRA) Post-closure Care Permits. The following permits were in effect during 2020:

- Permit CO-09-30-09-01 issued on September 30, 2009, and effective on October 30, 2009. This permit is referred to as the 2009 Post-closure Care Permit.
- Permit CO-20-04-21-01 issued on April 21, 2020, and effective on May 21, 2020. This permit is referred to as the 2020 Post-closure Care Permit.

Prior to May 21, 2020, the 2020 monitoring was performed in accordance with the monitoring requirements of Permit CO-09-30-09-01. After May 21, 2020, monitoring was conducted in accordance with Permit CO-20-04-21-01.

This report outlines the post-closure care groundwater monitoring network and presents: 1) semi-annual groundwater level measurements, semi-annual groundwater chemistry data, and statistical analysis for the RCRA groundwater monitoring wells; 2) semi-annual water quality data for the Reconstructed Cell secondary leachate sump; 3) annual water quality data for leachate sumps in accordance with the DACWPF leachate delisting; and 4) semi-annual groundwater level measurements for the upper and intermediate sandstone units' monitoring networks.

Additionally, this report summarizes leachate chemistry, generation rates, and pumping history for the primary and secondary sumps, and includes a description of the hydrogeologic setting of the Reconstructed Cell. Discussions of post-closure inspection activities are incorporated in these summaries and descriptions.

2.0 PART B PERMIT MONITORING RESULTS

2.1 Groundwater Levels

The groundwater levels in the four groundwater monitoring wells completed in the uppermost aquifer (lower sandstone; P-112, P-113, P-114A-R, and P-115) and the upper and intermediate sandstone piezometers (GC-16, GC-18, GC-21, GC-22, GC-26, and P-107) were measured during the second and fourth quarters of 2020 (May and November). Table 1 presents the 2020 groundwater levels, along with historical measurements since 1986. The groundwater monitoring network for the Post-closure Care Permits is summarized in Table 2. As documented in the 2016 Annual Report, P-114A was abandoned due to well integrity issues and was replaced by P-114A-R, which was installed in July 2016. Groundwater level measurements and sampling activities at P-114A-R were initiated in July 2016. The locations of existing groundwater monitoring wells and piezometers and corresponding groundwater elevations for 2020 are shown in Figures 3 through 5. Plots of groundwater levels versus time (from 1986 through 2020) are presented in Figures A-1 through A-3 of Appendix A.

Groundwater levels in the lower sandstone unit wells historically increased from 1986 (when measurements began) through 2000. From 2000 through 2006, the groundwater levels generally remained steady with some minor fluctuations, and the designated RCRA upgradient well P-112 groundwater levels began decreasing relative to the groundwater levels in the three downgradient RCRA monitoring wells. As a result, the groundwater levels in the designated upgradient and downgradient wells converged, and slight gradient reversals have occurred. From 2006 until 2010, groundwater levels in wells P-112, P-113, P-114A, and P-115 gradually increased before stabilizing from 2010 until 2014. Groundwater levels generally increased between 2014 and 2016, after which

groundwater levels appear stable. The Colorado Department of Public Health and Environment (CDPHE) is aware of these variations in groundwater levels, and in a letter dated October 8, 2004, concurred that, because groundwater statistical analyses for the DACWPF Reconstructed Cell are based on intra-well comparisons and the intent of regulatory requirements continues to be met, slight gradient reversals do not impact the compliance of the facility.

Groundwater levels in the upper sandstone unit (GC-18, GC-21, and P-107) have generally remained steady since measurements began, despite short-term fluctuations between 2014 and 2016. Groundwater levels in the intermediate sandstone unit (GC-16, GC-22, and GC-26) increased from 1986 (when measurements began) through 1999, when they remained relatively stable until 2011. In 2011 and 2012, groundwater levels in the intermediate sandstone slightly decreased. Groundwater levels exhibited an increasing trend from 2013 to 2016; however, groundwater levels have been decreasing since 2017.

2.2 Groundwater Chemistry

The sampling points for the semi-annual groundwater monitoring events conducted in May and November of 2020, pursuant to the Post-closure Care Permits, consisted of wells P-112, P-113, P-114A-R, and P-115. For each sampling event, the groundwater samples from these wells were analyzed for field parameters (temperature, turbidity, pH, and electrical conductivity), total suspended solids, eight dissolved metals, and volatile organic compounds (VOCs). The first semi-annual sampling event was conducted under the 2009 Post-closure Care Permit with the analyte list provided in Table A-7 of that permit. The second semi-annual sampling event was conducted under the 2020 Post-closure Care Permit with the analyte list provided in Table F-1 of that permit. The groundwater monitoring requirements are the same in both permits. Additional field parameters (dissolved oxygen and oxidation-reduction potential) are provided in Appendices B-1 and B-2 of this report. Analytical results are also presented in Appendices B-1 and B-2.

2.2.1 Metals Results

Section 2.8 in Attachment 7 of the 2009 Post-closure Care Permit and Section 2.8 in Attachment F of the 2020 Post-closure Care Permit specify intra-well comparisons as the basis for performing the statistical analysis and determining if there are statistically significant increases over background values. The statistical analysis for the 2020 report was performed by Swift River Environmental Monitoring Services (Swift River) and is provided in Appendix C of this report. The statistical analysis contains a background period up to, and including, the second semi-annual 2018 analytical data for wells P-112, P-113, and P-115. In 2020, statistical analysis was initiated for well P-114A-R with a background period up to, and including, the second semi-annual 2019 analytical data. Results of the statistical analysis as reported by Swift River (Appendix C) are summarized below.

One metal in Table A-7 of the 2009 Post-closure Care Permit and Section 2.7 of Attachment F of the 2020 Post-closure Care Permit was detected at or above the reporting limit in the 2020 samples. Barium was detected above the reporting limit in samples from all four wells, but below the statistical limit, which is consistent with historical results for these wells.

The metals results are summarized in Table 3. Field parameters for these sampling locations were also recorded and are summarized in Table 4. The statistical analysis indicates that there are no trends or statistically significant exceedances for metals in the DACWPF groundwater monitoring wells.

2.2.2 Volatile Organic Compounds Results

In accordance with Sections 2.7 and 2.8 in Attachment 7 of the 2009 Post-closure Care Permit and Sections 2.7 and 2.8 of Attachment F of the 2020 Post-closure Care Permit, the statistical background limit for each VOC listed in Table A-7 is set at the reporting limit because no confirmed VOCs have been detected since interim status groundwater monitoring began in 1990. No VOCs were detected in any of the 2020 groundwater samples at concentrations above their reporting limit.

2.3 Leachate Sampling

The semi-annual sampling of leachate from the secondary sump of the DACWPF Reconstructed Cell was performed by Swift River during the second and fourth quarters of 2020 and analytical results are presented in Appendix B-3. The results of the resampling events associated with the second quarter event (discussed below) are presented as an attachment to Appendix B-4.

The second quarter sampling event for the secondary sump was conducted in accordance with Attachments 4 and 8 of the 2009 Post-closure Care Permit, and the laboratory employed the same detection limits as those listed in Table A-8 of the 2009 Post-closure Care Permit. A low-level detection for tetrachloroethene (PCE) at 7.2 micrograms per liter (µg/L) was reported by the laboratory from the May 7, 2020 (first half 2020) leachate sample from the secondary leachate collection sump, which is above the permit detection limit of 5.0 µg/L, but below the action limit of 50 µg/L as prescribed in Table A-8 of Attachment 8 of the 2009 Post-closure Care Permit. Following a data quality review, which determined the detection met analytical method quality assurance and quality control requirements, verification sampling was performed on June 10, 2020. A similar low-level detection was reported just above the permit detection limit at 5.5 µg/L. A second verification sampling event was conducted on July 22, 2020, and included trip, field, and equipment blanks to assess whether the detected PCE was an artifact of sampling conditions or potential contamination from the end of the sampling discharge hose. A third verification sampling event was performed on November 18, 2020, to assess whether the secondary sump pump and/or discharge hose were contaminating the samples. This third sample was collected using a grab sampler following removal of the pump and its discharge hose. The second verification sample indicated a similarly low level of PCE at 7.3 µg/L and the third verification sample resulted in a PCE detection of 7.0 µg/L. None of the blank samples had PCE detected. A letter to the CDPHE summarizing these sampling activities and data results was sent to the Department on December 29, 2020, and is included in this annual report as Appendix B-4. Given that the results are only minimally above the 5.0 µg/L health-based standard for PCE, the letter concluded that no further action other than continued monitoring and pumping of the secondary sump is warranted.

The fourth quarter sampling event for the primary and secondary sump was conducted in accordance with Section 4 of Attachment G of the 2020 Post-closure Care Permit, and the laboratory employed the detection limits listed in Table F-1 of the 2020 Post-closure Care Permit. The sampling was conducted on December 9, 2020, and arsenic, chloroform, PCE, trichloroethene, perfluorooctanic acid (PFOA), and perfluorooctane sulfonate (PFOS) were detected in the primary sump sample. The laboratory reported detections of PCE, PFOA, and PFOS above their respective permit detection limits for the sample collected from the secondary sump. The 2020 Post-Closure Care Permit action limits were not in effect during the second half of 2020 because they have been stayed pending judicial review; therefore, no action was required.

Annual sampling of the primary and secondary leachate sumps was also performed by Swift River in accordance with the DACWPF leachate delisting, which became effective on December 30, 1998. The sampling was

performed on May 7, 2020, and consisted of a composite sample from the primary and secondary sumps and a discrete sample from the primary sump. Both samples were submitted for cyanide and toxicity characteristic leaching procedure (TCLP) analyses as required by the conditions of the delisting. These analytical results are presented in Appendix B-5.

In the composite sample, total cyanide and PCE were detected at or above the analytical detection limit, but below the exposure point concentrations (EPCs) used in the risk assessment for the Delisting Petition, which is presented in Appendix D. In the discrete primary sump sample, total cyanide and PCE were detected above the detection limits but were below the EPCs used in the risk assessment for the Delisting Petition. Table 5 presents a summary of historical PCE detections in the primary sump.

2.4 Leachate Pumping

Leachate generation rates and the amounts of leachate removed from the primary and secondary sumps are summarized in Appendix E. Appendix E also includes the semi-annual facility inspection logs for 2020. Graphs showing incremental and cumulative leachate volumes removed from the primary and secondary pumps since 1988 are included in Appendix E.

The primary sump was pumped four times in 2020, with 1,000, 800, 700, and 800 gallons of leachate removed from the primary sump in February, May, June, and November, respectively. The calculated approximate leachate generation rate for the primary sump between November 2019 and February 2020 was 9.7 gallons per day (gpd), between February 2020 and May 2020 was 10.4 gpd, between May 2020 and June 2020 was 19.4 gpd, and between June 2020 and November 2020 was 5.4 gpd.

The secondary sump was pumped four times in 2020, with 500, 200, 400, and 100 gallons of leachate removed in February, April, June, and November, respectively. The calculated approximate leachate generation rate for the secondary sump between November 2019 and February 2020 was 4.9 gpd, between February 2020 and April 2020 was 2.9 gpd, between April 2020 and June 2020 was 9.1 gpd, and between June 2020 and November 2020 was 0.7 gpd.

3.0 DESCRIPTION OF THE HYDROGEOLOGIC SETTING

The current understanding of the hydrogeologic setting beneath the DACWPF Reconstructed Cell has not changed from that described in the Investigation of Shallow Groundwater System in the Vicinity of the Evaporation Ponds, Denver-Arapahoe Chemical Waste Processing Facility, DACWPF, Arapahoe County, Colorado (Golder 1986). The hydrostratigraphy is depicted in three plan views, including the areal distribution of the upper, intermediate, and lower sandstone units (Figures 3 through 5).

The upper sandstone unit contains localized perched water immediately to the west and northwest of the DACWPF Reconstructed Cell. Inspections during 2020 indicate no observable water flow from the perched water drain (PWD) located to the north and east of the DACWPF Reconstructed Cell, including the relocated portion of the PWD that was constructed in 2004 and approved by the CDPHE in January 2005. Water within the upper sandstone unit has essentially been drained as evidenced by no observed water flow at the drain's outlet since at least 2004.The drain created a lateral hydraulic gradient within the upper sandstone unit toward the drain that allows the upper sandstone groundwater to flow in an easterly direction to the discharge point located northeast of the DACWPF Reconstructed Cell (see Figure 3). Documentation of the inspection of the PWD is presented in Appendix E, along with the other post-closure facility inspections.

The intermediate sandstone unit (Figure 4) also contains locally perched groundwater. The inconsistency in saturation across this unit and spatial variations in water levels within this unit suggest that continuous lateral flow is unlikely. The primary mechanism of water movement is likely slow vertical seepage into the underlying very low permeability claystone.

The lower sandstone unit (Figure 5) and its laterally adjacent finer-grained units comprise the uppermost continuously saturated zone (i.e., uppermost aquifer). Flow within the lower sandstone unit is primarily horizontal as a result of the unit's significantly higher hydraulic conductivity relative to that of the overlying claystone.

4.0 CONCLUSIONS

Data continue to indicate that the only hydrostratigraphic unit beneath the DACWPF Reconstructed Cell that fulfills the regulatory definition of the "uppermost aquifer" is the lower sandstone unit, which is monitored by four monitoring wells completed and screened across this sandstone unit.

Groundwater statistical analysis performed by Swift River, in accordance with Section 2.8 of the 2009 Post-Closure Care Permit and Section 2.8 of Attachment F of the 2020 Post-Closure Care Permit revealed no observable trends or statistically significant exceedances for metals in samples obtained from the DACWPF groundwater monitoring wells.

A low-level detection PCE was reported by the laboratory from the May 7, 2020 (first half 2020) leachate sample from the secondary leachate collection sump, which is above the 2009 Post-Closure Care Permit detection limit of 5.0 µg/L, but below the action limit of 50 µg/L as prescribed in Table A-8 of Attachment 8 of the 2009 Post-Closure Care Permit. Confirmatory sampling was performed, and the exceedance was verified. A letter summarizing these sampling activities and data results was submitted to the CDPHE that concluded that no further action other than continued monitoring and pumping of the secondary sump is warranted.

The fourth quarter sampling event for the primary and secondary sump was conducted in accordance with Section 4 of Attachment G of the 2020 Post-Closure Care Permit. The sampling was conducted on December 9, 2020, and arsenic, chloroform, PCE, trichloroethene, PFOA, and PFOS were detected in the primary sump sample. The laboratory reported concentrations of PCE, PFOA, and PFOS above their respective detection limits for the sample collected from the secondary sump. The 2020 Post-Closure Care Permit action limits were not in effect during the second half of 2020 because they have been stayed pending judicial review; therefore, no action was required.

In the sampling of the leachate sumps that was performed in accordance with the DACWPF leachate delisting, in the composite sample, total cyanide and PCE were detected at or above the detection limit, but below the EPCs used in the risk assessment for the Delisting Petition, which is presented in Appendix D. In the discrete primary sump sample, total cyanide and PCE were detected above their detection limits but were below the EPCs used in the risk assessment for the Delisting Petition.

The PWD was relocated by Waste Management in 2004. Relocation activities were documented in the 2004 Annual Report (Golder 2005). Inspections during 2020 indicate no observable water flow from the PWD located to the north and east of the DACWPF Reconstructed Cell, including the relocated portion of the PWD that was constructed in 2004 and approved by the CDPHE in January 2005.

Data collection activities during 2020 met the monitoring requirements outlined in the Post-closure Care Permits in effect during 2020. Monitoring results do not indicate a release from the DACWPF Reconstructed Cell facility.

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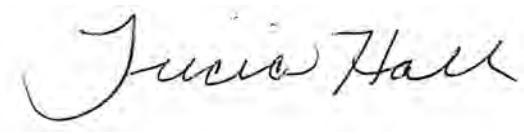



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Tables

Table 1: Groundwater Levels

WELL OR PIEZOMETER	(1) COMP. ZONE	(2) MON. POINT	MEAS. PT.(3,4) ELEV.		2/26/86 DEPTH	2/26/86 ELEV.	4/10/86 DEPTH	4/10/86 ELEV.	4/29/86 DEPTH	4/29/86 ELEV.	5/2/86 DEPTH	5/2/86 ELEV.	5/6/86 DEPTH	5/6/86 ELEV.	5/9/86 DEPTH	5/9/86 ELEV.	5/13/86 DEPTH	5/13/86 ELEV.	5/2/86 DEPTH	5/2/86 ELEV.	5/6/86 DEPTH	5/6/86 ELEV.	5/16/86 DEPTH	5/16/86 ELEV.	05/27/86 DEPTH	05/27/86 ELEV.
GC-8	L		5778.69		- -	- -	88.33	5690.36	88.05	5690.64	88.45	5690.24	87.98	5690.71	88.08	5690.61	88.29	5690.40	88.45	5690.24	87.98	5690.71	88.62	5690.07	88.45	5690.24
GC-9	C		5793.86		- -	- -	111.90	5681.96	111.50	5682.36	111.55	5682.31	111.49	5682.37	111.48	5682.38	111.52	5682.34	111.55	5682.31	111.49	5682.37	111.70	5682.16	111.53	5682.33
GC-10	L		5775.34		- -	- -	- -	- -	83.80	5691.54	84.17	5691.17	83.76	5691.58	83.79	5691.55	84.10	5691.24	84.17	5691.17	83.76	5691.58	- -	- -	84.25	5691.09
GC-11	L		5777.36		- -	- -	- -	- -	85.93	5691.43	86.40	5690.96	58.87	5718.49	86.20	5691.16	86.15	5691.21	86.40	5690.96	58.87	5718.49	86.30	5691.06	86.33	5691.03
GC-12	L+		5779.11		- -	- -	- -	- -	129.75	5649.36	129.29	5649.82	126.85	5652.26	123.36	5655.75	118.95	5660.16	129.29	5649.82	126.85	5652.26	116.26	5662.85	109.08	5670.03
GC-13	L		5778.86		- -	- -	- -	- -	88.05	5690.81	88.45	5690.41	88.04	5690.82	88.80	5690.06	88.28	5690.58	88.45	5690.41	88.04	5690.82	88.57	5690.29	88.45	5690.41
GC-14	L+		5776.55		- -	- -	- -	- -	DRY	- -	DRY	- -	DRY	- -	80.65	5695.90	80.95	5695.60	DRY	- -	DRY	- -	81.55	5695.00	81.76	5694.79
GC-15	L		5779.31		- -	- -	- -	- -	88.35	5690.96	88.80	5690.51	88.32	5690.99	88.45	5690.86	88.70	5690.61	88.80	5690.51	88.32	5690.99	- -	- -	88.85	5690.46
GC-16	I		5777.92		- -	- -	- -	- -	DRY	- -	DRY	- -	DRY	- -	DRY	- -	- -	- -	DRY	- -	DRY	- -	(NOTE 5)	- -	- -	- -
GC-17	O	P	5779.18		- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
GC-18	U	P	5780.06		- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
GC-19	I+	P	5779.94		- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
GC-20	I	P	5779.10		- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
GC-21	U	P	5779.70		- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
GC-22	I	P	5765.98		- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
GC-23	I	P	5755.69		- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
P101	L+		5778.30		107.4	5670.95	112.2	5666.12	- -	- -	- -	- -	113.1	5665.20	- -	- -	- -	- -	- -	- -	113.1	5665.20	- -	- -	111.4	5666.90
P102	L+		5777.40		99.8	5677.61	105.1	5672.27	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	105.0	5672.43
P103	L+		5777.30		96.7	5680.64	96.6	5680.72	- -	- -	- -	- -	96.8	5680.47	- -	- -	- -	- -	- -	- -	96.8	5680.47	- -	- -	95.5	5681.85
P104	L		5779.10		89.1	5690.00	98.6	5680.53	- -	- -	- -	- -	102.6	5676.50	- -	- -	- -	- -	- -	- -	102.6	5676.50	- -	- -	96.0	5683.15
P107	O	P	5779.20		24.7	5754.50	25.5	5753.70	- -	- -	- -	- -	23.9	5755.30	- -	- -	- -	- -	- -	- -	23.9	5755.30	- -	- -	23.5	5755.75
P108	U	W	5787.70		29.8	5757.90	- -	- -	- -	- -	- -	- -	30.8	5756.87	- -	- -	- -	- -	- -	- -	30.8	5756.87	- -	- -	30.9	5756.80
P109	O		5777.00		28.7	5748.27	28.8	5748.22	- -	- -	- -	- -	28.0	5749.00	- -	- -	- -	- -	- -	- -	28.0	5749.00	- -	- -	28.0	5749.03
P110	U	W	5777.60		26.0	5751.63	26.1	5751.53	- -	- -	- -	- -	25.0	5752.65	- -	- -	- -	- -	- -	- -	25.0	5752.65	- -	- -	24.9	5752.75
P111	O	W	5778.00		- -	- -	35.00	5743.00	- -	- -	- -	- -	34.78	5743.22	- -	- -	- -	- -	- -	- -	34.78	5743.22	- -	- -	34.84	5743.16
P112	L	W	5765.22	*	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
P113	L	W	5779.79	*	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
P114	L	W	5779.84	*	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
P115	L	W	5779.63	*	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -

1. Completion Zones in Dawson Formation:
   - U Upper Sandstone
   - I Intermediate Sandstone
   - L Lower Sandstone
   - C Coal (Denver Formation)
   - + Laterally adjacent finer-grained lithologic unit
   - O Other
2. Designated monitoring well:
   - W Well
   - P Piezometer
3. Top of PVC riser pipe unless marked by * which indicates top of WELL WIZARD well cap assembly.
4. All elevations and depths in feet.
5. Water-level probe broke off in piezometer on May 16, 1986; no subsequent measurements of water levels made.

Table 1: Groundwater Levels

WELL OR PIEZOMETER	(1) COMP. ZONE	(2) MON. POINT	MEAS. PT.(3,4) ELEV.		5/30/86 DEPTH	5/30/86 ELEV.	6/10/86 DEPTH	6/10/86 ELEV.	6/20/86 DEPTH	6/20/86 ELEV.	6/24/86 DEPTH	6/24/86 ELEV.	6/27/86 DEPTH	6/27/86 ELEV.	7/1/86 DEPTH	7/1/86 ELEV.	7/8/86 DEPTH	7/8/86 ELEV.	6/24/86 DEPTH	6/24/86 ELEV.	6/27/86 DEPTH	6/27/86 ELEV.	7/11/86 DEPTH	7/11/86 ELEV.	7/18/86 DEPTH	7/18/86 ELEV.
GC-8	L		5778.69		88.48	5690.21	88.45	5690.24	88.45	5690.24	88.46	5690.23	88.52	5690.17	88.50	5690.19	88.55	5690.14	88.46	5690.23	88.52	5690.17	88.52	5690.17	88.45	5690.24
GC-9	C		5793.86		111.51	5682.35	--	--	111.47	5682.39	111.45	5682.41	111.45	5682.41	111.45	5682.41	111.42	5682.44	111.45	5682.41	111.45	5682.41	111.44	5682.42	--	--
GC-10	L		5775.34		84.23	5691.11	84.05	5691.29	84.03	5691.31	84.00	5691.34	84.15	5691.19	84.10	5691.24	84.12	5691.22	84.00	5691.34	84.15	5691.19	84.13	5691.21	84.31	5691.03
GC-11	L		5777.36		86.30	5691.06	86.23	5691.13	86.22	5691.14	86.20	5691.16	86.40	5690.96	86.40	5690.96	88.40	5688.96	86.20	5691.16	86.40	5690.96	88.20	5689.16	86.18	5691.18
GC-12	L+		5779.11		--	--	103.30	5675.81	--	--	98.22	5680.89	97.65	5681.46	97.65	5681.46	97.62	5681.49	98.22	5680.89	97.65	5681.46	97.65	5681.46	92.65	5686.46
GC-13	L		5778.86		88.42	5690.44	88.33	5690.53	88.35	5690.51	88.34	5690.52	88.50	5690.36	88.52	5690.34	88.53	5690.33	88.34	5690.52	88.50	5690.36	88.52	5690.34	88.42	5690.44
GC-14	L+		5776.55		81.77	5694.78	82.15	5694.40	82.49	5694.06	82.37	5694.18	82.70	5693.85	82.70	5693.85	82.70	5693.85	82.37	5694.18	82.70	5693.85	82.72	5693.83	82.70	5693.85
GC-15	L		5779.31		88.86	5690.45	88.75	5690.56	88.66	5690.65	88.63	5690.68	88.90	5690.41	88.90	5690.41	88.90	5690.41	88.63	5690.68	88.90	5690.41	88.91	5690.40	88.77	5690.54
GC-16	I		5777.92		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-17	O	P	5779.18		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-18	U	P	5780.06		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-19	I+	P	5779.94		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-20	I	P	5779.10		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-21	U	P	5779.70		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-22	I	P	5765.98		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-23	I	P	5755.69		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P101	L+		5778.30		111.4	5666.94	110.4	5667.95	109.7	5668.56	109.7	5668.60	109.2	5669.13	109.2	5669.15	109.1	5669.2	109.7	5668.60	109.2	5669.13	109.1	5669.2	107.5	5670.82
P102	L+		5777.40		104.6	5672.81	103.6	5673.81	103.2	5674.25	103.0	5674.38	102.8	5674.60	102.8	5674.64	102.7	5674.7	103.0	5674.38	102.8	5674.60	102.7	5674.7	101.9	5675.50
P103	L+		5777.30		95.4	5681.88	95.6	5681.75	94.8	5682.53	94.7	5682.57	93.6	5683.73	93.5	5683.80	93.5	5683.9	94.7	5682.57	93.6	5683.73	93.4	5683.9	92.3	5685.00
P104	L		5779.10		95.9	5683.21	92.6	5686.50	91.3	5687.80	91.3	5687.83	90.6	5688.48	90.6	5688.50	90.6	5688.5	91.3	5687.83	90.6	5688.48	90.6	5688.5	89.5	5689.57
P107	O	P	5779.20		23.4	5755.76	22.8	5756.41	--	--	23.1	5756.12	23.1	5756.15	23.1	5756.15	23.0	5756.2	23.1	5756.12	23.1	5756.15	23.1	5756.1	23.0	5756.20
P108	U	W	5787.70		31.0	5756.73	--	--	30.7	5757.00	30.7	5756.98	30.8	5756.95	30.7	5756.97	30.8	5756.9	30.7	5756.98	30.8	5756.95	30.8	5757.0	--	--
P109	O		5777.00		28.0	5749.04	27.7	5749.30	27.7	5749.27	27.7	5749.29	27.9	5749.13	27.9	5749.15	27.8	5749.2	27.7	5749.29	27.9	5749.13	27.9	5749.1	27.6	5749.40
P110	U	W	5777.60		24.9	5752.75	24.6	5753.00	25.0	5752.56	25.1	5752.48	25.1	5752.53	25.1	5752.55	25.0	5752.6	25.1	5752.48	25.1	5752.53	25.1	5752.5	24.8	5752.80
P111	O	W	5778.00		34.8	5743.18	34.3	5743.70	34.2	5743.78	34.2	5743.77	34.2	5743.85	34.2	5743.85	34.1	5743.9	34.2	5743.77	34.2	5743.85	34.2	5743.9	33.9	5744.15
P112	L	W	5765.22	*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P113	L	W	5779.79	*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P114	L	W	5779.84	*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P115	L	W	5779.63	*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

1. Completion Zones in Dawson Formation:
   - U Upper Sandstone
   - I Intermediate Sandstone
   - L Lower Sandstone
   - C Coal (Denver Formation)
   - + Laterally adjacent finer-grained lithologic unit
   - O Other
2. Designated monitoring well:
   - W Well
   - P Piezometer
3. Top of PVC riser pipe unless marked by * which indicates top of WELL WIZARD well cap assembly.
4. All elevations and depths in feet.

Table 1: Groundwater Levels

WELL OR PIEZOMETER	(1) COMP. ZONE	(2) MON. POINT	MEAS. PT.(3,4) ELEV.		7/25/86 DEPTH	7/25/86 ELEV.	8/15/86 DEPTH	8/15/86 ELEV.	9/15/86 DEPTH	9/15/86 ELEV.	10/03/86 DEPTH	10/03/86 ELEV.	MEAS. PT.(5) ELEV.	11/12/86 DEPTH	11/12/86 ELEV.	11/15/86 DEPTH	11/15/86 ELEV.	10/03/86 DEPTH	10/03/86 ELEV.	MEAS. PT.(5) ELEV.	11/19/86 DEPTH	11/19/86 ELEV.	12/12/86 DEPTH	12/12/86 ELEV.
GC-8	L		5778.69		86.70	5691.99	88.20	5690.49	88.28	5690.41	88.03	5690.66	- -	88.71	5689.98	- -	- -	88.03	5690.66	- -	88.16	5690.53	88.15	5690.54
GC-9	C		5793.86		111.45	5682.41	112.10	5681.76	111.50	5682.36	111.56	5682.30	- -	111.98	5681.88	- -	- -	111.56	5682.30	- -	111.40	5682.46	111.24	5682.62
GC-10	L		5775.34		84.30	5691.04	84.30	5691.04	84.07	5691.27	83.72	5691.62	- -	83.86	5691.48	- -	- -	83.72	5691.62	- -	83.55	5691.79	83.81	5691.53
GC-11	L		5777.36		86.00	5691.36	86.15	5691.21	86.00	5691.36	85.85	5691.51	- -	- -	- -	- -	- -	85.85	5691.51	- -	85.95	5691.41	86.01	5691.35
GC-12	L+		5779.11		92.40	5686.71	90.90	5688.21	90.10	5689.01	89.75	5689.36	- -	89.85	5689.26	- -	- -	89.75	5689.36	- -	89.30	5689.81	89.16	5689.95
GC-13	L		5778.86		88.42	5690.44	88.50	5690.36	88.25	5690.61	87.97	5690.89	- -	88.20	5690.66	- -	- -	87.97	5690.89	- -	88.10	5690.76	88.06	5690.80
GC-14	L+		5776.55		82.70	5693.85	82.95	5693.60	83.15	5693.40	83.09	5693.46	- -	83.07	5693.48	- -	- -	83.09	5693.46	- -	83.30	5693.25	83.01	5693.54
GC-15	L		5779.31		88.77	5690.54	87.65	5691.66	88.55	5690.76	88.54	5690.77	- -	88.75	5690.56	- -	- -	88.54	5690.77	- -	88.52	5690.79	88.50	5690.81
GC-16	I		5777.92		- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	70.17	5707.75	69.72	5708.20
GC-17	O	P	5779.18		- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	DRY	- -	- -	- -	- -	DRY	- -	DRY	- -
GC-18	U	P	5780.06		- -	- -	- -	- -	- -	- -	- -	- -	- -	21.20	5758.86	20.70	5759.36	- -	- -	- -	19.95	5760.11	21.08	5758.98
GC-19	I+	P	5779.94		- -	- -	- -	- -	- -	- -	- -	- -	- -	DRY	- -	DRY	- -	- -	- -	- -	DRY	- -	DRY	- -
GC-20	I	P	5779.10		- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	DRY	- -	- -	- -	- -	DRY	- -	DRY	- -
GC-21	U	P	5779.70		- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	DRY	- -	- -	- -	- -	DRY	- -	DRY	- -
GC-22	I	P	5765.98		- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	DRY	- -	- -	- -	- -	DRY	- -	DRY	- -
GC-23	I	P	5755.69		- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	44.67	5711.02	- -	- -	- -	44.70	5710.99	44.59	5711.10
P101	L+		5778.30		107.4	5670.86	105.0	5673.30	101.8	5676.50	99.5	5678.79	- -	- -	- -	- -	- -	99.5	5678.79	- -	94.1	5684.2	90.6	5687.75
P102	L+		5777.40		101.5	5675.90	106.5	5670.90	99.6	5677.80	98.9	5678.55	- -	99.0	5678.43	- -	- -	98.9	5678.55	- -	97.4	5680.0	96.7	5680.67
P103	L+		5777.30		92.3	5685.05	90.7	5686.60	89.1	5688.17	88.0	5689.30	- -	88.2	5689.07	- -	- -	88.0	5689.30	- -	85.3	5692.0	84.0	5693.35
P104	L		5779.10		89.5	5689.65	88.9	5690.20	89.2	5689.95	88.7	5690.36	- -	89.0	5690.15	- -	- -	88.7	5690.36	- -	88.8	5690.3	88.7	5690.38
P107	O	P	5779.20		23.0	5756.20	23.2	5756.05	23.5	5755.70	23.4	5755.85	- -	23.3	5755.95	- -	- -	23.4	5755.85	- -	23.4	5755.8	23.6	5755.63
P108	U	W	5787.70		30.8	5756.95	30.8	5756.90	30.5	5757.22	30.8	5756.87	5787.74	30.89	5756.85	- -	- -	30.8	5756.87	5787.74	30.35	5757.39	30.97	5756.77
P109	O		5777.00		27.6	5749.40	27.5	5749.50	27.5	5749.50	27.4	5749.60	- -	27.4	5749.56	- -	- -	27.4	5749.60	- -	27.3	5749.7	27.3	5749.68
P110	U	W	5777.60		24.8	5752.85	25.1	5752.50	24.7	5752.95	24.8	5752.82	5777.72	24.96	5752.76	- -	- -	24.8	5752.82	5777.72	24.80	5752.92	24.82	5752.90
P111	O	W	5778.00		33.9	5744.15	33.6	5744.40	33.2	5744.80	32.8	5745.20	5778.06	32.91	5745.15	- -	- -	32.8	5745.20	5778.06	32.36	5745.70	32.46	5745.60
P112	L	W	5765.22	*	- -	- -	- -	- -	- -	- -	- -	- -	- -	73.92	5691.30	- -	- -	- -	- -	- -	73.55	5691.67	73.59	5691.63
P113	L	W	5779.79	*	- -	- -	- -	- -	- -	- -	- -	- -	- -	88.23	5691.56	- -	- -	- -	- -	- -	89.72	5690.07	89.04	5690.75
P114	L	W	5779.84	*	- -	- -	- -	- -	- -	- -	- -	- -	- -	89.27	5690.57	- -	- -	- -	- -	- -	89.15	5690.69	89.19	5690.65
P115	L	W	5779.63	*	- -	- -	- -	- -	- -	- -	- -	- -	- -	89.65	5689.98	- -	- -	- -	- -	- -	88.88	5690.75	88.90	5690.73

1. Completion Zones in Dawson Formation:
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   - I Intermediate Sandstone
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   - C Coal (Denver Formation)
   - + Laterally adjacent finer-grained lithologic unit
   - O Other
2. Designated monitoring well:
   - W Well
   - P Piezometer
3. Top of PVC riser pipe unless marked by * which indicates top of WELL WIZARD well cap assembly.
4. All elevations and depths in feet.
5. Elevations re-surveyed with new WELL WIZARDS in place.

Table 1: Groundwater Levels

WELL OR PIEZOMETER	(1) COMP. ZONE	(2) MON. POINT	MEAS. PT.(3,4) ELEV.		1/14/87 DEPTH	1/14/87 ELEV.	1/28/87 DEPTH	1/28/87 ELEV.	MEAS. PT. (5,6) ELEV.	1/30/87 DEPTH	1/30/87 ELEV.	2/04/87 DEPTH	2/04/87 ELEV.	2/05/87 DEPTH	2/05/87 ELEV.	2/09/87 DEPTH	2/09/87 ELEV.	MEAS. PT.(5,6) ELEV.	1/30/87 DEPTH	1/30/87 ELEV.	2/04/87 DEPTH	2/04/87 ELEV.	2/25/87 DEPTH	2/25/87 ELEV.
GC-8	L		5778.69		87.96	5690.73	87.51	5691.18	--	--	--	--	--	--	--	--	--	--	--	--	--	--	87.81	5690.88
GC-9	C		5793.86		111.21	5682.65	111.16	5682.70	--	--	--	--	--	--	--	--	--	--	--	--	--	--	111.55	5682.31
GC-10	L		5775.34		83.62	5691.72	83.21	5692.13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	83.54	5691.80
GC-11	L		5777.36		85.83	5691.53	85.36	5692.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	85.83	5691.53
GC-12	L+		5779.11		88.88	5690.23	88.67	5690.44	--	--	--	--	--	--	--	--	--	--	--	--	--	--	88.92	5690.19
GC-13	L		5778.86		87.88	5690.98	87.65	5691.21	--	--	--	--	--	--	--	--	--	--	--	--	--	--	89.05	5689.81
GC-14	L+		5776.55		83.07	5693.48	82.97	5693.58	--	--	--	--	--	--	--	--	--	--	--	--	--	--	82.93	5693.62
GC-15	L		5779.31		88.31	5691.00	87.90	5691.41	--	--	--	--	--	--	--	--	--	--	--	--	--	--	88.40	5690.91
GC-16	I		5777.92		69.23	5708.69	68.70	5709.22	--	--	--	--	--	69.25	5708.67	--	--	--	--	--	--	--	--	--
GC-17	O	P	5779.18		DRY	--	DRY	--	--	--	--	--	--	DRY	--	--	--	--	--	--	--	--	DRY	--
GC-18	U	P	5780.06		21.35	5758.71	21.13	5758.93	--	21.72	5758.34	21.74	5758.32	22.05	5758.01	21.66	5758.40	--	21.72	5758.34	21.74	5758.32	21.71	5758.35
GC-19	I+	P	5779.94		DRY	--	DRY	--	--	--	--	--	--	DRY	--	--	--	--	--	--	--	--	DRY	--
GC-20	I	P	5779.10		DRY	--	DRY	--	--	--	--	--	--	DRY	--	--	--	--	--	--	--	--	DRY	--
GC-21	U	P	5779.70		DRY	--	DRY	--	--	--	--	--	--	DRY	--	--	--	--	--	--	--	--	DRY	--
GC-22	I	P	5765.98		DRY	--	DRY	--	--	--	--	--	--	DRY	--	--	--	--	--	--	--	--	DRY	--
GC-23	I	P	5755.69		44.39	5711.30	44.14	5711.55	--	--	--	--	--	44.44	5711.25	--	--	--	--	--	--	--	44.22	5711.47
GC-24	U+	P	5780.01		--	--	28.35	5751.66	--	23.80	5756.21	23.66	5756.35	23.84	5756.17	24.00	5756.01	--	23.80	5756.21	23.66	5756.35	24.11	5755.90
GC-25	I+	P	5779.86		--	--	DRY	--	--	DRY	--	DRY	--	DRY	--	DRY	--	--	DRY	--	DRY	--	DRY	--
GC-26	I		5780.12		--	--	DRY	--	--	59.73	5720.39	59.64	5720.48	60.02	5720.10	59.72	5720.40	--	59.73	5720.39	59.64	5720.48	59.60	5720.52
P101	L+		5778.29		86.83	5691.46	85.44	5692.85	5778.29	--	--	--	--	--	--	--	--	5778.29	--	--	--	--	82.80	5695.49
P102	L+		5777.40		95.82	5681.58	95.48	5681.92	5777.46	--	--	--	--	95.29	5682.17	--	--	5777.46	--	--	--	--	95.00	5682.46
P103	L+		5777.32		82.24	5695.08	81.51	5695.81	5777.32	--	--	--	--	--	--	--	--	5777.32	--	--	--	--	80.21	5697.11
P104	L		5779.10		88.74	5690.36	88.72	5690.38	5779.15	--	--	--	--	--	--	--	--	5779.15	--	--	--	--	88.79	5690.36
P107	O	P	5779.30		23.78	5755.52	23.80	5755.50	5779.26	--	--	--	--	--	--	--	--	5779.26	--	--	--	--	24.08	5755.18
P108	U	W	5787.74	*	30.69	5757.05	30.30	5757.44	--	--	--	--	--	--	--	--	--	--	--	--	--	--	38.90	5748.84
P109	O		5777.03		27.35	5749.68	27.31	5749.72	5777.03	--	--	--	--	--	--	--	--	5777.03	--	--	--	--	27.43	5749.60
P110	U	W	5777.72	*	24.89	5752.83	24.78	5752.94	--	--	--	--	--	--	--	--	--	--	--	--	--	--	25.10	5752.62
P111	O	W	5778.06	*	32.31	5745.75	32.10	5745.96	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P112	L	W	5765.22	*	73.46	5691.76	73.02	5692.20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	73.35	5691.87
P113	L	W	5779.79	*	88.90	5690.89	88.64	5691.15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	88.80	5690.99
P114	L	W	5779.84	*	89.00	5690.84	88.56	5691.28	--	--	--	--	--	--	--	--	--	--	--	--	--	--	88.90	5690.94
P115	L	W	5779.63	*	88.72	5690.91	88.28	5691.35	--	--	--	--	--	--	--	--	--	--	--	--	--	--	87.60	5692.03

1. Completion Zones in Dawson Formation:
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2. Designated monitoring well:
   - W Well
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3. Top of PVC riser pipe unless marked by * which indicates top of WELL WIZARD well cap assembly.
4. All elevations and depths in feet.
5. Elevations re-surveyed with new WELL WIZARDS in place.
6. Elevations re-surveyed on 1/30/87.

Table 1: Groundwater Levels

WELL OR PIEZOMETER	(1) COMP. ZONE	(2) MON. POINT	MEAS. PT.(3,4) ELEV.		5/26/87 DEPTH	5/26/87 ELEV.	8/18/87 DEPTH	8/18/87 ELEV.	11/06/87 DEPTH	11/06/87 ELEV.	3/17/88 DEPTH	3/17/88 ELEV.	6/15/88 DEPTH	6/15/88 ELEV.	3/31/87 DEPTH	3/31/87 ELEV.	12/13/1988 DEPTH	12/13/1988 ELEV.	05/08/89 DEPTH	05/08/89 ELEV.	3/17/88 DEPTH	3/17/88 ELEV.	6/15/88 DEPTH	6/15/88 ELEV.	MEAS. PT. (10) ELEV.
GC-8	L		5778.69		87.73	5690.96	88.20	5690.49	87.80	5690.89	88.06	5690.63	--	--			87.39	5691.30	86.93	5691.76	88.06	5690.63	--	--	--
GC-9	C		5793.86		111.15	5682.71	111.65	5682.21	111.96	5681.90	111.35	5682.51	--	--	88.03	5690.66	111.44	5682.42	111.10	5682.76	111.35	5682.51	--	--	--
GC-10	L		5775.34		83.48	5691.86	84.02	5691.32	83.60	5691.74	83.40	5691.94	--	--	111.32	5682.54	N.R.	--	N.R.	--	83.40	5691.94	--	--	5767.70
GC-11	L		5777.36	(7)	85.67	5691.69	86.18	5691.18	85.80	5691.56	86.07	5691.29	--	--	83.79	5691.55	N.R.	--	N.R.	--	86.07	5691.29	--	--	5770.30
GC-12	L+		5779.39		85.00	5694.39	--	--	--	--	N.R.	--	--	--	85.90	5691.46	N.R.	--	N.R.	--	N.R.	--	--	--	--
GC-13	L		5778.86		87.69	5691.17	88.20	5690.66	87.83	5691.03	88.56	5690.30	--	--	88.82	5690.29	87.30	5691.56	86.96	5691.90	88.56	5690.30	--	--	--
GC-14	L+		5776.56	(7)	88.31	5688.25	86.90	5689.66	88.65	5687.91	N.R.	--	--	--	88.10	5690.76	N.R.	--	BENT	--	N.R.	--	--	--	5783.49
GC-15	L		5779.31		88.07	5691.24	88.54	5690.77	88.25	5691.06	88.50	5690.81	--	--	83.21	5693.34	87.70	5691.61	87.30	5692.01	88.50	5690.81	--	--	--
GC-16	I		5777.92		67.65	5710.27	67.35	5710.57	66.50	5711.42	66.20	5711.72	--	--	88.41	5690.90	N.R.	--	N.R.	--	66.20	5711.72	--	--	5770.20
GC-17	O	P	5779.18		DRY	--	33.68	5745.50	33.55	5745.63	32.90	5746.28	--	--			33.66	5745.52	DRY	--	32.90	5746.28	--	--	--
GC-18	U	P	5780.06		18.20	5761.86	20.19	5759.87	20.60	5759.46	20.22	5759.84	--	--	DRY	--	22.30	5757.76	DRY	--	20.22	5759.84	--	--	--
GC-19	I+	P	5779.94		DRY	--	DRY	--	DRY	--	DRY	--	--	--	22.25	5757.81	DRY	--	DRY	--	DRY	--	--	--	--
GC-20	I	P	5779.10		DRY	--	DRY	--	DRY	--	DRY	--	--	--	DRY	--	58.55	5720.55	DRY	--	DRY	--	--	--	--
GC-21	U	P	5779.18	(7)	DRY	--	DRY	--	DRY	--	DRY	--	--	--	DRY	--	DRY	--	DRY	--	DRY	--	--	--	--
GC-22	I	P	5765.98		DRY	--	DRY	--	DRY	--	52.98	5713.00	--	--	DRY	--	52.90	5713.08	49.69	5716.29	52.98	5713.00	--	--	--
GC-23	I	P	5755.69		44.92	5710.77	43.70	5711.99	43.30	5712.39	43.11	5712.58	--	--	DRY	--	40.95	5714.74	39.80	5715.89	43.11	5712.58	--	--	--
GC-24	U+	P	5780.01		14.70	5765.31	19.63	5760.38	19.50	5760.51	16.60	5763.41	--	--			22.15	5757.86	20.26	5759.75	16.60	5763.41	--	--	--
GC-25	I+	P	5779.86		DRY	--	65.25	5714.61	DRY	--	DRY	--	--	--	25.06	5754.95	DRY	--	DRY	--	DRY	--	--	--	--
GC-26	I		5780.12		60.53	5719.59	58.40	5721.72	56.33	5723.79	55.95	5724.17	--	--	DRY	--	48.45	5731.67	53.44	5726.68	55.95	5724.17	--	--	--
P101	L+		5778.29		73.48	5704.81	66.10	5712.19	62.55	5715.74	NOTE (9)	--	--	--			--	--	--	--	NOTE (9)	--	--	--	--
P102	L+		5777.46		93.62	5683.78	92.59	5684.87	91.95	5685.51	91.25	5686.21	--	--	79.71	5698.58	90.62	5686.84	90.65	5686.81	91.25	5686.21	--	--	--
P103	L+		5777.32		75.78	5701.54	71.64	5705.68	69.20	5708.12	NOTE (9)	--	--	--	94.35	5683.11	--	--	--	--	NOTE (9)	--	--	--	--
P104	L		5779.15		88.75	5690.35	(NOTE 8)	--	--	--	--	--	--	--	78.83	5698.49	--	--	--	--	--	--	--	--	--
P107	O	P	5779.26		26.11	5753.19	25.65	5753.61	25.65	5753.61	26.70	5752.56	--	--			26.50	5752.76	25.95	5753.31	26.70	5752.56	--	--	--
P108	U	W	5787.74	*	35.61	5752.13	36.30	5751.44	36.61	5751.13	36.45	5751.29	--	--	24.58	5754.68	36.80	5750.94	37.12	5750.62	36.45	5751.29	--	--	--
P109	O		5777.03		28.59	5748.44	30.50	5746.53	31.85	5745.18	NOTE (9)	--	--	--	31.19	5756.55	--	--	--	--	NOTE (9)	--	--	--	--
P110	U	W	5777.72	*	26.13	5751.59	29.25	5748.47	30.16	5747.56	NOTE (9)	--	--	--	27.48	5749.55	--	--	--	--	NOTE (9)	--	--	--	--
P111	O	W	5778.06	*	34.33	5743.73	37.60	5740.46	39.18	5738.88	NOTE (9)	--	--	--	25.21	5752.51	--	--	--	--	NOTE (9)	--	--	--	--
P112	L	W	5765.22	*	73.60	5691.62	73.50	5691.72	72.58	5692.64	73.45	5691.77	73.45	5691.77			73.20	5692.02	72.38	5692.84	73.45	5691.77	73.45	5691.77	--
P113	L	W	5779.79	*	89.10	5690.69	88.90	5690.89	89.02	5690.77	88.90	5690.89	88.90	5690.89	73.44	5691.78	89.30	5690.49	88.00	5691.79	88.90	5690.89	88.90	5690.89	--
P114	L	W	5779.84	*	89.20	5690.64	89.12	5690.72	89.50	5690.34	89.02	5690.82	89.02	5690.82	88.92	5690.87	88.86	5690.98	88.17	5691.67	89.02	5690.82	89.02	5690.82	--
P114a	L	W	5779.64	*	--	--	--	--	--	--	--	--	--	--	89.02	5690.82	--	--	--	--	--	--	--	--	--
P115	L	W	5779.69	*(7)	89.00	5690.69	88.60	5691.09	88.68	5691.01	88.78	5690.91	88.78	5690.91	88.66	5690.97	88.60	5691.09	87.87	5691.82	88.78	5690.91	88.78	5690.91	--

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9. Wells decommissioned between 1/26/88 and 2/1/88.
10. Elevations re-surveyed on 10/24/89.
11. Well decommissioned on 7/17/90.

N.R.: No Reading. Probe under repair.

Table 1: Groundwater Levels

WELL OR PIEZOMETER	(1) COMP. ZONE	(2) MON. POINT	MEAS. PT.(3,4) ELEV.		11/03/89 DEPTH	11/03/89 ELEV.	3/16/90 DEPTH	3/16/90 ELEV.	5/4/90 DEPTH	5/4/90 ELEV.	7/27/90 DEPTH	7/27/90 ELEV.	10/26/90 DEPTH	10/26/90 ELEV.	2/21/91 DEPTH	2/21/91 ELEV.	4/18/91 DEPTH	4/18/91 ELEV.	7/23/91 DEPTH	7/23/91 ELEV.	10/26/90 DEPTH	10/26/90 ELEV.	2/21/91 DEPTH	2/21/91 ELEV.	10/02/91 DEPTH	10/02/91 ELEV.
GC-8	L		5778.69		86.25	5692.44	86.30	5692.39	86.65	5692.04	86.69	5692.00	86.27	5692.42	86.06	5692.63	85.92	5692.77	86.15	5692.54	86.27	5692.42	86.06	5692.63	85.95	5692.74
GC-9	C		5793.86		111.80	5682.06	111.75	5682.11	111.60	5682.26	111.72	5682.14	111.42	5682.44	111.93	5681.93	111.29	5682.57	111.32	5682.54	111.42	5682.44	111.93	5681.93	112.30	5681.56
GC-10	L		5767.70		74.55	5618.88	74.60	5693.10	74.80	5692.90	74.87	5692.83	74.65	5693.05	74.57	5693.13	74.27	5693.43	74.77	5692.93	74.65	5693.05	74.57	5693.13	74.27	5693.43
GC-11	L		5770.30	(7)	77.15	5616.25	77.30	5693.00	77.45	5692.85	77.45	5692.85	77.30	5693.00	77.24	5693.06	76.79	5693.51	77.40	5692.90	77.30	5693.00	77.24	5693.06	76.90	5693.40
GC-12	L+		5779.39		BENT	- -	BENT	N.R.	BENT	N.R.	BENT	N.R.	BENT	N.R.	BENT	N.R.	BENT	- -	BENT	- -	BENT	N.R.	BENT	N.R.	BENT	- -
GC-13	L		5778.86		86.35	5692.51	86.89	5691.97	87.30	5691.56	87.38	5691.48	87.13	5691.73	87.70	5691.16	87.05	5691.81	87.52	5691.34	87.13	5691.73	87.70	5691.16	87.95	5690.91
GC-14	L+		5776.56	(7)	BENT	- -	BENT	N.R.	BENT	N.R.	BENT	N.R.	BENT	N.R.	BENT	N.R.	BENT	- -	BENT	- -	BENT	N.R.	BENT	N.R.	BENT	- -
GC-15	L		5779.31		86.60	5692.71	86.67	5692.64	86.80	5692.51	86.92	5692.39	86.69	5692.62	86.45	5692.86	86.30	5693.01	86.45	5692.86	86.69	5692.62	86.45	5692.86	86.24	5693.07
GC-16	I		5770.20		54.07	5665.62	54.05	5716.15	54.02	5716.18	54.20	5716.00	52.55	5717.65	51.83	5718.37	51.71	5718.49	51.46	5718.74	52.55	5717.65	51.83	5718.37	50.51	5719.69
GC-17	O	P	5779.18		DRY	- -	DRY	- -	DRY	- -	DRY	- -	DRY	- -	DRY	- -	DRY	- -	DRY	- -	DRY	- -	DRY	- -	DRY	- -
GC-18	U	P	5780.06		22.70	5757.36	21.70	5758.36	21.55	5758.51	21.60	5758.46	21.50	5758.56	21.80	5758.26	21.40	5758.66	18.17	5761.89	21.50	5758.56	21.80	5758.26	19.25	5760.81
GC-19	I+	P	5779.94		59.45	5720.49	DRY	- -	DRY	- -	DRY	- -	DRY	- -	DRY	- -	DRY	- -	DRY	- -	DRY	- -	DRY	- -	DRY	- -
GC-20	I	P	5779.10		DRY	- -	DRY	- -	DRY	- -	DRY	- -	DRY	- -	58.13	5720.97	57.98	5721.12	58.60	5720.50	DRY	- -	58.13	5720.97	58.25	5720.85
GC-21	U	P	5779.18	(7)	DRY	- -	DRY	- -	DRY	- -	DRY	- -	DRY	- -	DRY	- -	DRY	- -	DRY	- -	DRY	- -	DRY	- -	DRY	- -
GC-22	I	P	5765.98		49.35	5716.63	49.17	5716.81	49.00	5716.98	48.35	5717.63	47.67	5718.31	46.92	5719.06	46.55	5719.43	46.52	5719.46	47.67	5718.31	46.92	5719.06	45.89	5720.09
GC-23	I	P	5755.69		39.38	5716.31	39.20	5716.49	39.05	5716.64	39.18	5716.51	37.81	5717.88	37.20	5718.49	36.80	5718.89	36.89	5718.80	37.81	5717.88	37.20	5718.49	36.30	5719.39
GC-24	U+	P	5780.01		25.32	5754.69	26.55	5753.46	23.30	5756.71	24.00	5756.01	23.66	5756.35	24.30	5755.71	23.85	5756.16	23.51	5756.50	23.66	5756.35	24.30	5755.71	20.11	5759.90
GC-25	I+	P	5779.86		44.80	5735.06	DRY	- -	DRY	- -	DRY	- -	DRY	- -	DRY	- -	DRY	- -	DRY	- -	DRY	- -	DRY	- -	DRY	- -
GC-26	I		5780.12		54.75	5725.37	53.42	5726.70	53.42	5726.70	53.42	5726.70	55.80	5724.32	55.79	5724.33	55.51	5724.61	56.65	5723.47	55.80	5724.32	55.79	5724.33	56.45	5723.67
P101	L+		5778.29		- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -		5778.29
P102	L+		5777.46		90.30	5687.16	90.45	5687.01	89.90	5687.56	89.95	5687.51	89.75	5687.71	89.57	5687.89	89.22	5688.24	89.15	5688.31	89.75	5687.71	89.57	5687.89	89.34	5688.12
P103	L+		5777.32		- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
P104	L		5779.15		- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
P107	O	P	5779.26		28.07	5751.19	28.07	5751.19	28.05	5751.21	28.10	5751.16	28.00	5751.26	22.72	5756.54	27.48	5751.78	27.36	5751.90	28.00	5751.26	22.72	5756.54	27.43	5751.83
P108	U	W	5787.74	*	37.82	5749.92	37.60	5750.14	37.60	5750.14	37.67	5750.07	37.53	5750.21	37.80	5749.94	N.R.	- -	37.80	5749.94	37.53	5750.21	37.80	5749.94	37.78	5749.96
P109	O		5777.03		- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
P110	U	W	5777.72	*	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
P111	O	W	5778.06	*	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
P112	L	W	5765.22	*	72.09	5693.13	72.05	5693.17	71.92	5693.30	72.00	5693.22	72.05	5693.17	71.90	5693.32	71.90	5693.32	72.10	5693.12	72.05	5693.17	71.90	5693.32	71.68	5693.54
P113	L	W	5779.79	*	87.20	5692.59	87.96	5691.83	87.36	5692.43	87.27	5692.52	87.31	5692.48	87.05	5692.74	86.99	5692.80	87.15	5692.64	87.31	5692.48	87.05	5692.74	86.87	5692.92
P114	L	W	Note (11)	*	Note (11)	- -																				
P114a	L	W	5779.64	*	87.17	5692.47	87.27	5692.37	87.37	5692.27	87.27	5692.37	87.13	5692.51	87.05	5692.59	87.02	5692.62	87.20	5692.44	87.13	5692.51	87.05	5692.59	86.76	5692.88
P115	L	W	5779.69	*(7)	87.08	5692.61	87.25	5692.44	87.17	5692.52	87.00	5692.69	87.00	5692.69	86.86	5692.83	86.90	5692.79	87.11	5692.58	87.00	5692.69	86.86	5692.83	86.69	5693.00

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Table 1: Groundwater Levels

WELL OR PIEZOMETER	(1) COMP. ZONE	(2) MON. POINT	MEAS. PT.(3,4) ELEV.		2/20/92 DEPTH	2/20/92 ELEV.	4/21/92 DEPTH	4/21/92 ELEV.	9/17/92 DEPTH	9/17/92 ELEV.	12/11/92 DEPTH	12/11/92 ELEV.	2/12/93 DEPTH	2/12/93 ELEV.	5/14/93 DEPTH	5/14/93 ELEV.	8/3/93 DEPTH	8/3/93 ELEV.	12/11/92 DEPTH	12/11/92 ELEV.	2/12/93 DEPTH	2/12/93 ELEV.	11/11/93 DEPTH	11/11/93 ELEV.
GC-8	L		5778.69		85.80	5692.89	85.65	5693.04	85.52	5693.17	85.24	5693.45	85.88	5692.81	85.25	5693.44	85.40	5693.29	85.24	5693.45	85.88	5692.81	84.77	5693.92
GC-9	C		5793.86		112.07	5681.79	112.00	5681.86	112.57	5681.29	112.40	5681.46	112.42	5681.44	112.60	5681.26	112.87	5680.99	112.40	5681.46	112.42	5681.44	112.71	5681.15
GC-10	L		5767.70		74.17	5693.53	74.00	5693.70	73.62	5694.08	72.96	5694.74	74.12	5693.58	73.36	5694.34	73.46	5694.24	72.96	5694.74	74.12	5693.58	72.91	5694.79
GC-11	L		5770.30	(7)	76.82	5693.48	76.65	5693.65	76.22	5694.08	75.92	5694.38	75.96	5694.34	76.02	5694.28	76.11	5694.19	75.92	5694.38	75.96	5694.34	75.58	5694.72
GC-12	L+		5779.39		BENT	--	BENT	--	BENT	--	BENT	--	BENT	--	BENT	--	BENT	--	BENT	--	BENT	--	BENT	--	BENT	--
GC-13 (12)	L		5778.86		85.77	5693.09	85.38	5693.48	30.36	5748.50	24.44	5754.42	88.22	5690.64	86.24	5692.62	86.28	5692.58	24.44	5754.42	88.22	5690.64	85.16	5693.70
GC-14	L+		5776.56	(7)	BENT	--	BENT	--	BENT	--	BENT	--	BENT	--	BENT	--	BENT	--	BENT	--	BENT	--	BENT	--	BENT	--
GC-15	L		5779.31		86.08	5693.23	86.03	5693.28	85.78	5693.53	85.48	5693.83	86.10	5693.21	85.54	5693.77	85.64	5693.67	85.48	5693.83	86.10	5693.21	85.06	5694.25
GC-16	I		5770.20		50.02	5720.18	48.50	5721.70	44.68	5725.52	44.26	5725.94	44.50	5725.70	44.30	5725.90	43.89	5726.31	44.26	5725.94	44.50	5725.70	43.19	5727.01
GC-17	O	P	5779.18		DRY	--	34.15	5745.03	32.72	5746.46	33.86	5745.32	DRY	--	DRY	--	DRY	--	33.86	5745.32	DRY	--	DRY	--
GC-18	U	P	5780.06		16.10	5763.96	13.60	5766.46	16.24	5763.82	18.24	5761.82	19.50	5760.56	16.90	5763.16	17.71	5762.35	18.24	5761.82	19.50	5760.56	15.71	5764.35
GC-19	I+	P	5779.94		DRY	--	DRY	--	DRY	--	DRY	--	DRY	--	DRY	--	DRY	--	DRY	--	DRY	--	DRY	--
GC-20	I	P	5779.10		58.05	5721.05	57.65	5721.45	53.40	5725.70	51.50	5727.60	51.68	5727.42	51.14	5727.96	51.11	5727.99	51.50	5727.60	51.68	5727.42	50.15	5728.95
GC-21	U	P	5779.18	(7)	15.72	5763.46	17.35	5761.83	22.36	5756.82	DRY	--	22.04	5757.14	19.08	5760.10	22.15	5757.03	DRY	--	22.04	5757.14	19.94	5759.24
GC-22	I	P	5765.98		45.25	5720.73	43.45	5722.53	39.60	5726.38	39.44	5726.54	39.76	5726.22	39.55	5726.43	39.09	5726.89	39.44	5726.54	39.76	5726.22	38.58	5727.40
GC-23	I	P	5755.69		35.85	5719.84	34.40	5721.29	31.18	5724.51	30.74	5724.95	30.90	5724.79	30.74	5724.95	30.53	5725.16	30.74	5724.95	30.90	5724.79	29.90	5725.79
GC-24	U+	P	5780.01		13.92	5766.09	14.53	5765.48	17.78	5762.23	19.70	5760.31	20.62	5759.39	17.40	5762.61	BENT	--	19.70	5760.31	20.62	5759.39	16.52	5763.49
GC-25	I+	P	5779.86		DRY	--	DRY	--	DRY	--	DRY	--	DRY	--	DRY	--	DRY	--	DRY	--	DRY	--	DRY	--
GC-26	I		5780.12		56.49	5723.63	55.15	5724.97	47.45	5732.67	47.00	5733.12	47.20	5732.92	47.50	5732.62	47.63	5732.49	47.00	5733.12	47.20	5732.92	47.08	5733.04
P101	L+		5778.29		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P102	L+		5777.46		89.10	5688.36	89.02	5688.44	88.94	5688.52	88.88	5688.58	89.36	5688.10	88.86	5688.60	88.60	5688.86	88.88	5688.58	89.36	5688.10	88.50	5688.96
P103	L+		5777.32		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P104	L		5779.15		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P107	O	P	5779.26		26.67	5752.59	24.33	5754.93	24.00	5755.26	24.45	5754.81	27.24	5752.02	25.37	5753.89	25.09	5754.17	24.45	5754.81	27.24	5752.02	24.36	5754.90
P108	U	W	5787.74	*	36.82	5750.92	35.78	5751.96	36.44	5751.30	36.54	5751.20	37.32	5750.42	36.97	5750.77	37.05	5750.69	36.54	5751.20	37.32	5750.42	37.02	5750.72
P109	O		5777.03		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P110	U	W	5777.72	*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P111	O	W	5778.06	*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P112	L	W	5765.22	*	71.68	5693.54	71.43	5693.79	71.14	5694.08	70.97	5694.25	70.77	5694.45	70.72	5694.50	70.64	5694.58	70.97	5694.25	70.77	5694.45	69.81	5695.41
P113	L	W	5779.79	*	86.73	5693.06	86.44	5693.35	86.44	5693.35	86.23	5693.56	86.11	5693.68	86.15	5693.64	86.11	5693.68	86.23	5693.56	86.11	5693.68	85.32	5694.47
P114	L	W	Note (11)	*																				
P114a	L	W	5779.64	*	86.74	5692.90	86.45	5693.19	86.49	5693.15	86.28	5693.36	86.05	5693.59	86.03	5693.61	85.99	5693.65	86.28	5693.36	86.05	5693.59	85.15	5694.49
P115	L	W	5779.69	*(7)	86.69	5693.00	86.44	5693.25	86.44	5693.25	86.23	5693.46	86.07	5693.62	85.98	5693.71	85.90	5693.79	86.23	5693.46	86.07	5693.62	85.07	5694.62

1. Completion Zones in Dawson Formation:
   - U Upper Sandstone
   - I Intermediate Sandstone
   - L Lower Sandstone
   - C Coal (Denver Formation)
   - + Laterally adjacent finer-grained lithologic unit
   - O Other
2. Designated monitoring well:
   - W Well
   - P Piezometer
3. Top of PVC riser pipe unless marked by * which indicates top of WELL WIZARD well cap assembly.
4. All elevations and depths in feet.
5. Elevations re-surveyed with new WELL WIZARDS in place.
6. Elevations re-surveyed on 1/30/87.
7. Elevations re-surveyed on 5/14/87.
8. Well decommissioned on 8/13/87.
9. Wells decommissioned between 1/26/88 and 2/1/88.
10. Elevations re-surveyed on 10/24/89.
11. Well decommissioned on 7/17/90.
12. Piezometer GC-13 reconstructed 1/20/93.

Table 1: Groundwater Levels

WELL OR PIEZOMETER	(1) COMP. ZONE	(2) MON. POINT	MEAS. PT.(3,4) ELEV.		2/04/94 DEPTH	2/04/94 ELEV.	05/12/94 DEPTH	05/12/94 ELEV.	08/05/94 DEPTH	08/05/94 ELEV.	11/29/94 DEPTH	11/29/94 ELEV.	02/09/95 DEPTH	02/09/95 ELEV.	05/09/95 DEPTH	05/09/95 ELEV.	08/02/95 DEPTH	08/02/95 ELEV.	11/29/94 DEPTH	11/29/94 ELEV.	02/09/95 DEPTH	02/09/95 ELEV.	11/08/95 DEPTH	11/08/95 ELEV.
GC-8	L		5778.69		84.68	5694.01	84.71	5693.98	84.79	5693.90	84.49	5694.20	84.39	5694.30	84.13	5694.56	84.33	5694.36	84.49	5694.20	84.39	5694.30	83.98	5694.71
GC-9	C		5793.86		112.69	5681.17	112.94	5680.92	113.23	5680.63	113.19	5680.67	113.20	5680.66	113.21	5680.65	113.41	5680.45	113.19	5680.67	113.20	5680.66	113.42	5680.44
GC-10	L		5767.70		72.83	5694.87	72.92	5694.78	72.99	5694.71	72.75	5694.95	72.70	5695.00	72.38	5695.32	72.65	5695.05	72.75	5694.95	72.70	5695.00	72.22	5695.48
GC-11	L		5770.30	(7)	75.48	5694.82	75.51	5694.79	75.62	5694.68	75.40	5694.90	75.32	5694.98	75.06	5695.24	75.36	5694.94	75.40	5694.90	75.32	5694.98	74.85	5695.45
GC-12	L+		5779.39		BENT	- -	BENT	- -	BENT	- -	BENT	- -	BENT	--	BENT	--	BENT	--	BENT	- -	BENT	--	BENT	--
GC-13 (12)	L		5778.86		85.99	5692.87	87.11	5691.75	85.85	5693.01	85.50	5693.36	84.69	5694.17	85.09	5693.77	85.45	5693.41	85.50	5693.36	84.69	5694.17	85.81	5693.05
GC-14	L+		5776.56	(7)	BENT	- -	BENT	- -	BENT	- -	BENT	- -	BENT	--	5.65(13)	5770.91	BENT	--	BENT	- -	BENT	--	BENT	--
GC-15	L		5779.31		84.90	5694.41	84.96	5694.35	85.05	5694.26	84.72	5694.59	84.46	5694.85	84.36	5694.95	84.61	5694.70	84.72	5694.59	84.46	5694.85	84.14	5695.17
GC-16	I		5770.20		42.91	5727.29	43.20	5727.00	43.54	5726.66	43.87	5726.33	43.86	5726.34	44.30	5725.90	42.54	5727.66	43.87	5726.33	43.86	5726.34	41.49	5728.71
GC-17	O	P	5779.18		DRY	- -	DRY	- -	DRY	- -	DRY	- -	DRY	--	DRY	--	DRY	--	DRY	- -	DRY	--	DRY	--
GC-18	U	P	5780.06		17.22	5762.84	17.20	5762.86	18.37	5761.69	18.57	5761.49	19.50	5760.56	16.35	5763.71	13.45	5766.61	18.57	5761.49	19.50	5760.56	15.61	5764.45
GC-19	I+	P	5779.94		DRY	- -	DRY	- -	DRY	- -	DRY	- -	DRY	--	DRY	--	DRY	--	DRY	- -	DRY	--	DRY	--
GC-20	I	P	5779.10		49.84	5729.26	49.69	5729.41	49.66	5729.44	49.23	5729.87	48.89	5730.21	48.88	5730.22	49.12	5729.98	49.23	5729.87	48.89	5730.21	48.24	5730.86
GC-21	U	P	5779.18	(7)	23.38	5755.80	20.40	5758.78	25.03	5754.15	DRY	- -	DRY	--	18.41	5760.77	18.49	5760.69	DRY	- -	DRY	--	22.58	5756.60
GC-22	I	P	5765.98		38.29	5727.69	38.63	5727.35	39.02	5726.96	39.41	5726.57	39.55	5726.43	40.02	5725.96	37.91	5728.07	39.41	5726.57	39.55	5726.43	37.07	5728.91
GC-23	I	P	5755.69		29.79	5725.90	29.91	5725.78	30.30	5725.39	30.52	5725.17	30.51	5725.18	30.92	5724.77	29.47	5726.22	30.52	5725.17	30.51	5725.18	28.74	5726.95
GC-24	U+	P	5780.01		18.47	5761.54	18.30	5761.71	19.38	5760.63	20.08	5759.93	21.23	5758.78	14.53	5765.48	14.22	5765.79	20.08	5759.93	21.23	5758.78	17.24	5762.77
GC-25	I+	P	5779.86		DRY	- -	DRY	- -	DRY	- -	DRY	- -	DRY	--	DRY	--	DRY	--	DRY	- -	DRY	--	DRY	--
GC-26	I		5780.12		46.90	5733.22	46.74	5733.38	46.83	5733.29	46.75	5733.37	46.44	5733.68	46.78	5733.34	46.46	5733.66	46.75	5733.37	46.44	5733.68	45.62	5734.50
P101	L+		5778.29		- -	- -	- -	- -	- -	- -	- -	- -	--	--	--	--	--	--	- -	- -	--	--	--	--
P102	L+		5777.46		88.35	5689.11	88.31	5689.15	88.33	5689.13	88.18	5689.28	88.08	5689.38	87.96	5689.50	87.95	5689.51	88.18	5689.28	88.08	5689.38	87.98	5689.48
P103	L+		5777.32		- -	- -	- -	- -	- -	- -	- -	- -	--	--	--	--	--	--	- -	- -	--	--	--	--
P104	L		5779.15		- -	- -	- -	- -	- -	- -	- -	- -	--	--	--	--	--	--	- -	- -	--	--	--	--
P107	O	P	5779.26		23.90	5755.36	24.95	5754.31	25.29	5753.97	25.02	5754.24	25.33	5753.93	25.63	5753.63	22.98	5756.28	25.02	5754.24	25.33	5753.93	22.87	5756.39
P108	U	W	5787.74	*	36.99	5750.75	37.25	5750.49	37.44	5750.30	37.42	5750.32	37.36	5750.38	37.54	5750.20	37.20	5750.54	37.42	5750.32	37.36	5750.38	36.99	5750.75
P109	O		5777.03		- -	- -	- -	- -	- -	- -	- -	- -	--	--	--	--	--	--	- -	- -	--	--	--	--
P110	U	W	5777.72	*	- -	- -	- -	- -	- -	- -	- -	- -	--	--	--	--	--	--	- -	- -	--	--	--	--
P111	O	W	5778.06	*	- -	- -	- -	- -	- -	- -	- -	- -	--	--	--	--	--	--	- -	- -	--	--	--	--
P112	L	W	5765.22	*	70.22	5695.00	70.31	5694.91	70.39	5694.83	69.87	5695.35	69.94	5695.28	69.49	5695.73	70.14	5695.08	69.87	5695.35	69.94	5695.28	69.65	5695.57
P113	L	W	5779.79	*	85.57	5694.22	85.65	5694.14	85.69	5694.10	85.07	5694.72	85.12	5694.67	84.70	5695.09	85.30	5694.49	85.07	5694.72	85.12	5694.67	84.78	5695.01
P114	L	W	Note (11)	*																				
P114a	L	W	5779.64	*	85.41	5694.23	85.53	5694.11	85.62	5694.02	85.11	5694.53	85.02	5694.62	84.68	5694.96	85.28	5694.36	85.11	5694.53	85.02	5694.62	84.75	5694.89
P115	L	W	5779.69	*(7)	85.41	5694.28	85.28	5694.41	85.53	5694.16	84.95	5694.74	84.95	5694.74	84.50	5695.19	85.15	5694.54	84.95	5694.74	84.95	5694.74	84.64	5695.05

1. Completion Zones in Dawson Formation:
   - U Upper Sandstone
   - I Intermediate Sandstone
   - L Lower Sandstone
   - C Coal (Denver Formation)
   - + Laterally adjacent finer-grained lithologic unit
   - O Other
2. Designated monitoring well:
   - W Well
   - P Piezometer
3. Top of PVC riser pipe unless marked by * which indicates top of WELL WIZARD well cap assembly.
4. All elevations and depths in feet.
5. Elevations re-surveyed with new WELL WIZARDS in place.
6. Elevations re-surveyed on 1/30/87.
7. Elevations re-surveyed on 5/14/87.
8. Well decommissioned on 8/13/87.
9. Wells decommissioned between 1/26/88 and 2/1/88.
10. Elevations re-surveyed on 10/24/89.
11. Well decommissioned on 7/17/90.
12. Piezometer GC-13 reconstructed 1/20/93.
13. 05/09/95 water level in GC-14 appears erroneous due to bent casing in piezometer.

Table 1: Groundwater Levels

WELL OR PIEZOMETER	(1) COMP. ZONE	(2) MON. POINT	MEAS. PT.(3,4) ELEV.		02/06/96 DEPTH	02/06/96 ELEV.	05/30/96 DEPTH	05/30/96 ELEV.	08/21/96 DEPTH	08/21/96 ELEV.	10/30/96 DEPTH	10/30/96 ELEV.	02/18/97 DEPTH	02/18/97 ELEV.	05/27/97 DEPTH	05/27/97 ELEV.	08/15/97 DEPTH	08/15/97 ELEV.	10/30/96 DEPTH	10/30/96 ELEV.	02/18/97 DEPTH	02/18/97 ELEV.	11/13/97 DEPTH	11/13/97 ELEV.
GC-8	L		5778.69		84.16	5694.53	83.89	5694.80	84.17	5694.52	83.76	5694.93	83.76	5694.93	83.62	5695.07	83.42	5695.27	83.76	5694.93	83.76	5694.93	83.03	5695.66
GC-9	C		5793.86		113.56	5680.30	113.52	5680.34	113.96	5679.90	114.93	5678.93	113.98	5679.88	114.18	5679.68	114.08	5679.78	114.93	5678.93	113.98	5679.88	114.11	5679.75
GC-10	L		5767.70		72.44	5695.26	72.18	5695.52	72.23	5695.47	72.00	5695.70	71.81	5695.89	71.98	5695.72	71.65	5696.05	72.00	5695.70	71.81	5695.89	71.04	5696.66
GC-11	L		5770.30	(7)	75.11	5695.19	75.08	5695.22	74.95	5695.35	74.67	5695.63	74.55	5695.75	74.62	5695.68	74.51	5695.79	74.67	5695.63	74.55	5695.75	73.76	5696.54
GC-12	L+		5779.39		BENT	--	BENT	--	BENT	--	BENT	--	BENT	--	BENT	--	BENT	--	BENT	--	BENT	--	BENT	--	BENT	--
GC-13 (12)	L		5778.86		85.13	5693.73	84.19	5694.67	84.36	5694.50	84.06	5694.80	83.89	5694.97	84.04	5694.82	83.71	5695.15	84.06	5694.80	83.89	5694.97	85.83	5693.03
GC-14	L+		5776.56	(7)	BENT	--	BENT	--	BENT	--	BENT	--	BENT	--	BENT	--	BENT	--	BENT	--	BENT	--	BENT	--	BENT	--
GC-15	L		5779.31		84.42	5694.89	84.20	5695.11	84.24	5695.07	84.03	5695.28	83.82	5695.49	83.88	5695.43	83.71	5695.60	84.03	5695.28	83.82	5695.49	83.22	5696.09
GC-16	I		5770.20		41.83	5728.37	42.15	5728.05	41.54	5728.66	41.54	5728.66	41.48	5728.72	42.11	5728.09	41.15	5729.05	41.54	5728.66	41.48	5728.72	38.56	5731.64
GC-17	O	P	5779.18		DRY	--	DRY	--	DRY	--	DRY	--	DRY	--	DRY	--	DRY	--	DRY	--	DRY	--	DRY	--	33.51	5745.67
GC-18	U	P	5780.06		18.41	5761.65	17.07	5762.99	17.71	5762.35	17.37	5762.69	19.19	5760.87	17.96	5762.10	9.41	5770.65	17.37	5762.69	19.19	5760.87	11.93	5768.13
GC-19	I+	P	5779.94		DRY	--	DRY	--	DRY	--	DRY	--	DRY	--	DRY	--	DRY	--	DRY	--	DRY	--	DRY	--	DRY	--
GC-20	I	P	5779.10		48.03	5731.07	47.44	5731.66	47.32	5731.78	47.03	5732.07	46.62	5732.48	46.54	5732.56	46.15	5732.95	47.03	5732.07	46.62	5732.48	44.98	5734.12
GC-21	U	P	5779.18	(7)	25.97	5753.21	19.99	5759.19	23.57	5755.61	22.47	5756.71	DRY	--	20.91	5758.27	16.05	5763.13	22.47	5756.71	DRY	--	19.11	5760.07
GC-22	I	P	5765.98		37.40	5728.58	37.88	5728.10	37.20	5728.78	37.19	5728.79	37.32	5728.66	37.93	5728.05	37.02	5728.96	37.19	5728.79	37.32	5728.66	34.35	5731.63
GC-23	I	P	5755.69		29.03	5726.66	29.23	5726.46	28.73	5726.96	28.85	5726.84	28.78	5726.91	29.35	5726.34	28.26	5727.43	28.85	5726.84	28.78	5726.91	26.49	5729.20
GC-24	U+	P	5780.01		19.38	5760.63	13.69	5766.32	18.14	5761.87	17.80	5762.21	20.06	5759.95	17.67	5762.34	9.31	5770.70	17.80	5762.21	20.06	5759.95	13.08	5766.93
GC-25	I+	P	5779.86		DRY	--	DRY	--	DRY	--	DRY	--	43.60	5736.26	43.16	5736.70	41.08	5738.78	DRY	--	43.60	5736.26	37.45	5742.41
GC-26	I		5780.12		45.35	5734.77	44.91	5735.21	44.78	5735.34	44.60	5735.52	44.08	5736.04	44.03	5736.09	43.64	5736.48	44.60	5735.52	44.08	5736.04	41.84	5738.28
P101	L+		5778.29		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P102	L+		5777.46		87.87	5689.59	87.72	5689.74	87.77	5689.69	87.71	5689.75	87.53	5689.93	87.50	5689.96	87.48	5689.98	87.71	5689.75	87.53	5689.93	87.45	5690.01
P103	L+		5777.32		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P104	L		5779.15		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P107	O	P	5779.26		23.90	5755.36	24.78	5754.48	24.56	5754.70	24.23	5755.03	24.68	5754.58	25.03	5754.23	23.37	5755.89	24.23	5755.03	24.68	5754.58	20.98	5758.28
P108	U	W	5787.74	*	37.19	5750.55	37.21	5750.53	37.30	5750.44	37.35	5750.39	37.36	5750.38	37.57	5750.17	37.03	5750.71	37.35	5750.39	37.36	5750.38	36.50	5751.24
P109	O		5777.03		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P110	U	W	5777.72	*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P111	O	W	5778.06	*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P112	L	W	5765.22	*	69.95	5695.27	69.55	5695.67	69.64	5695.58	69.45	5695.77	69.18	5696.04	69.35	5695.87	69.08	5696.14	69.45	5695.77	69.18	5696.04	68.36	5696.86
P113	L	W	5779.79	*	85.05	5694.74	84.67	5695.12	84.74	5695.05	84.58	5695.21	84.32	5695.47	84.46	5695.33	84.22	5695.57	84.58	5695.21	84.32	5695.47	83.78	5696.01
P114	L	W	Note (11)	*																				
P114a	L	W	5779.64	*	85.13	5694.51	84.68	5694.96	84.75	5694.89	84.55	5695.09	84.38	5695.26	84.48	5695.16	84.18	5695.46	84.55	5695.09	84.38	5695.26	83.73	5695.91
P115	L	W	5779.69	*(7)	84.95	5694.74	84.53	5695.16	84.60	5695.09	84.44	5695.25	84.10	5695.59	84.33	5695.36	84.60	5695.09	84.44	5695.25	84.10	5695.59	83.56	5696.13

1. Completion Zones in Dawson Formation:
   - U Upper Sandstone
   - I Intermediate Sandstone
   - L Lower Sandstone
   - C Coal (Denver Formation)
   - + Laterally adjacent finer-grained lithologic unit
   - O Other
2. Designated monitoring well:
   - W Well
   - P Piezometer
3. Top of PVC riser pipe unless marked by * which indicates top of WELL WIZARD well cap assembly.
4. All elevations and depths in feet.
5. Elevations re-surveyed with new WELL WIZARDS in place.
6. Elevations re-surveyed on 1/30/87.
7. Elevations re-surveyed on 5/14/87.
8. Well decommissioned on 8/13/87.
9. Wells decommissioned between 1/26/88 and 2/1/88.
10. Elevations re-surveyed on 10/24/89.
11. Well decommissioned on 7/17/90.
12. Piezometer GC-13 reconstructed 1/20/93.
13. 05/09/95 water level in GC-14 appears erroneous due to bent casing in piezometer.

Table 1: Groundwater Levels

WELL OR PIEZOMETER	(1) COMP. ZONE	(2) MON. POINT	MEAS. PT.(3,4) ELEV.		02/05/98 DEPTH	02/05/98 ELEV.	05/27/98 DEPTH	05/27/98 ELEV.	08/07/98 DEPTH	08/07/98 ELEV.	11/06/98 DEPTH	11/06/98 ELEV.	02/18/99 DEPTH	02/18/99 ELEV.	05/21/99 DEPTH	05/21/99 ELEV.	09/01/99 DEPTH	09/01/99 ELEV.	11/06/98 DEPTH	11/06/98 ELEV.	02/18/99 DEPTH	02/18/99 ELEV.	11/03/99 DEPTH	11/03/99 ELEV.
GC-8	L		5778.69		83.02	5695.67	82.87	5695.82	82.91	5695.78	82.03	5696.66	81.84	5696.85	81.85	5696.84	81.15	5697.54	82.03	5696.66	81.84	5696.85	NM	- -
GC-9	C		5793.86		114.11	5679.75	114.37	5679.49	114.55	5679.31	114.74	5679.12	114.90	5678.96	114.74	5679.12	115.35	5678.51	114.74	5679.12	114.90	5678.96	NM	- -
GC-10	L		5767.70		70.94	5696.76	70.55	5697.15	70.33	5697.37	69.55	5698.15	69.38	5698.32	69.28	5698.42	68.64	5699.06	69.55	5698.15	69.38	5698.32	NM	- -
GC-11	L		5770.30	(7)	73.55	5696.75	73.39	5696.91	72.82	5697.48	72.18	5698.12	72.50	5697.80	71.95	5698.35	71.35	5698.95	72.18	5698.12	72.50	5697.80	NM	- -
GC-12	L+		5779.39		BENT	- -	BENT	- -	BENT	- -	BENT	- -	BENT	- -	BENT	- -	BENT	- -	BENT	- -	BENT	- -	NM	- -
GC-13 (12)	L		5778.86		83.86	5695.00	85.64	5693.22	85.84	5693.02	83.28	5695.58	82.15	5696.71	82.02	5696.84	81.55	5697.31	83.28	5695.58	82.15	5696.71	NM	- -
GC-14	L+		5776.56	(7)	BENT	- -	BENT	- -	BENT	- -	BENT	- -	BENT	- -	BENT	- -	BENT	- -	BENT	- -	BENT	- -	NM	- -
GC-15	L		5779.31		83.23	5696.08	83.06	5696.25	82.89	5696.42	82.25	5697.06	82.04	5697.27	81.81	5697.50	BENT	- -	82.25	5697.06	82.04	5697.27	NM	- -
GC-16	I		5770.20		37.80	5732.40	35.50	5734.70	BENT	- -	34.30	5735.90	35.40	5734.80	34.81	5735.39	33.42	5736.78	34.30	5735.90	35.40	5734.80	33.36	5736.84
GC-17	O	P	5779.18		32.68	5746.50	27.93	5751.25	28.06	5751.12	27.96	5751.22	30.70	5748.48	29.62	5749.56	27.00	5752.18	27.96	5751.22	30.70	5748.48	NM	- -
GC-18	U	P	5780.06		12.94	5767.12	12.73	5767.33	11.47	5768.59	13.45	5766.61	15.05	5765.01	10.20	5769.86	11.03	5769.03	13.45	5766.61	15.05	5765.01	13.76	5766.30
GC-19	I+	P	5779.94		DRY	- -	DRY	- -	DRY	- -	58.62	5721.32	57.82	5722.12	57.41	5722.53	56.36	5723.58	58.62	5721.32	57.82	5722.12	NM	- -
GC-20	I	P	5779.10		43.78	5735.32	BENT	- -	BENT	- -	36.45	5742.65	36.84	5742.26	37.09	5742.01	34.20	5744.90	36.45	5742.65	36.84	5742.26	NM	- -
GC-21	U	P	5779.18	(7)	19.58	5759.60	16.88	5762.30	18.07	5761.11	22.99	5756.19	23.46	5755.72	18.68	5760.50	18.35	5760.83	22.99	5756.19	23.46	5755.72	23.67	5755.51
GC-22	I	P	5765.98		33.50	5732.48	31.14	5734.84	30.99	5734.99	30.38	5735.60	31.61	5734.37	30.66	5735.32	25.59	5740.39	30.38	5735.60	31.61	5734.37	29.67	5736.31
GC-23	I	P	5755.69		26.02	5729.67	24.29	5731.40	23.99	5731.70	23.32	5732.37	24.27	5731.42	23.08	5732.61	22.77	5732.92	23.32	5732.37	24.27	5731.42	NM	- -
GC-24	U+	P	5780.01		13.58	5766.43	11.95	5768.06	12.12	5767.89	15.16	5764.85	16.45	5763.56	11.50	5768.51	11.63	5768.38	15.16	5764.85	16.45	5763.56	NM	- -
GC-25	I+	P	5779.86		36.30	5743.56	32.66	5747.20	32.07	5747.79	30.98	5748.88	30.95	5748.91	29.70	5750.16	27.74	5752.12	30.98	5748.88	30.95	5748.91	NM	- -
GC-26	I		5780.12		39.50	5740.62	33.70	5746.42	32.88	5747.24	32.48	5747.64	34.46	5745.66	34.05	5746.07	31.55	5748.57	32.48	5747.64	34.46	5745.66	31.92	5748.20
P101	L+		5778.29		- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	--	--
P102	L+		5777.46		87.26	5690.20	87.25	5690.21	87.18	5690.28	87.14	5690.32	86.89	5690.57	86.69	5690.77	86.63	5690.83	87.14	5690.32	86.89	5690.57	NM	- -
P103	L+		5777.32		- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	--	--
P104	L		5779.15		- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	--	--
P107	O	P	5779.26		20.20	5759.06	18.16	5761.10	19.45	5759.81	19.58	5759.68	20.78	5758.48	18.51	5760.75	18.18	5761.08	19.58	5759.68	20.78	5758.48	19.17	5760.09
P108	U	W	5787.74	*	35.77	5751.97	35.86	5751.88	35.98	5751.76	36.09	5751.65	36.35	5751.39	36.05	5751.69	35.93	5751.81	36.09	5751.65	36.35	5751.39	NM	- -
P109	O		5777.03		- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	--	--
P110	U	W	5777.72	*	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	--	--
P111	O	W	5778.06	*	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	--	--
P112	L	W	5765.22	*	68.17	5697.05	67.82	5697.40	67.53	5697.69	66.90	5698.32	66.44	5698.78	66.65	5698.57	65.95	5699.27	66.90	5698.32	66.44	5698.78	65.78	5699.44
P113	L	W	5779.79	*	83.68	5696.11	83.49	5696.30	83.45	5696.34	83.03	5696.76	82.32	5697.47	82.34	5697.45	82.03	5697.76	83.03	5696.76	82.32	5697.47	81.74	5698.05
P114	L	W	5779.84	*	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	--	--
P114a	L	W	5779.64	*	83.65	5695.99	83.54	5696.10	83.44	5696.20	82.94	5696.70	82.40	5697.24	82.36	5697.28	81.98	5697.66	82.94	5696.70	82.40	5697.24	81.73	5697.91
P115	L	W	5779.69	*(7)	83.54	5696.15	83.36	5696.33	83.29	5696.40	82.80	5696.89	82.21	5697.48	82.23	5697.46	81.80	5697.89	82.80	5696.89	82.21	5697.48	81.64	5698.05

1. Completion Zones in Dawson Formation:
   - U Upper Sandstone
   - I Intermediate Sandstone
   - L Lower Sandstone
   - C Coal (Denver Formation)
   - + Laterally adjacent finer-grained lithologic unit
   - O Other
2. Designated monitoring well:
   - W Well
   - P Piezometer

   NM - Not measured
3. Top of PVC riser pipe unless marked by * which indicates top of WELL WIZARD well cap assembly.
4. All elevations and depths in feet.
5. Elevations re-surveyed with new WELL WIZARDS in place.
6. Elevations re-surveyed on 1/30/87.
7. Elevations re-surveyed on 5/14/87.
8. Well decommissioned on 8/13/87.
9. Wells decommissioned between 1/26/88 and 2/1/88.
10. Elevations re-surveyed on 10/24/89.
11. Well decommissioned on 7/17/90.
12. Piezometer GC-13 reconstructed 1/20/93.
13. 05/09/95 water level in GC-14 appears erroneous due to bent casing in piezometer.

Table 1: Groundwater Levels

WELL OR PIEZOMETER	(1) COMP. ZONE	(2) MON. POINT	MEAS. PT.(3,4) ELEV.		05/02/00 DEPTH	05/02/00 ELEV.	11/15/00 DEPTH	11/15/00 ELEV.	06/11/01 DEPTH	06/11/01 ELEV.	11/27/01 DEPTH	11/27/01 ELEV.	05/23/02 DEPTH	05/23/02 ELEV.	11/14/02 DEPTH	11/14/02 ELEV.	05/13/03 DEPTH	05/13/03 ELEV.	11/27/01 DEPTH	11/27/01 ELEV.	05/23/02 DEPTH	05/23/02 ELEV.	11/11/03 DEPTH	11/11/03 ELEV.
GC-8 (14)	L		5778.69		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-9 (14)	C		5793.86		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-10 (14)	L		5767.70		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-11 (14)	L		5770.30	(7)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-12 (14)	L+		5779.39		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-13 (12,14)	L		5778.86		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-14 (14)	L+		5776.56	(7)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-15 (14)	L		5779.31		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-16	I		5770.20		35.15	5735.05	35.35	5734.85	35.47	5734.73	36.42	5733.78	37.76	5732.44	38.85	5731.35	39.83	5730.37	36.42	5733.78	37.76	5732.44	BENT	--
GC-17 (14)	O	P	5779.18		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-18	U	P	5780.06		14.00	5766.06	15.43	5764.63	11.75	5768.31	16.39	5763.67	18.57	5761.49	19.59	5760.47	9.24	5770.82	16.39	5763.67	18.57	5761.49	16.22	5763.84
GC-19 (14)	I+	P	5779.94		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-20 (14)	I	P	5779.10		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-21	U	P	5779.18	(7)	20.74	5758.44	DRY	--	20.05	5759.13	DRY	--	25.52	5753.66	DRY	--	19.34	5759.84	DRY	--	25.52	5753.66	DRY	--
GC-22	I	P	5765.98		31.45	5734.53	31.95	5734.03	31.68	5734.30	33.07	5732.91	34.32	5731.66	35.49	5730.49	36.38	5729.60	33.07	5732.91	34.32	5731.66	35.55	5730.43
GC-23 (14)	I	P	5755.69		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-24 (14)	U+	P	5780.01		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-25 (14)	I+	P	5779.86		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-26	I		5780.12		34.65	5745.47	34.61	5745.51	34.65	5745.47	34.63	5745.49	36.30	5743.82	37.51	5742.61	38.51	5741.61	34.63	5745.49	36.30	5743.82	35.47	5744.65
P101	L+		5778.29		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P102 (14)	L+		5777.46		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P103	L+		5777.32		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P104	L		5779.15		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P107	O	P	5779.26		20.59	5758.67	21.11	5758.15	21.11	5758.15	20.97	5758.29	22.76	5756.50	23.42	5755.84	20.09	5759.17	20.97	5758.29	22.76	5756.50	20.63	5758.63
P108 (14)	U	W	5787.74	*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P109	O		5777.03		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P110	U	W	5777.72	*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P111	O	W	5778.06	*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P112	L	W	5765.22	*	65.38	5699.84	64.77	5700.45	64.97	5700.25	65.24	5699.98	65.13	5700.09	65.43	5699.79	65.92	5699.30	65.24	5699.98	65.13	5700.09	65.43	5699.79
P113	L	W	5779.79	*	81.14	5698.65	80.37	5699.42	80.28	5699.51	80.34	5699.45	79.96	5699.83	80.06	5699.73	80.45	5699.34	80.34	5699.45	79.96	5699.83	80.10	5699.69
P114	L	W	5779.84	*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P114a	L	W	5779.64	*	81.03	5698.61	80.26	5699.38	80.20	5699.44	80.38	5699.26	79.95	5699.69	80.88	5698.76	80.47	5699.17	80.38	5699.26	79.95	5699.69	80.00	5699.64
P115	L	W	5779.69	*(7)	80.92	5698.77	80.12	5699.57	80.10	5699.59	80.23	5699.46	79.88	5699.81	80.01	5699.68	80.38	5699.31	80.23	5699.46	79.88	5699.81	79.90	5699.79

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9. Wells decommissioned between 1/26/88 and 2/1/88.
10. Elevations re-surveyed on 10/24/89.
11. Well decommissioned on 7/17/90.
12. Piezometer GC-13 reconstructed 1/20/93.
13. 05/09/95 water level in GC-14 appears erroneous due to bent casing in piezometer.
14. Wells decommissioned in January 2000.

Table 1: Groundwater Levels

WELL OR PIEZOMETER	(1) COMP. ZONE	(2) MON. POINT	MEAS. PT.(3,4) ELEV.		02/24/04 DEPTH	02/24/04 ELEV.	03/17/04 DEPTH	03/17/04 ELEV.	04/29/04 DEPTH	04/29/04 ELEV.	05/10/04 DEPTH	05/10/04 ELEV.	06/30/04 DEPTH	06/30/04 ELEV.	07/28/04 DEPTH	07/28/04 ELEV.	11/17/04 DEPTH	11/17/04 ELEV.	05/10/04 DEPTH	05/10/04 ELEV.	06/30/04 DEPTH	06/30/04 ELEV.	06/08/05 DEPTH	06/08/05 ELEV.
GC-8 (14)	L		5778.69		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-9 (14)	C		5793.86		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-10 (14)	L		5767.70		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-11 (14)	L		5770.30	(7)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-12 (14)	L+		5779.39		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-13 (12,14)	L		5778.86		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-14 (14)	L+		5776.56	(7)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-15 (14)	L		5779.31		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-16	I		5770.20		--	--	--	--	--	--	39.55	5730.65	--	--	--	--	39.94	5730.26	39.55	5730.65	--	--	39.79	5730.41
GC-17 (14)	O	P	5779.18		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-18	U	P	5780.06		--	--	--	--	--	--	14.93	5765.13	--	--	--	--	16.26	5763.80	14.93	5765.13	--	--	12.13	5767.93
GC-19 (14)	I+	P	5779.94		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-20 (14)	I	P	5779.10		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-21	U	P	5779.18	(7)	--	--	--	--	--	--	20.55	5758.63	--	--	--	--	25.04	5754.14	20.55	5758.63	--	--	18.60	5760.58
GC-22	I	P	5765.98		--	--	--	--	--	--	36.45	5729.53	--	--	--	--	36.73	5729.25	36.45	5729.53	--	--	36.66	5729.32
GC-23 (14)	I	P	5755.69		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-24 (14)	U+	P	5780.01		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-25 (14)	I+	P	5779.86		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-26	I		5780.12		--	--	--	--	--	--	37.02	5743.10	--	--	--	--	36.86	5743.26	37.02	5743.10	--	--	36.50	5743.62
P101	L+		5778.29		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P102 (14)	L+		5777.46		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P103	L+		5777.32		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P104	L		5779.15		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P107	O	P	5779.26		--	--	--	--	--	--	22.42	5756.84	--	--	--	--	20.81	5758.45	22.42	5756.84	--	--	19.52	5759.74
P108 (14)	U	W	5787.74	*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P109	O		5777.03		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P110	U	W	5777.72	*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P111	O	W	5778.06	*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P112	L	W	5765.22	*	65.49	5699.73	65.42	5699.80	65.68	5699.54	65.64	5699.58	66.69	5698.53	66.66	5698.56	65.44	5699.78	65.64	5699.58	66.69	5698.53	65.01	5700.21
P113	L	W	5779.79	*	80.11	5699.68	80.07	5699.72	81.00	5698.79	80.15	5699.64	81.29	5698.50	81.26	5698.53	80.17	5699.62	80.15	5699.64	81.29	5698.50	79.80	5699.99
P114	L	W	5779.84	*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P114a	L	W	5779.64	*	80.10	5699.54	80.03	5699.61	81.07	5698.57	80.11	5699.53	81.28	5698.36	81.27	5698.37	80.18	5699.46	80.11	5699.53	81.28	5698.36	79.79	5699.85
P115	L	W	5779.69	*(7)	79.99	5699.70	79.91	5699.78	80.99	5698.70	79.95	5699.74	81.21	5698.48	81.15	5698.54	80.05	5699.64	79.95	5699.74	81.21	5698.48	79.68	5700.01

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14. Wells decommissioned in January 2000.

Table 1: Groundwater Levels

WELL OR PIEZOMETER	(1) COMP. ZONE	(2) MON. POINT	MEAS. PT.(3,4) ELEV.		11/22/05 DEPTH	11/22/05 ELEV.	05/16/06 DEPTH	05/16/06 ELEV.	11/15/06 DEPTH	11/15/06 ELEV.	06/07/07 DEPTH	06/07/07 ELEV.	12/26/07 DEPTH	12/26/07 ELEV.	06/20/08 DEPTH	06/20/08 ELEV.	06/23/08 DEPTH	06/23/08 ELEV.	06/07/07 DEPTH	06/07/07 ELEV.	12/26/07 DEPTH	12/26/07 ELEV.	11/19/08 DEPTH	11/19/08 ELEV.	12/12/08 DEPTH	12/12/08 ELEV.
GC-8 (14)	L		5778.69		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-9 (14)	C		5793.86		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-10 (14)	L		5767.70		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-11 (14)	L		5770.30	(7)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-12 (14)	L+		5779.39		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-13 (12,14)	L		5778.86		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-14 (14)	L+		5776.56	(7)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-15 (14)	L		5779.31		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-16	I	P	5770.20		39.11	5731.09	39.98	5730.22	BLOCKED	--	39.15	5731.06	38.05	5732.15	39.03	5731.17	--	--	39.15	5731.06	38.05	5732.15	41.39	5728.81	--	--
GC-17 (14)	O	P	5779.18		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-18	U	P	5780.06		16.78	5763.28	20.16	5759.90	18.40	5761.66	10.62	5769.44	17.68	5762.38	--	--	18.17	5761.89	10.62	5769.44	17.68	5762.38	--	--	19.15	5760.91
GC-19 (14)	I+	P	5779.94		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-20 (14)	I	P	5779.10		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-21	U	P	5779.18	(7)	DRY	--	DRY	--	DRY	--	16.70	5762.48	DRY	--	23.13	5756.05	--	--	16.70	5762.48	DRY	--	--	--	DRY	--
GC-22	I	P	5765.98		36.08	5729.90	36.73	5729.25	37.48	5728.50	36.20	5729.78	35.20	5730.78	36.25	5729.73	--	--	36.20	5729.78	35.20	5730.78	37.50	5728.48	--	--
GC-23 (14)	I	P	5755.69		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-24 (14)	U+	P	5780.01		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-25 (14)	I+	P	5779.86		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-26	I	P	5780.12		36.13	5743.99	37.66	5742.46	38.49	5741.63	33.00	5747.12	34.10	5746.02	--	--	36.56	5743.56	33.00	5747.12	34.10	5746.02	36.62	5743.50	--	--
P101	L+		5778.29		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P102 (14)	L+		5777.46		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P103	L+		5777.32		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P104	L		5779.15		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P107	O	P	5779.26		20.94	5758.32	23.18	5756.08	22.43	5756.83	15.60	5763.66	20.60	5758.66	--	--	22.44	5756.82	15.60	5763.66	20.60	5758.66	--	--	22.19	5757.07
P108 (14)	U	W	5787.74	*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P109	O		5777.03		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P110	U	W	5777.72	*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P111	O	W	5778.06	*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P112	L	W	5765.22	*	64.80	5700.42	65.31	5699.91	64.37	5700.85	63.58	5701.64	63.04	5702.18	63.77	5701.45	--	--	63.58	5701.64	63.04	5702.18	63.05	5702.17	--	--
P113	L	W	5779.79	*	79.92	5699.87	80.02	5699.77	79.48	5700.31	79.10	5700.69	78.20	5701.59	--	--	78.50	5701.29	79.10	5700.69	78.20	5701.59	--	--	78.30	5701.49
P114	L	W	5779.84	*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P114a	L	W	5779.64	*	79.78	5699.86	79.96	5699.68	79.53	5700.11	79.20	5700.44	78.11	5701.53	--	--	78.50	5701.14	79.20	5700.44	78.11	5701.53	--	--	78.16	5701.48
P115	L	W	5779.69	*(7)	79.60	5700.09	79.82	5699.87	79.38	5700.31	78.50	5701.19	78.01	5701.68	--	--	78.35	5701.34	78.50	5701.19	78.01	5701.68	78.90	5700.79	--	--

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Table 1: Groundwater Levels

WELL OR PIEZOMETER	(1) COMP. ZONE	(2) MON. POINT	MEAS. PT.(3,4) ELEV.		06/16/09 DEPTH	06/16/09 ELEV.	06/17/09 DEPTH	06/17/09 ELEV.	11/13/09 DEPTH	11/13/09 ELEV.	05/17/10 DEPTH	05/17/10 ELEV.	11/05/10 DEPTH	11/05/10 ELEV.	05/04/11 DEPTH	05/04/11 ELEV.	10/27/11 DEPTH	10/27/11 ELEV.	05/03/12 DEPTH	05/03/12 ELEV.	10/23/12 DEPTH	10/23/12 ELEV.	05/01/13 DEPTH	05/01/13 ELEV.	11/08/13 DEPTH	11/08/13 ELEV.
GC-8 (14)	L		5778.69		- -	- -	- -	- -	- -	- -	--	--	--	--	--	- -	--	- -	--	--	--	--	--	--	--	--
GC-9 (14)	C		5793.86		- -	- -	- -	- -	- -	- -	--	--	--	--	--	- -	--	- -	--	--	--	--	--	--	--	--
GC-10 (14)	L		5767.70		- -	- -	- -	- -	- -	- -	--	--	--	--	--	- -	--	- -	--	--	--	--	--	--	--	--
GC-11 (14)	L		5770.30	(7)	- -	- -	- -	- -	- -	- -	--	--	--	--	--	- -	--	- -	--	--	--	--	--	--	--	--
GC-12 (14)	L+		5779.39		- -	- -	- -	- -	- -	- -	--	--	--	--	--	- -	--	- -	--	--	--	--	--	--	--	--
GC-13 (12,14)	L		5778.86		- -	- -	- -	- -	- -	- -	--	--	--	--	--	- -	--	- -	--	--	--	--	--	--	--	--
GC-14 (14)	L+		5776.56	(7)	- -	- -	- -	- -	- -	- -	--	--	--	--	--	- -	--	- -	--	--	--	--	--	--	--	--
GC-15 (14)	L		5779.31		- -	- -	- -	- -	- -	- -	--	--	--	--	--	- -	--	- -	--	--	--	--	--	--	--	--
GC-16	I	P	5770.20		40.27	5729.93	- -	- -	38.56	5731.64	38.83	5731.37	37.58	5732.62	38.75	5731.45	39.30	5730.90	39.78	5730.42	40.06	5730.14	41.32	5728.88	40.51	5729.69
GC-17 (14)	O	P	5779.18		- -	- -	- -	- -	- -	- -	--	- -	--	- -	--	- -	--	- -	--	- -	--	- -	--	- -	--	- -
GC-18	U	P	5780.06		10.70	5769.36	- -	- -	14.95	5765.11	11.04	5769.02	17.16	5762.90	20.35	5759.71	18.90	5761.16	16.71	5763.35	20.09	5759.97	16.23	5763.83	17.43	5762.63
GC-19 (14)	I+	P	5779.94		- -	- -	- -	- -	- -	- -	--	- -	--	- -	--	- -	--	- -	--	- -	--	- -	--	- -	--	- -
GC-20 (14)	I	P	5779.10		- -	- -	- -	- -	- -	- -	--	- -	--	- -	--	- -	--	- -	--	- -	--	- -	--	- -	--	- -
GC-21	U	P	5779.18	(7)	16.25	5762.93	- -	- -	21.89	5757.29	15.61	5763.57	DRY	- -	DRY	- -	DRY	- -	20.32	5758.86	DRY	- -	19.45	5759.73	22.82	5756.36
GC-22	I	P	5765.98		37.01	5728.97	- -	- -	35.98	5730.00	36.09	5729.89	35.05	5730.93	35.96	5730.02	36.57	5729.41	36.93	5729.05	37.35	5728.63	38.18	5727.80	37.90	5728.08
GC-23 (14)	I	P	5755.69		- -	- -	- -	- -	- -	- -	--	- -	--	- -	--	- -	--	- -	--	- -	--	- -	--	- -	--	- -
GC-24 (14)	U+	P	5780.01		- -	- -	- -	- -	- -	- -	--	- -	--	- -	--	- -	--	- -	--	- -	--	- -	--	- -	--	- -
GC-25 (14)	I+	P	5779.86		- -	- -	- -	- -	- -	- -	--	- -	--	- -	--	- -	--	- -	--	- -	--	- -	--	- -	--	- -
GC-26	I	P	5780.12		- -	- -	35.41	5744.71	33.90	5746.22	33.21	5746.91	33.01	5747.11	35.61	5744.51	37.13	5742.99	37.14	5742.98	37.92	5742.20	39.73	5740.39	38.26	5741.86
P101	L+		5778.29		- -	- -	- -	- -	- -	- -	--	- -	--	- -	--	- -	--	- -	--	- -	--	- -	--	- -	--	- -
P102 (14)	L+		5777.46		- -	- -	- -	- -	- -	- -	--	- -	--	- -	--	- -	--	- -	--	- -	--	- -	--	- -	--	- -
P103	L+		5777.32		- -	- -	- -	- -	- -	- -	--	- -	--	- -	--	- -	--	- -	--	- -	--	- -	--	- -	--	- -
P104	L		5779.15		- -	- -	- -	- -	- -	- -	--	- -	--	- -	--	- -	--	- -	--	- -	--	- -	--	- -	--	- -
P107	O	P	5779.26		19.89	5759.37	- -	- -	20.15	5759.11	17.93	5761.33	20.12	5759.14	22.76	5756.50	21.91	5757.35	21.52	5757.74	22.90	5756.36	23.13	5756.13	21.38	5757.88
P108 (14)	U	W	5787.74	*	- -	- -	- -	- -	- -	- -	--	- -	--	- -	--	- -	--	- -	--	- -	--	- -	--	- -	--	- -
P109	O		5777.03		- -	- -	- -	- -	- -	- -	--	- -	--	- -	--	- -	--	- -	--	- -	--	- -	--	- -	--	- -
P110	U	W	5777.72	*	- -	- -	- -	- -	- -	- -	--	- -	--	- -	--	- -	--	- -	--	- -	--	- -	--	- -	--	- -
P111	O	W	5778.06	*	- -	- -	- -	- -	- -	- -	--	- -	--	- -	--	- -	--	- -	--	- -	--	- -	--	- -	--	- -
P112	L	W	5765.22	*	62.75	5702.47	- -	- -	61.71	5703.51	62.11	5703.11	61.49	5703.73	61.95	5703.27	61.71	5703.51	61.85	5703.37	62.13	5703.09	63.00	5702.22	61.88	5703.34
P113	L	W	5779.79	*	77.96	5701.83	- -	- -	77.05	5702.74	77.28	5702.51	76.82	5702.97	76.72	5703.07	76.68	5703.11	76.60	5703.19	76.61	5703.18	77.26	5702.53	76.67	5703.12
P114	L	W	5779.84	*	- -	- -	- -	- -	- -	- -	--	- -	--	- -	--	- -	--	- -	--	- -	--	- -	--	- -	--	- -
P114a	L	W	5779.64	*	77.95	5701.69	- -	- -	76.95	5702.69	77.30	5702.34	76.80	5702.84	76.74	5702.90	76.59	5703.05	76.55	5703.09	76.61	5703.03	77.45	5702.19	76.86	5702.78
P115	L	W	5779.69	*(7)	77.81	5701.88	- -	- -	76.80	5702.89	77.12	5702.57	76.65	5703.04	76.60	5703.09	76.48	5703.21	76.42	5703.27	76.50	5703.19	77.37	5702.32	76.73	5702.96

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   - P Piezometer
3. Top of PVC riser pipe unless marked by * which indicates top of WELL WIZARD well cap assembly.
4. All elevations and depths in feet.
5. Elevations re-surveyed with new WELL WIZARDS in place.
6. Elevations re-surveyed on 1/30/87.
7. Elevations re-surveyed on 5/14/87.
8. Well decommissioned on 8/13/87.
9. Wells decommissioned between 1/26/88 and 2/1/88.
10. Elevations re-surveyed on 10/24/89.
11. Well decommissioned on 7/17/90.
12. Piezometer GC-13 reconstructed 1/20/93.
13. 05/09/95 water level in GC-14 appears erroneous due to bent casing in piezometer.
14. Wells decommissioned in January 2000.

Table 1: Groundwater Levels

WELL OR PIEZOMETER	(1) COMP. ZONE	(2) MON. POINT	MEAS. PT.(3,4) ELEV.		5/21/2014 DEPTH	5/21/2014 ELEV.	11/06/14 DEPTH	11/06/14 ELEV.	05/27/15 DEPTH	05/27/15 ELEV.	10/29/15 DEPTH	10/29/15 ELEV.	06/29/16 DEPTH	06/29/16 ELEV.	11/04/16 DEPTH	11/04/16 ELEV.	05/09/17 DEPTH	05/09/17 ELEV.	11/03/17 DEPTH	11/03/17 ELEV.	05/09/18 DEPTH	05/09/18 ELEV.	10/31/18 DEPTH	10/31/18 ELEV.
GC-8 (14)	L		5778.69		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-9 (14)	C		5793.86		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-10 (14)	L		5767.70		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-11 (14)	L		5770.30	(7)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-12 (14)	L+		5779.39		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-13 (12,14)	L		5778.86		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-14 (14)	L+		5776.56	(7)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-15 (14)	L		5779.31		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-16	I	P	5770.20		45.15	5725.05	40.58	5729.62	40.10	5730.10	39.62	5730.58	38.52	5731.68	35.91	5734.29	37.42	5732.78	38.49	5731.71	39.48	5730.72	40.18	5730.02
GC-17 (14)	O	P	5779.18		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-18	U	P	5780.06		15.28	5764.78	17.21	5762.85	6.31	5773.75	15.22	5764.84	11.26	5768.80	18.78	5761.28	19.31	5760.75	19.39	5760.67	17.35	5762.71	19.43	5760.63
GC-19 (14)	I+	P	5779.94		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-20 (14)	I	P	5779.10		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-21	U	P	5779.18	(7)	18.07	5761.11	DRY	--	12.84	5766.34	23.50	5755.68	22.72	5756.46	DRY	--	DRY	--	DRY	--	20.87	5758.31	DRY	--
GC-22	I	P	5765.98		38.31	5727.67	37.84	5728.14	37.57	5728.41	34.57	5731.41	33.41	5732.57	33.70	5732.28	34.82	5731.16	35.49	5730.49	36.65	5729.33	37.22	5728.76
GC-23 (14)	I	P	5755.69		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-24 (14)	U+	P	5780.01		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-25 (14)	I+	P	5779.86		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GC-26	I	P	5780.12		39.30	5740.82	38.49	5741.63	37.53	5742.59	33.43	5746.69	31.96	5748.16	62.74 (17)	--	35.23	5744.89	36.01	5744.11	37.71	5742.41	38.81	5741.31
P101	L+		5778.29		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P102 (14)	L+		5777.46		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P103	L+		5777.32		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P104	L		5779.15		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P107	O	P	5779.26		22.40	5756.86	20.81	5758.45	15.14	5764.12	17.97	5761.29	14.61	5764.65	19.39	5759.87	21.98	5757.28	21.77	5757.49	23.19	5756.07	21.94	5757.32
P108 (14)	U	W	5787.74	*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P109	O		5777.03		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P110	U	W	5777.72	*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P111	O	W	5778.06	*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P112	L	W	5765.22	*	62.40	5702.82	62.26	5702.96	62.12	5703.10	61.12	5704.10	60.70	5704.52	61.09	5704.13	60.91	5704.31	61.04	5704.18	61.39	5703.83	61.02	5704.20
P113	L	W	5779.79	*	76.96	5702.83	77.12	5702.67	76.65	5703.14	76.34	5703.45	76.05	5703.74	76.03	5703.76	75.53	5704.26	75.48	5704.31	75.60	5704.19	75.62	5704.17
P114	L	W	5779.84	*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P114a	L	W	5779.64	*	77.03	5702.61	77.01	5702.63	76.95	5702.69	76.31	5703.33	NOTE (15)	--	--	--	--	--	--	--	--	--	--	--
P114A-R	L	W	5780.63		--	--	--	--	--	--	--	--	76.59 (16)	5704.04	76.68	5703.95	76.08	5704.55	76.11	5704.52	76.20	5704.43	76.32	5704.31
P115	L	W	5779.69	*(7)	76.89	5702.80	76.91	5702.78	76.78	5702.91	76.17	5703.52	75.98	5703.71	75.89	5703.80	75.41	5704.28	75.39	5704.30	75.61	5704.08	75.59	5704.10

1. Completion Zones in Dawson Formation:
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   - O Other
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   - W Well
   - P Piezometer
3. Top of PVC riser pipe unless marked by * which indicates top of WELL WIZARD well cap assembly.
4. All elevations and depths in feet.
5. Elevations re-surveyed with new WELL WIZARDS in place.
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7. Elevations re-surveyed on 5/14/87.
8. Well decommissioned on 8/13/87.
9. Wells decommissioned between 1/26/88 and 2/1/88.
10. Elevations re-surveyed on 10/24/89.
11. Well decommissioned on 7/17/90.
12. Piezometer GC-13 reconstructed 1/20/93.
13. 05/09/95 water level in GC-14 appears erroneous due to bent casing in piezometer.
14. Wells decommissioned in January 2000.
15. Well decommissioned on 07/14/16
16. P114A-R was measured on 07/28/16
17. Depth to water measurement recorded is inconsistent with historical measurements, suspected erroneous

Table 1: Groundwater Levels

WELL OR PIEZOMETER	(1) COMP. ZONE	(2) MON. POINT	MEAS. PT.(3,4) ELEV.		5/15/2019 DEPTH	5/15/2019 ELEV.	11/14/2019 DEPTH	11/14/2019 ELEV.	5/13/2020 DEPTH	5/13/2020 ELEV.	11/6/2020 DEPTH	11/6/2020 ELEV.
GC-8 (14)	L		5778.69		- -	- -	- -	- -	--	- -	--	- -
GC-9 (14)	C		5793.86		- -	- -	- -	- -	--	- -	--	- -
GC-10 (14)	L		5767.70		- -	- -	- -	- -	--	- -	--	- -
GC-11 (14)	L		5770.30	(7)	- -	- -	- -	- -	--	- -	--	- -
GC-12 (14)	L+		5779.39		- -	- -	- -	- -	--	- -	--	- -
GC-13 (12,14)	L		5778.86		- -	- -	- -	- -	--	- -	--	- -
GC-14 (14)	L+		5776.56	(7)	- -	- -	- -	- -	--	- -	--	- -
GC-15 (14)	L		5779.31		- -	- -	- -	- -	--	- -	--	- -
GC-16	I	P	5770.20		40.73	5729.47	40.68	5729.52	40.86	5729.34	41.15	5729.05
GC-17 (14)	O	P	5779.18		- -	- -	- -	- -	--	- -	--	- -
GC-18	U	P	5780.06		16.21	5763.85	19.23	5760.83	17.52	5762.54	20.57	5759.49
GC-19 (14)	I+	P	5779.94		- -	- -	- -	- -	--	- -	--	- -
GC-20 (14)	I	P	5779.10		- -	- -	- -	- -	--	- -	--	- -
GC-21	U	P	5779.18	(7)	21.32	5757.86	26.30	5752.88	22.31	5756.87	Dry	Dry
GC-22	I	P	5765.98		37.80	5728.18	38.04	5727.94	38.03	5727.95	38.48	5727.50
GC-23 (14)	I	P	5755.69		- -	- -	- -	- -	--	- -	--	- -
GC-24 (14)	U+	P	5780.01		- -	- -	- -	- -	--	- -	--	- -
GC-25 (14)	I+	P	5779.86		- -	- -	- -	- -	--	- -	--	- -
GC-26	I	P	5780.12		39.40	5740.72	39.75	5740.37	40.11	5740.01	40.71	5739.41
P101	L+		5778.29		- -	- -	- -	- -	.--	- -	--	- -
P102 (14)	L+		5777.46		- -	- -	- -	- -	.--	- -	--	- -
P103	L+		5777.32		- -	- -	- -	- -	.--	- -	--	- -
P104	L		5779.15		- -	- -	- -	- -	.--	- -	--	- -
P107	O	P	5779.26		20.98	5758.28	21.32	5757.94	21.31	5757.95	22.86	5756.40
P108 (14)	U	W	5787.74	*	- -	- -	- -	- -	--	- -	--	- -
P109	O		5777.03		- -	- -	- -	- -	--	- -	--	- -
P110	U	W	5777.72	*	- -	- -	- -	- -	--	- -	--	- -
P111	O	W	5778.06	*	- -	- -	- -	- -	--	- -	--	- -
P112	L	W	5765.22	*	61.04	5704.18	61.57	5703.65	61.23	5703.99	61.71	5703.51
P113	L	W	5779.79	*	75.51	5704.28	75.73	5704.06	75.45	5704.34	75.78	5704.01
P114	L	W	5779.84	*	- -	- -	- -	- -	--	- -	--	- -
P114a	L	W	5779.64	*	--	- -	--	- -	--	- -	--	- -
P114A-R	L	W	5780.63		76.11	5704.52	76.41	5704.22	76.12	5704.51	76.42	5704.21
P115	L	W	5779.69	*(7)	75.48	5704.21	75.74	5703.95	75.39	5704.30	75.61	5704.08

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12. Piezometer GC-13 reconstructed 1/20/93.
13. 05/09/95 water level in GC-14 appears erroneous due to bent casing in piezometer.
14. Wells decommissioned in January 2000.
15. Well decommissioned on 07/14/16
16. P114A-R was measured on 07/28/16
17. Depth to water measurement recorded is inconsistent with historical measurements, suspected erroneous

Table 2: Post-closure Care Permit - Groundwater Monitoring Network 2020

Designation	Purpose
Lower Sandstone	
P-112	RCRA Monitoring Well (upgradient)
P-113	RCRA Monitoring Well (downgradient)
P-114A-R[1]	RCRA Monitoring Well (downgradient)
P-115	RCRA Monitoring Well (downgradient)
Intermediate Sandstone	
GC-16	Piezometer
GC-22	Piezometer
GC-26	Piezometer
Upper Sandstone	
GC-18	Piezometer
GC-21	Piezometer
P-107	Piezometer (in claystone below upper sandstone to northwest of Pond 1)

Notes:

1. Monitoring well P-114A-R installed July 14, 2016, to replace monitoring well P-114a.

Table 3: RCRA Wells - Summary of Analytical Results

Well	Year	Quarter	Arsenic (µg/L)	Barium (µg/L)	Cadmium (µg/L)	Chromium (Not Speciated) (µg/L)	Lead (µg/L)	Mercury (µg/L)	Selenium (µg/L)	Silver (µg/L)	TSS (mg/L)
Permit Detection Limit			10	10	5.0	10	5.0	0.20	5.0	25	NA
Laboratory Detection Limit			10	10	5.0	10	5.0	0.20	5.0	25	4.0
P-112	2020	2	ND	24	ND	ND	ND	ND	ND	ND	6.0
P-112 Duplicate	2020	2	ND	25	ND	ND	ND	ND	ND	ND	5.6
P-112	2020	4	ND	22	ND	ND	ND	ND	ND	ND	4.8
P-113	2020	2	ND	16	ND	ND	ND	ND	ND	ND	29
P-113	2020	4	ND	13	ND	ND	ND	ND	ND	ND	13
P-114A-R	2020	2	ND	41	ND	ND	ND	ND	ND	ND	ND
P-114A-R	2020	4	ND	34	ND	ND	ND	ND	ND	ND	6
P-115	2020	2	ND	16	ND	ND	ND	ND	ND	ND	ND
P-115	2020	4	ND	14	ND	ND	ND	ND	ND	ND	ND
P-115 Duplicate	2020	4	ND	14	ND	ND	ND	ND	ND	ND	4.8

Notes:

µg/L: microgram per liter

mg/L: milligram per liter

ND - Not detected at or above the indicated reporting limit.

TSS: total suspended solids

Table 4: RCRA Wells - Summary of Field Parameters

Well	Year	Quarter	Temp (°C)	Turbidity (NTU)	pH (S.U.)	Specific Conductance (µmhos/cm)
P-112	2020	2	13.6	10.2	7.23	1,427
P-112	2020	4	13.6	0.98	7.09	1,448
P-113	2020	2	14.3	35.50	7.66	2,024
P-113	2020	4	14.6	27.30	8.16	2,086
P-114A-R	2020	2	13.7	1.40	7.34	2,614
P-114A-R	2020	4	14.1	9.37	7.35	2,715
P-115	2020	2	13.7	1.48	8.00	1,857
P-115	2020	4	14.2	2.44	7.28	1,902

Notes:

°C: degrees Celsius

NTU: Nephelometric turbidity units

S.U.: standard units

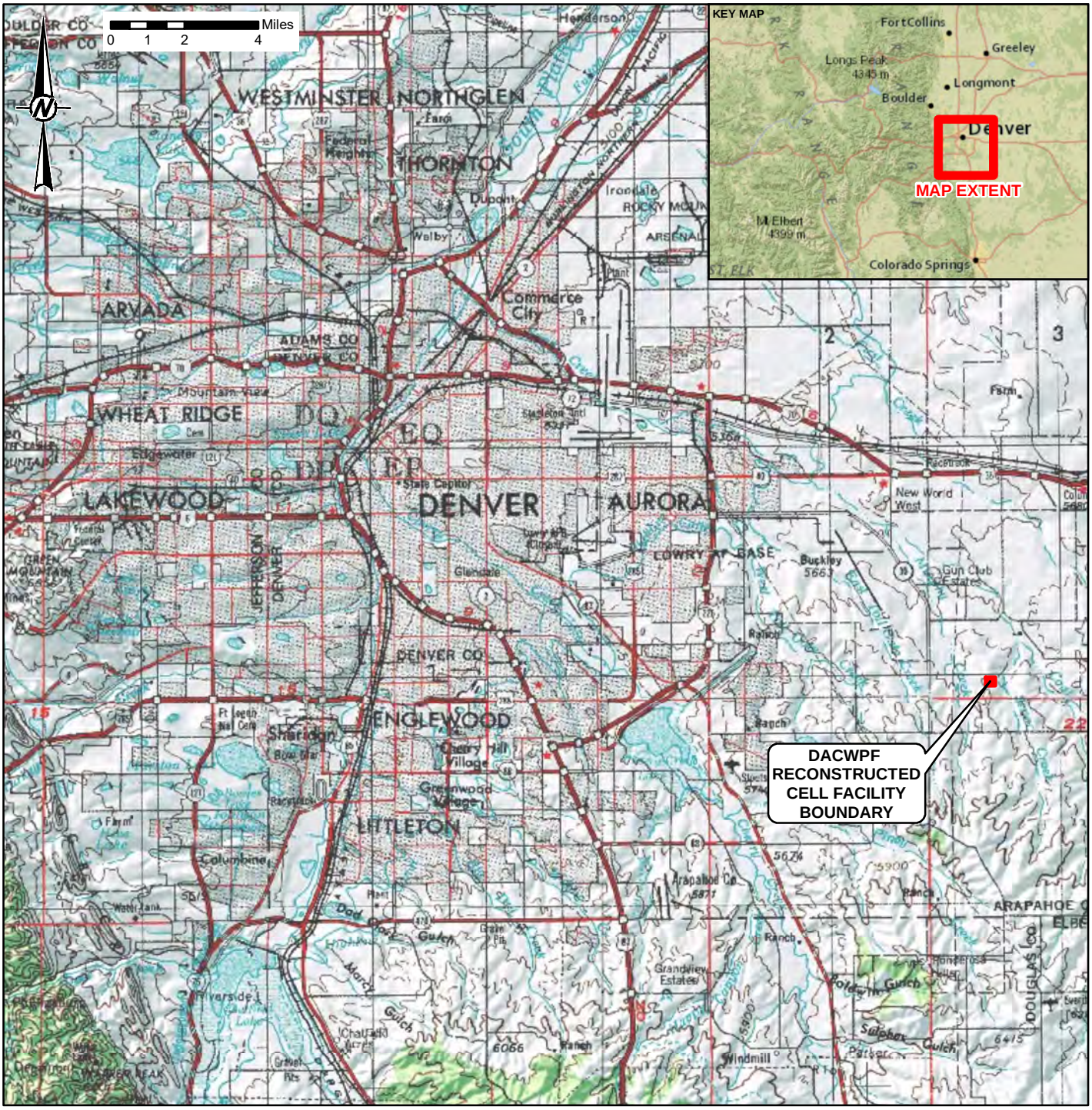
µmhos/cm: micro ohms per centimeter

Table 5: Summary of PCE Detections in the Primary Sump

Date	Units	Result	Detection Limit
5/16/2006	µg/L	43	10
6/8/2007	µg/L	40	10
6/23/2008	µg/L	51	10
5/27/2009	µg/L	30	10
5/21/2010	µg/L	30	10
5/11/2011	µg/L	38	10
6/14/2012	µg/L	43	10
4/30/2013	µg/L	35	10
5/22/2014	µg/L	35	10
5/28/2015	µg/L	18	10
5/25/2016	µg/L	ND	10
5/9/2017	µg/L	19	10
5/9/2018	µg/L	17	10
5/15/2019	µg/L	33	10
5/7/2020	µg/L	21	10
12/9/2020	µg/L	74	10

Notes:
µg/L: microgram per liter

Figures



LEGEND

REFERENCE

1. BASEMAP: ESRI BASEMAP SERVICES, USGS. 1:100,000 SCALE QUADRANGLES SHOWN: "DENVER EAST, CO" AND "DENVER WEST, CO".

CLIENT
WASTE MANAGEMENT

PROJECT
2020 ANNUAL REPORT FOR DACWPF

TITLE
SITE LOCATION MAP

CONSULTANT
GOLDER

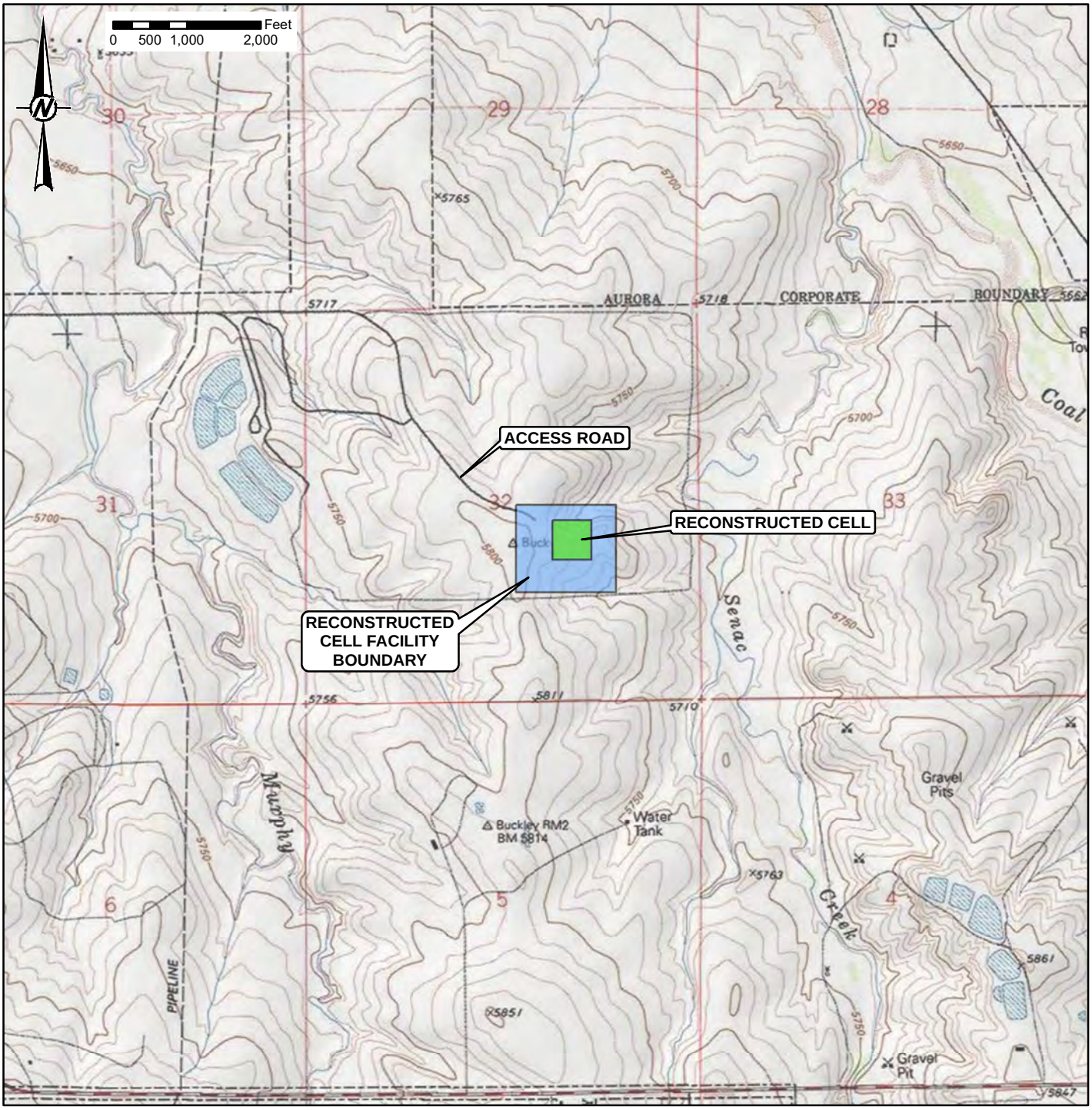
YYYY-MM-DD	2021-03-01
DESIGNED	KJC
PREPARED	KJC
REVIEWED	SAH
APPROVED	

PROJECT NO.
21451094

FIGURE
1

PATH: M:\WasteManagement_DACWPF\Mapping\8_8x11_18114678_Figure01.mxd PRINTED ON: 2019-02-20 AT: 1:44:09 PM

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
25mm
0



LEGEND

- RECONSTRUCTED CELL
- RECONSTRUCTED CELL FACILITY BOUNDARY

REFERENCE

1. BASEMAP: ESRI BASEMAP SERVICES, USGS. 1:24,000 SCALE QUADRANGLE SHOWN: "COAL CREEK, CO".

CLIENT
WASTE MANAGEMENT

PROJECT
2020 ANNUAL REPORT FOR DACWPF

TITLE
SITE VICINITY MAP

CONSULTANT
GOLDER

YYYY-MM-DD	2020-03-01
DESIGNED	KJC
PREPARED	KJC
REVIEWED	SAH
APPROVED	

PROJECT NO.
21451094

FIGURE
2

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI A

25mm

0

PATH: M:\Waste\Management\DACWPF\Mapping\8_6x11_18114678_Figure02.mxd PRINTED ON: 2019-02-20 AT: 1:49:53 PM

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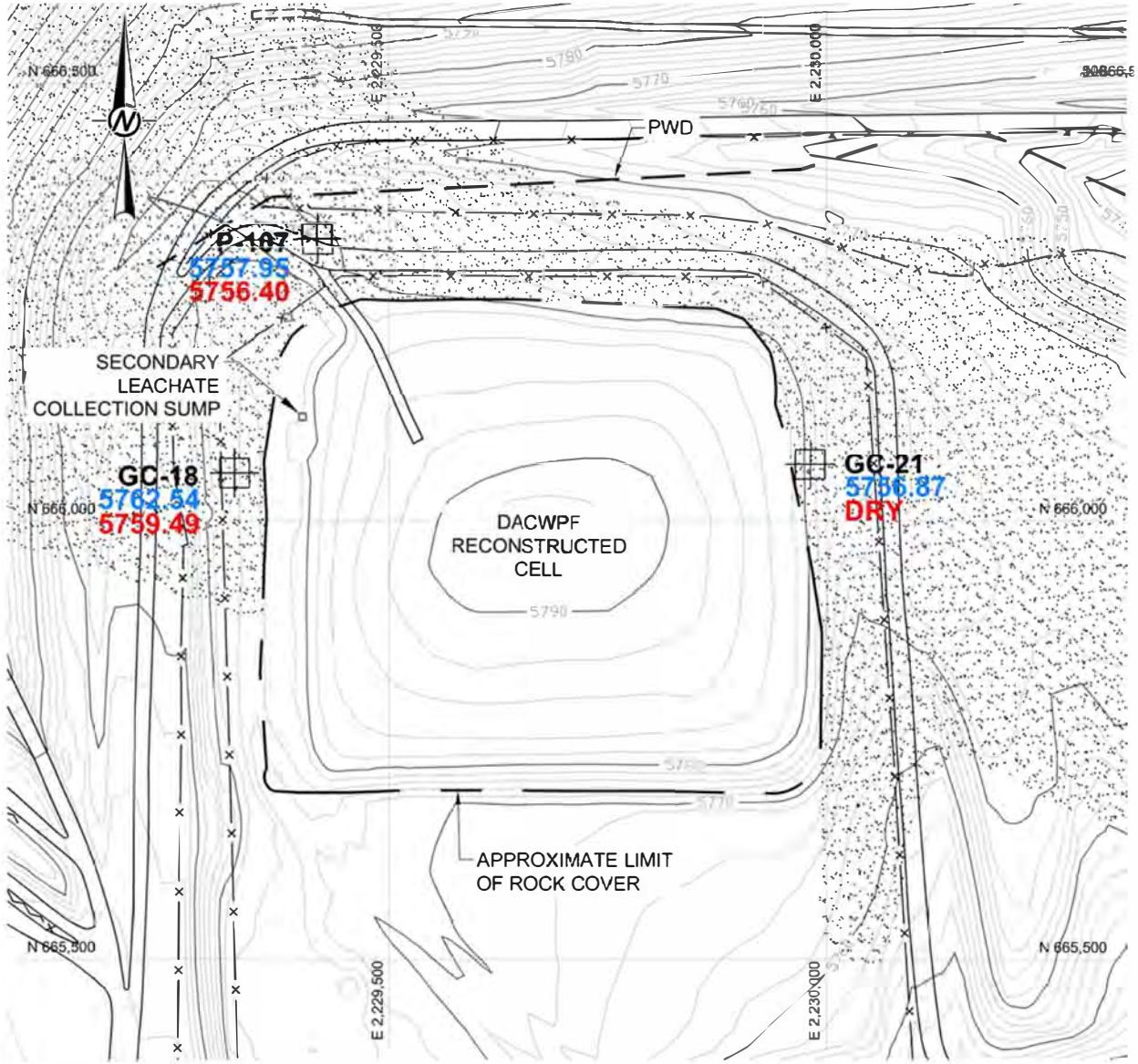


LEGEND

- PIEZOMETER
- PERCHED WATER DRAIN (PWD)
- APPROXIMATE EXTENT OF SILTY SANDSTONE IN UPPER SANDSTONE UNIT

NOTE(S)

1. WATER LEVELS SHOWN IN *BLUE* MEASURED ON 05/13/2020.
2. WATER LEVELS SHOWN IN *RED* MEASURED ON 11/06/2020.
3. ELEVATION GIVEN IN FEET ABOVE MEAN SEA LEVEL.

0 100 200
1" = 200' FEET

CLIENT
WASTE MANAGEMENT OF COLORADO, INC.

CONSULTANT
GOLDER

YYYY-MM-DD	2021-03-10
DESIGNED	MDC
PREPARED	EAH
REVIEWED	MEM
APPROVED	RM

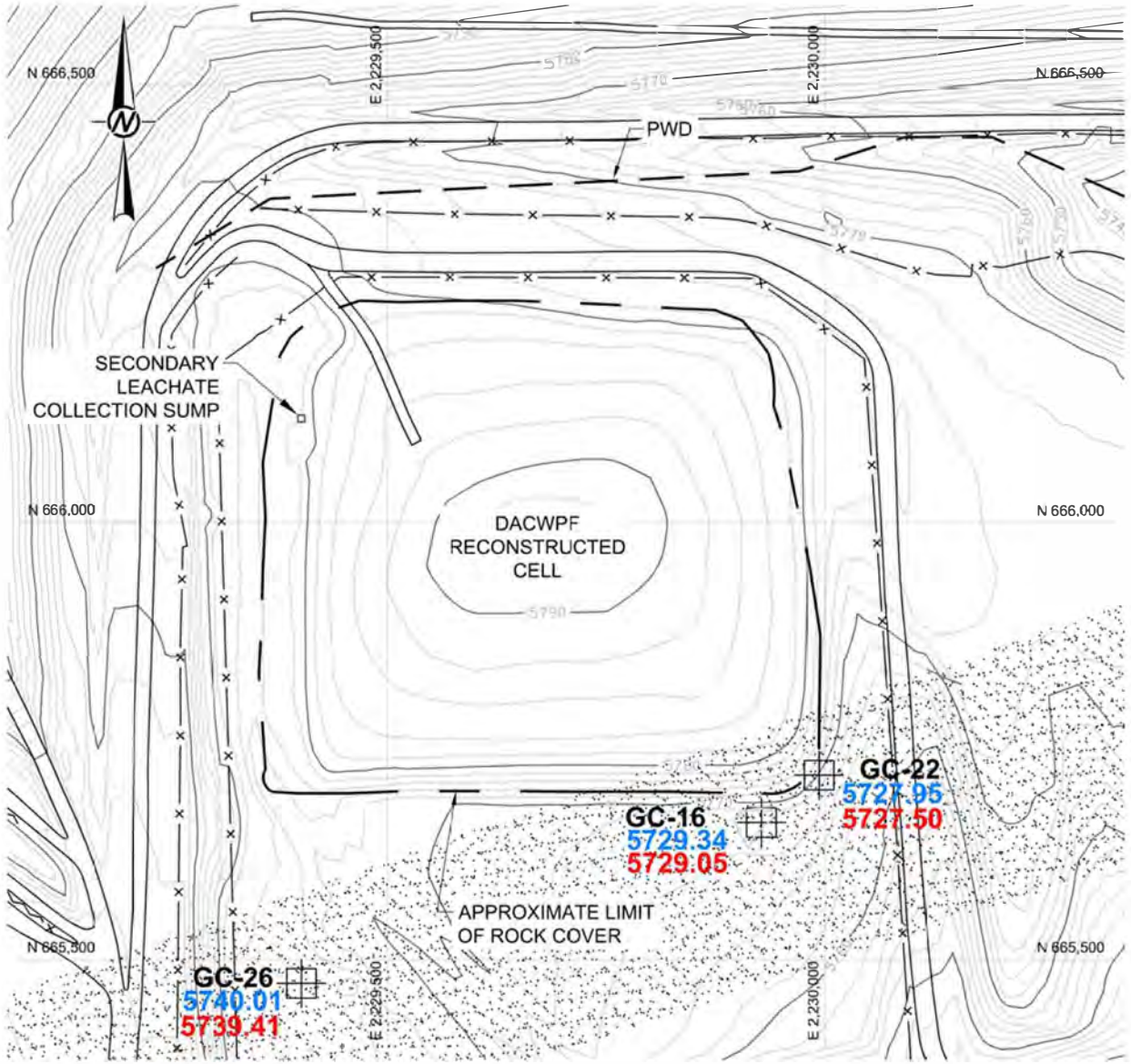
PROJECT
DACWPF
2020 ANNUAL REPORT

TITLE
GROUNDWATER MONITORING NETWORK AND WATER LEVELS IN UPPER SANDSTONE AND ADJACENT STRATIGRAPHIC UNITS

PROJECT NO. 21451094
REV. 0
3

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
1 in
0

Path: \\Denver.golder.gds\acad\WASTE MANAGEMENT\DACWPF\99_PROJECTS\21451094\2020 Annual Report\02_PRODUCTION\DWG\ | File Name: 21451094A008 - Figure 4.dwg



LEGEND

- PIEZOMETER
- PERCHED WATER DRAIN (PWD)
- APPROXIMATE EXTENT OF SILTY SANDSTONE IN INTERMEDIATE SANDSTONE UNIT

NOTE(S)

1. WATER LEVELS SHOWN IN *BLUE* MEASURED ON 05/13/2020.
2. WATER LEVELS SHOWN IN *RED* MEASURED ON 11/06/2020.
3. ELEVATION GIVEN IN FEET ABOVE MEAN SEA LEVEL.

0 100 200
1" = 200' FEET

CLIENT
WASTE MANAGEMENT OF COLORADO, INC.

CONSULTANT
GOLDER

YYYY-MM-DD	2021-03-10
DESIGNED	MDC
PREPARED	EAH
REVIEWED	MEM
APPROVED	RM

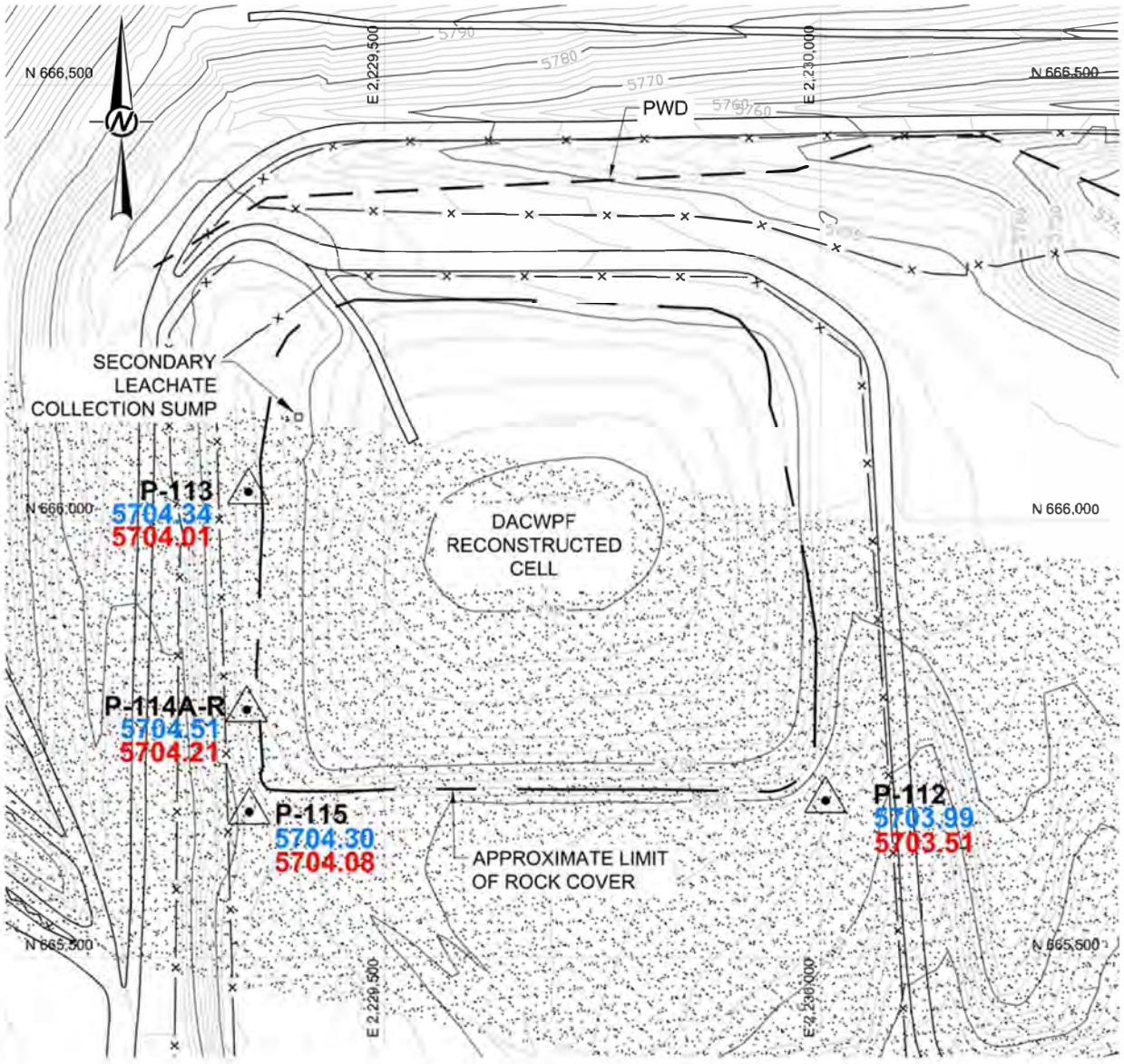
PROJECT
DACWPF
2020 ANNUAL REPORT

TITLE
GROUNDWATER MONITORING NETWORK AND WATER LEVELS IN INTERMEDIATE SANDSTONE AND ADJACENT STRATIGRAPHIC UNITS

PROJECT NO. 21451094
REV. 0
4

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
1 in
0

Path: \\Denver.golder.gds\acad\WASTE MANAGEMENT\DACWPF\99_PROJECTS\21451094\2020 Annual Report\02_PRODUCTION\DWG\ | File Name: 21451094A009 - Figure 5.dwg



LEGEND

- PIEZOMETER
- PERCHED WATER DRAIN (PWD)
- APPROXIMATE EXTENT OF SILTY SANDSTONE IN LOWER SANDSTONE UNIT

NOTE(S)

1. WATER LEVELS SHOWN IN *BLUE* MEASURED ON 05/13/2020.
2. WATER LEVELS SHOWN IN *RED* MEASURED ON 11/06/2020.
3. ELEVATION GIVEN IN FEET ABOVE MEAN SEA LEVEL.

0 100 200
1" = 200' FEET

CLIENT
WASTE MANAGEMENT OF COLORADO, INC.

PROJECT
DACWPF
2020 ANNUAL REPORT

CONSULTANT
GOLDER

YYYY-MM-DD	2021-03-10
DESIGNED	MDC
PREPARED	EAH
REVIEWED	MEM
APPROVED	RM

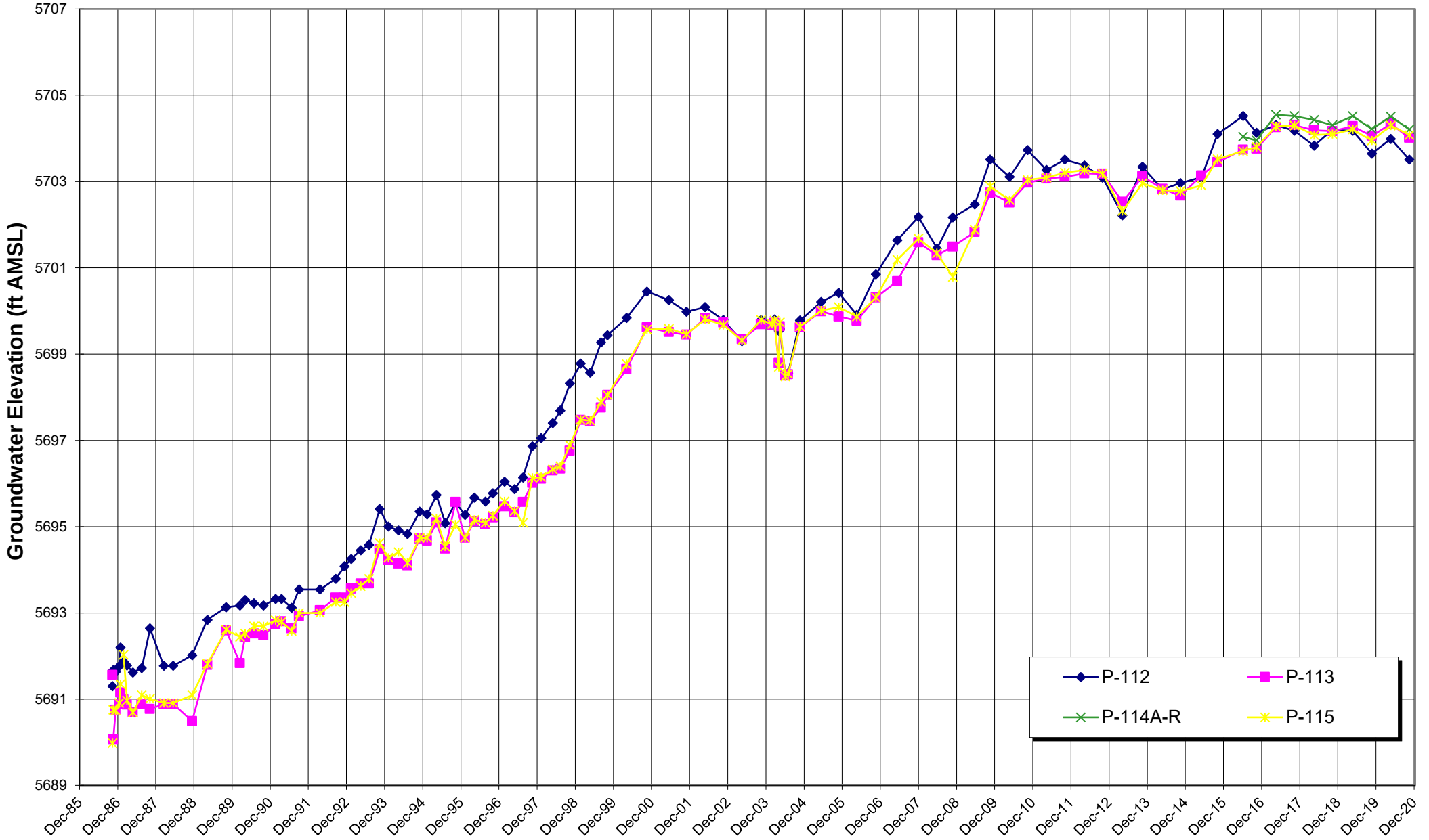
TITLE
GROUNDWATER MONITORING NETWORK AND WATER LEVELS IN LOWER SANDSTONE AND ADJACENT STRATIGRAPHIC UNITS

PROJECT NO. 21451094
REV. 0

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
1 in
0

APPENDIX A

Groundwater Elevations vs. Time

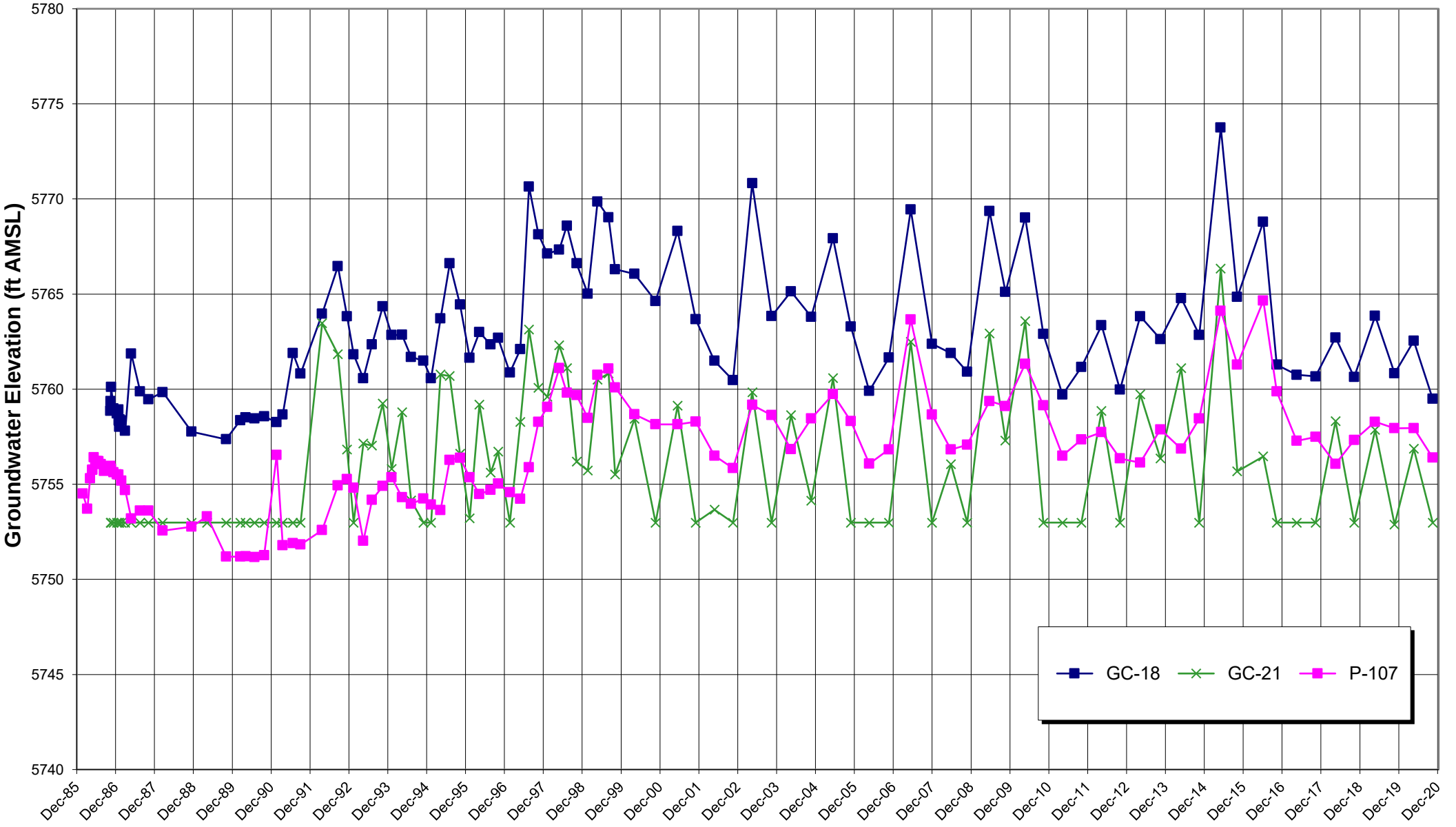


GOLDER
7245 W ALASKA DR., SUITE 200
LAKEWOOD, COLORADO 80226
PHONE: (303) 980-0540
FAX: (303) 985-2080

RCRA MONITORING WELLS (LOWER SANDSTONE)
GROUNDWATER LEVELS

DACWPF
20202 ANNUAL REPORT

Drawn	TLH	March 5, 2021	21451094
Checked	SAH		
Reviewed	SAH		**FIGURE A-1**



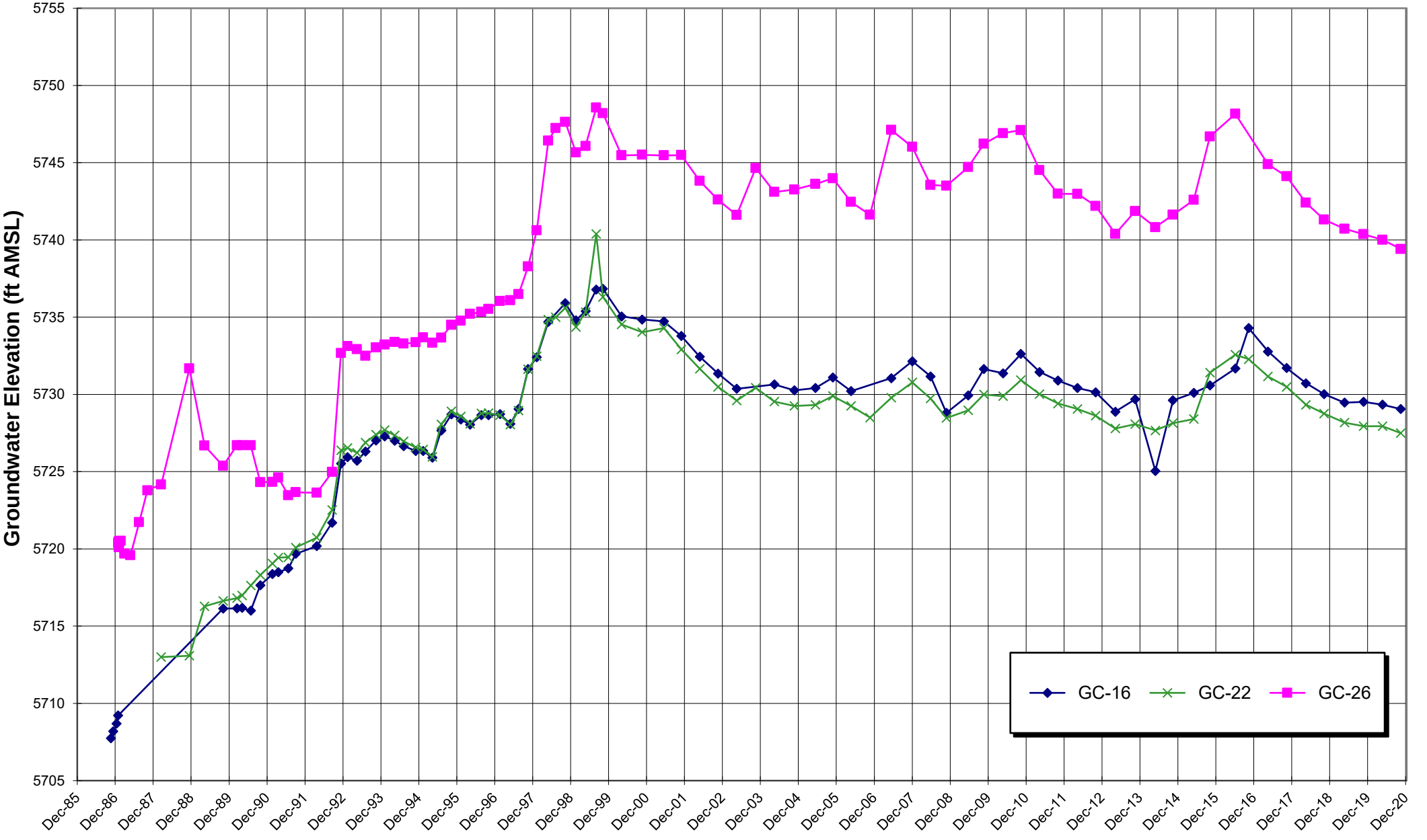
Note: GC-21 plotted at bottom of well elevation of 5753 ft amsl when dry.

GOLDER
7245 W ALASKA DR. SUITE 200
LAKEWOOD, COLORADO 80226
PHONE: (303) 980-0540
FAX: (303) 985-2080

UPPER SANDSTONE UNIT GROUNDWATER LEVELS

DACWPF
2020 ANNUAL REPORT

Drawn	TLH	March 5, 2021	21451094
Checked	SAH		
Reviewed	SAH		**FIGURE A-2**



GOLDER
7245 W ALASKA DR. SUITE 200
LAKEWOOD, COLORADO 80226
PHONE: (303) 980-0540
FAX: (303) 985-2080

INTERMEDIATE SANDSTONE UNIT GROUNDWATER LEVELS

DACWPF
2020 ANNUAL REPORT

Drawn	TLH	March 5, 2021	21451094
Checked	SAH		
Reviewed	SAH		**FIGURE A-3**

APPENDIX B

2020 Monitoring Reports and Analytical Results

APPENDIX B-1

First Semi-annual Sampling Event

eurofins | Environment Testing America



ANALYTICAL REPORT

Eurofins TestAmerica, Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

Laboratory Job ID: 280-136567-1
Client Project/Site: 555|Denver/Arapahoe Chem.-GW
Sampling Event: Semi-Annual Wells - May Nov

For:
Waste Management
2400 West Union Avenue
Englewood, Colorado 80110

Attn: Mr. Tom Schweitzer

Betsy Sara

Authorized for release by:
5/30/2020 6:34:31 PM

Betsy Sara, Project Manager II
(303)736-0189
betsy.sara@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.eurofinsus.com/Env

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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QC Sample Results 18
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Chain of Custody 28
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Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-136567-1

Laboratory: Eurofins TestAmerica, Denver

Narrative

CASE NARRATIVE

Client: Waste Management

Project: 555|Denver/Arapahoe Chem.-GW

Report Number: 280-136567-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

This report may include reporting limits (RLs) less than Eurofins TestAmerica's standard reporting limit. The reported sample results and associated reporting limits are being used specifically to meet the needs of this project. Note that data are not normally reported to these levels without qualification because they are inherently less reliable and potentially less defensible than required by the latest industry standards.

Sample Receiving

The samples were received on 05/14/2020; the samples arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 2.9 C.

Holding Times

All holding times were within established control limits.

Method Blanks

All Method Blanks were within established control limits.

Laboratory Control Samples (LCS)

All Laboratory Control Samples were within established control limits.

Matrix Spike and Matrix Spike Duplicate (MS/MSD)

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) for Method 8260B, however, an LCS/LCSD pair was analyzed to demonstrate method precision and accuracy.

All other MS/MSD recoveries were within established control limits.

General Comments

In accordance with the State RCRA Permit, issued September 30, 2009, (Attachment 7, Section 2.4, Step 5, Sample Handling), samples collected for metals analysis will be field filtered and preserved prior to shipment to, and analysis by, the laboratory. The reporting of chromium on the laboratory report shows as dissolved chromium, at the client's request; however, the results should be considered total chromium (not speciated).

Detection Summary

Client: Waste Management
Project/Site: 555|Denver/Arapahoe Chem.-GW

Job ID: 280-136567-1

Client Sample ID: TRIP BLANK — Lab Sample ID: 280-136567-1

No Detections.

Client Sample ID: DUP — Lab Sample ID: 280-136567-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	25		10		ug/L	1		6010B	Dissolved
Total Suspended Solids	5.6		4.0		mg/L	1		SM 2540D	Total/NA

Client Sample ID: P112 — Lab Sample ID: 280-136567-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	24		10		ug/L	1		6010B	Dissolved
Total Suspended Solids	6.0		4.0		mg/L	1		SM 2540D	Total/NA
Well Elevation	5765.22				ft/msl	1		Field Sampling	Total/NA
Depth to water	61.23				ft	1		Field Sampling	Total/NA
Groundwater Elevation	5703.99				ft/msl	1		Field Sampling	Total/NA
Field pH	7.23				SU	1		Field Sampling	Total/NA
Field Conductivity	1427				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	13.6				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	10.2				NTU	1		Field Sampling	Total/NA
Field Dissolved Oxygen	1.39				mg/L	1		Field Sampling	Total/NA
Field EH/ORP	-45.3				millivolts	1		Field Sampling	Total/NA

Client Sample ID: P115 — Lab Sample ID: 280-136567-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	16		10		ug/L	1		6010B	Dissolved
Well Elevation	5779.69				ft/msl	1		Field Sampling	Total/NA
Depth to water	75.39				ft	1		Field Sampling	Total/NA
Groundwater Elevation	5704.30				ft/msl	1		Field Sampling	Total/NA
Field pH	8.00				SU	1		Field Sampling	Total/NA
Field Conductivity	1857				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	13.7				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	1.48				NTU	1		Field Sampling	Total/NA
Field Dissolved Oxygen	2.58				mg/L	1		Field Sampling	Total/NA
Field EH/ORP	-64.7				millivolts	1		Field Sampling	Total/NA

Client Sample ID: P114A-R — Lab Sample ID: 280-136567-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	41		10		ug/L	1		6010B	Dissolved
Well Elevation	5780.63				ft/msl	1		Field Sampling	Total/NA
Depth to water	76.12				ft	1		Field Sampling	Total/NA
Groundwater Elevation	5704.51				ft/msl	1		Field Sampling	Total/NA
Field pH	7.34				SU	1		Field Sampling	Total/NA
Field Conductivity	2614				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	13.7				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	1.40				NTU	1		Field Sampling	Total/NA
Field Dissolved Oxygen	2.51				mg/L	1		Field Sampling	Total/NA
Field EH/ORP	-15.7				millivolts	1		Field Sampling	Total/NA

Client Sample ID: P113 — Lab Sample ID: 280-136567-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	16		10		ug/L	1		6010B	Dissolved

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Denver

Client Sample ID: P113 (Continued)

Lab Sample ID: 280-136567-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Suspended Solids	29		4.0		mg/L	1		SM 2540D	Total/NA
Well Elevation	5779.79				ft/msl	1		Field Sampling	Total/NA
Depth to water	75.45				ft	1		Field Sampling	Total/NA
Groundwater Elevation	5704.34				ft/msl	1		Field Sampling	Total/NA
Field pH	7.66				SU	1		Field Sampling	Total/NA
Field Conductivity	2024				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	14.3				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	35.5				NTU	1		Field Sampling	Total/NA
Field Dissolved Oxygen	4.17				mg/L	1		Field Sampling	Total/NA
Field EH/ORP	-17.2				millivolts	1		Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Waste Management
Project/Site: 555|Denver/Arapahoe Chem.-GW

Job ID: 280-136567-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
6010B	Metals (ICP)	SW846	TAL DEN
6020	Metals (ICP/MS)	SW846	TAL DEN
7470A	Mercury (CVAA)	SW846	TAL DEN
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL DEN
Field Sampling	Field Sampling	EPA	TAL DEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
7470A	Preparation, Mercury	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: Waste Management
Project/Site: 555|Denver/Arapahoe Chem.-GW

Job ID: 280-136567-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
280-136567-1	TRIP BLANK	Water	05/13/20 10:45	05/14/20 11:15	
280-136567-2	DUP	Water	05/13/20 00:00	05/14/20 11:15	
280-136567-3	P112	Water	05/13/20 08:24	05/14/20 11:15	
280-136567-4	P115	Water	05/13/20 09:22	05/14/20 11:15	
280-136567-5	P114A-R	Water	05/13/20 10:11	05/14/20 11:15	
280-136567-6	P113	Water	05/13/20 10:45	05/14/20 11:15	

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: TRIP BLANK
Date Collected: 05/13/20 10:45
Date Received: 05/14/20 11:15

Lab Sample ID: 280-136567-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0		ug/L			05/18/20 18:15	1
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			05/18/20 18:15	1
1,1,2-Trichloroethane	ND		3.0		ug/L			05/18/20 18:15	1
1,1-Dichloroethane	ND		5.0		ug/L			05/18/20 18:15	1
1,1-Dichloroethene	ND		5.0		ug/L			05/18/20 18:15	1
1,2-Dichloroethane	ND		1.0		ug/L			05/18/20 18:15	1
1,2-Dichloropropane	ND		1.0		ug/L			05/18/20 18:15	1
Benzene	ND		5.0		ug/L			05/18/20 18:15	1
Bromodichloromethane	ND		1.0		ug/L			05/18/20 18:15	1
Bromoform	ND		4.0		ug/L			05/18/20 18:15	1
Bromomethane	ND		10		ug/L			05/18/20 18:15	1
Carbon tetrachloride	ND		1.0		ug/L			05/18/20 18:15	1
Chlorobenzene	ND		5.0		ug/L			05/18/20 18:15	1
Chloroethane	ND		10		ug/L			05/18/20 18:15	1
Chloroform	ND		5.0		ug/L			05/18/20 18:15	1
Chloromethane	ND		10		ug/L			05/18/20 18:15	1
cis-1,3-Dichloropropene	ND		5.0		ug/L			05/18/20 18:15	1
Dibromochloromethane	ND		5.0		ug/L			05/18/20 18:15	1
Ethylbenzene	ND		5.0		ug/L			05/18/20 18:15	1
Tetrachloroethene	ND		5.0		ug/L			05/18/20 18:15	1
Toluene	ND		5.0		ug/L			05/18/20 18:15	1
trans-1,2-Dichloroethene	ND		10		ug/L			05/18/20 18:15	1
Trichloroethene	ND		5.0		ug/L			05/18/20 18:15	1
Vinyl chloride	ND		2.0		ug/L			05/18/20 18:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*113*		*70 - 127*		*05/18/20 18:15*	*1*
4-Bromofluorobenzene (Surr)	*106*		*78 - 120*		*05/18/20 18:15*	*1*
Dibromofluoromethane (Surr)	*101*		*77 - 120*		*05/18/20 18:15*	*1*
Toluene-d8 (Surr)	*108*		*80 - 125*		*05/18/20 18:15*	*1*

Client Sample ID: DUP
Date Collected: 05/13/20 00:00
Date Received: 05/14/20 11:15

Lab Sample ID: 280-136567-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0		ug/L			05/18/20 18:36	1
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			05/18/20 18:36	1
1,1,2-Trichloroethane	ND		3.0		ug/L			05/18/20 18:36	1
1,1-Dichloroethane	ND		5.0		ug/L			05/18/20 18:36	1
1,1-Dichloroethene	ND		5.0		ug/L			05/18/20 18:36	1
1,2-Dichloroethane	ND		1.0		ug/L			05/18/20 18:36	1
1,2-Dichloropropane	ND		1.0		ug/L			05/18/20 18:36	1
Benzene	ND		5.0		ug/L			05/18/20 18:36	1
Bromodichloromethane	ND		1.0		ug/L			05/18/20 18:36	1
Bromoform	ND		4.0		ug/L			05/18/20 18:36	1
Bromomethane	ND		10		ug/L			05/18/20 18:36	1
Carbon tetrachloride	ND		1.0		ug/L			05/18/20 18:36	1
Chlorobenzene	ND		5.0		ug/L			05/18/20 18:36	1
Chloroethane	ND		10		ug/L			05/18/20 18:36	1
Chloroform	ND		5.0		ug/L			05/18/20 18:36	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: DUP
Date Collected: 05/13/20 00:00
Date Received: 05/14/20 11:15

Lab Sample ID: 280-136567-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloromethane	ND		10		ug/L			05/18/20 18:36	1
cis-1,3-Dichloropropene	ND		5.0		ug/L			05/18/20 18:36	1
Dibromochloromethane	ND		5.0		ug/L			05/18/20 18:36	1
Ethylbenzene	ND		5.0		ug/L			05/18/20 18:36	1
Tetrachloroethene	ND		5.0		ug/L			05/18/20 18:36	1
Toluene	ND		5.0		ug/L			05/18/20 18:36	1
trans-1,2-Dichloroethene	ND		10		ug/L			05/18/20 18:36	1
Trichloroethene	ND		5.0		ug/L			05/18/20 18:36	1
Vinyl chloride	ND		2.0		ug/L			05/18/20 18:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*112*		*70 - 127*		*05/18/20 18:36*	*1*
4-Bromofluorobenzene (Surr)	*106*		*78 - 120*		*05/18/20 18:36*	*1*
Dibromofluoromethane (Surr)	*99*		*77 - 120*		*05/18/20 18:36*	*1*
Toluene-d8 (Surr)	*107*		*80 - 125*		*05/18/20 18:36*	*1*

Client Sample ID: P112
Date Collected: 05/13/20 08:24
Date Received: 05/14/20 11:15

Lab Sample ID: 280-136567-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0		ug/L			05/18/20 18:57	1
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			05/18/20 18:57	1
1,1,2-Trichloroethane	ND		3.0		ug/L			05/18/20 18:57	1
1,1-Dichloroethane	ND		5.0		ug/L			05/18/20 18:57	1
1,1-Dichloroethene	ND		5.0		ug/L			05/18/20 18:57	1
1,2-Dichloroethane	ND		1.0		ug/L			05/18/20 18:57	1
1,2-Dichloropropane	ND		1.0		ug/L			05/18/20 18:57	1
Benzene	ND		5.0		ug/L			05/18/20 18:57	1
Bromodichloromethane	ND		1.0		ug/L			05/18/20 18:57	1
Bromoform	ND		4.0		ug/L			05/18/20 18:57	1
Bromomethane	ND		10		ug/L			05/18/20 18:57	1
Carbon tetrachloride	ND		1.0		ug/L			05/18/20 18:57	1
Chlorobenzene	ND		5.0		ug/L			05/18/20 18:57	1
Chloroethane	ND		10		ug/L			05/18/20 18:57	1
Chloroform	ND		5.0		ug/L			05/18/20 18:57	1
Chloromethane	ND		10		ug/L			05/18/20 18:57	1
cis-1,3-Dichloropropene	ND		5.0		ug/L			05/18/20 18:57	1
Dibromochloromethane	ND		5.0		ug/L			05/18/20 18:57	1
Ethylbenzene	ND		5.0		ug/L			05/18/20 18:57	1
Tetrachloroethene	ND		5.0		ug/L			05/18/20 18:57	1
Toluene	ND		5.0		ug/L			05/18/20 18:57	1
trans-1,2-Dichloroethene	ND		10		ug/L			05/18/20 18:57	1
Trichloroethene	ND		5.0		ug/L			05/18/20 18:57	1
Vinyl chloride	ND		2.0		ug/L			05/18/20 18:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*115*		*70 - 127*		*05/18/20 18:57*	*1*
4-Bromofluorobenzene (Surr)	*108*		*78 - 120*		*05/18/20 18:57*	*1*
Dibromofluoromethane (Surr)	*101*		*77 - 120*		*05/18/20 18:57*	*1*
Toluene-d8 (Surr)	*107*		*80 - 125*		*05/18/20 18:57*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: P115
Date Collected: 05/13/20 09:22
Date Received: 05/14/20 11:15

Lab Sample ID: 280-136567-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0		ug/L			05/18/20 19:18	1
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			05/18/20 19:18	1
1,1,2-Trichloroethane	ND		3.0		ug/L			05/18/20 19:18	1
1,1-Dichloroethane	ND		5.0		ug/L			05/18/20 19:18	1
1,1-Dichloroethene	ND		5.0		ug/L			05/18/20 19:18	1
1,2-Dichloroethane	ND		1.0		ug/L			05/18/20 19:18	1
1,2-Dichloropropane	ND		1.0		ug/L			05/18/20 19:18	1
Benzene	ND		5.0		ug/L			05/18/20 19:18	1
Bromodichloromethane	ND		1.0		ug/L			05/18/20 19:18	1
Bromoform	ND		4.0		ug/L			05/18/20 19:18	1
Bromomethane	ND		10		ug/L			05/18/20 19:18	1
Carbon tetrachloride	ND		1.0		ug/L			05/18/20 19:18	1
Chlorobenzene	ND		5.0		ug/L			05/18/20 19:18	1
Chloroethane	ND		10		ug/L			05/18/20 19:18	1
Chloroform	ND		5.0		ug/L			05/18/20 19:18	1
Chloromethane	ND		10		ug/L			05/18/20 19:18	1
cis-1,3-Dichloropropene	ND		5.0		ug/L			05/18/20 19:18	1
Dibromochloromethane	ND		5.0		ug/L			05/18/20 19:18	1
Ethylbenzene	ND		5.0		ug/L			05/18/20 19:18	1
Tetrachloroethene	ND		5.0		ug/L			05/18/20 19:18	1
Toluene	ND		5.0		ug/L			05/18/20 19:18	1
trans-1,2-Dichloroethene	ND		10		ug/L			05/18/20 19:18	1
Trichloroethene	ND		5.0		ug/L			05/18/20 19:18	1
Vinyl chloride	ND		2.0		ug/L			05/18/20 19:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*116*		*70 - 127*		*05/18/20 19:18*	*1*
4-Bromofluorobenzene (Surr)	*108*		*78 - 120*		*05/18/20 19:18*	*1*
Dibromofluoromethane (Surr)	*101*		*77 - 120*		*05/18/20 19:18*	*1*
Toluene-d8 (Surr)	*107*		*80 - 125*		*05/18/20 19:18*	*1*

Client Sample ID: P114A-R
Date Collected: 05/13/20 10:11
Date Received: 05/14/20 11:15

Lab Sample ID: 280-136567-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0		ug/L			05/18/20 19:40	1
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			05/18/20 19:40	1
1,1,2-Trichloroethane	ND		3.0		ug/L			05/18/20 19:40	1
1,1-Dichloroethane	ND		5.0		ug/L			05/18/20 19:40	1
1,1-Dichloroethene	ND		5.0		ug/L			05/18/20 19:40	1
1,2-Dichloroethane	ND		1.0		ug/L			05/18/20 19:40	1
1,2-Dichloropropane	ND		1.0		ug/L			05/18/20 19:40	1
Benzene	ND		5.0		ug/L			05/18/20 19:40	1
Bromodichloromethane	ND		1.0		ug/L			05/18/20 19:40	1
Bromoform	ND		4.0		ug/L			05/18/20 19:40	1
Bromomethane	ND		10		ug/L			05/18/20 19:40	1
Carbon tetrachloride	ND		1.0		ug/L			05/18/20 19:40	1
Chlorobenzene	ND		5.0		ug/L			05/18/20 19:40	1
Chloroethane	ND		10		ug/L			05/18/20 19:40	1
Chloroform	ND		5.0		ug/L			05/18/20 19:40	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: P114A-R
Date Collected: 05/13/20 10:11
Date Received: 05/14/20 11:15

Lab Sample ID: 280-136567-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloromethane	ND		10		ug/L			05/18/20 19:40	1
cis-1,3-Dichloropropene	ND		5.0		ug/L			05/18/20 19:40	1
Dibromochloromethane	ND		5.0		ug/L			05/18/20 19:40	1
Ethylbenzene	ND		5.0		ug/L			05/18/20 19:40	1
Tetrachloroethene	ND		5.0		ug/L			05/18/20 19:40	1
Toluene	ND		5.0		ug/L			05/18/20 19:40	1
trans-1,2-Dichloroethene	ND		10		ug/L			05/18/20 19:40	1
Trichloroethene	ND		5.0		ug/L			05/18/20 19:40	1
Vinyl chloride	ND		2.0		ug/L			05/18/20 19:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*114*		*70 - 127*		*05/18/20 19:40*	*1*
4-Bromofluorobenzene (Surr)	*108*		*78 - 120*		*05/18/20 19:40*	*1*
Dibromofluoromethane (Surr)	*99*		*77 - 120*		*05/18/20 19:40*	*1*
Toluene-d8 (Surr)	*106*		*80 - 125*		*05/18/20 19:40*	*1*

Client Sample ID: P113
Date Collected: 05/13/20 10:45
Date Received: 05/14/20 11:15

Lab Sample ID: 280-136567-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0		ug/L			05/18/20 20:01	1
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			05/18/20 20:01	1
1,1,2-Trichloroethane	ND		3.0		ug/L			05/18/20 20:01	1
1,1-Dichloroethane	ND		5.0		ug/L			05/18/20 20:01	1
1,1-Dichloroethene	ND		5.0		ug/L			05/18/20 20:01	1
1,2-Dichloroethane	ND		1.0		ug/L			05/18/20 20:01	1
1,2-Dichloropropane	ND		1.0		ug/L			05/18/20 20:01	1
Benzene	ND		5.0		ug/L			05/18/20 20:01	1
Bromodichloromethane	ND		1.0		ug/L			05/18/20 20:01	1
Bromoform	ND		4.0		ug/L			05/18/20 20:01	1
Bromomethane	ND		10		ug/L			05/18/20 20:01	1
Carbon tetrachloride	ND		1.0		ug/L			05/18/20 20:01	1
Chlorobenzene	ND		5.0		ug/L			05/18/20 20:01	1
Chloroethane	ND		10		ug/L			05/18/20 20:01	1
Chloroform	ND		5.0		ug/L			05/18/20 20:01	1
Chloromethane	ND		10		ug/L			05/18/20 20:01	1
cis-1,3-Dichloropropene	ND		5.0		ug/L			05/18/20 20:01	1
Dibromochloromethane	ND		5.0		ug/L			05/18/20 20:01	1
Ethylbenzene	ND		5.0		ug/L			05/18/20 20:01	1
Tetrachloroethene	ND		5.0		ug/L			05/18/20 20:01	1
Toluene	ND		5.0		ug/L			05/18/20 20:01	1
trans-1,2-Dichloroethene	ND		10		ug/L			05/18/20 20:01	1
Trichloroethene	ND		5.0		ug/L			05/18/20 20:01	1
Vinyl chloride	ND		2.0		ug/L			05/18/20 20:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*115*		*70 - 127*		*05/18/20 20:01*	*1*
4-Bromofluorobenzene (Surr)	*107*		*78 - 120*		*05/18/20 20:01*	*1*
Dibromofluoromethane (Surr)	*101*		*77 - 120*		*05/18/20 20:01*	*1*
Toluene-d8 (Surr)	*107*		*80 - 125*		*05/18/20 20:01*	*1*

Method: 6010B - Metals (ICP) - Dissolved

Client Sample ID: DUP
Date Collected: 05/13/20 00:00
Date Received: 05/14/20 11:15
Lab Sample ID: 280-136567-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		10		ug/L		05/16/20 08:50	05/18/20 16:38	1
Barium	**25**		10		ug/L		05/16/20 08:50	05/18/20 16:38	1
Cadmium	ND		5.0		ug/L		05/16/20 08:50	05/18/20 16:38	1
Chromium	ND		10		ug/L		05/16/20 08:50	05/18/20 16:38	1
Lead	ND		5.0		ug/L		05/16/20 08:50	05/18/20 16:38	1
Silver	ND		25		ug/L		05/16/20 08:50	05/18/20 16:38	1

Client Sample ID: P112
Date Collected: 05/13/20 08:24
Date Received: 05/14/20 11:15
Lab Sample ID: 280-136567-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		10		ug/L		05/16/20 08:50	05/18/20 17:05	1
Barium	**24**		10		ug/L		05/16/20 08:50	05/18/20 17:05	1
Cadmium	ND		5.0		ug/L		05/16/20 08:50	05/18/20 17:05	1
Chromium	ND		10		ug/L		05/16/20 08:50	05/18/20 17:05	1
Lead	ND		5.0		ug/L		05/16/20 08:50	05/18/20 17:05	1
Silver	ND		25		ug/L		05/16/20 08:50	05/18/20 17:05	1

Client Sample ID: P115
Date Collected: 05/13/20 09:22
Date Received: 05/14/20 11:15
Lab Sample ID: 280-136567-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		10		ug/L		05/16/20 08:50	05/18/20 17:09	1
Barium	**16**		10		ug/L		05/16/20 08:50	05/18/20 17:09	1
Cadmium	ND		5.0		ug/L		05/16/20 08:50	05/18/20 17:09	1
Chromium	ND		10		ug/L		05/16/20 08:50	05/18/20 17:09	1
Lead	ND		5.0		ug/L		05/16/20 08:50	05/18/20 17:09	1
Silver	ND		25		ug/L		05/16/20 08:50	05/18/20 17:09	1

Client Sample ID: P114A-R
Date Collected: 05/13/20 10:11
Date Received: 05/14/20 11:15
Lab Sample ID: 280-136567-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		10		ug/L		05/16/20 08:50	05/18/20 17:12	1
Barium	**41**		10		ug/L		05/16/20 08:50	05/18/20 17:12	1
Cadmium	ND		5.0		ug/L		05/16/20 08:50	05/18/20 17:12	1
Chromium	ND		10		ug/L		05/16/20 08:50	05/18/20 17:12	1
Lead	ND		5.0		ug/L		05/16/20 08:50	05/18/20 17:12	1
Silver	ND		25		ug/L		05/16/20 08:50	05/18/20 17:12	1

Client Sample ID: P113
Date Collected: 05/13/20 10:45
Date Received: 05/14/20 11:15
Lab Sample ID: 280-136567-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		10		ug/L		05/16/20 08:50	05/18/20 17:15	1
Barium	**16**		10		ug/L		05/16/20 08:50	05/18/20 17:15	1
Cadmium	ND		5.0		ug/L		05/16/20 08:50	05/18/20 17:15	1
Chromium	ND		10		ug/L		05/16/20 08:50	05/18/20 17:15	1
Lead	ND		5.0		ug/L		05/16/20 08:50	05/18/20 17:15	1
Silver	ND		25		ug/L		05/16/20 08:50	05/18/20 17:15	1

Method: 6020 - Metals (ICP/MS) - Dissolved

Client Sample ID: DUP
Date Collected: 05/13/20 00:00
Date Received: 05/14/20 11:15
Lab Sample ID: 280-136567-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		5.0		ug/L		05/19/20 08:40	05/28/20 16:25	1

Client Sample ID: P112
Date Collected: 05/13/20 08:24
Date Received: 05/14/20 11:15
Lab Sample ID: 280-136567-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		5.0		ug/L		05/19/20 08:40	05/28/20 16:43	1

Client Sample ID: P115
Date Collected: 05/13/20 09:22
Date Received: 05/14/20 11:15
Lab Sample ID: 280-136567-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		5.0		ug/L		05/19/20 08:40	05/28/20 16:47	1

Client Sample ID: P114A-R
Date Collected: 05/13/20 10:11
Date Received: 05/14/20 11:15
Lab Sample ID: 280-136567-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		5.0		ug/L		05/19/20 08:40	05/28/20 16:58	1

Client Sample ID: P113
Date Collected: 05/13/20 10:45
Date Received: 05/14/20 11:15
Lab Sample ID: 280-136567-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		5.0		ug/L		05/19/20 08:40	05/28/20 17:01	1

Method: 7470A - Mercury (CVAA) - Dissolved

Client Sample ID: DUP
Date Collected: 05/13/20 00:00
Date Received: 05/14/20 11:15
Lab Sample ID: 280-136567-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		05/29/20 11:00	05/29/20 16:02	1

Client Sample ID: P112
Date Collected: 05/13/20 08:24
Date Received: 05/14/20 11:15
Lab Sample ID: 280-136567-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		05/29/20 11:00	05/29/20 16:08	1

Client Sample ID: P115
Date Collected: 05/13/20 09:22
Date Received: 05/14/20 11:15
Lab Sample ID: 280-136567-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		05/29/20 11:00	05/29/20 16:10	1

Client Sample ID: P114A-R
Date Collected: 05/13/20 10:11
Date Received: 05/14/20 11:15
Lab Sample ID: 280-136567-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		05/29/20 11:00	05/29/20 16:13	1

Method: 7470A - Mercury (CVAA) - Dissolved

Client Sample ID: P113
Date Collected: 05/13/20 10:45
Date Received: 05/14/20 11:15

Lab Sample ID: 280-136567-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		05/29/20 11:00	05/29/20 16:19	1

General Chemistry

Client Sample ID: DUP
Date Collected: 05/13/20 00:00
Date Received: 05/14/20 11:15

Lab Sample ID: 280-136567-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	**5.6**		4.0		mg/L			05/15/20 08:13	1

Client Sample ID: P112
Date Collected: 05/13/20 08:24
Date Received: 05/14/20 11:15

Lab Sample ID: 280-136567-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	**6.0**		4.0		mg/L			05/15/20 08:13	1

Client Sample ID: P115
Date Collected: 05/13/20 09:22
Date Received: 05/14/20 11:15

Lab Sample ID: 280-136567-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0		mg/L			05/15/20 08:13	1

Client Sample ID: P114A-R
Date Collected: 05/13/20 10:11
Date Received: 05/14/20 11:15

Lab Sample ID: 280-136567-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0		mg/L			05/15/20 08:13	1

Client Sample ID: P113
Date Collected: 05/13/20 10:45
Date Received: 05/14/20 11:15

Lab Sample ID: 280-136567-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	**29**		4.0		mg/L			05/15/20 08:13	1

Method: Field Sampling - Field Sampling

Client Sample ID: P112
Date Collected: 05/13/20 08:24
Date Received: 05/14/20 11:15

Lab Sample ID: 280-136567-3
Matrix: Water

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Well Elevation	**5765.22**				ft/msl			05/13/20 08:24	1
Depth to water	**61.23**				ft			05/13/20 08:24	1
Groundwater Elevation	**5703.99**				ft/msl			05/13/20 08:24	1
Field pH	**7.23**				SU			05/13/20 08:24	1
Field Conductivity	**1427**				umhos/cm			05/13/20 08:24	1
Field Temperature	**13.6**				Degrees C			05/13/20 08:24	1
Field Turbidity	**10.2**				NTU			05/13/20 08:24	1
Field Dissolved Oxygen	**1.39**				mg/L			05/13/20 08:24	1
Field EH/ORP	**-45.3**				millivolts			05/13/20 08:24	1

Method: Field Sampling - Field Sampling

Client Sample ID: P115
Date Collected: 05/13/20 09:22
Date Received: 05/14/20 11:15

Lab Sample ID: 280-136567-4
Matrix: Water

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Well Elevation	5779.69				ft/msl			05/13/20 09:22	1
Depth to water	75.39				ft			05/13/20 09:22	1
Groundwater Elevation	5704.30				ft/msl			05/13/20 09:22	1
Field pH	8.00				SU			05/13/20 09:22	1
Field Conductivity	1857				umhos/cm			05/13/20 09:22	1
Field Temperature	13.7				Degrees C			05/13/20 09:22	1
Field Turbidity	1.48				NTU			05/13/20 09:22	1
Field Dissolved Oxygen	2.58				mg/L			05/13/20 09:22	1
Field EH/ORP	-64.7				millivolts			05/13/20 09:22	1

Client Sample ID: P114A-R
Date Collected: 05/13/20 10:11
Date Received: 05/14/20 11:15

Lab Sample ID: 280-136567-5
Matrix: Water

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Well Elevation	5780.63				ft/msl			05/13/20 10:11	1
Depth to water	76.12				ft			05/13/20 10:11	1
Groundwater Elevation	5704.51				ft/msl			05/13/20 10:11	1
Field pH	7.34				SU			05/13/20 10:11	1
Field Conductivity	2614				umhos/cm			05/13/20 10:11	1
Field Temperature	13.7				Degrees C			05/13/20 10:11	1
Field Turbidity	1.40				NTU			05/13/20 10:11	1
Field Dissolved Oxygen	2.51				mg/L			05/13/20 10:11	1
Field EH/ORP	-15.7				millivolts			05/13/20 10:11	1

Client Sample ID: P113
Date Collected: 05/13/20 10:45
Date Received: 05/14/20 11:15

Lab Sample ID: 280-136567-6
Matrix: Water

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Well Elevation	5779.79				ft/msl			05/13/20 10:45	1
Depth to water	75.45				ft			05/13/20 10:45	1
Groundwater Elevation	5704.34				ft/msl			05/13/20 10:45	1
Field pH	7.66				SU			05/13/20 10:45	1
Field Conductivity	2024				umhos/cm			05/13/20 10:45	1
Field Temperature	14.3				Degrees C			05/13/20 10:45	1
Field Turbidity	35.5				NTU			05/13/20 10:45	1
Field Dissolved Oxygen	4.17				mg/L			05/13/20 10:45	1
Field EH/ORP	-17.2				millivolts			05/13/20 10:45	1

Surrogate Summary

Client: Waste Management
Project/Site: 555|Denver/Arapahoe Chem.-GW

Job ID: 280-136567-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(70-127)	(78-120)	(77-120)	(80-125)
280-136567-1	TRIP BLANK	113	106	101	108
280-136567-2	DUP	112	106	99	107
280-136567-3	P112	115	108	101	107
280-136567-4	P115	116	108	101	107
280-136567-5	P114A-R	114	108	99	106
280-136567-6	P113	115	107	101	107
LCS 280-495222/6	Lab Control Sample	111	105	101	105
LCSD 280-495222/7	Lab Control Sample Dup	111	107	100	107
MB 280-495222/9	Method Blank	112	106	100	107

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-495222/9
Matrix: Water
Analysis Batch: 495222

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0		ug/L			05/18/20 13:35	1
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			05/18/20 13:35	1
1,1,2-Trichloroethane	ND		3.0		ug/L			05/18/20 13:35	1
1,1-Dichloroethane	ND		5.0		ug/L			05/18/20 13:35	1
1,1-Dichloroethene	ND		5.0		ug/L			05/18/20 13:35	1
1,2-Dichloroethane	ND		1.0		ug/L			05/18/20 13:35	1
1,2-Dichloropropane	ND		1.0		ug/L			05/18/20 13:35	1
Benzene	ND		5.0		ug/L			05/18/20 13:35	1
Bromodichloromethane	ND		1.0		ug/L			05/18/20 13:35	1
Bromoform	ND		4.0		ug/L			05/18/20 13:35	1
Bromomethane	ND		10		ug/L			05/18/20 13:35	1
Carbon tetrachloride	ND		1.0		ug/L			05/18/20 13:35	1
Chlorobenzene	ND		5.0		ug/L			05/18/20 13:35	1
Chloroethane	ND		10		ug/L			05/18/20 13:35	1
Chloroform	ND		5.0		ug/L			05/18/20 13:35	1
Chloromethane	ND		10		ug/L			05/18/20 13:35	1
cis-1,3-Dichloropropene	ND		5.0		ug/L			05/18/20 13:35	1
Dibromochloromethane	ND		5.0		ug/L			05/18/20 13:35	1
Ethylbenzene	ND		5.0		ug/L			05/18/20 13:35	1
Tetrachloroethene	ND		5.0		ug/L			05/18/20 13:35	1
Toluene	ND		5.0		ug/L			05/18/20 13:35	1
trans-1,2-Dichloroethene	ND		10		ug/L			05/18/20 13:35	1
Trichloroethene	ND		5.0		ug/L			05/18/20 13:35	1
Vinyl chloride	ND		2.0		ug/L			05/18/20 13:35	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*112*		*70 - 127*		*05/18/20 13:35*	*1*
4-Bromofluorobenzene (Surr)	*106*		*78 - 120*		*05/18/20 13:35*	*1*
Dibromofluoromethane (Surr)	*100*		*77 - 120*		*05/18/20 13:35*	*1*
Toluene-d8 (Surr)	*107*		*80 - 125*		*05/18/20 13:35*	*1*

Lab Sample ID: LCS 280-495222/6
Matrix: Water
Analysis Batch: 495222

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	25.0	24.4		ug/L		97	65 - 135
1,1,2,2-Tetrachloroethane	25.0	25.1		ug/L		101	58 - 135
1,1,2-Trichloroethane	25.0	21.9		ug/L		88	64 - 135
1,1-Dichloroethane	25.0	24.1		ug/L		96	65 - 135
1,1-Dichloroethene	25.0	22.0		ug/L		88	65 - 136
1,2-Dichloroethane	25.0	26.2		ug/L		105	65 - 135
1,2-Dichloropropane	25.0	24.2		ug/L		97	64 - 135
1,3-Dichlorobenzene	25.0	25.8		ug/L		103	65 - 135
Benzene	25.0	23.2		ug/L		93	65 - 135
Bromodichloromethane	25.0	24.4		ug/L		98	65 - 135
Bromoform	25.0	21.4		ug/L		86	62 - 135
Bromomethane	25.0	28.3		ug/L		113	45 - 135

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-495222/6
Matrix: Water
Analysis Batch: 495222

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Carbon tetrachloride			25.0	24.2		ug/L		97	65 - 135		
Chlorobenzene			25.0	25.4		ug/L		102	65 - 135		
Chloroethane			25.0	20.4		ug/L		82	46 - 136		
Chloroform			25.0	23.5		ug/L		94	65 - 135		
Chloromethane			25.0	16.9		ug/L		68	34 - 145		
cis-1,3-Dichloropropene			25.0	26.5		ug/L		106	65 - 135		
Dibromochloromethane			25.0	24.8		ug/L		99	65 - 135		
Ethylbenzene			25.0	25.5		ug/L		102	65 - 135		
Methylene Chloride			25.0	22.8		ug/L		91	54 - 141		
Tetrachloroethene			25.0	24.7		ug/L		99	65 - 135		
Toluene			25.0	23.5		ug/L		94	65 - 135		
trans-1,2-Dichloroethene			25.0	22.8		ug/L		91	65 - 135		
Trichloroethene			25.0	23.3		ug/L		93	65 - 135		
Vinyl chloride			25.0	16.0		ug/L		64	40 - 137		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*111*		*70 - 127*
4-Bromofluorobenzene (Surr)	*105*		*78 - 120*
Dibromofluoromethane (Surr)	*101*		*77 - 120*
Toluene-d8 (Surr)	*105*		*80 - 125*

Lab Sample ID: LCSD 280-495222/7
Matrix: Water
Analysis Batch: 495222

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane			25.0	25.7		ug/L		103	65 - 135	5	20
1,1,2,2-Tetrachloroethane			25.0	30.0		ug/L		120	58 - 135	18	20
1,1,2-Trichloroethane			25.0	24.7		ug/L		99	64 - 135	12	27
1,1-Dichloroethane			25.0	25.5		ug/L		102	65 - 135	5	21
1,1-Dichloroethene			25.0	23.0		ug/L		92	65 - 136	4	20
1,2-Dichloroethane			25.0	28.5		ug/L		114	65 - 135	8	20
1,2-Dichloropropane			25.0	25.9		ug/L		104	64 - 135	7	20
1,3-Dichlorobenzene			25.0	27.8		ug/L		111	65 - 135	7	20
Benzene			25.0	24.6		ug/L		99	65 - 135	6	20
Bromodichloromethane			25.0	26.6		ug/L		106	65 - 135	8	20
Bromoform			25.0	24.5		ug/L		98	62 - 135	13	27
Bromomethane			25.0	21.9		ug/L		88	45 - 135	26	33
Carbon tetrachloride			25.0	25.1		ug/L		100	65 - 135	4	21
Chlorobenzene			25.0	27.3		ug/L		109	65 - 135	7	20
Chloroethane			25.0	20.2		ug/L		81	46 - 136	1	25
Chloroform			25.0	25.2		ug/L		101	65 - 135	7	20
Chloromethane			25.0	16.9		ug/L		68	34 - 145	0	24
cis-1,3-Dichloropropene			25.0	28.6		ug/L		115	65 - 135	8	26
Dibromochloromethane			25.0	27.4		ug/L		109	65 - 135	10	20
Ethylbenzene			25.0	27.0		ug/L		108	65 - 135	6	20
Methylene Chloride			25.0	23.9		ug/L		96	54 - 141	5	26
Tetrachloroethene			25.0	26.0		ug/L		104	65 - 135	5	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-495222/7
Matrix: Water
Analysis Batch: 495222

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Toluene			25.0	24.6		ug/L		98	65 - 135	5	20
trans-1,2-Dichloroethene			25.0	24.0		ug/L		96	65 - 135	5	24
Trichloroethene			25.0	24.6		ug/L		98	65 - 135	5	20
Vinyl chloride			25.0	16.5		ug/L		66	40 - 137	3	24

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*111*		*70 - 127*
4-Bromofluorobenzene (Surr)	*107*		*78 - 120*
Dibromofluoromethane (Surr)	*100*		*77 - 120*
Toluene-d8 (Surr)	*107*		*80 - 125*

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 280-495051/1-A
Matrix: Water
Analysis Batch: 495343

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 495051

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		10		ug/L		05/16/20 08:50	05/18/20 16:32	1
Barium	ND		10		ug/L		05/16/20 08:50	05/18/20 16:32	1
Cadmium	ND		5.0		ug/L		05/16/20 08:50	05/18/20 16:32	1
Chromium	ND		10		ug/L		05/16/20 08:50	05/18/20 16:32	1
Lead	ND		5.0		ug/L		05/16/20 08:50	05/18/20 16:32	1
Silver	ND		25		ug/L		05/16/20 08:50	05/18/20 16:32	1

Lab Sample ID: LCS 280-495051/2-A
Matrix: Water
Analysis Batch: 495343

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 495051

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic			2000	2150		ug/L		108	88 - 110
Barium			2000	2140		ug/L		107	90 - 112
Cadmium			1000	1060		ug/L		106	88 - 111
Chromium			1000	1070		ug/L		107	90 - 113
Lead			1000	1050		ug/L		105	89 - 110
Silver			50.0	49.7		ug/L		99	86 - 115

Lab Sample ID: 280-136567-2 MS
Matrix: Water
Analysis Batch: 495343

Client Sample ID: DUP
Prep Type: Dissolved
Prep Batch: 495051

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	ND		2000	2170		ug/L		109	84 - 124
Barium	25		2000	2140		ug/L		106	85 - 120
Cadmium	ND		1000	1040		ug/L		104	82 - 119
Chromium	ND		1000	1060		ug/L		106	73 - 135
Lead	ND		1000	1030		ug/L		103	89 - 121
Silver	ND		50.0	51.0		ug/L		102	75 - 141

Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: 280-136567-2 MSD
Matrix: Water
Analysis Batch: 495343

Client Sample ID: DUP
Prep Type: Dissolved
Prep Batch: 495051

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	ND		2000	2200		ug/L		110	84 - 124	1	20
Barium	25		2000	2170		ug/L		107	85 - 120	1	20
Cadmium	ND		1000	1050		ug/L		105	82 - 119	1	20
Chromium	ND		1000	1070		ug/L		107	73 - 135	1	20
Lead	ND		1000	1040		ug/L		104	89 - 121	1	20
Silver	ND		50.0	51.2		ug/L		102	75 - 141	0	20

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 280-495077/1-A
Matrix: Water
Analysis Batch: 496652

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 495077

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		5.0		ug/L		05/19/20 08:40	05/28/20 16:17	1

Lab Sample ID: LCS 280-495077/2-A
Matrix: Water
Analysis Batch: 496652

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 495077

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Selenium	40.0	40.3		ug/L		101	77 - 122

Lab Sample ID: 280-136567-2 MS
Matrix: Water
Analysis Batch: 496652

Client Sample ID: DUP
Prep Type: Dissolved
Prep Batch: 495077

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Selenium	ND		40.0	39.8		ug/L		99	77 - 122

Lab Sample ID: 280-136567-2 MSD
Matrix: Water
Analysis Batch: 496652

Client Sample ID: DUP
Prep Type: Dissolved
Prep Batch: 495077

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Selenium	ND		40.0	39.2		ug/L		98	77 - 122	1	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 280-496607/1-A
Matrix: Water
Analysis Batch: 496812

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 496607

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		05/29/20 11:00	05/29/20 15:57	1

Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: LCS 280-496607/2-A
Matrix: Water
Analysis Batch: 496812

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 496607

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury			5.00	4.85		ug/L		97	84 - 120		

Lab Sample ID: 280-136567-2 MS
Matrix: Water
Analysis Batch: 496812

Client Sample ID: DUP
Prep Type: Dissolved
Prep Batch: 496607

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury	ND		5.00	4.82		ug/L		96	75 - 125		

Lab Sample ID: 280-136567-2 MSD
Matrix: Water
Analysis Batch: 496812

Client Sample ID: DUP
Prep Type: Dissolved
Prep Batch: 496607

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		5.00	4.73		ug/L		95	75 - 125	2	20

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 280-494960/1
Matrix: Water
Analysis Batch: 494960

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0		mg/L			05/15/20 08:13	1

Lab Sample ID: LCS 280-494960/2
Matrix: Water
Analysis Batch: 494960

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Suspended Solids			100	98.0		mg/L		98	79 - 114		

Lab Sample ID: 280-136567-6 DU
Matrix: Water
Analysis Batch: 494960

Client Sample ID: P113
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Suspended Solids	29			26.8		mg/L				7	10

QC Association Summary

Client: Waste Management
Project/Site: 555|Denver/Arapahoe Chem.-GW

Job ID: 280-136567-1

GC/MS VOA

Analysis Batch: 495222

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136567-1	TRIP BLANK	Total/NA	Water	8260B	
280-136567-2	DUP	Total/NA	Water	8260B	
280-136567-3	P112	Total/NA	Water	8260B	
280-136567-4	P115	Total/NA	Water	8260B	
280-136567-5	P114A-R	Total/NA	Water	8260B	
280-136567-6	P113	Total/NA	Water	8260B	
MB 280-495222/9	Method Blank	Total/NA	Water	8260B	
LCS 280-495222/6	Lab Control Sample	Total/NA	Water	8260B	
LCSD 280-495222/7	Lab Control Sample Dup	Total/NA	Water	8260B	

Metals

Prep Batch: 495051

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136567-2	DUP	Dissolved	Water	3005A	
280-136567-3	P112	Dissolved	Water	3005A	
280-136567-4	P115	Dissolved	Water	3005A	
280-136567-5	P114A-R	Dissolved	Water	3005A	
280-136567-6	P113	Dissolved	Water	3005A	
MB 280-495051/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-495051/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
280-136567-2 MS	DUP	Dissolved	Water	3005A	
280-136567-2 MSD	DUP	Dissolved	Water	3005A	

Prep Batch: 495077

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136567-2	DUP	Dissolved	Water	3005A	
280-136567-3	P112	Dissolved	Water	3005A	
280-136567-4	P115	Dissolved	Water	3005A	
280-136567-5	P114A-R	Dissolved	Water	3005A	
280-136567-6	P113	Dissolved	Water	3005A	
MB 280-495077/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-495077/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
280-136567-2 MS	DUP	Dissolved	Water	3005A	
280-136567-2 MSD	DUP	Dissolved	Water	3005A	

Analysis Batch: 495343

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136567-2	DUP	Dissolved	Water	6010B	495051
280-136567-3	P112	Dissolved	Water	6010B	495051
280-136567-4	P115	Dissolved	Water	6010B	495051
280-136567-5	P114A-R	Dissolved	Water	6010B	495051
280-136567-6	P113	Dissolved	Water	6010B	495051
MB 280-495051/1-A	Method Blank	Total Recoverable	Water	6010B	495051
LCS 280-495051/2-A	Lab Control Sample	Total Recoverable	Water	6010B	495051
280-136567-2 MS	DUP	Dissolved	Water	6010B	495051
280-136567-2 MSD	DUP	Dissolved	Water	6010B	495051

Prep Batch: 496607

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136567-2	DUP	Dissolved	Water	7470A	

Metals (Continued)

Prep Batch: 496607 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136567-3	P112	Dissolved	Water	7470A	
280-136567-4	P115	Dissolved	Water	7470A	
280-136567-5	P114A-R	Dissolved	Water	7470A	
280-136567-6	P113	Dissolved	Water	7470A	
MB 280-496607/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-496607/2-A	Lab Control Sample	Total/NA	Water	7470A	
280-136567-2 MS	DUP	Dissolved	Water	7470A	
280-136567-2 MSD	DUP	Dissolved	Water	7470A	

Analysis Batch: 496652

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136567-2	DUP	Dissolved	Water	6020	495077
280-136567-3	P112	Dissolved	Water	6020	495077
280-136567-4	P115	Dissolved	Water	6020	495077
280-136567-5	P114A-R	Dissolved	Water	6020	495077
280-136567-6	P113	Dissolved	Water	6020	495077
MB 280-495077/1-A	Method Blank	Total Recoverable	Water	6020	495077
LCS 280-495077/2-A	Lab Control Sample	Total Recoverable	Water	6020	495077
280-136567-2 MS	DUP	Dissolved	Water	6020	495077
280-136567-2 MSD	DUP	Dissolved	Water	6020	495077

Analysis Batch: 496812

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136567-2	DUP	Dissolved	Water	7470A	496607
280-136567-3	P112	Dissolved	Water	7470A	496607
280-136567-4	P115	Dissolved	Water	7470A	496607
280-136567-5	P114A-R	Dissolved	Water	7470A	496607
280-136567-6	P113	Dissolved	Water	7470A	496607
MB 280-496607/1-A	Method Blank	Total/NA	Water	7470A	496607
LCS 280-496607/2-A	Lab Control Sample	Total/NA	Water	7470A	496607
280-136567-2 MS	DUP	Dissolved	Water	7470A	496607
280-136567-2 MSD	DUP	Dissolved	Water	7470A	496607

General Chemistry

Analysis Batch: 494960

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136567-2	DUP	Total/NA	Water	SM 2540D	
280-136567-3	P112	Total/NA	Water	SM 2540D	
280-136567-4	P115	Total/NA	Water	SM 2540D	
280-136567-5	P114A-R	Total/NA	Water	SM 2540D	
280-136567-6	P113	Total/NA	Water	SM 2540D	
MB 280-494960/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-494960/2	Lab Control Sample	Total/NA	Water	SM 2540D	
280-136567-6 DU	P113	Total/NA	Water	SM 2540D	

Field Service / Mobile Lab

Analysis Batch: 495198

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136567-3	P112	Total/NA	Water	Field Sampling	
280-136567-4	P115	Total/NA	Water	Field Sampling	

Field Service / Mobile Lab (Continued)

Analysis Batch: 495198 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136567-5	P114A-R	Total/NA	Water	Field Sampling	
280-136567-6	P113	Total/NA	Water	Field Sampling	

Lab Chronicle

Client: Waste Management
Project/Site: 555|Denver/Arapahoe Chem.-GW

Job ID: 280-136567-1

Client Sample ID: TRIP BLANK
Date Collected: 05/13/20 10:45
Date Received: 05/14/20 11:15

Lab Sample ID: 280-136567-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	495222	05/18/20 18:15	JLS	TAL DEN

Client Sample ID: DUP
Date Collected: 05/13/20 00:00
Date Received: 05/14/20 11:15

Lab Sample ID: 280-136567-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	495222	05/18/20 18:36	JLS	TAL DEN
Dissolved	Prep	3005A			50 mL	50 mL	495051	05/16/20 08:50	NK	TAL DEN
Dissolved	Analysis	6010B		1			495343	05/18/20 16:38	LMT	TAL DEN
Dissolved	Prep	3005A			50 mL	50 mL	495077	05/19/20 08:40	NK	TAL DEN
Dissolved	Analysis	6020		1			496652	05/28/20 16:25	LMT	TAL DEN
Dissolved	Prep	7470A			30 mL	50 mL	496607	05/29/20 11:00	AL	TAL DEN
Dissolved	Analysis	7470A		1			496812	05/29/20 16:02	AL	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	494960	05/15/20 08:13	FRG	TAL DEN

Client Sample ID: P112
Date Collected: 05/13/20 08:24
Date Received: 05/14/20 11:15

Lab Sample ID: 280-136567-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	495222	05/18/20 18:57	JLS	TAL DEN
Dissolved	Prep	3005A			50 mL	50 mL	495051	05/16/20 08:50	NK	TAL DEN
Dissolved	Analysis	6010B		1			495343	05/18/20 17:05	LMT	TAL DEN
Dissolved	Prep	3005A			50 mL	50 mL	495077	05/19/20 08:40	NK	TAL DEN
Dissolved	Analysis	6020		1			496652	05/28/20 16:43	LMT	TAL DEN
Dissolved	Prep	7470A			30 mL	50 mL	496607	05/29/20 11:00	AL	TAL DEN
Dissolved	Analysis	7470A		1			496812	05/29/20 16:08	AL	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	494960	05/15/20 08:13	FRG	TAL DEN
Total/NA	Analysis	Field Sampling		1			495198	05/13/20 08:24	P1P	TAL DEN

Client Sample ID: P115
Date Collected: 05/13/20 09:22
Date Received: 05/14/20 11:15

Lab Sample ID: 280-136567-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	495222	05/18/20 19:18	JLS	TAL DEN
Dissolved	Prep	3005A			50 mL	50 mL	495051	05/16/20 08:50	NK	TAL DEN
Dissolved	Analysis	6010B		1			495343	05/18/20 17:09	LMT	TAL DEN
Dissolved	Prep	3005A			50 mL	50 mL	495077	05/19/20 08:40	NK	TAL DEN
Dissolved	Analysis	6020		1			496652	05/28/20 16:47	LMT	TAL DEN
Dissolved	Prep	7470A			30 mL	50 mL	496607	05/29/20 11:00	AL	TAL DEN
Dissolved	Analysis	7470A		1			496812	05/29/20 16:10	AL	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	494960	05/15/20 08:13	FRG	TAL DEN

Lab Chronicle

Client: Waste Management
Project/Site: 555|Denver/Arapahoe Chem.-GW

Job ID: 280-136567-1

Client Sample ID: P115
Date Collected: 05/13/20 09:22
Date Received: 05/14/20 11:15

Lab Sample ID: 280-136567-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Field Sampling		1			495198	05/13/20 09:22	P1P	TAL DEN

Client Sample ID: P114A-R
Date Collected: 05/13/20 10:11
Date Received: 05/14/20 11:15

Lab Sample ID: 280-136567-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	495222	05/18/20 19:40	JLS	TAL DEN
Dissolved	Prep	3005A			50 mL	50 mL	495051	05/16/20 08:50	NK	TAL DEN
Dissolved	Analysis	6010B		1			495343	05/18/20 17:12	LMT	TAL DEN
Dissolved	Prep	3005A			50 mL	50 mL	495077	05/19/20 08:40	NK	TAL DEN
Dissolved	Analysis	6020		1			496652	05/28/20 16:58	LMT	TAL DEN
Dissolved	Prep	7470A			30 mL	50 mL	496607	05/29/20 11:00	AL	TAL DEN
Dissolved	Analysis	7470A		1			496812	05/29/20 16:13	AL	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	494960	05/15/20 08:13	FRG	TAL DEN
Total/NA	Analysis	Field Sampling		1			495198	05/13/20 10:11	P1P	TAL DEN

Client Sample ID: P113
Date Collected: 05/13/20 10:45
Date Received: 05/14/20 11:15

Lab Sample ID: 280-136567-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	495222	05/18/20 20:01	JLS	TAL DEN
Dissolved	Prep	3005A			50 mL	50 mL	495051	05/16/20 08:50	NK	TAL DEN
Dissolved	Analysis	6010B		1			495343	05/18/20 17:15	LMT	TAL DEN
Dissolved	Prep	3005A			50 mL	50 mL	495077	05/19/20 08:40	NK	TAL DEN
Dissolved	Analysis	6020		1			496652	05/28/20 17:01	LMT	TAL DEN
Dissolved	Prep	7470A			30 mL	50 mL	496607	05/29/20 11:00	AL	TAL DEN
Dissolved	Analysis	7470A		1			496812	05/29/20 16:19	AL	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	494960	05/15/20 08:13	FRG	TAL DEN
Total/NA	Analysis	Field Sampling		1			495198	05/13/20 10:45	P1P	TAL DEN

Laboratory References:
TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Denver SVC 280

Chain of Custody Record

Denver #280

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: C. MAJOR / K. Sylvia	Lab PM: Sara, Betsy A	Carrier Tracking No(s): Courier	COC No: 280-23617-7662.1
Client Contact: Tom Schweitzer	Phone: 303-695-4660	E-Mail: betsy.sara@testamericainc.com		Page: 1 of 1
Company: Waste Management				Job #: 202107.02
Address: 2400 West Union Avenue	Due Date Requested:			
City: Englewood	TAT Requested (days):			
State, Zip: CO 80110				
Phone: 303 914-1445	PO #:			
Email: Tschweitzer@wm.com	WO #:			
Project Name:555|Denver/Arapahoe Chem. Event Desc: Semi-Annual Wells - May Nov	Project #: 28003048			
Site: Colorado	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

280-136567 Chain of Custody

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B	TSS	Dissolved Metals	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N	D		
TRIP Blank	5/13/20	—	—	W			2			2	
DUP	5/13/20	—	G	W			3			3	40 mL Glass VIAL
↓	↓	↓	↓	↓				1		1	1000mL plastic
↓	↓	↓	↓	↓					1	1	500 mL plastic
P-112	5/13/20	0824	G	W			3	1	1	5	
P-115	5/13/20	0922	G	W			3	1	1	5	
P-114-A-R	5/13/20	1011	G	W			3	1	1	5	
P-113	5/13/20	1045	G	W			3	1	1	5	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		5/14/2020 915	SRES		5-14-20 915	TA
2		5-14-20 11:15	TA		5-14-20 1115	EATADEN
3						

Custody Seals Intact: ☐ Yes ☐ No
Custody Seal No.: 1308384

Cooler Temperature(s) °C and Other Remarks: 2.5, IR8, +0.6, DS, 5/14/20

5/30/2020

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: DACWPF
Site No.: 555 Sample Point: P-112 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN ~~CASING~~ (~~Gallons~~) mL	ACTUAL VOL PURGED (~~Gallons~~) mL	WELL VOLs PURGED
05 13 20	0756	00:28	2400	5200	20

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark changes, record field data, below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment . . . Dedicated: (Y) or N

Purging Device: C
Sampling Device: C
X-Other:

A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Filter Device: (F) or N — 0.45 µ or ____ µ (circle or fill in)
Filter Type: A (A-In-line Disposable, B-Pressure, C-Vacuum, X-Other)
Sample Tube Type: D (A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:)

WELL DATA

Well Elevation (at TOC): 576522 (ft/msl)
Depth to Water (DTW) (from TOC): 6123 (ft)
Groundwater Elevation (site datum, from TOC): 570399 (ft/msl)
Total Well Depth (from TOC): 1163 (ft)
Stick Up (from ground elevation): ____ (ft)
Casing ID: 2.0 (in)
Casing Material: PVC

Note: Total Well Depth, Stick Up, Casing Id. etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and Groundwater Elevation must be current.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	~~Rate/Unit~~ F+T Vol L	pH (std)	Conductance (SC/EC) (µmhos/cm@25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
08:00	0.0 1st	5.41 1st	1461 1st	13.8	2.01	5.85	79.4	615
08:04	0.33 2nd	5.58 2nd	1448 2nd	13.2	4.27	3.60	64.7	615
08:08	0.67 3rd	6.34 3rd	1430 3rd	13.3	15.6	2.75	23.0	615
08:12	1.0 4th	6.82 4th	1425 4th	13.4	29.0	2.15	-12.0	615
08:16	1.33	6.99	1426	13.5	22.1	1.78	-17.2	615
08:20	1.67	7.18	1426	13.6	15.9	1.58	-30.7	615
08:24	2.0	7.23	1427	13.6	10.2	1.39	-45.3	615
Suggested range for 3 consec. readings or note Permit/State requirements:		+/- 0.2	+/- 3%	--	--	+/- 10%	+/- 25 mV	Stabilize

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site.* ***If more fields above are needed, use separate sheet or form.***

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (umhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: DTW / Units F+
05 13 20	7.23	1427	13.6	10.2	1.39	-453	615

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.*

FIELD COMMENTS

Sample Appearance: Clear Odor: NONE Color: NONE Other: ____

Weather Conditions (required daily, or as conditions change): Direction/Speed: ~10mph SW Outlook: Cloudy 60's Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required): Sample Time: 0824

* includes additional 400 mL from flow through cell

F+T VOL 2400 mL AS specified by QED

only dissolved metals are field filtered

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05,13,20	LAURA MAJOR		SRES
05,13,20	Kacy Sylvia	Kacy Sylvia	SRES

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client. PINK - Field Copy

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: Dacmpf

Site No.: 555 Sample Point: B-115 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN ~~CASING~~ (Gallons)	ACTUAL VOL PURGED (Gallons)	~~WELL~~ VOLs PURGED
051320	0854	00:28	1500 P+T mL	4900 mL P+T	3.0

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark changes, record field data, below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment . . . Dedicated: Y or N

Purging Device: C

Sampling Device: C

X-Other:

A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Filter Device: (Y) or N — 0.45 µ or ____ µ (circle or fill in)

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other

Sample Tube Type: D — A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)	Depth to Water (DTW) (from TOC) (ft)	Groundwater Elevation (site datum, from TOC) (ft/msl)
577969	7539	570430

Total Well Depth (from TOC) (ft)	Stick Up (from ground elevation) (ft)	Casing ID (in)	Casing Material
1280		2.0	PVC

Note: Total Well Depth, Stick Up, Casing Id. etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and Groundwater Elevation must be current.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit P+T Vol	pH (std)	Conductance (SC/EC) (µmhos/cm@25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
0858	00	1st 6.80	1818	15.1	3.53	7.82	145	75.5
0902	05	2nd 6.87	1838	14.0	4.11	6.26	38	75.5
0906	10	3rd 7.36	1842	13.8	4.45	4.19	-313	75.5
0910	15	4th 7.61	1851	13.7	2.46	3.49	-439	75.5
0914	20	7.85	1857	13.6	2.98	2.87	-544	75.5
0918	25	7.94	1856	13.7	3.01	2.66	-614	75.5
0922	30	8.00	1857	13.7	1.48	2.58	-647	75.5
Suggested range for 3 consec. readings or note Permit/State requirements:		+/- 0.2	+/- 3%	--	--	+/- 10%	+/- 25 mV	Stabilize

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site.* ***If more fields above are needed, use separate sheet or form.***

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (umhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L ppm)	eH/ORP (mV)	Other: DTW Units ft
051320	8.00	1857	13.7	1.48	2.58	-647	75.5

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.*

FIELD COMMENTS

Sample Appearance: Clear Odor: NONE Color: NONE Other:

Weather Conditions (required daily, or as conditions change): Direction/Speed: Calm Outlook: Cloudy 60's Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required): Sample Time 0922

*Includes additional 400mL from flow through cell

P+T Volume 1507 mL ≅ 1500 as specified by QED

only Dissolved metals are field filtered

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05.13.20	LAURA MAJOR		SRES
05.13.20	Kacy Sylvia	Kacy Sylvia	SRES

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client. PINK - Field Copy

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: DAC wPF
Site No.: 555 Sample Point: P+T 14AR (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN ~~CASING~~ PT (Gallons) mL	ACTUAL VOL PURGED (Gallons) mL	~~WELL~~ VOLs PURGED
05/13/20	09:35	01:36	1400 mL	3900 mL *	2.5

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark changes, record field data, below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment . . . Dedicated: (Y) or N

Purging Device: C
Sampling Device: C
X-Other:

A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Filter Device: (Y) or N (0.45) µ or ____ µ (circle or fill in)
Filter Type: A (A-In-line Disposable, B-Pressure, C-Vacuum, X-Other)
Sample Tube Type: X (A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other: D)

WELL DATA

Well Elevation (at TOC): 578063 (ft/msl)
Depth to Water (DTW) (from TOC): 7612 (ft)
Groundwater Elevation (site datum, from TOC): 570451 (ft/msl)
Total Well Depth (from TOC): 1011 (ft)
Stick Up (from ground elevation): ____ (ft)
Casing ID: 2.0 (in)
Casing Material: PVC

Note: Total Well Depth, Stick Up, Casing Id. etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and Groundwater Elevation must be current.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	~~Rate/Unit~~ P+T Vol	pH (std)	Conductance (SC/EC) (µmhos/cm@25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
09:41	00	1st 6.89	2555	14.6	3.95	7.65	134	76.6
09:47	05	2nd 6.83	2579	13.8	2.35	5.30	122	76.8
0953	10	3rd 6.96	2593	13.8	3.23	3.63	4.2	76.8
0959	15	4th 7.13	2607	13.8	4.13	2.90	-2.9	76.8
10:05	20	7.19	2612	13.8	3.20	2.69	-9.1	76.8
10:11	25	9.34	2614	13.7	1.40	2.51	-15.7	76.8
Suggested range for 3 consec. readings or note Permit/State requirements:		+/- 0.2	+/- 3%	--	--	+/- 10%	+/- 25 mV	Stabilize

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site.* ***If more fields above are needed, use separate sheet or form.***

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (umhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: DTW Units FT
05/13/20	7.34	2614	13.7	1.40	2.51	-15.7	76.8

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.*

FIELD COMMENTS

Sample Appearance: Clear Odor: NONE Color: NONE Other: ____

Weather Conditions (required daily, or as conditions change): Direction/Speed: 5mph SE Outlook: Cloudy 60's Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required): Sample Time: 1011

* includes additional 400 mL from flow through cell

P+T volume 1393 ≅ 1400 mL AS specified by QED

Only Dissolved metals are field Filtered

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05,13,20	LAURA MAJOR		SLES
05,13,20	Kary Sylvia	Kary Sylvia	SLES

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample; YELLOW - Returned to Client. PINK - Field Copy

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: DAC UPF

Site No.: 555 Sample Point: Pt 113 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN ~~CASING~~ PtT ~~(Gallons)~~ mL	ACTUAL VOL PURGED ~~(Gallons)~~ mL	~~WELL~~ PtT VOLs PURGED
051320	10:25	00:20	1500 mL	3400 mL	20

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark changes, record field data, below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment . . . Dedicated: Y or N

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Device: Y or N — 0.45 µ or — µ (circle or fill in)

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other

Sample Tube Type: D — A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC): 577979 (ft/msl)

Depth to Water (DTW) (from TOC): 75.45 (ft)

Groundwater Elevation (site datum, from TOC): 570434 (ft/msl)

Total Well Depth (from TOC): 1222 (ft)

Stick Up (from ground elevation): — (ft)

Casing ID: 2.0 (in)

Casing Material: PVC

Note: Total Well Depth, Stick Up, Casing Id. etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and Groundwater Elevation must be current.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	~~Rate/Unit~~ PtT vol	pH (std)	Conductance (SC/EC) (µmhos/cm@25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
10:29	00	7.17	2070	15.6	3.97	7.41	75	76.5
10:33	05	7.26	2039	14.4	9.75	6.08	0.3	77.1
10:37	10	7.41	2032	14.0	28.1	4.61	-77	77.9
10:41	15	7.57	2024	14.3	3.99	4.33	-14.6	78.8
10:45	20	7.66	2024	14.3	3.55	4.17	-17.2	79.2
Suggested range for 3 consec. readings or note Permit/State requirements:		+/- 0.2	+/- 3%	--	--	+/- 10%	+/- 25 mV	Stabilize

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site.* ***If more fields above are needed, use separate sheet or form.***

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (umhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L-ppm)	eH/ORP (mV)	Other: DTW Units FT
051320	7.66	2024	14.3	3.55	4.17	-17.2	79.2

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.*

FIELD COMMENTS

Sample Appearance: Clear Odor: NONE Color: NONE Other:

Weather Conditions (required daily, or as conditions change): Direction/Speed: Calm Outlook: Cloudy 60's Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required): Sample Time 1045

* includes additional 400mL from flow through cell

PtT volume = 1486mL ≅ 1500mL as specified by QED

only dissolved metals are field filtered

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05/13/20	LAURA MATOR	[signature]	SRES
05/13/20	Kacy Sylvia	Kacy Sylvia	SRES

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client. PINK - Field Copy

TAL-8029WM (1013)

Login Sample Receipt Checklist

Client: Waste Management

Job Number: 280-136567-1

Login Number: 136567
List Number: 1
Creator: Schade, Daniel B

List Source: Eurofins TestAmerica, Denver

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	True	

APPENDIX B-2

Second Semi-annual Sampling Event

eurofins | Environment Testing America



ANALYTICAL REPORT

Eurofins TestAmerica, Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

Laboratory Job ID: 280-142501-1
Client Project/Site: 555|Denver/Arapahoe Chem. - Groundwater
Sampling Event: Semi-Annual Wells - May Nov

For:
Waste Management
2400 West Union Avenue
Englewood, Colorado 80110

Attn: Mr. Tom Schweitzer

Betsy Sara

Authorized for release by:
11/23/2020 10:24:10 AM

Betsy Sara, Project Manager II
(303)736-0189
Betsy.Sara@Eurofinset.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.eurofinsus.com/Env

The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: Waste Management
Job ID: 280-142501-1
Project/Site: 555|Denver/Arapahoe Chem. - Groundwater

Qualifiers

Metals

Qualifier	Qualifier Description
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 280-142501-1

Laboratory: Eurofins TestAmerica, Denver

Narrative

CASE NARRATIVE

Client: Waste Management

Project: 555|Denver/Arapahoe Chem. - Groundwater

Report Number: 280-142501-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

This report may include reporting limits (RLs) less than Eurofins TestAmerica's standard reporting limit. The reported sample results and associated reporting limits are being used specifically to meet the needs of this project. Note that data are not normally reported to these levels without qualification because they are inherently less reliable and potentially less defensible than required by the latest industry standards.

Sample Receiving

The samples were received on 11/06/2020; the samples arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 0.6 C.

Holding Times

All holding times were within established control limits.

Method Blanks

All Method Blanks were within established control limits.

Laboratory Control Samples (LCS)

All Laboratory Control Samples were within established control limits.

Matrix Spike and Matrix Spike Duplicate (MS/MSD)

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) for Method 8260B, however, an LCS/LCSD pair was analyzed to demonstrate method precision and accuracy.

All other MS/MSD recoveries were within established control limits.

Metals

The Method 6020 Continuing Calibration Verification (CCV) sample was above the control limits for Total Selenium. Because the data are considered biased high and Total Selenium was not detected in the associated samples above the reporting limit, corrective action was deemed unnecessary.

General Comments

In accordance with the State RCRA Permit, issued September 30, 2009, (Attachment 7, Section 2.4, Step 5, Sample Handling), samples collected for metals analysis will be field filtered and preserved prior to shipment to, and analysis by, the laboratory. The reporting of chromium on the laboratory report shows as dissolved chromium, at the client's request; however, the results should be considered total

Job ID: 280-142501-1 (Continued)

Laboratory: Eurofins TestAmerica, Denver (Continued)

chromium (not speciated).

Detection Summary

Client: Waste Management
Job ID: 280-142501-1
Project/Site: 555|Denver/Arapahoe Chem. - Groundwater

Client Sample ID: TRIP BLANK — Lab Sample ID: 280-142501-1

No Detections.

Client Sample ID: DUP — Lab Sample ID: 280-142501-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	14		10		ug/L	1		6010B	Dissolved
Total Suspended Solids	4.8		4.0		mg/L	1		SM 2540D	Total/NA

Client Sample ID: P112 — Lab Sample ID: 280-142501-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	22		10		ug/L	1		6010B	Dissolved
Total Suspended Solids	4.8		4.0		mg/L	1		SM 2540D	Total/NA
Well Elevation	5765.22				ft/msl	1		Field Sampling	Total/NA
Depth to water	61.71				ft	1		Field Sampling	Total/NA
Groundwater Elevation	5703.51				ft/msl	1		Field Sampling	Total/NA
Field pH	7.09				SU	1		Field Sampling	Total/NA
Field Conductivity	1448				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	13.6				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	0.98				NTU	1		Field Sampling	Total/NA
Field Dissolved Oxygen	3.37				mg/L	1		Field Sampling	Total/NA
Field EH/ORP	-109.6				millivolts	1		Field Sampling	Total/NA

Client Sample ID: P115 — Lab Sample ID: 280-142501-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	14		10		ug/L	1		6010B	Dissolved
Well Elevation	5779.69				ft/msl	1		Field Sampling	Total/NA
Depth to water	75.61				ft	1		Field Sampling	Total/NA
Groundwater Elevation	5704.08				ft/msl	1		Field Sampling	Total/NA
Field pH	7.28				SU	1		Field Sampling	Total/NA
Field Conductivity	1902				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	14.2				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	2.44				NTU	1		Field Sampling	Total/NA
Field Dissolved Oxygen	1.37				mg/L	1		Field Sampling	Total/NA
Field EH/ORP	-79.8				millivolts	1		Field Sampling	Total/NA

Client Sample ID: P114A-R — Lab Sample ID: 280-142501-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	34		10		ug/L	1		6010B	Dissolved
Total Suspended Solids	6.0		4.0		mg/L	1		SM 2540D	Total/NA
Well Elevation	5780.63				ft/msl	1		Field Sampling	Total/NA
Depth to water	76.42				ft	1		Field Sampling	Total/NA
Groundwater Elevation	5704.21				ft/msl	1		Field Sampling	Total/NA
Field pH	7.35				SU	1		Field Sampling	Total/NA
Field Conductivity	2715				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	14.1				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	9.37				NTU	1		Field Sampling	Total/NA
Field Dissolved Oxygen	1.19				mg/L	1		Field Sampling	Total/NA
Field EH/ORP	-47.8				millivolts	1		Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Waste Management
Job ID: 280-142501-1
Project/Site: 555|Denver/Arapahoe Chem. - Groundwater

Client Sample ID: P113
Lab Sample ID: 280-142501-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	13		10		ug/L	1		6010B	Dissolved
Total Suspended Solids	13		4.0		mg/L	1		SM 2540D	Total/NA
Well Elevation	5779.79				ft/msl	1		Field Sampling	Total/NA
Depth to water	75.78				ft	1		Field Sampling	Total/NA
Groundwater Elevation	5704.01				ft/msl	1		Field Sampling	Total/NA
Field pH	8.16				SU	1		Field Sampling	Total/NA
Field Conductivity	2086				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	14.6				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	27.3				NTU	1		Field Sampling	Total/NA
Field Dissolved Oxygen	9.35				mg/L	1		Field Sampling	Total/NA
Field EH/ORP	-35.0				millivolts	1		Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Waste Management
Job ID: 280-142501-1
Project/Site: 555|Denver/Arapahoe Chem. - Groundwater

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
6010B	Metals (ICP)	SW846	TAL DEN
6020	Metals (ICP/MS)	SW846	TAL DEN
7470A	Mercury (CVAA)	SW846	TAL DEN
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL DEN
Field Sampling	Field Sampling	EPA	TAL DEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
7470A	Preparation, Mercury	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: Waste Management
Job ID: 280-142501-1
Project/Site: 555|Denver/Arapahoe Chem. - Groundwater

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
280-142501-1	TRIP BLANK	Water	11/06/20 10:55	11/06/20 15:30	
280-142501-2	DUP	Water	11/06/20 00:00	11/06/20 15:30	
280-142501-3	P112	Water	11/06/20 10:55	11/06/20 15:30	
280-142501-4	P115	Water	11/06/20 11:33	11/06/20 15:30	
280-142501-5	P114A-R	Water	11/06/20 12:19	11/06/20 15:30	
280-142501-6	P113	Water	11/06/20 12:57	11/06/20 15:30	

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: TRIP BLANK
Date Collected: 11/06/20 10:55
Date Received: 11/06/20 15:30

Lab Sample ID: 280-142501-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0		ug/L			11/10/20 17:48	1
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			11/10/20 17:48	1
1,1,2-Trichloroethane	ND		3.0		ug/L			11/10/20 17:48	1
1,1-Dichloroethane	ND		5.0		ug/L			11/10/20 17:48	1
1,1-Dichloroethene	ND		5.0		ug/L			11/10/20 17:48	1
1,2-Dichloroethane	ND		1.0		ug/L			11/10/20 17:48	1
1,2-Dichloropropane	ND		1.0		ug/L			11/10/20 17:48	1
Benzene	ND		5.0		ug/L			11/10/20 17:48	1
Bromodichloromethane	ND		1.0		ug/L			11/10/20 17:48	1
Bromoform	ND		4.0		ug/L			11/10/20 17:48	1
Bromomethane	ND		10		ug/L			11/10/20 17:48	1
Carbon tetrachloride	ND		1.0		ug/L			11/10/20 17:48	1
Chlorobenzene	ND		5.0		ug/L			11/10/20 17:48	1
Chloroethane	ND		10		ug/L			11/10/20 17:48	1
Chloroform	ND		5.0		ug/L			11/10/20 17:48	1
Chloromethane	ND		10		ug/L			11/10/20 17:48	1
cis-1,3-Dichloropropene	ND		5.0		ug/L			11/10/20 17:48	1
Dibromochloromethane	ND		5.0		ug/L			11/10/20 17:48	1
Ethylbenzene	ND		5.0		ug/L			11/10/20 17:48	1
Tetrachloroethene	ND		5.0		ug/L			11/10/20 17:48	1
Toluene	ND		5.0		ug/L			11/10/20 17:48	1
trans-1,2-Dichloroethene	ND		10		ug/L			11/10/20 17:48	1
Trichloroethene	ND		5.0		ug/L			11/10/20 17:48	1
Vinyl chloride	ND		2.0		ug/L			11/10/20 17:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*70 - 127*		*11/10/20 17:48*	*1*
4-Bromofluorobenzene (Surr)	*97*		*78 - 120*		*11/10/20 17:48*	*1*
Dibromofluoromethane (Surr)	*100*		*77 - 120*		*11/10/20 17:48*	*1*
Toluene-d8 (Surr)	*97*		*80 - 125*		*11/10/20 17:48*	*1*

Client Sample ID: DUP
Date Collected: 11/06/20 00:00
Date Received: 11/06/20 15:30

Lab Sample ID: 280-142501-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0		ug/L			11/10/20 18:10	1
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			11/10/20 18:10	1
1,1,2-Trichloroethane	ND		3.0		ug/L			11/10/20 18:10	1
1,1-Dichloroethane	ND		5.0		ug/L			11/10/20 18:10	1
1,1-Dichloroethene	ND		5.0		ug/L			11/10/20 18:10	1
1,2-Dichloroethane	ND		1.0		ug/L			11/10/20 18:10	1
1,2-Dichloropropane	ND		1.0		ug/L			11/10/20 18:10	1
Benzene	ND		5.0		ug/L			11/10/20 18:10	1
Bromodichloromethane	ND		1.0		ug/L			11/10/20 18:10	1
Bromoform	ND		4.0		ug/L			11/10/20 18:10	1
Bromomethane	ND		10		ug/L			11/10/20 18:10	1
Carbon tetrachloride	ND		1.0		ug/L			11/10/20 18:10	1
Chlorobenzene	ND		5.0		ug/L			11/10/20 18:10	1
Chloroethane	ND		10		ug/L			11/10/20 18:10	1
Chloroform	ND		5.0		ug/L			11/10/20 18:10	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: DUP
Date Collected: 11/06/20 00:00
Date Received: 11/06/20 15:30

Lab Sample ID: 280-142501-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloromethane	ND		10		ug/L			11/10/20 18:10	1
cis-1,3-Dichloropropene	ND		5.0		ug/L			11/10/20 18:10	1
Dibromochloromethane	ND		5.0		ug/L			11/10/20 18:10	1
Ethylbenzene	ND		5.0		ug/L			11/10/20 18:10	1
Tetrachloroethene	ND		5.0		ug/L			11/10/20 18:10	1
Toluene	ND		5.0		ug/L			11/10/20 18:10	1
trans-1,2-Dichloroethene	ND		10		ug/L			11/10/20 18:10	1
Trichloroethene	ND		5.0		ug/L			11/10/20 18:10	1
Vinyl chloride	ND		2.0		ug/L			11/10/20 18:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*70 - 127*		*11/10/20 18:10*	*1*
4-Bromofluorobenzene (Surr)	*98*		*78 - 120*		*11/10/20 18:10*	*1*
Dibromofluoromethane (Surr)	*100*		*77 - 120*		*11/10/20 18:10*	*1*
Toluene-d8 (Surr)	*98*		*80 - 125*		*11/10/20 18:10*	*1*

Client Sample ID: P112
Date Collected: 11/06/20 10:55
Date Received: 11/06/20 15:30

Lab Sample ID: 280-142501-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0		ug/L			11/10/20 18:32	1
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			11/10/20 18:32	1
1,1,2-Trichloroethane	ND		3.0		ug/L			11/10/20 18:32	1
1,1-Dichloroethane	ND		5.0		ug/L			11/10/20 18:32	1
1,1-Dichloroethene	ND		5.0		ug/L			11/10/20 18:32	1
1,2-Dichloroethane	ND		1.0		ug/L			11/10/20 18:32	1
1,2-Dichloropropane	ND		1.0		ug/L			11/10/20 18:32	1
Benzene	ND		5.0		ug/L			11/10/20 18:32	1
Bromodichloromethane	ND		1.0		ug/L			11/10/20 18:32	1
Bromoform	ND		4.0		ug/L			11/10/20 18:32	1
Bromomethane	ND		10		ug/L			11/10/20 18:32	1
Carbon tetrachloride	ND		1.0		ug/L			11/10/20 18:32	1
Chlorobenzene	ND		5.0		ug/L			11/10/20 18:32	1
Chloroethane	ND		10		ug/L			11/10/20 18:32	1
Chloroform	ND		5.0		ug/L			11/10/20 18:32	1
Chloromethane	ND		10		ug/L			11/10/20 18:32	1
cis-1,3-Dichloropropene	ND		5.0		ug/L			11/10/20 18:32	1
Dibromochloromethane	ND		5.0		ug/L			11/10/20 18:32	1
Ethylbenzene	ND		5.0		ug/L			11/10/20 18:32	1
Tetrachloroethene	ND		5.0		ug/L			11/10/20 18:32	1
Toluene	ND		5.0		ug/L			11/10/20 18:32	1
trans-1,2-Dichloroethene	ND		10		ug/L			11/10/20 18:32	1
Trichloroethene	ND		5.0		ug/L			11/10/20 18:32	1
Vinyl chloride	ND		2.0		ug/L			11/10/20 18:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*70 - 127*		*11/10/20 18:32*	*1*
4-Bromofluorobenzene (Surr)	*98*		*78 - 120*		*11/10/20 18:32*	*1*
Dibromofluoromethane (Surr)	*99*		*77 - 120*		*11/10/20 18:32*	*1*
Toluene-d8 (Surr)	*97*		*80 - 125*		*11/10/20 18:32*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: P115
Date Collected: 11/06/20 11:33
Date Received: 11/06/20 15:30

Lab Sample ID: 280-142501-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0		ug/L			11/10/20 18:54	1
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			11/10/20 18:54	1
1,1,2-Trichloroethane	ND		3.0		ug/L			11/10/20 18:54	1
1,1-Dichloroethane	ND		5.0		ug/L			11/10/20 18:54	1
1,1-Dichloroethene	ND		5.0		ug/L			11/10/20 18:54	1
1,2-Dichloroethane	ND		1.0		ug/L			11/10/20 18:54	1
1,2-Dichloropropane	ND		1.0		ug/L			11/10/20 18:54	1
Benzene	ND		5.0		ug/L			11/10/20 18:54	1
Bromodichloromethane	ND		1.0		ug/L			11/10/20 18:54	1
Bromoform	ND		4.0		ug/L			11/10/20 18:54	1
Bromomethane	ND		10		ug/L			11/10/20 18:54	1
Carbon tetrachloride	ND		1.0		ug/L			11/10/20 18:54	1
Chlorobenzene	ND		5.0		ug/L			11/10/20 18:54	1
Chloroethane	ND		10		ug/L			11/10/20 18:54	1
Chloroform	ND		5.0		ug/L			11/10/20 18:54	1
Chloromethane	ND		10		ug/L			11/10/20 18:54	1
cis-1,3-Dichloropropene	ND		5.0		ug/L			11/10/20 18:54	1
Dibromochloromethane	ND		5.0		ug/L			11/10/20 18:54	1
Ethylbenzene	ND		5.0		ug/L			11/10/20 18:54	1
Tetrachloroethene	ND		5.0		ug/L			11/10/20 18:54	1
Toluene	ND		5.0		ug/L			11/10/20 18:54	1
trans-1,2-Dichloroethene	ND		10		ug/L			11/10/20 18:54	1
Trichloroethene	ND		5.0		ug/L			11/10/20 18:54	1
Vinyl chloride	ND		2.0		ug/L			11/10/20 18:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*70 - 127*		*11/10/20 18:54*	*1*
4-Bromofluorobenzene (Surr)	*98*		*78 - 120*		*11/10/20 18:54*	*1*
Dibromofluoromethane (Surr)	*100*		*77 - 120*		*11/10/20 18:54*	*1*
Toluene-d8 (Surr)	*97*		*80 - 125*		*11/10/20 18:54*	*1*

Client Sample ID: P114A-R
Date Collected: 11/06/20 12:19
Date Received: 11/06/20 15:30

Lab Sample ID: 280-142501-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0		ug/L			11/10/20 19:16	1
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			11/10/20 19:16	1
1,1,2-Trichloroethane	ND		3.0		ug/L			11/10/20 19:16	1
1,1-Dichloroethane	ND		5.0		ug/L			11/10/20 19:16	1
1,1-Dichloroethene	ND		5.0		ug/L			11/10/20 19:16	1
1,2-Dichloroethane	ND		1.0		ug/L			11/10/20 19:16	1
1,2-Dichloropropane	ND		1.0		ug/L			11/10/20 19:16	1
Benzene	ND		5.0		ug/L			11/10/20 19:16	1
Bromodichloromethane	ND		1.0		ug/L			11/10/20 19:16	1
Bromoform	ND		4.0		ug/L			11/10/20 19:16	1
Bromomethane	ND		10		ug/L			11/10/20 19:16	1
Carbon tetrachloride	ND		1.0		ug/L			11/10/20 19:16	1
Chlorobenzene	ND		5.0		ug/L			11/10/20 19:16	1
Chloroethane	ND		10		ug/L			11/10/20 19:16	1
Chloroform	ND		5.0		ug/L			11/10/20 19:16	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: P114A-R
Date Collected: 11/06/20 12:19
Date Received: 11/06/20 15:30

Lab Sample ID: 280-142501-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloromethane	ND		10		ug/L			11/10/20 19:16	1
cis-1,3-Dichloropropene	ND		5.0		ug/L			11/10/20 19:16	1
Dibromochloromethane	ND		5.0		ug/L			11/10/20 19:16	1
Ethylbenzene	ND		5.0		ug/L			11/10/20 19:16	1
Tetrachloroethene	ND		5.0		ug/L			11/10/20 19:16	1
Toluene	ND		5.0		ug/L			11/10/20 19:16	1
trans-1,2-Dichloroethene	ND		10		ug/L			11/10/20 19:16	1
Trichloroethene	ND		5.0		ug/L			11/10/20 19:16	1
Vinyl chloride	ND		2.0		ug/L			11/10/20 19:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*70 - 127*		*11/10/20 19:16*	*1*
4-Bromofluorobenzene (Surr)	*98*		*78 - 120*		*11/10/20 19:16*	*1*
Dibromofluoromethane (Surr)	*101*		*77 - 120*		*11/10/20 19:16*	*1*
Toluene-d8 (Surr)	*98*		*80 - 125*		*11/10/20 19:16*	*1*

Client Sample ID: P113
Date Collected: 11/06/20 12:57
Date Received: 11/06/20 15:30

Lab Sample ID: 280-142501-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0		ug/L			11/10/20 19:38	1
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			11/10/20 19:38	1
1,1,2-Trichloroethane	ND		3.0		ug/L			11/10/20 19:38	1
1,1-Dichloroethane	ND		5.0		ug/L			11/10/20 19:38	1
1,1-Dichloroethene	ND		5.0		ug/L			11/10/20 19:38	1
1,2-Dichloroethane	ND		1.0		ug/L			11/10/20 19:38	1
1,2-Dichloropropane	ND		1.0		ug/L			11/10/20 19:38	1
Benzene	ND		5.0		ug/L			11/10/20 19:38	1
Bromodichloromethane	ND		1.0		ug/L			11/10/20 19:38	1
Bromoform	ND		4.0		ug/L			11/10/20 19:38	1
Bromomethane	ND		10		ug/L			11/10/20 19:38	1
Carbon tetrachloride	ND		1.0		ug/L			11/10/20 19:38	1
Chlorobenzene	ND		5.0		ug/L			11/10/20 19:38	1
Chloroethane	ND		10		ug/L			11/10/20 19:38	1
Chloroform	ND		5.0		ug/L			11/10/20 19:38	1
Chloromethane	ND		10		ug/L			11/10/20 19:38	1
cis-1,3-Dichloropropene	ND		5.0		ug/L			11/10/20 19:38	1
Dibromochloromethane	ND		5.0		ug/L			11/10/20 19:38	1
Ethylbenzene	ND		5.0		ug/L			11/10/20 19:38	1
Tetrachloroethene	ND		5.0		ug/L			11/10/20 19:38	1
Toluene	ND		5.0		ug/L			11/10/20 19:38	1
trans-1,2-Dichloroethene	ND		10		ug/L			11/10/20 19:38	1
Trichloroethene	ND		5.0		ug/L			11/10/20 19:38	1
Vinyl chloride	ND		2.0		ug/L			11/10/20 19:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*70 - 127*		*11/10/20 19:38*	*1*
4-Bromofluorobenzene (Surr)	*100*		*78 - 120*		*11/10/20 19:38*	*1*
Dibromofluoromethane (Surr)	*100*		*77 - 120*		*11/10/20 19:38*	*1*
Toluene-d8 (Surr)	*97*		*80 - 125*		*11/10/20 19:38*	*1*

Method: 6010B - Metals (ICP) - Dissolved

Client Sample ID: DUP
Date Collected: 11/06/20 00:00
Date Received: 11/06/20 15:30
Lab Sample ID: 280-142501-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		10		ug/L		11/15/20 08:02	11/17/20 08:45	1
Barium	**14**		10		ug/L		11/15/20 08:02	11/17/20 08:45	1
Cadmium	ND		5.0		ug/L		11/15/20 08:02	11/17/20 08:45	1
Chromium	ND		10		ug/L		11/15/20 08:02	11/17/20 08:45	1
Lead	ND		5.0		ug/L		11/15/20 08:02	11/17/20 08:45	1
Silver	ND		25		ug/L		11/15/20 08:02	11/17/20 08:45	1

Client Sample ID: P112
Date Collected: 11/06/20 10:55
Date Received: 11/06/20 15:30
Lab Sample ID: 280-142501-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		10		ug/L		11/15/20 08:02	11/17/20 08:49	1
Barium	**22**		10		ug/L		11/15/20 08:02	11/17/20 08:49	1
Cadmium	ND		5.0		ug/L		11/15/20 08:02	11/17/20 08:49	1
Chromium	ND		10		ug/L		11/15/20 08:02	11/17/20 08:49	1
Lead	ND		5.0		ug/L		11/15/20 08:02	11/17/20 08:49	1
Silver	ND		25		ug/L		11/15/20 08:02	11/17/20 08:49	1

Client Sample ID: P115
Date Collected: 11/06/20 11:33
Date Received: 11/06/20 15:30
Lab Sample ID: 280-142501-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		10		ug/L		11/15/20 08:02	11/17/20 08:52	1
Barium	**14**		10		ug/L		11/15/20 08:02	11/17/20 08:52	1
Cadmium	ND		5.0		ug/L		11/15/20 08:02	11/17/20 08:52	1
Chromium	ND		10		ug/L		11/15/20 08:02	11/17/20 08:52	1
Lead	ND		5.0		ug/L		11/15/20 08:02	11/17/20 08:52	1
Silver	ND		25		ug/L		11/15/20 08:02	11/17/20 08:52	1

Client Sample ID: P114A-R
Date Collected: 11/06/20 12:19
Date Received: 11/06/20 15:30
Lab Sample ID: 280-142501-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		10		ug/L		11/15/20 08:02	11/17/20 08:56	1
Barium	**34**		10		ug/L		11/15/20 08:02	11/17/20 08:56	1
Cadmium	ND		5.0		ug/L		11/15/20 08:02	11/17/20 08:56	1
Chromium	ND		10		ug/L		11/15/20 08:02	11/17/20 08:56	1
Lead	ND		5.0		ug/L		11/15/20 08:02	11/17/20 08:56	1
Silver	ND		25		ug/L		11/15/20 08:02	11/17/20 08:56	1

Client Sample ID: P113
Date Collected: 11/06/20 12:57
Date Received: 11/06/20 15:30
Lab Sample ID: 280-142501-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		10		ug/L		11/15/20 08:02	11/17/20 08:59	1
Barium	**13**		10		ug/L		11/15/20 08:02	11/17/20 08:59	1
Cadmium	ND		5.0		ug/L		11/15/20 08:02	11/17/20 08:59	1
Chromium	ND		10		ug/L		11/15/20 08:02	11/17/20 08:59	1
Lead	ND		5.0		ug/L		11/15/20 08:02	11/17/20 08:59	1
Silver	ND		25		ug/L		11/15/20 08:02	11/17/20 08:59	1

Method: 6020 - Metals (ICP/MS) - Dissolved

Client Sample ID: DUP
Date Collected: 11/06/20 00:00
Date Received: 11/06/20 15:30
Lab Sample ID: 280-142501-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND	^	5.0		ug/L		11/11/20 15:30	11/13/20 04:00	1

Client Sample ID: P112
Date Collected: 11/06/20 10:55
Date Received: 11/06/20 15:30
Lab Sample ID: 280-142501-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND	^	5.0		ug/L		11/11/20 15:30	11/13/20 04:03	1

Client Sample ID: P115
Date Collected: 11/06/20 11:33
Date Received: 11/06/20 15:30
Lab Sample ID: 280-142501-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND	^	5.0		ug/L		11/11/20 15:30	11/13/20 04:07	1

Client Sample ID: P114A-R
Date Collected: 11/06/20 12:19
Date Received: 11/06/20 15:30
Lab Sample ID: 280-142501-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND	^	5.0		ug/L		11/11/20 15:30	11/13/20 04:11	1

Client Sample ID: P113
Date Collected: 11/06/20 12:57
Date Received: 11/06/20 15:30
Lab Sample ID: 280-142501-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND	^	5.0		ug/L		11/11/20 15:30	11/13/20 04:14	1

Method: 7470A - Mercury (CVAA) - Dissolved

Client Sample ID: DUP
Date Collected: 11/06/20 00:00
Date Received: 11/06/20 15:30
Lab Sample ID: 280-142501-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		11/17/20 13:10	11/17/20 17:51	1

Client Sample ID: P112
Date Collected: 11/06/20 10:55
Date Received: 11/06/20 15:30
Lab Sample ID: 280-142501-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		11/17/20 13:10	11/17/20 17:53	1

Client Sample ID: P115
Date Collected: 11/06/20 11:33
Date Received: 11/06/20 15:30
Lab Sample ID: 280-142501-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		11/17/20 13:10	11/17/20 17:55	1

Client Sample ID: P114A-R
Date Collected: 11/06/20 12:19
Date Received: 11/06/20 15:30
Lab Sample ID: 280-142501-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		11/17/20 13:10	11/17/20 17:58	1

Method: 7470A - Mercury (CVAA) - Dissolved

Client Sample ID: P113
Date Collected: 11/06/20 12:57
Date Received: 11/06/20 15:30
Lab Sample ID: 280-142501-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		11/17/20 13:10	11/17/20 18:00	1

General Chemistry

Client Sample ID: DUP
Date Collected: 11/06/20 00:00
Date Received: 11/06/20 15:30
Lab Sample ID: 280-142501-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	**4.8**		4.0		mg/L			11/11/20 08:34	1

Client Sample ID: P112
Date Collected: 11/06/20 10:55
Date Received: 11/06/20 15:30
Lab Sample ID: 280-142501-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	**4.8**		4.0		mg/L			11/11/20 08:34	1

Client Sample ID: P115
Date Collected: 11/06/20 11:33
Date Received: 11/06/20 15:30
Lab Sample ID: 280-142501-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0		mg/L			11/11/20 08:34	1

Client Sample ID: P114A-R
Date Collected: 11/06/20 12:19
Date Received: 11/06/20 15:30
Lab Sample ID: 280-142501-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	**6.0**		4.0		mg/L			11/11/20 08:34	1

Client Sample ID: P113
Date Collected: 11/06/20 12:57
Date Received: 11/06/20 15:30
Lab Sample ID: 280-142501-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	**13**		4.0		mg/L			11/11/20 08:34	1

Method: Field Sampling - Field Sampling

Client Sample ID: P112
Date Collected: 11/06/20 10:55
Date Received: 11/06/20 15:30
Lab Sample ID: 280-142501-3
Matrix: Water

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Well Elevation	**5765.22**				ft/msl			11/06/20 10:55	1
Depth to water	**61.71**				ft			11/06/20 10:55	1
Groundwater Elevation	**5703.51**				ft/msl			11/06/20 10:55	1
Field pH	**7.09**				SU			11/06/20 10:55	1
Field Conductivity	**1448**				umhos/cm			11/06/20 10:55	1
Field Temperature	**13.6**				Degrees C			11/06/20 10:55	1
Field Turbidity	**0.98**				NTU			11/06/20 10:55	1
Field Dissolved Oxygen	**3.37**				mg/L			11/06/20 10:55	1
Field EH/ORP	**-109.6**				millivolts			11/06/20 10:55	1

Method: Field Sampling - Field Sampling

Client Sample ID: P115
Date Collected: 11/06/20 11:33
Date Received: 11/06/20 15:30
Lab Sample ID: 280-142501-4
Matrix: Water

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Well Elevation	5779.69				ft/msl			11/06/20 11:33	1
Depth to water	75.61				ft			11/06/20 11:33	1
Groundwater Elevation	5704.08				ft/msl			11/06/20 11:33	1
Field pH	7.28				SU			11/06/20 11:33	1
Field Conductivity	1902				umhos/cm			11/06/20 11:33	1
Field Temperature	14.2				Degrees C			11/06/20 11:33	1
Field Turbidity	2.44				NTU			11/06/20 11:33	1
Field Dissolved Oxygen	1.37				mg/L			11/06/20 11:33	1
Field EH/ORP	-79.8				millivolts			11/06/20 11:33	1

Client Sample ID: P114A-R
Date Collected: 11/06/20 12:19
Date Received: 11/06/20 15:30
Lab Sample ID: 280-142501-5
Matrix: Water

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Well Elevation	5780.63				ft/msl			11/06/20 12:19	1
Depth to water	76.42				ft			11/06/20 12:19	1
Groundwater Elevation	5704.21				ft/msl			11/06/20 12:19	1
Field pH	7.35				SU			11/06/20 12:19	1
Field Conductivity	2715				umhos/cm			11/06/20 12:19	1
Field Temperature	14.1				Degrees C			11/06/20 12:19	1
Field Turbidity	9.37				NTU			11/06/20 12:19	1
Field Dissolved Oxygen	1.19				mg/L			11/06/20 12:19	1
Field EH/ORP	-47.8				millivolts			11/06/20 12:19	1

Client Sample ID: P113
Date Collected: 11/06/20 12:57
Date Received: 11/06/20 15:30
Lab Sample ID: 280-142501-6
Matrix: Water

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Well Elevation	5779.79				ft/msl			11/06/20 12:57	1
Depth to water	75.78				ft			11/06/20 12:57	1
Groundwater Elevation	5704.01				ft/msl			11/06/20 12:57	1
Field pH	8.16				SU			11/06/20 12:57	1
Field Conductivity	2086				umhos/cm			11/06/20 12:57	1
Field Temperature	14.6				Degrees C			11/06/20 12:57	1
Field Turbidity	27.3				NTU			11/06/20 12:57	1
Field Dissolved Oxygen	9.35				mg/L			11/06/20 12:57	1
Field EH/ORP	-35.0				millivolts			11/06/20 12:57	1

Surrogate Summary

Client: Waste Management
Job ID: 280-142501-1
Project/Site: 555|Denver/Arapahoe Chem. - Groundwater

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(70-127)	(78-120)	(77-120)	(80-125)
280-142501-1	TRIP BLANK	101	97	100	97
280-142501-2	DUP	101	98	100	98
280-142501-3	P112	100	98	99	97
280-142501-4	P115	100	98	100	97
280-142501-5	P114A-R	100	98	101	98
280-142501-6	P113	101	100	100	97
LCS 280-516045/4	Lab Control Sample	100	97	100	97
LCSD 280-516045/5	Lab Control Sample Dup	97	97	100	96
MB 280-516045/9	Method Blank	100	97	100	97

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-516045/9
Matrix: Water
Analysis Batch: 516045

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0		ug/L			11/10/20 10:48	1
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			11/10/20 10:48	1
1,1,2-Trichloroethane	ND		3.0		ug/L			11/10/20 10:48	1
1,1-Dichloroethane	ND		5.0		ug/L			11/10/20 10:48	1
1,1-Dichloroethene	ND		5.0		ug/L			11/10/20 10:48	1
1,2-Dichloroethane	ND		1.0		ug/L			11/10/20 10:48	1
1,2-Dichloropropane	ND		1.0		ug/L			11/10/20 10:48	1
Benzene	ND		5.0		ug/L			11/10/20 10:48	1
Bromodichloromethane	ND		1.0		ug/L			11/10/20 10:48	1
Bromoform	ND		4.0		ug/L			11/10/20 10:48	1
Bromomethane	ND		10		ug/L			11/10/20 10:48	1
Carbon tetrachloride	ND		1.0		ug/L			11/10/20 10:48	1
Chlorobenzene	ND		5.0		ug/L			11/10/20 10:48	1
Chloroethane	ND		10		ug/L			11/10/20 10:48	1
Chloroform	ND		5.0		ug/L			11/10/20 10:48	1
Chloromethane	ND		10		ug/L			11/10/20 10:48	1
cis-1,3-Dichloropropene	ND		5.0		ug/L			11/10/20 10:48	1
Dibromochloromethane	ND		5.0		ug/L			11/10/20 10:48	1
Ethylbenzene	ND		5.0		ug/L			11/10/20 10:48	1
Tetrachloroethene	ND		5.0		ug/L			11/10/20 10:48	1
Toluene	ND		5.0		ug/L			11/10/20 10:48	1
trans-1,2-Dichloroethene	ND		10		ug/L			11/10/20 10:48	1
Trichloroethene	ND		5.0		ug/L			11/10/20 10:48	1
Vinyl chloride	ND		2.0		ug/L			11/10/20 10:48	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*70 - 127*		*11/10/20 10:48*	*1*
4-Bromofluorobenzene (Surr)	*97*		*78 - 120*		*11/10/20 10:48*	*1*
Dibromofluoromethane (Surr)	*100*		*77 - 120*		*11/10/20 10:48*	*1*
Toluene-d8 (Surr)	*97*		*80 - 125*		*11/10/20 10:48*	*1*

Lab Sample ID: LCS 280-516045/4
Matrix: Water
Analysis Batch: 516045

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	25.0	21.4		ug/L		86	65 - 135
1,1,2,2-Tetrachloroethane	25.0	22.9		ug/L		92	58 - 135
1,1,2-Trichloroethane	25.0	24.4		ug/L		98	64 - 135
1,1-Dichloroethane	25.0	23.4		ug/L		94	65 - 135
1,1-Dichloroethene	25.0	25.3		ug/L		101	65 - 136
1,2-Dichloroethane	25.0	21.9		ug/L		88	65 - 135
1,2-Dichloropropane	25.0	21.9		ug/L		87	64 - 135
1,3-Dichlorobenzene	25.0	22.6		ug/L		90	65 - 135
Benzene	25.0	23.4		ug/L		94	65 - 135
Bromodichloromethane	25.0	23.5		ug/L		94	65 - 135
Bromoform	25.0	18.8		ug/L		75	62 - 135
Bromomethane	25.0	31.2		ug/L		125	45 - 135

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-516045/4
Matrix: Water
Analysis Batch: 516045

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Carbon tetrachloride	25.0	19.8		ug/L		79	65 - 135
Chlorobenzene	25.0	22.7		ug/L		91	65 - 135
Chloroethane	25.0	25.8		ug/L		103	46 - 136
Chloroform	25.0	23.3		ug/L		93	65 - 135
Chloromethane	25.0	23.4		ug/L		94	34 - 145
cis-1,3-Dichloropropene	25.0	20.1		ug/L		81	65 - 135
Dibromochloromethane	25.0	22.3		ug/L		89	65 - 135
Ethylbenzene	25.0	22.7		ug/L		91	65 - 135
Methylene Chloride	25.0	22.6		ug/L		90	54 - 141
Tetrachloroethene	25.0	23.0		ug/L		92	65 - 135
Toluene	25.0	23.1		ug/L		93	65 - 135
trans-1,2-Dichloroethene	25.0	23.7		ug/L		95	65 - 135
Trichloroethene	25.0	22.1		ug/L		88	65 - 135
Vinyl chloride	25.0	25.9		ug/L		103	40 - 137

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*100*		*70 - 127*
4-Bromofluorobenzene (Surr)	*97*		*78 - 120*
Dibromofluoromethane (Surr)	*100*		*77 - 120*
Toluene-d8 (Surr)	*97*		*80 - 125*

Lab Sample ID: LCSD 280-516045/5
Matrix: Water
Analysis Batch: 516045

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane	25.0	23.6		ug/L		94	65 - 135	10	20
1,1,2,2-Tetrachloroethane	25.0	25.6		ug/L		103	58 - 135	11	20
1,1,2-Trichloroethane	25.0	26.3		ug/L		105	64 - 135	7	27
1,1-Dichloroethane	25.0	25.6		ug/L		102	65 - 135	9	21
1,1-Dichloroethene	25.0	28.1		ug/L		112	65 - 136	10	20
1,2-Dichloroethane	25.0	24.1		ug/L		96	65 - 135	9	20
1,2-Dichloropropane	25.0	23.8		ug/L		95	64 - 135	9	20
1,3-Dichlorobenzene	25.0	25.0		ug/L		100	65 - 135	10	20
Benzene	25.0	25.7		ug/L		103	65 - 135	9	20
Bromodichloromethane	25.0	26.0		ug/L		104	65 - 135	10	20
Bromoform	25.0	21.1		ug/L		84	62 - 135	12	27
Bromomethane	25.0	31.8		ug/L		127	45 - 135	2	33
Carbon tetrachloride	25.0	22.6		ug/L		91	65 - 135	14	21
Chlorobenzene	25.0	24.9		ug/L		100	65 - 135	9	20
Chloroethane	25.0	26.4		ug/L		106	46 - 136	2	25
Chloroform	25.0	25.7		ug/L		103	65 - 135	10	20
Chloromethane	25.0	23.9		ug/L		95	34 - 145	2	24
cis-1,3-Dichloropropene	25.0	22.9		ug/L		91	65 - 135	13	26
Dibromochloromethane	25.0	25.1		ug/L		101	65 - 135	12	20
Ethylbenzene	25.0	25.1		ug/L		100	65 - 135	10	20
Methylene Chloride	25.0	24.8		ug/L		99	54 - 141	9	26
Tetrachloroethene	25.0	25.9		ug/L		104	65 - 135	12	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-516045/5
Matrix: Water
Analysis Batch: 516045

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Toluene			25.0	25.4		ug/L		102	65 - 135	9	20
trans-1,2-Dichloroethene			25.0	26.5		ug/L		106	65 - 135	11	24
Trichloroethene			25.0	24.7		ug/L		99	65 - 135	11	20
Vinyl chloride			25.0	26.8		ug/L		107	40 - 137	4	24

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*97*		*70 - 127*
4-Bromofluorobenzene (Surr)	*97*		*78 - 120*
Dibromofluoromethane (Surr)	*100*		*77 - 120*
Toluene-d8 (Surr)	*96*		*80 - 125*

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 280-516457/1-A
Matrix: Water
Analysis Batch: 517024

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 516457

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		10		ug/L		11/15/20 08:02	11/17/20 07:19	1
Barium	ND		10		ug/L		11/15/20 08:02	11/17/20 07:19	1
Cadmium	ND		5.0		ug/L		11/15/20 08:02	11/17/20 07:19	1
Chromium	ND		10		ug/L		11/15/20 08:02	11/17/20 07:19	1
Lead	ND		5.0		ug/L		11/15/20 08:02	11/17/20 07:19	1
Silver	ND		25		ug/L		11/15/20 08:02	11/17/20 07:19	1

Lab Sample ID: LCS 280-516457/2-A
Matrix: Water
Analysis Batch: 517024

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 516457

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic			2000	2010		ug/L		100	88 - 110
Barium			2000	1960		ug/L		98	90 - 112
Cadmium			1000	988		ug/L		99	88 - 111
Chromium			1000	981		ug/L		98	90 - 113
Lead			1000	987		ug/L		99	89 - 110
Silver			50.0	48.4		ug/L		97	86 - 115

Lab Sample ID: 280-142385-C-2-B MS
Matrix: Water
Analysis Batch: 517024

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 516457

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	ND		2000	2030		ug/L		101	84 - 124
Barium	34		2000	1980		ug/L		97	85 - 120
Cadmium	ND		1000	974		ug/L		97	82 - 119
Chromium	ND		1000	984		ug/L		98	73 - 135
Lead	ND		1000	972		ug/L		97	89 - 121
Silver	ND		50.0	49.0		ug/L		98	75 - 141

Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: 280-142385-C-2-C MSD
Matrix: Water
Analysis Batch: 517024

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 516457

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	ND		2000	2030		ug/L		101	84 - 124	0	20
Barium	34		2000	1980		ug/L		97	85 - 120	0	20
Cadmium	ND		1000	973		ug/L		97	82 - 119	0	20
Chromium	ND		1000	983		ug/L		98	73 - 135	0	20
Lead	ND		1000	967		ug/L		97	89 - 121	1	20
Silver	ND		50.0	48.6		ug/L		97	75 - 141	1	20

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 280-516233/1-A
Matrix: Water
Analysis Batch: 516607

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 516233

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND	^	5.0		ug/L		11/11/20 15:30	11/13/20 03:19	1

Lab Sample ID: LCS 280-516233/2-A
Matrix: Water
Analysis Batch: 516607

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 516233

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Selenium	40.0	43.9	^	ug/L		110	77 - 122

Lab Sample ID: 280-142458-D-1-B MS
Matrix: Water
Analysis Batch: 516607

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 516233

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Selenium	ND	^	40.0	44.2	^	ug/L		103	77 - 122

Lab Sample ID: 280-142458-D-1-C MSD
Matrix: Water
Analysis Batch: 516607

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 516233

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Selenium	ND	^	40.0	44.3	^	ug/L		103	77 - 122	0	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 280-516955/1-A
Matrix: Water
Analysis Batch: 517072

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 516955

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		11/17/20 13:10	11/17/20 17:31	1

Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: LCS 280-516955/2-A
Matrix: Water
Analysis Batch: 517072

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 516955

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury			5.00	5.15		ug/L		103	84 - 120		

Lab Sample ID: 160-40357-C-1-C MS
Matrix: Water
Analysis Batch: 517072

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 516955

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury	ND		5.00	4.89		ug/L		98	75 - 125		

Lab Sample ID: 160-40357-C-1-D MSD
Matrix: Water
Analysis Batch: 517072

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 516955

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		5.00	4.93		ug/L		99	75 - 125	1	20

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 280-516218/1
Matrix: Water
Analysis Batch: 516218

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0		mg/L			11/11/20 08:34	1

Lab Sample ID: LCS 280-516218/2
Matrix: Water
Analysis Batch: 516218

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Suspended Solids			100	95.0		mg/L		95	79 - 114		

Lab Sample ID: LCSD 280-516218/3
Matrix: Water
Analysis Batch: 516218

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Suspended Solids			100	90.0		mg/L		90	79 - 114	5	20

Lab Sample ID: 280-142510-A-1 DU
Matrix: Water
Analysis Batch: 516218

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Suspended Solids	ND			ND		mg/L				NC	10

QC Association Summary

Client: Waste Management
Project/Site: 555|Denver/Arapahoe Chem. - Groundwater

Job ID: 280-142501-1

GC/MS VOA

Analysis Batch: 516045

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142501-1	TRIP BLANK	Total/NA	Water	8260B	
280-142501-2	DUP	Total/NA	Water	8260B	
280-142501-3	P112	Total/NA	Water	8260B	
280-142501-4	P115	Total/NA	Water	8260B	
280-142501-5	P114A-R	Total/NA	Water	8260B	
280-142501-6	P113	Total/NA	Water	8260B	
MB 280-516045/9	Method Blank	Total/NA	Water	8260B	
LCS 280-516045/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 280-516045/5	Lab Control Sample Dup	Total/NA	Water	8260B	

Metals

Prep Batch: 516233

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142501-2	DUP	Dissolved	Water	3005A	
280-142501-3	P112	Dissolved	Water	3005A	
280-142501-4	P115	Dissolved	Water	3005A	
280-142501-5	P114A-R	Dissolved	Water	3005A	
280-142501-6	P113	Dissolved	Water	3005A	
MB 280-516233/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-516233/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
280-142458-D-1-B MS	Matrix Spike	Dissolved	Water	3005A	
280-142458-D-1-C MSD	Matrix Spike Duplicate	Dissolved	Water	3005A	

Prep Batch: 516457

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142501-2	DUP	Dissolved	Water	3005A	
280-142501-3	P112	Dissolved	Water	3005A	
280-142501-4	P115	Dissolved	Water	3005A	
280-142501-5	P114A-R	Dissolved	Water	3005A	
280-142501-6	P113	Dissolved	Water	3005A	
MB 280-516457/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-516457/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
280-142385-C-2-B MS	Matrix Spike	Dissolved	Water	3005A	
280-142385-C-2-C MSD	Matrix Spike Duplicate	Dissolved	Water	3005A	

Analysis Batch: 516607

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142501-2	DUP	Dissolved	Water	6020	516233
280-142501-3	P112	Dissolved	Water	6020	516233
280-142501-4	P115	Dissolved	Water	6020	516233
280-142501-5	P114A-R	Dissolved	Water	6020	516233
280-142501-6	P113	Dissolved	Water	6020	516233
MB 280-516233/1-A	Method Blank	Total Recoverable	Water	6020	516233
LCS 280-516233/2-A	Lab Control Sample	Total Recoverable	Water	6020	516233
280-142458-D-1-B MS	Matrix Spike	Dissolved	Water	6020	516233
280-142458-D-1-C MSD	Matrix Spike Duplicate	Dissolved	Water	6020	516233

Prep Batch: 516955

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142501-2	DUP	Dissolved	Water	7470A	

Metals (Continued)

Prep Batch: 516955 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142501-3	P112	Dissolved	Water	7470A	
280-142501-4	P115	Dissolved	Water	7470A	
280-142501-5	P114A-R	Dissolved	Water	7470A	
280-142501-6	P113	Dissolved	Water	7470A	
MB 280-516955/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-516955/2-A	Lab Control Sample	Total/NA	Water	7470A	
160-40357-C-1-C MS	Matrix Spike	Dissolved	Water	7470A	
160-40357-C-1-D MSD	Matrix Spike Duplicate	Dissolved	Water	7470A	

Analysis Batch: 517024

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142501-2	DUP	Dissolved	Water	6010B	516457
280-142501-3	P112	Dissolved	Water	6010B	516457
280-142501-4	P115	Dissolved	Water	6010B	516457
280-142501-5	P114A-R	Dissolved	Water	6010B	516457
280-142501-6	P113	Dissolved	Water	6010B	516457
MB 280-516457/1-A	Method Blank	Total Recoverable	Water	6010B	516457
LCS 280-516457/2-A	Lab Control Sample	Total Recoverable	Water	6010B	516457
280-142385-C-2-B MS	Matrix Spike	Dissolved	Water	6010B	516457
280-142385-C-2-C MSD	Matrix Spike Duplicate	Dissolved	Water	6010B	516457

Analysis Batch: 517072

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142501-2	DUP	Dissolved	Water	7470A	516955
280-142501-3	P112	Dissolved	Water	7470A	516955
280-142501-4	P115	Dissolved	Water	7470A	516955
280-142501-5	P114A-R	Dissolved	Water	7470A	516955
280-142501-6	P113	Dissolved	Water	7470A	516955
MB 280-516955/1-A	Method Blank	Total/NA	Water	7470A	516955
LCS 280-516955/2-A	Lab Control Sample	Total/NA	Water	7470A	516955
160-40357-C-1-C MS	Matrix Spike	Dissolved	Water	7470A	516955
160-40357-C-1-D MSD	Matrix Spike Duplicate	Dissolved	Water	7470A	516955

General Chemistry

Analysis Batch: 516218

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142501-2	DUP	Total/NA	Water	SM 2540D	
280-142501-3	P112	Total/NA	Water	SM 2540D	
280-142501-4	P115	Total/NA	Water	SM 2540D	
280-142501-5	P114A-R	Total/NA	Water	SM 2540D	
280-142501-6	P113	Total/NA	Water	SM 2540D	
MB 280-516218/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-516218/2	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 280-516218/3	Lab Control Sample Dup	Total/NA	Water	SM 2540D	
280-142510-A-1 DU	Duplicate	Total/NA	Water	SM 2540D	

Field Service / Mobile Lab

Analysis Batch: 516185

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142501-3	P112	Total/NA	Water	Field Sampling	

Field Service / Mobile Lab (Continued)

Analysis Batch: 516185 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142501-4	P115	Total/NA	Water	Field Sampling	
280-142501-5	P114A-R	Total/NA	Water	Field Sampling	
280-142501-6	P113	Total/NA	Water	Field Sampling	

Client Sample ID: TRIP BLANK
Lab Sample ID: 280-142501-1
Date Collected: 11/06/20 10:55
Matrix: Water
Date Received: 11/06/20 15:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	516045	11/10/20 17:48	JLS	TAL DEN

Client Sample ID: DUP
Lab Sample ID: 280-142501-2
Date Collected: 11/06/20 00:00
Matrix: Water
Date Received: 11/06/20 15:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	516045	11/10/20 18:10	JLS	TAL DEN
Dissolved	Prep	3005A			50 mL	50 mL	516457	11/15/20 08:02	MAB	TAL DEN
Dissolved	Analysis	6010B		1			517024	11/17/20 08:45	LMT	TAL DEN
Dissolved	Prep	3005A			50 mL	50 mL	516233	11/11/20 15:30	EC	TAL DEN
Dissolved	Analysis	6020		1			516607	11/13/20 04:00	LMT	TAL DEN
Dissolved	Prep	7470A			30 mL	50 mL	516955	11/17/20 13:10	NK	TAL DEN
Dissolved	Analysis	7470A		1			517072	11/17/20 17:51	NK	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	516218	11/11/20 08:34	LEB	TAL DEN

Client Sample ID: P112
Lab Sample ID: 280-142501-3
Date Collected: 11/06/20 10:55
Matrix: Water
Date Received: 11/06/20 15:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	516045	11/10/20 18:32	JLS	TAL DEN
Dissolved	Prep	3005A			50 mL	50 mL	516457	11/15/20 08:02	MAB	TAL DEN
Dissolved	Analysis	6010B		1			517024	11/17/20 08:49	LMT	TAL DEN
Dissolved	Prep	3005A			50 mL	50 mL	516233	11/11/20 15:30	EC	TAL DEN
Dissolved	Analysis	6020		1			516607	11/13/20 04:03	LMT	TAL DEN
Dissolved	Prep	7470A			30 mL	50 mL	516955	11/17/20 13:10	NK	TAL DEN
Dissolved	Analysis	7470A		1			517072	11/17/20 17:53	NK	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	516218	11/11/20 08:34	LEB	TAL DEN
Total/NA	Analysis	Field Sampling		1			516185	11/06/20 10:55	C1A	TAL DEN

Client Sample ID: P115
Lab Sample ID: 280-142501-4
Date Collected: 11/06/20 11:33
Matrix: Water
Date Received: 11/06/20 15:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	516045	11/10/20 18:54	JLS	TAL DEN
Dissolved	Prep	3005A			50 mL	50 mL	516457	11/15/20 08:02	MAB	TAL DEN
Dissolved	Analysis	6010B		1			517024	11/17/20 08:52	LMT	TAL DEN
Dissolved	Prep	3005A			50 mL	50 mL	516233	11/11/20 15:30	EC	TAL DEN
Dissolved	Analysis	6020		1			516607	11/13/20 04:07	LMT	TAL DEN
Dissolved	Prep	7470A			30 mL	50 mL	516955	11/17/20 13:10	NK	TAL DEN
Dissolved	Analysis	7470A		1			517072	11/17/20 17:55	NK	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	516218	11/11/20 08:34	LEB	TAL DEN

Lab Chronicle

Client: Waste Management
Job ID: 280-142501-1
Project/Site: 555|Denver/Arapahoe Chem. - Groundwater

Client Sample ID: P115
Lab Sample ID: 280-142501-4
Date Collected: 11/06/20 11:33
Matrix: Water
Date Received: 11/06/20 15:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Field Sampling		1			516185	11/06/20 11:33	C1A	TAL DEN

Client Sample ID: P114A-R
Lab Sample ID: 280-142501-5
Date Collected: 11/06/20 12:19
Matrix: Water
Date Received: 11/06/20 15:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	516045	11/10/20 19:16	JLS	TAL DEN
Dissolved	Prep	3005A			50 mL	50 mL	516457	11/15/20 08:02	MAB	TAL DEN
Dissolved	Analysis	6010B		1			517024	11/17/20 08:56	LMT	TAL DEN
Dissolved	Prep	3005A			50 mL	50 mL	516233	11/11/20 15:30	EC	TAL DEN
Dissolved	Analysis	6020		1			516607	11/13/20 04:11	LMT	TAL DEN
Dissolved	Prep	7470A			30 mL	50 mL	516955	11/17/20 13:10	NK	TAL DEN
Dissolved	Analysis	7470A		1			517072	11/17/20 17:58	NK	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	516218	11/11/20 08:34	LEB	TAL DEN
Total/NA	Analysis	Field Sampling		1			516185	11/06/20 12:19	C1A	TAL DEN

Client Sample ID: P113
Lab Sample ID: 280-142501-6
Date Collected: 11/06/20 12:57
Matrix: Water
Date Received: 11/06/20 15:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	516045	11/10/20 19:38	JLS	TAL DEN
Dissolved	Prep	3005A			50 mL	50 mL	516457	11/15/20 08:02	MAB	TAL DEN
Dissolved	Analysis	6010B		1			517024	11/17/20 08:59	LMT	TAL DEN
Dissolved	Prep	3005A			50 mL	50 mL	516233	11/11/20 15:30	EC	TAL DEN
Dissolved	Analysis	6020		1			516607	11/13/20 04:14	LMT	TAL DEN
Dissolved	Prep	7470A			30 mL	50 mL	516955	11/17/20 13:10	NK	TAL DEN
Dissolved	Analysis	7470A		1			517072	11/17/20 18:00	NK	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	516218	11/11/20 08:34	LEB	TAL DEN
Total/NA	Analysis	Field Sampling		1			516185	11/06/20 12:57	C1A	TAL DEN

Laboratory References:
TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Denver #280 Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler:	Lab PM:	Carrier Tracking No(s):	COC No:
Client Contact: Tom Schweitzer	Phone: 303-695-4660	Sara, Betsy A E-Mail: betsy.sara@testamericainc.com	Courier	280-23617-7662.1 Page: 1 of 1
Company: Waste Management				Job #: 202107.2
Address: 2400 West Union Avenue	Due Date Requested:			
City: Englewood	TAT Requested (days):			
State, Zip: CO 80110				
Phone: 303 914-1445	PO #:			
Email: Tschweitzer@wm.com	WO #:			
Project Name:555|Denver/Arapahoe Chem. Event Desc: Semi-Annual Wells - May Nov	Project #: 28003048			
Site: Colorado	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

280-142501 Chain of Custody

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B	TSS	Dissolved Metals	Containers	Special Instructions/Note:
			Preservation Code:				N	N	D		
Trip Blank	11/6/20	—	—	W			2			2	
DUP	11/6/20	—	G	W			3			3	40mL Glass Vial
↓	↓	↓	↓	↓				1		1	1000mL plastic
↓	↓	↓	↓	↓					1	1	500mL plastic
P-112	11/6/20	1055	G	W			3	1	1	5	
P-115	11/6/20	1133	G	W			3	1	1	5	
P-114-A-R	11/6/20	1219	G	W			3	1	1	5	
P-113	11/6/20	1257	G	W			3	1	1	5	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Date/Time:	Company		Date/Time:	Company
Relinquished by:	11/6/20 1445	SRES	Received by:	11-06-20 1445	TA
Relinquished by:	11-06-20 1530	TA	Received by:	11/6/20 1530	TA Denver
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: △ Yes △ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 0.9C CF-0.3C IR#11

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: DACWPF
Site No.: 555 Sample Point: P-112 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN ~~CASING~~ (Gallons) mL P&T	ACTUAL VOL PURGED (Gallons) mL * P&T	~~WELL~~ VOLs PURGED
11/06/20	10:27	00:28	2400 mL	5200 mL	26

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark changes, record field data, below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment . . . Dedicated: (Y) or N
Purging Device: C
Sampling Device: C
X-Other:

A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Filter Device: (Y) or N (0.45 µ) or ____ µ (circle or fill in)
Filter Type: A (A-In-line Disposable, B-Pressure, C-Vacuum, X-Other)
Sample Tube Type: D (A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:)

WELL DATA

Well Elevation (at TOC): 576522 (ft/msl)
Depth to Water (DTW) (from TOC): 617.1 (ft)
Groundwater Elevation (site datum, from TOC): 570351 (ft/msl)
Total Well Depth (from TOC): 1163 (ft)
Stick Up (from ground elevation): ____ (ft)
Casing ID: 2.0 (in)
Casing Material: PVC

Note: Total Well Depth, Stick Up, Casing Id. etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and Groundwater Elevation must be current.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	~~Rate/Unit~~ P&T		pH (std)		Conductance (SC/EC) (µmhos/cm@25°C)		Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
10:31	0.0	1st	2.46	1st	1.486		14.5	1.09	14.2	-248	62.2
10:35	0.33	2nd	7.27	2nd	1.462		13.9	3.11	7.82	-755	623
10:39	0.67	3rd	7.17	3rd	1.454		13.6	2.16	5.79	-1139	623
10:43	1.0	4th	7.14	4th	1.452		13.6	1.92	5.11	-1194	624
10:47	1.33		7.08		1.451		13.6	1.01	3.88	-1187	623
10:51	1.67		7.12		1.449		13.6	1.07	3.58	-1129	624
10:55	2.0		7.09		1.448		13.6	0.98	3.37	-1096	624
:											
:											
:											
Suggested range for 3 consec. readings or note Permit/State requirements:			+/- 0.2		+/- 3%		--	--	+/- 10%	+/- 25 mV	Stabilize

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site.* ***If more fields above are needed, use separate sheet or form.***

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (umhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L-ppm)	eH/ORP (mV)	Other: DTW Units FT
11/06/20	7.09	1.448	13.6	0.98	3.37	-1096	624

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.*

FIELD COMMENTS

Sample Appearance: Clear Odor: NONE Color: NONE Other: ____

Weather Conditions (required daily, or as conditions change): Direction/Speed: ~5mph SW Outlook: Sunny 60's Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required): Sample Time: 1055

* Includes additional 400 mL from flow through cell

P&T vol 2400mL as specified by QED

Only Dissolved metals are field filtered

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
11/06/20	Laura Major		SRES
11/06/20	Kacy Sylvia	Kacy Sylvia	SRES

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client. PINK - Field Copy

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: DACWPF

Site No.: 555 Sample Point: P-115 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN ~~CASING~~ ~~(Gallons)~~ mL	ACTUAL VOL PURGED (~~Gallons~~) mL	~~WELL~~ VOLs PURGED
110620	1113	0020	1500 mL P&T	3400 mL * P&T	2.0

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark changes, record field data, below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment . . . Dedicated: (Y) or N

Filter Device: (Y) or N (0.45) µ or ____ µ (circle or fill in)

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other

Sample Tube Type: D — A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC)	Depth to Water (DTW) (from TOC)	Groundwater Elevation (site datum, from TOC)
577969 (ft/msl)	7561 (ft)	570408 (ft/msl)

Total Well Depth (from TOC)	Stick Up (from ground elevation)	Casing ID	Casing Material
1280 (ft)	____ (ft)	2.0 (in)	PVC

Note: Total Well Depth, Stick Up, Casing Id. etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and Groundwater Elevation must be current.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	~~Rate/Unit~~ P&T	pH (std)	Conductance (SC/EC) (µmhos/cm@25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
1117	00 1st	7.49 1st	1.882	14.9	4.03	4.76	-32.2	75.8
1127	05 2nd	7.35 2nd	1.904	14.3	5.70	2.25	-62.1	75.8
1125	10 3rd	7.24 3rd	1.905	14.3	4.83	1.63	-76.1	75.8
1129	15 4th	7.25 4th	1.904	14.2	3.88	1.48	-79.2	75.8
1133	20	7.28	1.902	14.2	2.44	1.37	-79.8	75.8
Suggested range for 3 consec. readings or note Permit/State requirements:		+/- 0.2	+/- 3%	--	--	+/- 10%	+/- 25 mV	Stabilize

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site.* ***If more fields above are needed, use separate sheet or form.***

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (umhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: DTW Units FT
110620	7.28	1.902	14.2	2.44	1.37	-79.8	75.8

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.*

FIELD COMMENTS

Sample Appearance: Clear Odor: NONE Color: NONE Other: ____

Weather Conditions (required daily, or as conditions change): Direction/Speed: Calm Outlook: Sunny 60's Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required): Sample Time: 11:33

*Includes additional 400 mL from flow through cell

P&T volume 1507 mL ≈ 1500 mL as specified by QED

Only Dissolved metals are field filtered

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
11/06/20	Laura Major		SRES
11/06/20	Kacy Sylvia	Kacy Sylvia	SRES

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client. PINK - Field Copy

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: DACWPF

Site No.: 555 Sample Point: P-1 1 4 AR (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN ~~CASING~~ P&T (~~Gallons~~) mL	ACTUAL VOL PURGED (Gallons)	~~WELL~~ P&T VOLs PURGED
11/06/20	11:55	00:24	1400 mL	3900 mL *	25

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark changes, record field data, below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment . . . Dedicated: (Y) or N

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Device: (Y) or N — (0.45 µ) or ____ µ (circle or fill in)

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other: ____

Sample Tube Type: X — A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other: D

WELL DATA

Well Elevation (at TOC): 578.63 (ft/msl)

Depth to Water (DTW) (from TOC): 76.42 (ft)

Groundwater Elevation (site datum, from TOC): 570.21 (ft/msl)

Total Well Depth (from TOC): 101.1 (ft)

Stick Up (from ground elevation): ____ (ft)

Casing ID: 2.0 (in)

Casing Material: PVC

Note: Total Well Depth, Stick Up, Casing Id. etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and Groundwater Elevation must be current.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	~~Rate/Unit~~ P&T VOL	pH (std)	Conductance (SC/EC) (µmhos/cm@25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
11:59	00 1st	7.57 1st	2.692	16.0	0.83	9.48	-26.7	76.7
12:03	05 2nd	7.39 2nd	2.689	14.6	1.05	6.11	-25.6	76.7
12:07	10 3rd	7.40 3rd	2.710	14.3	56.9	2.14	-32.6	76.9
12:11	15 4th	7.38 4th	2.718	14.6	42.4	1.36	-41.3	76.9
12:15	20	7.38	2.721	14.2	19.9	1.30	-43.9	76.9
12:19	25	7.35	2.715	14.1	9.37	1.19	-47.8	76.9
Suggested range for 3 consec. readings or note Permit/State requirements:		+/- 0.2	+/- 3%	--	--	+/- 10%	+/- 25 mV	Stabilize

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site.* ***If more fields above are needed, use separate sheet or form.***

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (umhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L-ppm)	eH/ORP (mV)	Other: DTW Units FT
11/06/20	7.35	2.715	14.1	9.37	1.19	-47.8	76.9

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.*

FIELD COMMENTS

Sample Appearance: Clear Odor: NONE Color: NONE Other: ____

Weather Conditions (required daily, or as conditions change): Direction/Speed: Calm Outlook: Sunny 60's Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required): Sample Time: 1219

* Includes additional 400mL from flow through cell

P&T volume 1393 ≈ 1400mL as specified by QED

Only Dissolved metals are field filtered

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
11/06/20	Laura Major		SRES
11/06/20	Kacy Sylvia	Kacy Sylvia	SRES

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: DACWPF

Site No.: 555 Sample Point: P-113 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN ~~CASING~~ P&T (~~Gallons~~) mL	ACTUAL VOL PURGED * (~~Gallons~~) mL	~~WELL~~ VOLs P&T PURGED
110620	1237	00:20	1500mL	3400mL	20

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark changes, record field data, below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment . . . Dedicated: (Y) or N

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Device: (Y) or N (0.45 µ) or ____ µ (circle or fill in)

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other

Sample Tube Type: D — A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC): 577979 (ft/msl)

Depth to Water (DTW) (from TOC): 7578 (ft)

Groundwater Elevation (site datum, from TOC): 570401 (ft/msl)

Total Well Depth (from TOC): 1222 (ft)

Stick Up (from ground elevation): ____ (ft)

Casing ID: 20 (in)

Casing Material: PVC

Note: Total Well Depth, Stick Up, Casing Id. etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and Groundwater Elevation must be current.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	~~Rate/Unit~~ P&T VOL	pH (std)	Conductance (SC/EC) (µmhos/cm@25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
1241	00 1st	7.86 1st	2.117	16.3	52.1	10.3	-25.1	77.1
1245	05 2nd	7.97 2nd	2.103	15.1	26.5	9.89	-27.6	77.8
1249	10 3rd	8.02 3rd	2093	14.4	63.3	9.84	-30.8	78.8
1253	15 4th	8.09 4th	2088	14.4	46.6	9.41	-33.6	80.1
1257	20	8.16	2086	14.6	27.3	9.35	-350	81.7
Suggested range for 3 consec. readings or note Permit/State requirements:		+/- 0.2	+/- 3%	--	--	+/- 10%	+/- 25 mV	Stabilize

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site.* ***If more fields above are needed, use separate sheet or form.***

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (umhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: DTW Units FT
110620	8.16	2086	14.6	27.3	9.35	-350	81.7

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.*

FIELD COMMENTS

Sample Appearance: Clear Odor: NONE Color: NONE Other: ____

Weather Conditions (required daily, or as conditions change): Direction/Speed: 15mph SW Outlook: Partly Cloudy 70's Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required): Sample Time: 1257

* Includes additional 400mL from flow through cell

P&T volume = 1486mL ≈ 1500mL as specified by QED

Only Dissolved metals are field filtered

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
11/06/20	Laura Major		SRES
11/06/20	Kacy Sylvia	Kacy Sylvia	SRES

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client. PINK - Field Copy

Login Sample Receipt Checklist

Client: Waste Management

Job Number: 280-142501-1

Login Number: 142501
List Number: 1
Creator: Collins, Janice S

List Source: Eurofins TestAmerica, Denver

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	N/A	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	N/A	

APPENDIX B-3

Secondary Sump Analytical Results

eurofins | Environment Testing America



ANALYTICAL REPORT

Eurofins TestAmerica, Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

Laboratory Job ID: 280-136377-1
Client Project/Site: 555|Denver/Arapahoe Chem.-Sump
Sampling Event: Semi-Annual Leachate Sump - May Nov
Revision: 1

For:
Waste Management
2400 West Union Avenue
Englewood, Colorado 80110

Attn: Mr. Tom Schweitzer

Betsy Sara

Authorized for release by:
6/9/2020 8:59:32 AM

Betsy Sara, Project Manager II
(303)736-0189
betsy.sara@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.eurofinsus.com/Env

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: Waste Management
Job ID: 280-136377-1
Project/Site: 555|Denver/Arapahoe Chem.-Sump

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-136377-1

Laboratory: Eurofins TestAmerica, Denver

Narrative

CASE NARRATIVE

Client: Waste Management

Project: 555|Denver/Arapahoe Chem.-Sump

Report Number: 280-136377-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

This report may include reporting limits (RLs) less than Eurofins TestAmerica's standard reporting limit. The reported sample results and associated reporting limits are being used specifically to meet the needs of this project. Note that data are not normally reported to these levels without qualification because they are inherently less reliable and potentially less defensible than required by the latest industry standards.

Sample Receiving

The samples were received on 05/08/2020; the samples arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 1.4 C.

Holding Times

All holding times were within established control limits.

Method Blanks

All Method Blanks were within established control limits.

Laboratory Control Samples (LCS)

All Laboratory Control Samples were within established control limits.

Matrix Spike and Matrix Spike Duplicate (MS/MSD)

All MS/MSD samples were within established control limits.

Report Revision

This submission was revised to investigate the Tetrachloroethene Method 8260B result for the sample SECONDARY SUMP per the client's request.

Detection Summary

Client: Waste Management
Job ID: 280-136377-1
Project/Site: 555|Denver/Arapahoe Chem.-Sump

Client Sample ID: TRIP BLANK
Lab Sample ID: 280-136377-1

No Detections.

Client Sample ID: SECONDARY SUMP
Lab Sample ID: 280-136377-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	7.2		5.0		ug/L	1		8260B	Total/NA
Field pH	7.57				SU	1		Field Sampling	Total/NA
Field Conductivity	4537				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	13.4				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	1.74				NTU	1		Field Sampling	Total/NA
Field Dissolved Oxygen	5.30				mg/L	1		Field Sampling	Total/NA
Field EH/ORP	47.2				millivolts	1		Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Waste Management
Project/Site: 555|Denver/Arapahoe Chem.-Sump

Job ID: 280-136377-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
6010B	Metals (ICP)	SW846	TAL DEN
Field Sampling	Field Sampling	EPA	TAL DEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: Waste Management
Project/Site: 555|Denver/Arapahoe Chem.-Sump

Job ID: 280-136377-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
280-136377-1	TRIP BLANK	Water	05/07/20 12:08	05/08/20 10:45	
280-136377-2	SECONDARY SUMP	Water	05/07/20 12:08	05/08/20 10:45	

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: TRIP BLANK
Date Collected: 05/07/20 12:08
Date Received: 05/08/20 10:45
Lab Sample ID: 280-136377-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		5.0		ug/L			05/12/20 16:37	1
1,2-Dichloroethane	ND		1.0		ug/L			05/12/20 16:37	1
2-Butanone (MEK)	ND		100		ug/L			05/12/20 16:37	1
Benzene	ND		5.0		ug/L			05/12/20 16:37	1
Carbon tetrachloride	ND		1.0		ug/L			05/12/20 16:37	1
Chlorobenzene	ND		5.0		ug/L			05/12/20 16:37	1
Chloroform	ND		5.0		ug/L			05/12/20 16:37	1
Tetrachloroethene	ND		5.0		ug/L			05/12/20 16:37	1
Trichloroethene	ND		5.0		ug/L			05/12/20 16:37	1
Vinyl chloride	ND		2.0		ug/L			05/12/20 16:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*115*		*70 - 127*		*05/12/20 16:37*	*1*
4-Bromofluorobenzene (Surr)	*105*		*78 - 120*		*05/12/20 16:37*	*1*
Dibromofluoromethane (Surr)	*103*		*77 - 120*		*05/12/20 16:37*	*1*
Toluene-d8 (Surr)	*101*		*80 - 125*		*05/12/20 16:37*	*1*

Client Sample ID: SECONDARY SUMP
Date Collected: 05/07/20 12:08
Date Received: 05/08/20 10:45
Lab Sample ID: 280-136377-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		5.0		ug/L			05/12/20 16:58	1
1,2-Dichloroethane	ND		1.0		ug/L			05/12/20 16:58	1
2-Butanone (MEK)	ND		100		ug/L			05/12/20 16:58	1
Benzene	ND		5.0		ug/L			05/12/20 16:58	1
Carbon tetrachloride	ND		1.0		ug/L			05/12/20 16:58	1
Chlorobenzene	ND		5.0		ug/L			05/12/20 16:58	1
Chloroform	ND		5.0		ug/L			05/12/20 16:58	1
Tetrachloroethene	**7.2**		5.0		ug/L			05/12/20 16:58	1
Trichloroethene	ND		5.0		ug/L			05/12/20 16:58	1
Vinyl chloride	ND		2.0		ug/L			05/12/20 16:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*117*		*70 - 127*		*05/12/20 16:58*	*1*
4-Bromofluorobenzene (Surr)	*105*		*78 - 120*		*05/12/20 16:58*	*1*
Dibromofluoromethane (Surr)	*105*		*77 - 120*		*05/12/20 16:58*	*1*
Toluene-d8 (Surr)	*101*		*80 - 125*		*05/12/20 16:58*	*1*

Method: 6010B - Metals (ICP) - Total Recoverable

Client Sample ID: SECONDARY SUMP
Date Collected: 05/07/20 12:08
Date Received: 05/08/20 10:45
Lab Sample ID: 280-136377-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		10		ug/L		05/15/20 15:20	05/22/20 01:16	1

Client Sample Results

Client: Waste Management
Project/Site: 555|Denver/Arapahoe Chem.-Sump

Job ID: 280-136377-1

Method: Field Sampling - Field Sampling

Client Sample ID: SECONDARY SUMP
Date Collected: 05/07/20 12:08
Date Received: 05/08/20 10:45

Lab Sample ID: 280-136377-2
Matrix: Water

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	7.57				SU			05/07/20 12:08	1
Field Conductivity	4537				umhos/cm			05/07/20 12:08	1
Field Temperature	13.4				Degrees C			05/07/20 12:08	1
Field Turbidity	1.74				NTU			05/07/20 12:08	1
Field Dissolved Oxygen	5.30				mg/L			05/07/20 12:08	1
Field EH/ORP	47.2				millivolts			05/07/20 12:08	1

Surrogate Summary

Client: Waste Management
Project/Site: 555|Denver/Arapahoe Chem.-Sump

Job ID: 280-136377-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(70-127)	(78-120)	(77-120)	(80-125)
280-136377-1	TRIP BLANK	115	105	103	101
280-136377-2	SECONDARY SUMP	117	105	105	101
280-136387-C-19 MSD	Matrix Spike Duplicate	115	105	104	102
280-136387-D-19 MS	Matrix Spike	116	103	103	100
LCS 280-494482/6	Lab Control Sample	114	106	103	100
LCSD 280-494482/7	Lab Control Sample Dup	115	104	104	100
MB 280-494482/11	Method Blank	119	107	104	100

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-494482/11
Matrix: Water
Analysis Batch: 494482

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		5.0		ug/L			05/12/20 11:59	1
1,2-Dichloroethane	ND		1.0		ug/L			05/12/20 11:59	1
2-Butanone (MEK)	ND		100		ug/L			05/12/20 11:59	1
Benzene	ND		5.0		ug/L			05/12/20 11:59	1
Carbon tetrachloride	ND		1.0		ug/L			05/12/20 11:59	1
Chlorobenzene	ND		5.0		ug/L			05/12/20 11:59	1
Chloroform	ND		5.0		ug/L			05/12/20 11:59	1
Tetrachloroethene	ND		5.0		ug/L			05/12/20 11:59	1
Trichloroethene	ND		5.0		ug/L			05/12/20 11:59	1
Vinyl chloride	ND		2.0		ug/L			05/12/20 11:59	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*119*		*70 - 127*		*05/12/20 11:59*	*1*
4-Bromofluorobenzene (Surr)	*107*		*78 - 120*		*05/12/20 11:59*	*1*
Dibromofluoromethane (Surr)	*104*		*77 - 120*		*05/12/20 11:59*	*1*
Toluene-d8 (Surr)	*100*		*80 - 125*		*05/12/20 11:59*	*1*

Lab Sample ID: LCS 280-494482/6
Matrix: Water
Analysis Batch: 494482

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	25.0	31.8		ug/L		127	65 - 135
1,1-Dichloroethane	25.0	29.4		ug/L		117	65 - 135
1,1-Dichloroethene	25.0	28.0		ug/L		112	65 - 136
1,2-Dichloroethane	25.0	31.7		ug/L		127	65 - 135
1,2-Dichloropropane	25.0	30.8		ug/L		123	64 - 135
1,3-Dichlorobenzene	25.0	26.2		ug/L		105	65 - 135
2-Butanone (MEK)	100	117		ug/L		117	44 - 177
Benzene	25.0	27.3		ug/L		109	65 - 135
Bromodichloromethane	25.0	32.3		ug/L		129	65 - 135
Carbon tetrachloride	25.0	29.0		ug/L		116	65 - 135
Chlorobenzene	25.0	26.6		ug/L		106	65 - 135
Chloroform	25.0	30.1		ug/L		120	65 - 135
Ethylbenzene	25.0	27.4		ug/L		110	65 - 135
Methylene Chloride	25.0	27.1		ug/L		108	54 - 141
Tetrachloroethene	25.0	27.2		ug/L		109	65 - 135
Toluene	25.0	26.8		ug/L		107	65 - 135
trans-1,2-Dichloroethene	25.0	27.4		ug/L		109	65 - 135
Trichloroethene	25.0	28.2		ug/L		113	65 - 135
Vinyl chloride	25.0	25.7		ug/L		103	40 - 137

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*114*		*70 - 127*
4-Bromofluorobenzene (Surr)	*106*		*78 - 120*
Dibromofluoromethane (Surr)	*103*		*77 - 120*
Toluene-d8 (Surr)	*100*		*80 - 125*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-494482/7
Matrix: Water
Analysis Batch: 494482

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane			25.0	31.1		ug/L		124	65 - 135	2	20
1,1-Dichloroethane			25.0	28.7		ug/L		115	65 - 135	2	21
1,1-Dichloroethene			25.0	27.8		ug/L		111	65 - 136	1	20
1,2-Dichloroethane			25.0	31.0		ug/L		124	65 - 135	2	20
1,2-Dichloropropane			25.0	30.5		ug/L		122	64 - 135	1	20
1,3-Dichlorobenzene			25.0	26.0		ug/L		104	65 - 135	1	20
2-Butanone (MEK)			100	115		ug/L		115	44 - 177	2	32
Benzene			25.0	27.0		ug/L		108	65 - 135	1	20
Bromodichloromethane			25.0	32.2		ug/L		129	65 - 135	0	20
Carbon tetrachloride			25.0	29.1		ug/L		116	65 - 135	0	21
Chlorobenzene			25.0	26.6		ug/L		106	65 - 135	0	20
Chloroform			25.0	29.4		ug/L		118	65 - 135	2	20
Ethylbenzene			25.0	27.1		ug/L		108	65 - 135	1	20
Methylene Chloride			25.0	27.4		ug/L		110	54 - 141	1	26
Tetrachloroethene			25.0	26.9		ug/L		108	65 - 135	1	20
Toluene			25.0	26.1		ug/L		105	65 - 135	2	20
trans-1,2-Dichloroethene			25.0	27.0		ug/L		108	65 - 135	2	24
Trichloroethene			25.0	27.8		ug/L		111	65 - 135	1	20
Vinyl chloride			25.0	27.0		ug/L		108	40 - 137	5	24

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*115*		*70 - 127*
4-Bromofluorobenzene (Surr)	*104*		*78 - 120*
Dibromofluoromethane (Surr)	*104*		*77 - 120*
Toluene-d8 (Surr)	*100*		*80 - 125*

Lab Sample ID: 280-136387-C-19 MSD
Matrix: Water
Analysis Batch: 494482

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane	ND		25.0	32.4		ug/L		130	65 - 135	5	20
1,1-Dichloroethane	ND		25.0	30.5		ug/L		122	65 - 135	3	21
1,1-Dichloroethene	ND		25.0	28.8		ug/L		115	65 - 136	1	20
1,2-Dichloroethane	ND		25.0	32.8		ug/L		131	65 - 135	0	20
1,2-Dichloropropane	ND		25.0	31.3		ug/L		125	64 - 135	0	20
1,3-Dichlorobenzene	ND		25.0	26.9		ug/L		107	65 - 135	2	20
2-Butanone (MEK)	ND		100	128		ug/L		128	44 - 177	0	32
Benzene	ND		25.0	28.1		ug/L		112	65 - 135	1	20
Bromodichloromethane	ND		25.0	33.2		ug/L		133	65 - 135	1	20
Carbon tetrachloride	ND		25.0	31.0		ug/L		124	65 - 135	8	21
Chlorobenzene	ND		25.0	27.9		ug/L		112	65 - 135	4	20
Chloroform	ND		25.0	31.0		ug/L		124	65 - 135	1	20
Ethylbenzene	ND		25.0	28.6		ug/L		114	65 - 135	7	20
Methylene Chloride	ND		25.0	28.3		ug/L		113	54 - 141	3	26
Tetrachloroethene	ND		25.0	28.0		ug/L		112	65 - 135	7	20
Toluene	ND		25.0	27.6		ug/L		110	65 - 135	1	20
trans-1,2-Dichloroethene	ND		25.0	28.6		ug/L		114	65 - 135	1	24

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 280-136387-C-19 MSD
Matrix: Water
Analysis Batch: 494482

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Trichloroethene	ND		25.0	28.3		ug/L		113	65 - 135	3	20
Vinyl chloride	ND		25.0	26.2		ug/L		105	40 - 137	1	24

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*115*		*70 - 127*
4-Bromofluorobenzene (Surr)	*105*		*78 - 120*
Dibromofluoromethane (Surr)	*104*		*77 - 120*
Toluene-d8 (Surr)	*102*		*80 - 125*

Lab Sample ID: 280-136387-D-19 MS
Matrix: Water
Analysis Batch: 494482

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	ND		25.0	30.9		ug/L		123	65 - 135
1,1-Dichloroethane	ND		25.0	29.7		ug/L		119	65 - 135
1,1-Dichloroethene	ND		25.0	28.5		ug/L		114	65 - 136
1,2-Dichloroethane	ND		25.0	32.6		ug/L		131	65 - 135
1,2-Dichloropropane	ND		25.0	31.3		ug/L		125	64 - 135
1,3-Dichlorobenzene	ND		25.0	26.3		ug/L		105	65 - 135
2-Butanone (MEK)	ND		100	128		ug/L		128	44 - 177
Benzene	ND		25.0	27.7		ug/L		111	65 - 135
Bromodichloromethane	ND		25.0	32.7		ug/L		131	65 - 135
Carbon tetrachloride	ND		25.0	28.7		ug/L		115	65 - 135
Chlorobenzene	ND		25.0	26.7		ug/L		107	65 - 135
Chloroform	ND		25.0	30.7		ug/L		123	65 - 135
Ethylbenzene	ND		25.0	26.7		ug/L		107	65 - 135
Methylene Chloride	ND		25.0	27.5		ug/L		110	54 - 141
Tetrachloroethene	ND		25.0	26.2		ug/L		105	65 - 135
Toluene	ND		25.0	27.3		ug/L		109	65 - 135
trans-1,2-Dichloroethene	ND		25.0	28.2		ug/L		113	65 - 135
Trichloroethene	ND		25.0	27.4		ug/L		110	65 - 135
Vinyl chloride	ND		25.0	26.5		ug/L		106	40 - 137

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*116*		*70 - 127*
4-Bromofluorobenzene (Surr)	*103*		*78 - 120*
Dibromofluoromethane (Surr)	*103*		*77 - 120*
Toluene-d8 (Surr)	*100*		*80 - 125*

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 280-494372/1-A
Matrix: Water
Analysis Batch: 495899

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 494372

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		10		ug/L		05/15/20 15:20	05/22/20 00:13	1

Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: LCS 280-494372/2-A
Matrix: Water
Analysis Batch: 495899

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 494372

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Arsenic			2000	2000		ug/L		100	88 - 110		

Lab Sample ID: 280-136369-A-9-B MS
Matrix: Water
Analysis Batch: 495899

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 494372

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Arsenic	ND		2000	2090		ug/L		104	84 - 124		

Lab Sample ID: 280-136369-A-9-C MSD
Matrix: Water
Analysis Batch: 495899

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 494372

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	ND		2000	2050		ug/L		102	84 - 124	2	20

QC Association Summary

Client: Waste Management
Project/Site: 555|Denver/Arapahoe Chem.-Sump

Job ID: 280-136377-1

GC/MS VOA

Analysis Batch: 494482

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136377-1	TRIP BLANK	Total/NA	Water	8260B	
280-136377-2	SECONDARY SUMP	Total/NA	Water	8260B	
MB 280-494482/11	Method Blank	Total/NA	Water	8260B	
LCS 280-494482/6	Lab Control Sample	Total/NA	Water	8260B	
LCSD 280-494482/7	Lab Control Sample Dup	Total/NA	Water	8260B	
280-136387-C-19 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	
280-136387-D-19 MS	Matrix Spike	Total/NA	Water	8260B	

Metals

Prep Batch: 494372

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136377-2	SECONDARY SUMP	Total Recoverable	Water	3005A	
MB 280-494372/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-494372/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
280-136369-A-9-B MS	Matrix Spike	Total Recoverable	Water	3005A	
280-136369-A-9-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	3005A	

Analysis Batch: 495899

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136377-2	SECONDARY SUMP	Total Recoverable	Water	6010B	494372
MB 280-494372/1-A	Method Blank	Total Recoverable	Water	6010B	494372
LCS 280-494372/2-A	Lab Control Sample	Total Recoverable	Water	6010B	494372
280-136369-A-9-B MS	Matrix Spike	Total Recoverable	Water	6010B	494372
280-136369-A-9-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	6010B	494372

Field Service / Mobile Lab

Analysis Batch: 494444

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136377-2	SECONDARY SUMP	Total/NA	Water	Field Sampling	

Lab Chronicle

Client: Waste Management
Job ID: 280-136377-1
Project/Site: 555|Denver/Arapahoe Chem.-Sump

Client Sample ID: TRIP BLANK
Lab Sample ID: 280-136377-1
Date Collected: 05/07/20 12:08
Matrix: Water
Date Received: 05/08/20 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	494482	05/12/20 16:37	AJP	TAL DEN

Client Sample ID: SECONDARY SUMP
Lab Sample ID: 280-136377-2
Date Collected: 05/07/20 12:08
Matrix: Water
Date Received: 05/08/20 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	494482	05/12/20 16:58	AJP	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	494372	05/15/20 15:20	EC	TAL DEN
Total Recoverable	Analysis	6010B		1			495899	05/22/20 01:16	MRJ	TAL DEN
Total/NA	Analysis	Field Sampling		1			494444	05/07/20 12:08	S1S	TAL DEN

Laboratory References:

TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Denver SVC 280

Chain of Custody Record

Denver #280

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: L Major/K. Sylvia	Lab PM: Sara, Betsy A	Carrier Tracking No(s): Courier	COC No: 280-17711-1151.1
Client Contact: Tom Schweitzer	Phone: 303-695-4660	E-Mail: betsy.sara@testamericainc.com		Page: Page 1 of 1
Company: Waste Management				Job #: 202107.03
Address: 2400 West Union Avenue	Due Date Requested:		Analysis Requested	
City: Englewood	TAT Requested (days):			
State, Zip: CO 80110				
Phone: 303 914-1445	PO #: Purchase Order not required			
Email: Tschweitzer@wm.com	WO #:			
Project Name:555|Denver/Arapahoe Chem. Secondary Event Desc: Semi-Annual Leachate Sump - May Nov	Project #: 28003048			
Site: Colorado	SSOW#:			

280-136377 Chain of Custody

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Total Metals	8260B	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N		
Trip Blank	5/7/20	—	—	W	N			1	1	
Secondary Sump	5/7/20	1208	G	W	N		1		1	
↓	↓	↓	↓	↓				3	3	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Date/Time	Company		Date/Time	Company
Relinquished by:	5/8/2020 0855	SRES	Received by: Fax	5-08-20 0855	TA
Relinquished by: Fax	5-08-20 1045	TA	Received by:	5-8-20 1045	EMA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 0.8°C IR8 +0.6 JR 5-8-20

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: DACVVP F

Site No.: 555 Sample Point: Secondary Sump (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark changes, record field data, below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment . . . Dedicated: Y or N

Purging Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

X-Other:

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Filter Type: A-In-line Disposable, B-Pressure, C-Vacuum, X-Other

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (site datum, from TOC) (ft/msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Well Depth, Stick Up, Casing Id. etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and Groundwater Elevation must be current.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm@25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
	1st	1st	1st					
	2nd	2nd	2nd					
	3rd	3rd	3rd					
	4th	4th	4th					
Suggested range for 3 consec. readings or note Permit/State requirements:		+/- 0.2	+/- 3%	--	--	+/- 10%	+/- 25 mV	Stabilize

Annual Leachate 2020

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site.* ***If more fields above are needed, use separate sheet or form.***

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (umhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L-ppm)	eH/ORP (mV)	Other: Units
050720	7.57	4537	13.4	1.74	5.30	472	

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.*

Sample Appearance: Clear Odor: NONE Color: NONE Other:

Weather Conditions (required daily, or as conditions change): Direction/Speed: 5-10mph SE Outlook: Sunny 60's Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required): Sample Time: 1208

FIELD COMMENTS

Sample collected from Sump pump into Clean dedicated buckets & bottled w/new clean dipper bottle

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05/07/20	Laura Major		SRES
05/07/20	Kacy Sylvia	Kacy Sylvia	SRES

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Login Sample Receipt Checklist

Client: Waste Management

Job Number: 280-136377-1

Login Number: 136377

List Source: Eurofins TestAmerica, Denver

List Number: 1

Creator: Lubin, Julius C

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	N/A	

eurofins | Environment Testing America



ANALYTICAL REPORT

Eurofins TestAmerica, Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

Laboratory Job ID: 280-143640-1
Client Project/Site: 555|Denver/Arapahoe Chem.
Sampling Event: Semi-Annual Leachate Sump - May Nov
Revision: 1

For:
Waste Management
2400 West Union Avenue
Englewood, Colorado 80110

Attn: Mr. Tom Schweitzer

Betsy Sara

Authorized for release by:
1/6/2021 2:23:48 PM

Betsy Sara, Project Manager II
(303)736-0189
Betsy.Sara@Eurofinset.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.eurofinsus.com/Env

The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: Waste Management
Project/Site: 555|Denver/Arapahoe Chem.

Job ID: 280-143640-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 280-143640-1

Laboratory: Eurofins TestAmerica, Denver

Narrative

CASE NARRATIVE

Client: Waste Management

Project: 555|Denver/Arapahoe Chem.

Report Number: 280-143640-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

This report may include reporting limits (RLs) less than Eurofins TestAmerica's standard reporting limit. The reported sample results and associated reporting limits are being used specifically to meet the needs of this project. Note that data are not normally reported to these levels without qualification because they are inherently less reliable and potentially less defensible than required by the latest industry standards.

Sample Receiving

The samples were received on 12/10/2020; the samples arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 0.9 C.

Holding Times

All holding times were within established control limits.

Method Blanks

All Method Blanks were within established control limits.

Laboratory Control Samples (LCS)

All Laboratory Control Samples were within established control limits.

Matrix Spike and Matrix Spike Duplicate (MS/MSD)

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) for Method 8260B, however, an LCS/LCSD pair was analyzed to demonstrate method precision and accuracy.

All other MS and MSD samples were within established control limits.

Report Revision

This submission was revised to investigate the Tetrachloroethene Method 8260B result for the sample Secondary Sump, per the client's request.

Detection Summary

Client: Waste Management
Project/Site: 555|Denver/Arapahoe Chem.

Job ID: 280-143640-1

Client Sample ID: TRIP BLANK 1 — Lab Sample ID: 280-143640-1

No Detections.

Client Sample ID: 2NDSUMP — Lab Sample ID: 280-143640-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	6.6		5.0		ug/L	1		8260B	Total/NA
Field pH	7.88				SU	1		Field Sampling	Total/NA
Field Conductivity	4481				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	16.3				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	29.3				NTU	1		Field Sampling	Total/NA
Field Dissolved Oxygen	5.38				mg/L	1		Field Sampling	Total/NA
Field EH/ORP	63.6				millivolts	1		Field Sampling	Total/NA

Client Sample ID: PRIMARYSUMP — Lab Sample ID: 280-143640-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloroform	3.9		3.5		ug/L	1		8260B	Total/NA
Tetrachloroethene	74		5.0		ug/L	1		8260B	Total/NA
Trichloroethene	19		5.0		ug/L	1		8260B	Total/NA
Arsenic	50		10		ug/L	1		6010B	Total Recoverable
Field pH	6.56				SU	1		Field Sampling	Total/NA
Field Conductivity	7978				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	14.4				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	81.8				NTU	1		Field Sampling	Total/NA
Field Dissolved Oxygen	1.14				mg/L	1		Field Sampling	Total/NA
Field EH/ORP	61.9				millivolts	1		Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Waste Management
Project/Site: 555|Denver/Arapahoe Chem.

Job ID: 280-143640-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
6010B	Metals (ICP)	SW846	TAL DEN
Field Sampling	Field Sampling	EPA	TAL DEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: Waste Management
Project/Site: 555|Denver/Arapahoe Chem.

Job ID: 280-143640-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
280-143640-1	TRIP BLANK 1	Water	12/09/20 13:30	12/10/20 10:30	
280-143640-2	2NDSUMP	Water	12/09/20 13:30	12/10/20 10:30	
280-143640-3	PRIMARYSUMP	Water	12/09/20 14:15	12/10/20 10:30	

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: TRIP BLANK 1
Date Collected: 12/09/20 13:30
Date Received: 12/10/20 10:30

Lab Sample ID: 280-143640-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		5.0		ug/L			12/14/20 12:41	1
1,2-Dichloroethane	ND		1.0		ug/L			12/14/20 12:41	1
2-Butanone (MEK)	ND		100		ug/L			12/14/20 12:41	1
Benzene	ND		5.0		ug/L			12/14/20 12:41	1
Carbon tetrachloride	ND		1.0		ug/L			12/14/20 12:41	1
Chlorobenzene	ND		5.0		ug/L			12/14/20 12:41	1
Chloroform	ND		3.5		ug/L			12/14/20 12:41	1
Tetrachloroethene	ND		5.0		ug/L			12/14/20 12:41	1
Trichloroethene	ND		5.0		ug/L			12/14/20 12:41	1
Vinyl chloride	ND		2.0		ug/L			12/14/20 12:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*91*		*70 - 127*		*12/14/20 12:41*	*1*
4-Bromofluorobenzene (Surr)	*103*		*78 - 120*		*12/14/20 12:41*	*1*
Dibromofluoromethane (Surr)	*100*		*77 - 120*		*12/14/20 12:41*	*1*
Toluene-d8 (Surr)	*100*		*80 - 125*		*12/14/20 12:41*	*1*

Client Sample ID: 2NDSUMP
Date Collected: 12/09/20 13:30
Date Received: 12/10/20 10:30

Lab Sample ID: 280-143640-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		5.0		ug/L			12/14/20 13:04	1
1,2-Dichloroethane	ND		1.0		ug/L			12/14/20 13:04	1
2-Butanone (MEK)	ND		100		ug/L			12/14/20 13:04	1
Benzene	ND		5.0		ug/L			12/14/20 13:04	1
Carbon tetrachloride	ND		1.0		ug/L			12/14/20 13:04	1
Chlorobenzene	ND		5.0		ug/L			12/14/20 13:04	1
Chloroform	ND		3.5		ug/L			12/14/20 13:04	1
Tetrachloroethene	**6.6**		5.0		ug/L			12/14/20 13:04	1
Trichloroethene	ND		5.0		ug/L			12/14/20 13:04	1
Vinyl chloride	ND		2.0		ug/L			12/14/20 13:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*89*		*70 - 127*		*12/14/20 13:04*	*1*
4-Bromofluorobenzene (Surr)	*104*		*78 - 120*		*12/14/20 13:04*	*1*
Dibromofluoromethane (Surr)	*100*		*77 - 120*		*12/14/20 13:04*	*1*
Toluene-d8 (Surr)	*102*		*80 - 125*		*12/14/20 13:04*	*1*

Client Sample ID: PRIMARYSUMP
Date Collected: 12/09/20 14:15
Date Received: 12/10/20 10:30

Lab Sample ID: 280-143640-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		5.0		ug/L			12/14/20 13:27	1
1,2-Dichloroethane	ND		1.0		ug/L			12/14/20 13:27	1
2-Butanone (MEK)	ND		100		ug/L			12/14/20 13:27	1
Benzene	ND		5.0		ug/L			12/14/20 13:27	1
Carbon tetrachloride	ND		1.0		ug/L			12/14/20 13:27	1
Chlorobenzene	ND		5.0		ug/L			12/14/20 13:27	1
Chloroform	**3.9**		3.5		ug/L			12/14/20 13:27	1
Tetrachloroethene	**74**		5.0		ug/L			12/14/20 13:27	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: PRIMARYSUMP
Date Collected: 12/09/20 14:15
Date Received: 12/10/20 10:30

Lab Sample ID: 280-143640-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	19		5.0		ug/L			12/14/20 13:27	1
Vinyl chloride	ND		2.0		ug/L			12/14/20 13:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*93*		*70 - 127*		*12/14/20 13:27*	*1*
4-Bromofluorobenzene (Surr)	*103*		*78 - 120*		*12/14/20 13:27*	*1*
Dibromofluoromethane (Surr)	*100*		*77 - 120*		*12/14/20 13:27*	*1*
Toluene-d8 (Surr)	*100*		*80 - 125*		*12/14/20 13:27*	*1*

Method: 6010B - Metals (ICP) - Total Recoverable

Client Sample ID: 2NDSUMP
Date Collected: 12/09/20 13:30
Date Received: 12/10/20 10:30

Lab Sample ID: 280-143640-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		10		ug/L		12/14/20 08:12	12/14/20 19:37	1

Client Sample ID: PRIMARYSUMP
Date Collected: 12/09/20 14:15
Date Received: 12/10/20 10:30

Lab Sample ID: 280-143640-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	50		10		ug/L		12/14/20 08:12	12/14/20 19:41	1

Method: Field Sampling - Field Sampling

Client Sample ID: 2NDSUMP
Date Collected: 12/09/20 13:30
Date Received: 12/10/20 10:30

Lab Sample ID: 280-143640-2
Matrix: Water

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	7.88				SU			12/09/20 13:30	1
Field Conductivity	4481				umhos/cm			12/09/20 13:30	1
Field Temperature	16.3				Degrees C			12/09/20 13:30	1
Field Turbidity	29.3				NTU			12/09/20 13:30	1
Field Dissolved Oxygen	5.38				mg/L			12/09/20 13:30	1
Field EH/ORP	63.6				millivolts			12/09/20 13:30	1

Client Sample ID: PRIMARYSUMP
Date Collected: 12/09/20 14:15
Date Received: 12/10/20 10:30

Lab Sample ID: 280-143640-3
Matrix: Water

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	6.56				SU			12/09/20 14:15	1
Field Conductivity	7978				umhos/cm			12/09/20 14:15	1
Field Temperature	14.4				Degrees C			12/09/20 14:15	1
Field Turbidity	81.8				NTU			12/09/20 14:15	1
Field Dissolved Oxygen	1.14				mg/L			12/09/20 14:15	1
Field EH/ORP	61.9				millivolts			12/09/20 14:15	1

Surrogate Summary

Client: Waste Management
Project/Site: 555|Denver/Arapahoe Chem.

Job ID: 280-143640-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(70-127)	(78-120)	(77-120)	(80-125)
280-143640-1	TRIP BLANK 1	91	103	100	100
280-143640-2	2NDSUMP	89	104	100	102
280-143640-3	PRIMARYSUMP	93	103	100	100
LCS 280-520319/4	Lab Control Sample	84	102	99	100
LCSD 280-520319/5	Lab Control Sample Dup	84	102	99	101
MB 280-520319/9	Method Blank	92	104	100	100

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-520319/9
Matrix: Water
Analysis Batch: 520319

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		5.0		ug/L			12/14/20 11:55	1
1,2-Dichloroethane	ND		1.0		ug/L			12/14/20 11:55	1
2-Butanone (MEK)	ND		100		ug/L			12/14/20 11:55	1
Benzene	ND		5.0		ug/L			12/14/20 11:55	1
Carbon tetrachloride	ND		1.0		ug/L			12/14/20 11:55	1
Chlorobenzene	ND		5.0		ug/L			12/14/20 11:55	1
Chloroform	ND		3.5		ug/L			12/14/20 11:55	1
Tetrachloroethene	ND		5.0		ug/L			12/14/20 11:55	1
Trichloroethene	ND		5.0		ug/L			12/14/20 11:55	1
Vinyl chloride	ND		2.0		ug/L			12/14/20 11:55	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*92*		*70 - 127*		*12/14/20 11:55*	*1*
4-Bromofluorobenzene (Surr)	*104*		*78 - 120*		*12/14/20 11:55*	*1*
Dibromofluoromethane (Surr)	*100*		*77 - 120*		*12/14/20 11:55*	*1*
Toluene-d8 (Surr)	*100*		*80 - 125*		*12/14/20 11:55*	*1*

Lab Sample ID: LCS 280-520319/4
Matrix: Water
Analysis Batch: 520319

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	25.0	22.6		ug/L		90	65 - 135
1,1-Dichloroethane	25.0	22.2		ug/L		89	65 - 135
1,1-Dichloroethene	25.0	24.7		ug/L		99	65 - 136
1,2-Dichloroethane	25.0	18.5		ug/L		74	65 - 135
1,2-Dichloropropane	25.0	20.7		ug/L		83	64 - 135
1,3-Dichlorobenzene	25.0	24.7		ug/L		99	65 - 135
2-Butanone (MEK)	100	88.5	J	ug/L		88	44 - 177
Benzene	25.0	23.2		ug/L		93	65 - 135
Bromodichloromethane	25.0	24.2		ug/L		97	65 - 135
Carbon tetrachloride	25.0	23.5		ug/L		94	65 - 135
Chlorobenzene	25.0	23.7		ug/L		95	65 - 135
Chloroform	25.0	22.3		ug/L		89	65 - 135
Ethylbenzene	25.0	23.5		ug/L		94	65 - 135
Methylene Chloride	25.0	21.9		ug/L		87	54 - 141
Tetrachloroethene	25.0	24.7		ug/L		99	65 - 135
Toluene	25.0	22.8		ug/L		91	65 - 135
trans-1,2-Dichloroethene	25.0	23.5		ug/L		94	65 - 135
Trichloroethene	25.0	23.4		ug/L		94	65 - 135
Vinyl chloride	25.0	23.1		ug/L		92	40 - 137

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*84*		*70 - 127*
4-Bromofluorobenzene (Surr)	*102*		*78 - 120*
Dibromofluoromethane (Surr)	*99*		*77 - 120*
Toluene-d8 (Surr)	*100*		*80 - 125*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-520319/5
Matrix: Water
Analysis Batch: 520319

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane			25.0	23.0		ug/L		92	65 - 135	2	20
1,1-Dichloroethane			25.0	22.1		ug/L		88	65 - 135	0	21
1,1-Dichloroethene			25.0	25.1		ug/L		100	65 - 136	2	20
1,2-Dichloroethane			25.0	18.6		ug/L		74	65 - 135	1	20
1,2-Dichloropropane			25.0	21.1		ug/L		84	64 - 135	2	20
1,3-Dichlorobenzene			25.0	24.3		ug/L		97	65 - 135	1	20
2-Butanone (MEK)			100	87.5	J	ug/L		88	44 - 177	1	32
Benzene			25.0	23.2		ug/L		93	65 - 135	0	20
Bromodichloromethane			25.0	24.3		ug/L		97	65 - 135	0	20
Carbon tetrachloride			25.0	23.8		ug/L		95	65 - 135	1	21
Chlorobenzene			25.0	23.7		ug/L		95	65 - 135	0	20
Chloroform			25.0	22.3		ug/L		89	65 - 135	0	20
Ethylbenzene			25.0	23.7		ug/L		95	65 - 135	1	20
Methylene Chloride			25.0	21.7		ug/L		87	54 - 141	1	26
Tetrachloroethene			25.0	24.8		ug/L		99	65 - 135	0	20
Toluene			25.0	23.0		ug/L		92	65 - 135	1	20
trans-1,2-Dichloroethene			25.0	23.8		ug/L		95	65 - 135	1	24
Trichloroethene			25.0	23.7		ug/L		95	65 - 135	1	20
Vinyl chloride			25.0	21.5		ug/L		86	40 - 137	7	24

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*84*		*70 - 127*
4-Bromofluorobenzene (Surr)	*102*		*78 - 120*
Dibromofluoromethane (Surr)	*99*		*77 - 120*
Toluene-d8 (Surr)	*101*		*80 - 125*

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 280-520098/1-A
Matrix: Water
Analysis Batch: 520478

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 520098

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		10		ug/L		12/14/20 08:12	12/14/20 19:31	1

Lab Sample ID: LCS 280-520098/2-A
Matrix: Water
Analysis Batch: 520478

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 520098

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Arsenic			2000	1950		ug/L		97	88 - 110		

Lab Sample ID: 280-143571-B-1-C MS
Matrix: Water
Analysis Batch: 520478

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 520098

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Arsenic	14		2000	2100		ug/L		104	84 - 124		

Client: Waste Management
Project/Site: 555|Denver/Arapahoe Chem.

Job ID: 280-143640-1

Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: 280-143571-B-1-D MSD
Matrix: Water
Analysis Batch: 520478

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 520098

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	14		2000	2050		ug/L		102	84 - 124	2	20

QC Association Summary

Client: Waste Management
Project/Site: 555|Denver/Arapahoe Chem.

Job ID: 280-143640-1

GC/MS VOA

Analysis Batch: 520319

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-143640-1	TRIP BLANK 1	Total/NA	Water	8260B	
280-143640-2	2NDSUMP	Total/NA	Water	8260B	
280-143640-3	PRIMARYSUMP	Total/NA	Water	8260B	
MB 280-520319/9	Method Blank	Total/NA	Water	8260B	
LCS 280-520319/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 280-520319/5	Lab Control Sample Dup	Total/NA	Water	8260B	

Metals

Prep Batch: 520098

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-143640-2	2NDSUMP	Total Recoverable	Water	3005A	
280-143640-3	PRIMARYSUMP	Total Recoverable	Water	3005A	
MB 280-520098/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-520098/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
280-143571-B-1-C MS	Matrix Spike	Total Recoverable	Water	3005A	
280-143571-B-1-D MSD	Matrix Spike Duplicate	Total Recoverable	Water	3005A	

Analysis Batch: 520478

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-143640-2	2NDSUMP	Total Recoverable	Water	6010B	520098
280-143640-3	PRIMARYSUMP	Total Recoverable	Water	6010B	520098
MB 280-520098/1-A	Method Blank	Total Recoverable	Water	6010B	520098
LCS 280-520098/2-A	Lab Control Sample	Total Recoverable	Water	6010B	520098
280-143571-B-1-C MS	Matrix Spike	Total Recoverable	Water	6010B	520098
280-143571-B-1-D MSD	Matrix Spike Duplicate	Total Recoverable	Water	6010B	520098

Field Service / Mobile Lab

Analysis Batch: 520301

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-143640-2	2NDSUMP	Total/NA	Water	Field Sampling	
280-143640-3	PRIMARYSUMP	Total/NA	Water	Field Sampling	

Lab Chronicle

Client: Waste Management
Project/Site: 555|Denver/Arapahoe Chem.

Job ID: 280-143640-1

Client Sample ID: TRIP BLANK 1

Lab Sample ID: 280-143640-1

Date Collected: 12/09/20 13:30
Matrix: Water
Date Received: 12/10/20 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	520319	12/14/20 12:41	JLS	TAL DEN

Client Sample ID: 2NDSUMP

Lab Sample ID: 280-143640-2

Date Collected: 12/09/20 13:30
Matrix: Water
Date Received: 12/10/20 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	520319	12/14/20 13:04	JLS	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	520098	12/14/20 08:12	MAB	TAL DEN
Total Recoverable	Analysis	6010B		1			520478	12/14/20 19:37	LMT	TAL DEN
Total/NA	Analysis	Field Sampling		1			520301	12/09/20 13:30	C1A	TAL DEN

Client Sample ID: PRIMARYSUMP

Lab Sample ID: 280-143640-3

Date Collected: 12/09/20 14:15
Matrix: Water
Date Received: 12/10/20 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	520319	12/14/20 13:27	JLS	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	520098	12/14/20 08:12	MAB	TAL DEN
Total Recoverable	Analysis	6010B		1			520478	12/14/20 19:41	LMT	TAL DEN
Total/NA	Analysis	Field Sampling		1			520301	12/09/20 14:15	C1A	TAL DEN

Laboratory References:
TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Eurofins TestAmerica, Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

Denver #280

eurofins | Environment Testing TestAmerica

Client Information	Sampler: L. MASSOR / K. Sylvia	Lab PM: Sara, Betsy A	Carrier Tracking No(s): Courier	COC No: 280-17711-1151.1
Client Contact: Tom Schweitzer	Phone: 303-695-4660	E-Mail: Betsy.Sara@Eurofinset.com		Page: Page 1 of 1
Company: Waste Management				Job #: 202107
Address: 2400 West Union Avenue	Due Date Requested:			
City: Englewood	TAT Requested (days):			
State, Zip: CO 80110				
Phone: 303 914-1445	PO #:			
Email: Tschweitzer@wm.com	WO #:			
Project Name:555|Denver/Arapahoe Chem. Event Desc: Semi-Annual Leachate Sump - May Nov	Project #: 28003048			
Site: Colorado	SSOW#:			

Analysis Requested

280-143640 Chain of Custody

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Total Metals 8260B D	Total Metals 8260B N	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
Trip Blank	12/9/20	—	—	W				1		
Secondary Sump	12/9/20	1330	G	W			1			250mL Plastic
↓	↓	↓	↓	↓				3		40mL VOAs nitric acid
primary Sump	12/9/20	1415	G	W			1	3		

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time: 12/10/20	Company SRES	Received by:	Date/Time: 12-10-20 0910	Company TA		
Relinquished by:	Date/Time: 12-10-20 1050	Company TA	Received by:	Date/Time: 12/10/2020 1030	Company FTA DEN		
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company		

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 1.7 IR11 -0.3 5012/10/2020

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: DAC WPF

Site No.: 555 Sample Point: Secondary Strip Sample ID

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED
12/09/20					

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark changes, record field data, below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment . . . Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: ____ Sampling Device: ____ X-Other: ____

A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Filter Type: ____ A-In-line Disposable, B-Pressure, C-Vacuum, X-Other ____

Sample Tube Type: ____ A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other: ____

WELL DATA

Well Elevation (at TOC): ____ (ft/msl)

Depth to Water (DTW) (from TOC): ____ (ft)

Groundwater Elevation (site datum, from TOC): ____ (ft/msl)

Total Well Depth (from TOC): ____ (ft)

Stick Up (from ground elevation): ____ (ft)

Casing ID: ____ (in) Casing Material: ____

Note: Total Well Depth, Stick Up, Casing Id. etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and Groundwater Elevation must be current.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm@25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Suggested range for 3 consec. readings or note Permit/State requirements:		+/- 0.2	+/- 3%	--	--	+/- 10%	+/- 25 mV	Stabilize

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site.* ***If more fields above are needed, use separate sheet or form.***

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (umhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L-ppm)	eH/ORP (mV)	Other: / Units
12/09/20	7.88	4.481	16.3	29.3	5.38	63.6	

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.*

Sample Appearance: Clear Odor: NONE Color: NONE Other: ____

Weather Conditions (required daily, or as conditions change): Direction/Speed: Calm Outlook: SUNNY 50's Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required): Sample Time: 1330

FIELD COMMENTS

Sample Collected with Snap Sampler and New clean Snap Sampler Bottle poured into new clean Sample Bottle

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
12/09/20	LAURA MAJOR		SRS
12/09/20	Kacy Sylvia	KACY SYLVIA	SRS

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client. PINK - Field Copy

TAL-8029WM (1013) 1/6/2021 (Rev. 1)

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: DACWPF

Site No.: 555 Sample Point: PRIMARY SUMP (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED
12/09/20					

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark changes, record field data, below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment . . . Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device ____ A-Submersible Pump B-Peristaltic Pump C-QED Bladder Pump D-Bailer E-Piston Pump F-Dipper/Bottle

Filter Type: ____ A-In-line Disposable B-Pressure C-Vacuum X-Other ____

Sampling Device ____

X-Other: ____

Sample Tube Type: ____ A-Teflon B-Stainless Steel C-PVC D-Polypropylene X-Other: ____

WELL DATA

Well Elevation (at TOC) ____ (ft/msl)

Depth to Water (DTW) (from TOC) ____ (ft)

Groundwater Elevation (site datum, from TOC) ____ (ft/msl)

Total Well Depth (from TOC) ____ (ft)

Stick Up (from ground elevation) ____ (ft)

Casing ID ____ (in)

Casing Material ____

Note: Total Well Depth, Stick Up, Casing Id. etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and Groundwater Elevation must be current.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm@25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
	1st	1st	1st					
	2nd	2nd	2nd					
	3rd	3rd	3rd					
	4th	4th	4th					
Suggested ranges for 3 consec. readings or note Permit/State requirements:		+/- 0.2	+/- 3%	--	--	+/- 10%	+/- 25 mV	stabilize

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site.* ***If more fields above are needed, use separate sheet or form.***

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (umhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L-ppm)	eH/ORP (mV)	Other: Units
12/09/20	6.56	7.978	14.4	8.18	1.14	6.19	

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.*

Sample Appearance: Clear Odor: NONE Color: NONE Other: ____

Weather Conditions (required daily, or as conditions change): Direction/Speed: Calm Outlook: Sunny 50's Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required): SAmple Time: 1415

FIELD COMMENTS

Sample Collected with new, clean Bailer and poured into new Clean Sample Bottle

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
12,09,20	LAURA MAJOR		SRES
12,09,20	Kacy Sylvia	Kacy Sylvia	SRES

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client. PINK - Field Copy

Login Sample Receipt Checklist

Client: Waste Management

Job Number: 280-143640-1

Login Number: 143640
List Number: 1
Creator: Collins, Janice S

List Source: Eurofins TestAmerica, Denver

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	N/A	

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ANALYTICAL REPORT

Eurofins TestAmerica, Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

Laboratory Job ID: 280-143641-1
Client Project/Site: 555|Denver/Arapahoe Chem.

For:
Waste Management
2400 West Union Avenue
Englewood, Colorado 80110

Attn: Mr. Tom Schweitzer

Betsy Sara

Authorized for release by:
12/18/2020 10:01:25 AM

Betsy Sara, Project Manager II
(303)736-0189
Betsy.Sara@Eurofinset.com

LINKS

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The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: Waste Management
Project/Site: 555|Denver/Arapahoe Chem.

Job ID: 280-143641-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 280-143641-1

Laboratory: Eurofins TestAmerica, Denver

Narrative

CASE NARRATIVE

Client: Waste Management

Project: 555|Denver/Arapahoe Chem.

Report Number: 280-143641-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

This report may include reporting limits (RLs) less than Eurofins TestAmerica's standard reporting limit. The reported sample results and associated reporting limits are being used specifically to meet the needs of this project. Note that data are not normally reported to these levels without qualification because they are inherently less reliable and potentially less defensible than required by the latest industry standards.

Sample Receiving

The samples were received on 12/10/2020; the samples arrived in good condition, properly preserved and on ice. The temperatures of the coolers at receipt were 1.3º C and 2.3º C.

Holding Times

All holding times were within established control limits.

Method Blanks

All Method Blanks were within established control limits.

Laboratory Control Samples (LCS)

All Laboratory Control Samples were within established control limits.

Matrix Spike and Matrix Spike Duplicate (MS/MSD)

The method required MS/MSD could not be performed for Method 537 (modified) due to insufficient sample volume, however, a LCS/LCSD pair was analyzed to demonstrate method precision and accuracy.

LCMS

The Method 537 (modified) results for sample PRIMARYSUMP were reported from the analysis of a diluted extract due to high concentration of the target analyte in the analysis of the undiluted extract. The dilution factor was applied to the labeled internal standard area counts and these area counts were within acceptance limits

General Comments

The analysis for Method 537 (modified) was performed at TestAmerica's Sacramento Laboratory.
TestAmerica Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Phone: 916.373.5600

Detection Summary

Client: Waste Management
Project/Site: 555|Denver/Arapahoe Chem.

Job ID: 280-143641-1

Client Sample ID: 2NDSUMP — Lab Sample ID: 280-143641-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.11		0.010		ug/L	1		537 (modified)	Total/NA
Perfluorooctane sulfonate (PFOS)	0.061		0.010		ug/L	1		537 (modified)	Total/NA
Field pH	7.88				SU	1		Field Sampling	Total/NA
Field Conductivity	4481				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	16.3				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	29.3				NTU	1		Field Sampling	Total/NA
Field Dissolved Oxygen	5.38				mg/L	1		Field Sampling	Total/NA
Field EH/ORP	63.6				millivolts	1		Field Sampling	Total/NA

Client Sample ID: PRIMARYSUMP — Lab Sample ID: 280-143641-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.31		0.081		ug/L	100		537 (modified)	Total/NA
Perfluorooctane sulfonate (PFOS)	0.43		0.051		ug/L	100		537 (modified)	Total/NA
Field pH	6.56				SU	1		Field Sampling	Total/NA
Field Conductivity	7978				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	14.4				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	81.8				NTU	1		Field Sampling	Total/NA
Field Dissolved Oxygen	1.14				mg/L	1		Field Sampling	Total/NA
Field EH/ORP	61.9				millivolts	1		Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Waste Management
Project/Site: 555|Denver/Arapahoe Chem.

Job ID: 280-143641-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Fluorinated Alkyl Substances	EPA	TAL SAC
Field Sampling	Field Sampling	EPA	TAL DEN
3535	Solid-Phase Extraction (SPE)	SW846	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Sample Summary

Client: Waste Management
Project/Site: 555|Denver/Arapahoe Chem.

Job ID: 280-143641-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
280-143641-1	2NDSUMP	Water	12/09/20 13:15	12/10/20 10:30	
280-143641-2	PRIMARYSUMP	Water	12/09/20 14:00	12/10/20 10:30	

Method: 537 (modified) - Fluorinated Alkyl Substances

Client Sample ID: 2NDSUMP
Date Collected: 12/09/20 13:15
Date Received: 12/10/20 10:30

Lab Sample ID: 280-143641-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.11		0.010		ug/L		12/13/20 19:40	12/14/20 18:47	1
Perfluorooctane sulfonate (PFOS)	0.061		0.010		ug/L		12/13/20 19:40	12/14/20 18:47	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOS	*112*		*25 - 150*	*12/13/20 19:40*	*12/14/20 18:47*	*1*
13C4 PFOA	*107*		*25 - 150*	*12/13/20 19:40*	*12/14/20 18:47*	*1*

Client Sample ID: PRIMARYSUMP
Date Collected: 12/09/20 14:00
Date Received: 12/10/20 10:30

Lab Sample ID: 280-143641-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.31		0.081		ug/L		12/13/20 19:40	12/14/20 19:23	100
Perfluorooctane sulfonate (PFOS)	0.43		0.051		ug/L		12/13/20 19:40	12/14/20 19:23	100

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOS	*107*		*25 - 150*	*12/13/20 19:40*	*12/14/20 19:23*	*100*
13C4 PFOA	*100*		*25 - 150*	*12/13/20 19:40*	*12/14/20 19:23*	*100*

Method: Field Sampling - Field Sampling

Client Sample ID: 2NDSUMP
Date Collected: 12/09/20 13:15
Date Received: 12/10/20 10:30

Lab Sample ID: 280-143641-1
Matrix: Water

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	7.88				SU			12/09/20 13:15	1
Field Conductivity	4481				umhos/cm			12/09/20 13:15	1
Field Temperature	16.3				Degrees C			12/09/20 13:15	1
Field Turbidity	29.3				NTU			12/09/20 13:15	1
Field Dissolved Oxygen	5.38				mg/L			12/09/20 13:15	1
Field EH/ORP	63.6				millivolts			12/09/20 13:15	1

Client Sample ID: PRIMARYSUMP
Date Collected: 12/09/20 14:00
Date Received: 12/10/20 10:30

Lab Sample ID: 280-143641-2
Matrix: Water

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	6.56				SU			12/09/20 14:00	1
Field Conductivity	7978				umhos/cm			12/09/20 14:00	1
Field Temperature	14.4				Degrees C			12/09/20 14:00	1
Field Turbidity	81.8				NTU			12/09/20 14:00	1
Field Dissolved Oxygen	1.14				mg/L			12/09/20 14:00	1
Field EH/ORP	61.9				millivolts			12/09/20 14:00	1

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-441710/1-A
Matrix: Water
Analysis Batch: 442011

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 441710

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	ND		0.010		ug/L		12/13/20 19:40	12/14/20 18:19	1
Perfluorooctane sulfonate (PFOS)	ND		0.010		ug/L		12/13/20 19:40	12/14/20 18:19	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOS	*101*		*25 - 150*	*12/13/20 19:40*	*12/14/20 18:19*	*1*
13C4 PFOA	*104*		*25 - 150*	*12/13/20 19:40*	*12/14/20 18:19*	*1*

Lab Sample ID: LCS 320-441710/2-A
Matrix: Water
Analysis Batch: 442011

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 441710

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Perfluorooctanoic acid (PFOA)			0.0400	0.0380		ug/L		95	70 - 130		
Perfluorooctane sulfonate (PFOS)			0.0371	0.0361		ug/L		97	70 - 130		

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFOS	*112*		*25 - 150*
13C4 PFOA	*105*		*25 - 150*

Lab Sample ID: LCSD 320-441710/3-A
Matrix: Water
Analysis Batch: 442011

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 441710

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorooctanoic acid (PFOA)			0.0400	0.0411		ug/L		103	70 - 130	8	30
Perfluorooctane sulfonate (PFOS)			0.0371	0.0367		ug/L		99	70 - 130	1	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFOS	*104*		*25 - 150*
13C4 PFOA	*94*		*25 - 150*

QC Association Summary

Client: Waste Management
Project/Site: 555|Denver/Arapahoe Chem.

Job ID: 280-143641-1

LCMS

Prep Batch: 441710

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-143641-1	2NDSUMP	Total/NA	Water	3535	
280-143641-2	PRIMARYSUMP	Total/NA	Water	3535	
MB 320-441710/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-441710/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-441710/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 442011

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-143641-1	2NDSUMP	Total/NA	Water	537 (modified)	441710
280-143641-2	PRIMARYSUMP	Total/NA	Water	537 (modified)	441710
MB 320-441710/1-A	Method Blank	Total/NA	Water	537 (modified)	441710
LCS 320-441710/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	441710
LCSD 320-441710/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	441710

Field Service / Mobile Lab

Analysis Batch: 520301

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-143641-1	2NDSUMP	Total/NA	Water	Field Sampling	
280-143641-2	PRIMARYSUMP	Total/NA	Water	Field Sampling	

Lab Chronicle

Client: Waste Management
Project/Site: 555|Denver/Arapahoe Chem.

Job ID: 280-143641-1

Client Sample ID: 2NDSUMP

Lab Sample ID: 280-143641-1

Date Collected: 12/09/20 13:15

Matrix: Water

Date Received: 12/10/20 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			268 mL	10.00 mL	441710	12/13/20 19:40	VP	TAL SAC
Total/NA	Analysis	537 (modified)		1			442011	12/14/20 18:47	K1S	TAL SAC
Total/NA	Analysis	Field Sampling		1			520301	12/09/20 13:15	C1A	TAL DEN

Client Sample ID: PRIMARYSUMP

Lab Sample ID: 280-143641-2

Date Collected: 12/09/20 14:00

Matrix: Water

Date Received: 12/10/20 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			263.9 mL	10.00 mL	441710	12/13/20 19:40	VP	TAL SAC
Total/NA	Analysis	537 (modified)		100			442011	12/14/20 19:23	K1S	TAL SAC
Total/NA	Analysis	Field Sampling		1			520301	12/09/20 14:00	C1A	TAL DEN

Laboratory References:

TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Eurofins TestAmerica, Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

Denver #280

eurofins Environment Testing TestAmerica

Client Information	Sampler: L. MAJOR / K. SYLVIA	Lab PM: Sara, Betsy A	Carrier Tracking No(s): Courier	COC No: 280-87046-27509.1
Client Contact: Mr. Tom Schweitzer	Phone: 303-695-4660	E-Mail: Betsy.Sara@Eurofinset.com		Page: Page 1 of 1
Company: Waste Management				Job #: 202107
Address: 2400 West Union Avenue	Due Date Requested:			
City: Englewood	TAT Requested (days):			
State, Zip: CO, 80110				
Phone: 303-914-1445(Tel) 303-914-1588(Fax)	PO #: Purchase Order Requested			
Email: tschweit@wm.com	WO #:			
Project Name: 555|Denver/Arapahoe Chem.	Project #:skip sites/events and log from: 28003048 "PFOA/PFOS (TA Sacramento)"			
Site: Colorado	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFOA/PFOS Only (TA Sacramento)	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N		
Secondary Sump	12/9/20	1315	G	W			2		plastic 250 mL unpreserved
Primary Sump	12/9/20	1400	G	W			2		

280-143641 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by: | Date: | Time: | Method of Shipment:

	Date/Time	Company		Date/Time	Company
Relinquished by:	12/10/20	SPES	Received by:	12-10-20 0910	TA
Relinquished by:	12-10-20 1030	TA	Received by:	12-10-20 1030	TA DEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 2.6, 1.6, -0.3, IR11 12-10-20

Ver: 01/16/2019

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: DAC wpf

Site No.: 555 Sample Point: Secondary Sump (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED
12/09/20					

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark changes, record field data, below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment . . . Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

X-Other:

Filter Type: A-In-line Disposable, B-Pressure, C-Vacuum, X-Other

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (site datum, from TOC) (ft/msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Well Depth, Stick Up, Casing Id. etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and Groundwater Elevation must be current.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm@25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Suggested range for 3 consec. readings or note Permit/State requirements:		+/- 0.2	+/- 3%	--	--	+/- 10%	+/- 25 mV	Stabilize

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site.* ***If more fields above are needed, use separate sheet or form.***

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (umhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L-ppm)	eH/ORP (mV)	Other: / Units
12/09/20	7.88	4.481	16.3	29.3	5.38	63.6	

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.*

Sample Appearance: Clear Odor: None Color: NONE Other:

Weather Conditions (required daily, or as conditions change): Direction/Speed: Calm Outlook: SUNNY 50s Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required): Sample Time: 1315

FIELD COMMENTS

Sample collected with cleaned Snap Sampler and new, Clean Snap Sample Bottle into new clean Bottle

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
12,09,20	LAURA MAJOR		SRES
12,09,20	Kacy Sylvia	Kacy Sylvia	SRES

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client. PINK - Field Copy

TAL-8029WM (1013)

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: DACWPF

Site No.: 555 Sample Point: primary sump (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED
12/09/20					

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark changes, record field data, below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment . . . Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

X-Other:

Filter Type: A-In-line Disposable, B-Pressure, C-Vacuum, X-Other

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (site datum, from TOC) (ft/msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Well Depth, Stick Up, Casing Id. etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and Groundwater Elevation must be current.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm@25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
	1st	1st	1st					
	2nd	2nd	2nd					
	3rd	3rd	3rd					
	4th	4th	4th					
Suggested range for 3 consec. readings or note Permit/State requirements:		+/- 0.2	+/- 3%	--	--	+/- 10%	+/- 25 mV	Stabilize

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site.* ***If more fields above are needed, use separate sheet or form.***

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (umhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L-ppm)	eH/ORP (mV)	Other: / Units
12/09/20	6.56	79778	14.4	8.18	1.14	61.9	

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.*

Sample Appearance: Clear Odor: NONE Color: NONE Other:

Weather Conditions (required daily, or as conditions change): Direction/Speed: Calm Outlook: Sunny 50's Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required): Sample Time: 1400

FIELD COMMENTS

Sample Collected with new, Clean unweighted Bailer into Sample Bottles

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
12/09/20	LAURA NATOR		SRES
12/09/20	Kacy Sylvia	Kacy Sylvia	SRES

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample YELLOW - Returned to Client. PINK - Field Copy

TAL-8029WM (1013)

Eurofins TestAmerica, Denver
4955 Yarrow Street
Arvada, CO 80002
Phone: 303-736-0100 Fax: 303-431-7171

Chain of Custody Record

eurofins Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Sara, Betsy A	Carrier Tracking No(s):	COC No: 280-550356.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Betsy.Sara@Eurofinset.com	State of Origin: Colorado	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 280-143641-1
Address: 880 Riverside Parkway,	Due Date Requested: 12/16/2020			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: 555|Denver/Arapahoe Chem.	Project #: 28003048			
Site: 555|Denver/Arapahoe Chem.	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA/3535_PFC PFOA/PFOS Only (TA Sacramento)	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
2NDSUMP (280-143641-1)	12/9/20	13:15 Mountain		Water			X	2	
PRIMARYSUMP (280-143641-2)	12/9/20	14:00 Mountain		Water			X	2	

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins TestAmerica.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	12/10/2020 1310			12/12/20 09:40	ETA SAC
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☒ Yes ☐ No	Custody Seal No.: 1298802/1298803/1298800	Cooler Temperature(s) °C and Other Remarks: 02: 0.5/0.9/0.9 COOL: 0.4/1.0/1.0

Ver: 11/01/2020

Login Sample Receipt Checklist

Client: Waste Management

Job Number: 280-143641-1

Login Number: 143641

List Source: Eurofins TestAmerica, Denver

List Number: 1

Creator: Collins, Janice S

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	N/A	

Login Sample Receipt Checklist

Client: Waste Management

Job Number: 280-143641-1

Login Number: 143641
List Number: 2
Creator: Her, David A

List Source: Eurofins TestAmerica, Sacramento
List Creation: 12/12/20 11:49 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	1298802/1298803/1298800
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.6c, 1.0c, 1.0c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Isotope Dilution Summary

Client: Waste Management
Project/Site: 555|Denver/Arapahoe Chem.

Job ID: 280-143641-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)									
Lab Sample ID	Client Sample ID	PFOS (25-150)	PFOA (25-150)								
280-143641-1	2NDSUMP	112	107								
280-143641-2	PRIMARYSUMP	107	100								
LCS 320-441710/2-A	Lab Control Sample	112	105								
LCSD 320-441710/3-A	Lab Control Sample Dup	104	94								
MB 320-441710/1-A	Method Blank	101	104								

Surrogate Legend

PFOS = 13C4 PFOS
PFOA = 13C4 PFOA

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Sacramento Sample Receiving Notes

280-143641 Field Sheet

Tracking #: 923453259 44

Job:

SO / PO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier

GSO / OnTrac / Goldstreak / USPS / Other

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Therm. ID: AK-13 Corr. Factor: (+/-) 0.1 °C

Ice X Wet X Gel ____ Other ____

Cooler Custody Seal: 129880Z

Cooler ID: 1 OF 3

Temp Observed: 0.5 °C Corrected: 0.6 °C

From: Temp Blank ☑ Sample ☐

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☑	☐
Cooler Temperature is acceptable?	☑	☐	☐
Frozen samples show signs of thaw?	☐	☐	☑

Initials: DH Date: 12/12/20

Unpacking/Labeling The Samples	Yes	No	NA
CoC is complete w/o discrepancies?	☑	☐	☐
Samples compromised/tampered with?	☐	☑	☐
Sample containers have legible labels?	☑	☐	☐
Sample custody seal?	☐	☐	☑
Containers are not broken or leaking?	☑	☐	☐
Sample date/times are provided?	☑	☐	☐
Appropriate containers are used?	☑	☐	☐
Sample bottles are completely filled?	☑	☐	☐
Sample preservatives verified?	☐	☐	☑
Samples w/o discrepancies?	☑	☐	☐
Zero headspace?*	☐	☐	☑
Alkalinity has no headspace?	☐	☐	☑
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☑
Multiphasic samples are not present?	☑	☐	☐

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

Initials: DH Date: 12/12/20

Notes:

Trizma Lot #(s):

Login Completion	Yes	No	NA
Receipt Temperature on COC?	☑	☐	☐
Samples received within hold time?	☑	☐	☐
NCM Filed?	☐	☐	☑
Log Release checked in TALS?	☑	☐	☐

Initials: DH Date: 12/12/20

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Sacramento Sample Receiving Notes

Place Field Sheet Label Here

Job: _____

Tracking # : 923452325955

SO / PO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier

GSO / OnTrac / Goldstreak / USPS / Other _____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Therm. ID: AK-13 Corr. Factor: (+/-) 0.1 °C

Ice X Wet X Gel _____ Other _____

Cooler Custody Seal: 1298803

Cooler ID: 2 OF 3

Temp Observed: 0.9 °C Corrected: 1.0 °C

From: Temp Blank ☑ Sample ☐

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☑	☐
Cooler Temperature is acceptable?	☑	☐	☐
Frozen samples show signs of thaw?	☐	☐	☑

Initials: DS Date: 12/12/20

Unpacking/Labeling The Samples	Yes	No	NA
CoC is complete w/o discrepancies?	☑	☐	☐
Samples compromised/tampered with?	☐	☑	☐
Sample containers have legible labels?	☑	☐	☐
Sample custody seal?	☐	☐	☑
Containers are not broken or leaking?	☑	☐	☐
Sample date/times are provided?	☑	☐	☐
Appropriate containers are used?	☑	☐	☐
Sample bottles are completely filled?	☑	☐	☐
Sample preservatives verified?	☐	☐	☑
Samples w/o discrepancies?	☑	☐	☐
Zero headspace?*	☐	☐	☑
Alkalinity has no headspace?	☐	☐	☑
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☑
Multiphasic samples are not present?	☑	☐	☐

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

Initials: DS Date: 12/12/20

Notes: _____

Trizma Lot #(s): _____

Login Completion	Yes	No	NA
Receipt Temperature on COC?	☑	☐	☐
Samples received within hold time?	☑	☐	☐
NCM Filed?	☐	☐	☑
Log Release checked in TALS?	☑	☐	☐

Initials: DS Date: 12/12/20

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Sacramento Sample Receiving Notes

Place Field Sheet Label Here

Tracking #: 923452325966

SO / PO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier

GSO / OnTrac / Goldstreak / USPS / Other _____

Job: _____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Therm. ID: AK-13 Corr. Factor: (+) 0.1 °C

Ice X Wet X Gel _____ Other _____

Cooler Custody Seal: 1298800

Cooler ID: 3 OF 3

Temp Observed: 0.9 °C Corrected: 1.0 °C

From: Temp Blank ☒ Sample ☐

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☒	☐
Cooler Temperature is acceptable?	☒	☐	☐
Frozen samples show signs of thaw?	☐	☐	☒

Initials: DH Date: 12/12/20

Unpacking/Labeling The Samples	Yes	No	NA
CoC is complete w/o discrepancies?	☒	☐	☐
Samples compromised/tampered with?	☐	☒	☐
Sample containers have legible labels?	☒	☐	☐
Sample custody seal?	☐	☐	☒
Containers are not broken or leaking?	☒	☐	☐
Sample date/times are provided?	☒	☐	☐
Appropriate containers are used?	☒	☐	☐
Sample bottles are completely filled?	☒	☐	☐
Sample preservatives verified?	☐	☐	☒
Samples w/o discrepancies?	☒	☐	☐
Zero headspace?*	☐	☐	☒
Alkalinity has no headspace?	☐	☐	☒
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☒
Multiphasic samples are not present?	☒	☐	☐

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

Initials: DH Date: 12/12/20

Notes: _____

Trizma Lot #(s): _____

Login Completion	Yes	No	NA
Receipt Temperature on COC?	☒	☐	☐
Samples received within hold time?	☒	☐	☐
NCM Filed?	☐	☐	☒
Log Release checked in TALS?	☒	☐	☐

Initials: DH Date: 12/12/20

APPENDIX B-4

Notification Letter to the CDPHE and Secondary Leachate Sump PCE Re-sampling Analytical Results

2400 West Union Avenue
Englewood, CO 80110
303-914-1445 (Phone)
866-442-0285 (Fax)

Submitted Electronically

December 29, 2020

Ms. Jill Hunsaker Ryan, MPH Executive Director
Hazardous Materials and Waste Management Division
Colorado Department of Public Health and Environment
4300 Cherry Creek Drive South
Denver, CO 80246-1530

Subject: DACWPF Reconstructed Cell Facility (DACWPF)
Secondary Leachate Sump Analytical Data

Dear Ms. Hunsaker Ryan:

On May 7, 2020, our environmental consultant collected samples from the DACWPF Secondary leachate sump for analysis under the October 30, 2009 DACWPF Post-Closure Permit (Permit).

A low-level detection for tetrachloroethene (PCE) at 7.2 ug/L was reported by the laboratory which is above the permit detection limit of 5.0 ug/L, but below the action limit of 50 ug/L prescribed in Table A-8 of Attachment 8 of the Permit. Following our request for the laboratory to perform a data quality review (DQR), the low-level PCE detection was determined to be valid. To assess the validity of the original sampling process, a verification sampling was performed on June 10, 2020 and resulted in a similar low-level PCE concentration of 5.5 ug/L, which was also determined to be valid following a laboratory DQR.

On July 22, 2020 another verification sample of the secondary sump was performed to assess whether the detected PCE was an artifact of sampling conditions or potentially the end of the sump pump discharge hose where the sample is collected. Therefore, trip, field and equipment blanks (i.e., pouring reagent water over the cleaned and uncleaned end of discharge hose connected to the sump pump), and duplicate sample were analyzed for PCE in addition to the sump sample. The sump sample indicated a similar low-level detection of PCE at 7.3 ug/L and the duplicate sample indicated a similar low-level detection of 9.0 ug/L; there was no PCE detection in any of the blank samples. Consistent with previous data evaluations, several reviews and re-analyses by the laboratory were performed to determine if the results were valid.

A third verification sample was performed on Nov 18, 2020 to assess whether the secondary sump pump and/or discharge hose were contaminating the samples. In

order to collect that sample, the pump and its discharge hose were removed and a grab sampler (QED Snap Sampler®) was used to collect a sample. It is noted that the grab sample was collected without any leachate being purged. Similar to previous results, a low-level PCE detection was reported at 7.0 ug/L.

The sampling and analytical efforts summarized above indicate that the low-level detections of PCE were not caused by sampling or analytical errors, and likely not the sump pump or discharge hose. Thus, the detection of PCE in the secondary sump leachate above its detection limit listed in Table A-8 has now been confirmed.

The Permit states that if detection of an analyte above the detection limit listed in Table A-8 is confirmed in the secondary sump leachate, the Permittee will use reasonable efforts to identify and remedy the cause of the detection and will, within sixty days of confirmation, submit a report to the Director for review and approval which:

a. Contains the results of the field and laboratory analyses performed;
b. Discusses the analytical results;
c. Summarizes the efforts in identifying and remedying the cause of the detection; and
d. Present a plan for further work and monitoring (as and if necessary) together with any necessary permit modification requests for implementing such further work, to further identify and remedy the cause of the detection.

Attached are the results of the field and laboratory analyses that were performed. The discussion of those analytical results and the efforts to confirm the detection in the leachate is discussed above. Based on this confirmation, it appears that the detection was caused by low level concentrations of PCE in the secondary leachate collection system that is directed to the secondary leachate sump.

At this time, no further action other than continued monitoring and pumping of the secondary sump is warranted for the following reasons:

a. The results are only minimally above the 5.0 ug/L health-based standard for PCE;
b. It is unlikely that any leachate will leak out of the secondary sump because: i) it is underlain by a double composite liner system that includes a geomembrane and 3 feet of compacted clay that sits on natural low permeability claystone; ii) leachate is routinely pumped to minimize any head build-up on the sump liner system which, in turn, minimizes the potential for any leakage from the sump; and iii) only a minor volume of leachate is able to collect in the secondary sump between pumping events consistent with the cell's robust engineered features and operation requirements including a double composite liner system, routine

pumping of leachate from both the primary and secondary sumps, and the final cover system's multi-redundant elements (2 feet compacted clay, geomembrane layer, 1-foot drainage layer, filter fabric, 2 feet of compacted clay, and 6-inch gravel layer) that minimize water infiltration into the cell.

c. No confirmed detections of PCE have been reported in the lower sandstone unit, which the Permit defines as the uppermost aquifer underlying the facility.

In summary, continued monitoring and pumping of the secondary sump will continue to be fully protective of human health and the environment.

We look forward to your approval of our plan to continue with semi-annual monitoring of the secondary leachate sump (together with routine pumping of the sumps) or to answer any questions that you may have.

Sincerely,

Tom Schweitzer

Enclosures

cc: Richard Mruz, Hazardous Waste Corrective Action Unit, CDPHE
Steve Richtel, Waste Management
Catherine Riegle, Waste Management
Louis Bull, Waste Management
Gene Riordan, Vranesh and Raisch
Cathryn Stewart, Swift River Environmental Services

Laboratory Analytical Report 280-136377-1
for
Secondary Sump Sampling on May 7, 2020

eurofins | Environment Testing America



ANALYTICAL REPORT

Eurofins TestAmerica, Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

Laboratory Job ID: 280-136377-1
Client Project/Site: 555|Denver/Arapahoe Chem.-Sump
Sampling Event: Semi-Annual Leachate Sump - May Nov
Revision: 1

For:
Waste Management
2400 West Union Avenue
Englewood, Colorado 80110

Attn: Mr. Tom Schweitzer

Betsy Sara

Authorized for release by:
6/9/2020 8:59:32 AM

Betsy Sara, Project Manager II
(303)736-0189
betsy.sara@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.eurofinsus.com/Env

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: Waste Management
Job ID: 280-136377-1
Project/Site: 555|Denver/Arapahoe Chem.-Sump

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-136377-1

Laboratory: Eurofins TestAmerica, Denver

Narrative

CASE NARRATIVE

Client: Waste Management

Project: 555|Denver/Arapahoe Chem.-Sump

Report Number: 280-136377-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

This report may include reporting limits (RLs) less than Eurofins TestAmerica's standard reporting limit. The reported sample results and associated reporting limits are being used specifically to meet the needs of this project. Note that data are not normally reported to these levels without qualification because they are inherently less reliable and potentially less defensible than required by the latest industry standards.

Sample Receiving

The samples were received on 05/08/2020; the samples arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 1.4 C.

Holding Times

All holding times were within established control limits.

Method Blanks

All Method Blanks were within established control limits.

Laboratory Control Samples (LCS)

All Laboratory Control Samples were within established control limits.

Matrix Spike and Matrix Spike Duplicate (MS/MSD)

All MS/MSD samples were within established control limits.

Report Revision

This submission was revised to investigate the Tetrachloroethene Method 8260B result for the sample SECONDARY SUMP per the client's request.

Detection Summary

Client: Waste Management
Job ID: 280-136377-1
Project/Site: 555|Denver/Arapahoe Chem.-Sump

Client Sample ID: TRIP BLANK
Lab Sample ID: 280-136377-1

No Detections.

Client Sample ID: SECONDARY SUMP
Lab Sample ID: 280-136377-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	7.2		5.0		ug/L	1		8260B	Total/NA
Field pH	7.57				SU	1		Field Sampling	Total/NA
Field Conductivity	4537				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	13.4				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	1.74				NTU	1		Field Sampling	Total/NA
Field Dissolved Oxygen	5.30				mg/L	1		Field Sampling	Total/NA
Field EH/ORP	47.2				millivolts	1		Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Waste Management
Project/Site: 555|Denver/Arapahoe Chem.-Sump

Job ID: 280-136377-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
6010B	Metals (ICP)	SW846	TAL DEN
Field Sampling	Field Sampling	EPA	TAL DEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: Waste Management
Project/Site: 555|Denver/Arapahoe Chem.-Sump

Job ID: 280-136377-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
280-136377-1	TRIP BLANK	Water	05/07/20 12:08	05/08/20 10:45	
280-136377-2	SECONDARY SUMP	Water	05/07/20 12:08	05/08/20 10:45	

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: TRIP BLANK
Date Collected: 05/07/20 12:08
Date Received: 05/08/20 10:45
Lab Sample ID: 280-136377-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		5.0		ug/L			05/12/20 16:37	1
1,2-Dichloroethane	ND		1.0		ug/L			05/12/20 16:37	1
2-Butanone (MEK)	ND		100		ug/L			05/12/20 16:37	1
Benzene	ND		5.0		ug/L			05/12/20 16:37	1
Carbon tetrachloride	ND		1.0		ug/L			05/12/20 16:37	1
Chlorobenzene	ND		5.0		ug/L			05/12/20 16:37	1
Chloroform	ND		5.0		ug/L			05/12/20 16:37	1
Tetrachloroethene	ND		5.0		ug/L			05/12/20 16:37	1
Trichloroethene	ND		5.0		ug/L			05/12/20 16:37	1
Vinyl chloride	ND		2.0		ug/L			05/12/20 16:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*115*		*70 - 127*		*05/12/20 16:37*	*1*
4-Bromofluorobenzene (Surr)	*105*		*78 - 120*		*05/12/20 16:37*	*1*
Dibromofluoromethane (Surr)	*103*		*77 - 120*		*05/12/20 16:37*	*1*
Toluene-d8 (Surr)	*101*		*80 - 125*		*05/12/20 16:37*	*1*

Client Sample ID: SECONDARY SUMP
Date Collected: 05/07/20 12:08
Date Received: 05/08/20 10:45
Lab Sample ID: 280-136377-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		5.0		ug/L			05/12/20 16:58	1
1,2-Dichloroethane	ND		1.0		ug/L			05/12/20 16:58	1
2-Butanone (MEK)	ND		100		ug/L			05/12/20 16:58	1
Benzene	ND		5.0		ug/L			05/12/20 16:58	1
Carbon tetrachloride	ND		1.0		ug/L			05/12/20 16:58	1
Chlorobenzene	ND		5.0		ug/L			05/12/20 16:58	1
Chloroform	ND		5.0		ug/L			05/12/20 16:58	1
Tetrachloroethene	**7.2**		5.0		ug/L			05/12/20 16:58	1
Trichloroethene	ND		5.0		ug/L			05/12/20 16:58	1
Vinyl chloride	ND		2.0		ug/L			05/12/20 16:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*117*		*70 - 127*		*05/12/20 16:58*	*1*
4-Bromofluorobenzene (Surr)	*105*		*78 - 120*		*05/12/20 16:58*	*1*
Dibromofluoromethane (Surr)	*105*		*77 - 120*		*05/12/20 16:58*	*1*
Toluene-d8 (Surr)	*101*		*80 - 125*		*05/12/20 16:58*	*1*

Method: 6010B - Metals (ICP) - Total Recoverable

Client Sample ID: SECONDARY SUMP
Date Collected: 05/07/20 12:08
Date Received: 05/08/20 10:45
Lab Sample ID: 280-136377-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		10		ug/L		05/15/20 15:20	05/22/20 01:16	1

Client Sample Results

Client: Waste Management
Project/Site: 555|Denver/Arapahoe Chem.-Sump

Job ID: 280-136377-1

Method: Field Sampling - Field Sampling

Client Sample ID: SECONDARY SUMP
Date Collected: 05/07/20 12:08
Date Received: 05/08/20 10:45

Lab Sample ID: 280-136377-2
Matrix: Water

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	7.57				SU			05/07/20 12:08	1
Field Conductivity	4537				umhos/cm			05/07/20 12:08	1
Field Temperature	13.4				Degrees C			05/07/20 12:08	1
Field Turbidity	1.74				NTU			05/07/20 12:08	1
Field Dissolved Oxygen	5.30				mg/L			05/07/20 12:08	1
Field EH/ORP	47.2				millivolts			05/07/20 12:08	1

Surrogate Summary

Client: Waste Management
Project/Site: 555|Denver/Arapahoe Chem.-Sump

Job ID: 280-136377-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(70-127)	(78-120)	(77-120)	(80-125)
280-136377-1	TRIP BLANK	115	105	103	101
280-136377-2	SECONDARY SUMP	117	105	105	101
280-136387-C-19 MSD	Matrix Spike Duplicate	115	105	104	102
280-136387-D-19 MS	Matrix Spike	116	103	103	100
LCS 280-494482/6	Lab Control Sample	114	106	103	100
LCSD 280-494482/7	Lab Control Sample Dup	115	104	104	100
MB 280-494482/11	Method Blank	119	107	104	100

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-494482/11
Matrix: Water
Analysis Batch: 494482

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		5.0		ug/L			05/12/20 11:59	1
1,2-Dichloroethane	ND		1.0		ug/L			05/12/20 11:59	1
2-Butanone (MEK)	ND		100		ug/L			05/12/20 11:59	1
Benzene	ND		5.0		ug/L			05/12/20 11:59	1
Carbon tetrachloride	ND		1.0		ug/L			05/12/20 11:59	1
Chlorobenzene	ND		5.0		ug/L			05/12/20 11:59	1
Chloroform	ND		5.0		ug/L			05/12/20 11:59	1
Tetrachloroethene	ND		5.0		ug/L			05/12/20 11:59	1
Trichloroethene	ND		5.0		ug/L			05/12/20 11:59	1
Vinyl chloride	ND		2.0		ug/L			05/12/20 11:59	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*119*		*70 - 127*		*05/12/20 11:59*	*1*
4-Bromofluorobenzene (Surr)	*107*		*78 - 120*		*05/12/20 11:59*	*1*
Dibromofluoromethane (Surr)	*104*		*77 - 120*		*05/12/20 11:59*	*1*
Toluene-d8 (Surr)	*100*		*80 - 125*		*05/12/20 11:59*	*1*

Lab Sample ID: LCS 280-494482/6
Matrix: Water
Analysis Batch: 494482

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	25.0	31.8		ug/L		127	65 - 135
1,1-Dichloroethane	25.0	29.4		ug/L		117	65 - 135
1,1-Dichloroethene	25.0	28.0		ug/L		112	65 - 136
1,2-Dichloroethane	25.0	31.7		ug/L		127	65 - 135
1,2-Dichloropropane	25.0	30.8		ug/L		123	64 - 135
1,3-Dichlorobenzene	25.0	26.2		ug/L		105	65 - 135
2-Butanone (MEK)	100	117		ug/L		117	44 - 177
Benzene	25.0	27.3		ug/L		109	65 - 135
Bromodichloromethane	25.0	32.3		ug/L		129	65 - 135
Carbon tetrachloride	25.0	29.0		ug/L		116	65 - 135
Chlorobenzene	25.0	26.6		ug/L		106	65 - 135
Chloroform	25.0	30.1		ug/L		120	65 - 135
Ethylbenzene	25.0	27.4		ug/L		110	65 - 135
Methylene Chloride	25.0	27.1		ug/L		108	54 - 141
Tetrachloroethene	25.0	27.2		ug/L		109	65 - 135
Toluene	25.0	26.8		ug/L		107	65 - 135
trans-1,2-Dichloroethene	25.0	27.4		ug/L		109	65 - 135
Trichloroethene	25.0	28.2		ug/L		113	65 - 135
Vinyl chloride	25.0	25.7		ug/L		103	40 - 137

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*114*		*70 - 127*
4-Bromofluorobenzene (Surr)	*106*		*78 - 120*
Dibromofluoromethane (Surr)	*103*		*77 - 120*
Toluene-d8 (Surr)	*100*		*80 - 125*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-494482/7
Matrix: Water
Analysis Batch: 494482

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane			25.0	31.1		ug/L		124	65 - 135	2	20
1,1-Dichloroethane			25.0	28.7		ug/L		115	65 - 135	2	21
1,1-Dichloroethene			25.0	27.8		ug/L		111	65 - 136	1	20
1,2-Dichloroethane			25.0	31.0		ug/L		124	65 - 135	2	20
1,2-Dichloropropane			25.0	30.5		ug/L		122	64 - 135	1	20
1,3-Dichlorobenzene			25.0	26.0		ug/L		104	65 - 135	1	20
2-Butanone (MEK)			100	115		ug/L		115	44 - 177	2	32
Benzene			25.0	27.0		ug/L		108	65 - 135	1	20
Bromodichloromethane			25.0	32.2		ug/L		129	65 - 135	0	20
Carbon tetrachloride			25.0	29.1		ug/L		116	65 - 135	0	21
Chlorobenzene			25.0	26.6		ug/L		106	65 - 135	0	20
Chloroform			25.0	29.4		ug/L		118	65 - 135	2	20
Ethylbenzene			25.0	27.1		ug/L		108	65 - 135	1	20
Methylene Chloride			25.0	27.4		ug/L		110	54 - 141	1	26
Tetrachloroethene			25.0	26.9		ug/L		108	65 - 135	1	20
Toluene			25.0	26.1		ug/L		105	65 - 135	2	20
trans-1,2-Dichloroethene			25.0	27.0		ug/L		108	65 - 135	2	24
Trichloroethene			25.0	27.8		ug/L		111	65 - 135	1	20
Vinyl chloride			25.0	27.0		ug/L		108	40 - 137	5	24

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*115*		*70 - 127*
4-Bromofluorobenzene (Surr)	*104*		*78 - 120*
Dibromofluoromethane (Surr)	*104*		*77 - 120*
Toluene-d8 (Surr)	*100*		*80 - 125*

Lab Sample ID: 280-136387-C-19 MSD
Matrix: Water
Analysis Batch: 494482

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane	ND		25.0	32.4		ug/L		130	65 - 135	5	20
1,1-Dichloroethane	ND		25.0	30.5		ug/L		122	65 - 135	3	21
1,1-Dichloroethene	ND		25.0	28.8		ug/L		115	65 - 136	1	20
1,2-Dichloroethane	ND		25.0	32.8		ug/L		131	65 - 135	0	20
1,2-Dichloropropane	ND		25.0	31.3		ug/L		125	64 - 135	0	20
1,3-Dichlorobenzene	ND		25.0	26.9		ug/L		107	65 - 135	2	20
2-Butanone (MEK)	ND		100	128		ug/L		128	44 - 177	0	32
Benzene	ND		25.0	28.1		ug/L		112	65 - 135	1	20
Bromodichloromethane	ND		25.0	33.2		ug/L		133	65 - 135	1	20
Carbon tetrachloride	ND		25.0	31.0		ug/L		124	65 - 135	8	21
Chlorobenzene	ND		25.0	27.9		ug/L		112	65 - 135	4	20
Chloroform	ND		25.0	31.0		ug/L		124	65 - 135	1	20
Ethylbenzene	ND		25.0	28.6		ug/L		114	65 - 135	7	20
Methylene Chloride	ND		25.0	28.3		ug/L		113	54 - 141	3	26
Tetrachloroethene	ND		25.0	28.0		ug/L		112	65 - 135	7	20
Toluene	ND		25.0	27.6		ug/L		110	65 - 135	1	20
trans-1,2-Dichloroethene	ND		25.0	28.6		ug/L		114	65 - 135	1	24

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 280-136387-C-19 MSD
Matrix: Water
Analysis Batch: 494482

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Trichloroethene	ND		25.0	28.3		ug/L		113	65 - 135	3	20
Vinyl chloride	ND		25.0	26.2		ug/L		105	40 - 137	1	24

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*115*		*70 - 127*
4-Bromofluorobenzene (Surr)	*105*		*78 - 120*
Dibromofluoromethane (Surr)	*104*		*77 - 120*
Toluene-d8 (Surr)	*102*		*80 - 125*

Lab Sample ID: 280-136387-D-19 MS
Matrix: Water
Analysis Batch: 494482

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	ND		25.0	30.9		ug/L		123	65 - 135
1,1-Dichloroethane	ND		25.0	29.7		ug/L		119	65 - 135
1,1-Dichloroethene	ND		25.0	28.5		ug/L		114	65 - 136
1,2-Dichloroethane	ND		25.0	32.6		ug/L		131	65 - 135
1,2-Dichloropropane	ND		25.0	31.3		ug/L		125	64 - 135
1,3-Dichlorobenzene	ND		25.0	26.3		ug/L		105	65 - 135
2-Butanone (MEK)	ND		100	128		ug/L		128	44 - 177
Benzene	ND		25.0	27.7		ug/L		111	65 - 135
Bromodichloromethane	ND		25.0	32.7		ug/L		131	65 - 135
Carbon tetrachloride	ND		25.0	28.7		ug/L		115	65 - 135
Chlorobenzene	ND		25.0	26.7		ug/L		107	65 - 135
Chloroform	ND		25.0	30.7		ug/L		123	65 - 135
Ethylbenzene	ND		25.0	26.7		ug/L		107	65 - 135
Methylene Chloride	ND		25.0	27.5		ug/L		110	54 - 141
Tetrachloroethene	ND		25.0	26.2		ug/L		105	65 - 135
Toluene	ND		25.0	27.3		ug/L		109	65 - 135
trans-1,2-Dichloroethene	ND		25.0	28.2		ug/L		113	65 - 135
Trichloroethene	ND		25.0	27.4		ug/L		110	65 - 135
Vinyl chloride	ND		25.0	26.5		ug/L		106	40 - 137

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*116*		*70 - 127*
4-Bromofluorobenzene (Surr)	*103*		*78 - 120*
Dibromofluoromethane (Surr)	*103*		*77 - 120*
Toluene-d8 (Surr)	*100*		*80 - 125*

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 280-494372/1-A
Matrix: Water
Analysis Batch: 495899

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 494372

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		10		ug/L		05/15/20 15:20	05/22/20 00:13	1

Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: LCS 280-494372/2-A
Matrix: Water
Analysis Batch: 495899

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 494372

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Arsenic			2000	2000		ug/L		100	88 - 110		

Lab Sample ID: 280-136369-A-9-B MS
Matrix: Water
Analysis Batch: 495899

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 494372

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Arsenic	ND		2000	2090		ug/L		104	84 - 124		

Lab Sample ID: 280-136369-A-9-C MSD
Matrix: Water
Analysis Batch: 495899

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 494372

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	ND		2000	2050		ug/L		102	84 - 124	2	20

QC Association Summary

Client: Waste Management
Project/Site: 555|Denver/Arapahoe Chem.-Sump

Job ID: 280-136377-1

GC/MS VOA

Analysis Batch: 494482

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136377-1	TRIP BLANK	Total/NA	Water	8260B	
280-136377-2	SECONDARY SUMP	Total/NA	Water	8260B	
MB 280-494482/11	Method Blank	Total/NA	Water	8260B	
LCS 280-494482/6	Lab Control Sample	Total/NA	Water	8260B	
LCSD 280-494482/7	Lab Control Sample Dup	Total/NA	Water	8260B	
280-136387-C-19 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	
280-136387-D-19 MS	Matrix Spike	Total/NA	Water	8260B	

Metals

Prep Batch: 494372

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136377-2	SECONDARY SUMP	Total Recoverable	Water	3005A	
MB 280-494372/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-494372/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
280-136369-A-9-B MS	Matrix Spike	Total Recoverable	Water	3005A	
280-136369-A-9-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	3005A	

Analysis Batch: 495899

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136377-2	SECONDARY SUMP	Total Recoverable	Water	6010B	494372
MB 280-494372/1-A	Method Blank	Total Recoverable	Water	6010B	494372
LCS 280-494372/2-A	Lab Control Sample	Total Recoverable	Water	6010B	494372
280-136369-A-9-B MS	Matrix Spike	Total Recoverable	Water	6010B	494372
280-136369-A-9-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	6010B	494372

Field Service / Mobile Lab

Analysis Batch: 494444

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136377-2	SECONDARY SUMP	Total/NA	Water	Field Sampling	

Lab Chronicle

Client: Waste Management
Job ID: 280-136377-1
Project/Site: 555|Denver/Arapahoe Chem.-Sump

Client Sample ID: TRIP BLANK
Lab Sample ID: 280-136377-1
Date Collected: 05/07/20 12:08
Matrix: Water
Date Received: 05/08/20 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	494482	05/12/20 16:37	AJP	TAL DEN

Client Sample ID: SECONDARY SUMP
Lab Sample ID: 280-136377-2
Date Collected: 05/07/20 12:08
Matrix: Water
Date Received: 05/08/20 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	494482	05/12/20 16:58	AJP	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	494372	05/15/20 15:20	EC	TAL DEN
Total Recoverable	Analysis	6010B		1			495899	05/22/20 01:16	MRJ	TAL DEN
Total/NA	Analysis	Field Sampling		1			494444	05/07/20 12:08	S1S	TAL DEN

Laboratory References:

TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Denver SVC 280

Chain of Custody Record

Denver #280

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: L Major/K. Sylvia	Lab PM: Sara, Betsy A	Carrier Tracking No(s): Courier	COC No: 280-17711-1151.1
Client Contact: Tom Schweitzer	Phone: 303-695-4660	E-Mail: betsy.sara@testamericainc.com		Page: Page 1 of 1
Company: Waste Management				Job #: 202107.03
Address: 2400 West Union Avenue	Due Date Requested:		Analysis Requested	
City: Englewood	TAT Requested (days):			
State, Zip: CO 80110				
Phone: 303 914-1445	PO #: Purchase Order not required			
Email: Tschweitzer@wm.com	WO #:			
Project Name:555|Denver/Arapahoe Chem. Secondary Event Desc: Semi-Annual Leachate Sump - May Nov	Project #: 28003048			
Site: Colorado	SSOW#:			

280-136377 Chain of Custody

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Total Metals	8260B	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N		
Trip Blank	5/7/20	—	—	W	N			1	1	
Secondary Sump	5/7/20	1208	G	W	N		1		1	
↓	↓	↓	↓	↓				3	3	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Date/Time	Company		Date/Time	Company
Relinquished by:	5/8/2020 0855	SRES	Received by: Fax	5-08-20 0855	TA
Relinquished by: Fax	5-08-20 1045	TA	Received by:	5-8-20 1045	EMA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 0.8°C IR8 +0.6 JR 5-8-20

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: DACVVP F

Site No.: 555 Sample Point: Secondary Sump (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark changes, record field data, below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment . . . Dedicated: Y or N

Purging Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

X-Other:

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Filter Type: A-In-line Disposable, B-Pressure, C-Vacuum, X-Other

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (site datum, from TOC) (ft/msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Well Depth, Stick Up, Casing Id. etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and Groundwater Elevation must be current.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm@25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
	1st	1st	1st					
	2nd	2nd	2nd					
	3rd	3rd	3rd					
	4th	4th	4th					
Suggested range for 3 consec. readings or note Permit/State requirements:		+/- 0.2	+/- 3%	--	--	+/- 10%	+/- 25 mV	Stabilize

Annual Leachate 2020

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site.* ***If more fields above are needed, use separate sheet or form.***

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (umhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L-ppm)	eH/ORP (mV)	Other: Units
050720	7.57	4537	13.4	1.74	5.30	472	

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.*

Sample Appearance: Clear Odor: NONE Color: NONE Other:

Weather Conditions (required daily, or as conditions change): Direction/Speed: 5-10mph SE Outlook: Sunny 60's Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required): Sample Time: 1208

FIELD COMMENTS

Sample collected from Sump pump into Clean dedicated buckets & bottled w/new clean dipper bottle

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05/07/20	Laura Major		SRES
05/07/20	Kacy Sylvia	Kacy Sylvia	SRES

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Login Sample Receipt Checklist

Client: Waste Management

Job Number: 280-136377-1

Login Number: 136377

List Source: Eurofins TestAmerica, Denver

List Number: 1

Creator: Lubin, Julius C

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	N/A	

Laboratory Analytical Report 280-137514-1
for
Secondary Sump Sampling on June 10, 2020

eurofins | Environment Testing America



ANALYTICAL REPORT

Eurofins TestAmerica, Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

Laboratory Job ID: 280-137514-1
Client Project/Site: 555|Denver/Arapahoe Chem - 2ND Sump

For:
Waste Management
2400 West Union Avenue
Englewood, Colorado 80110

Attn: Mr. Tom Schweitzer

Betsy Sara

Authorized for release by:
7/31/2020 11:55:05 AM

Betsy Sara, Project Manager II
(303)736-0189
Betsy.Sara@Eurofinset.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.eurofinsus.com/Env

The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: Waste Management
Job ID: 280-137514-1
Project/Site: 555|Denver/Arapahoe Chem - 2ND Sump

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 280-137514-1

Laboratory: Eurofins TestAmerica, Denver

Narrative

CASE NARRATIVE

Client: Waste Management

Project: 555|Denver/Arapahoe Chem - 2ND Sump

Report Number: 280-137514-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

This report may include reporting limits (RLs) less than Eurofins TestAmerica's standard reporting limit. The reported sample results and associated reporting limits are being used specifically to meet the needs of this project. Note that data are not normally reported to these levels without qualification because they are inherently less reliable and potentially less defensible than required by the latest industry standards.

Sample Receiving

The samples were received on 06/10/2020; the samples arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 4.4 C.

Holding Times

All holding times were within established control limits.

Method Blanks

All Method Blanks were within established control limits.

Laboratory Control Samples (LCS)

All Laboratory Control Samples were within established control limits.

Matrix Spike and Matrix Spike Duplicate (MS/MSD)

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) for Method 8260B, however, an LCS/LCSD pair was analyzed to demonstrate method precision and accuracy.

Detection Summary

Client: Waste Management
Job ID: 280-137514-1
Project/Site: 555|Denver/Arapahoe Chem - 2ND Sump

Client Sample ID: TRIP BLANK
Lab Sample ID: 280-137514-1

No Detections.

Client Sample ID: 2NDSUMP
Lab Sample ID: 280-137514-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	5.5		5.0		ug/L	1		8260B	Total/NA
Field pH	6.10				SU	1		Field Sampling	Total/NA
Field Conductivity	4633				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	13.3				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	0.76				NTU	1		Field Sampling	Total/NA
Field Dissolved Oxygen	1.59				mg/L	1		Field Sampling	Total/NA
Field EH/ORP	134.7				millivolts	1		Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Waste Management
Job ID: 280-137514-1
Project/Site: 555|Denver/Arapahoe Chem - 2ND Sump

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
Field Sampling	Field Sampling	EPA	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: Waste Management
Job ID: 280-137514-1
Project/Site: 555|Denver/Arapahoe Chem - 2ND Sump

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
280-137514-1	TRIP BLANK	Water	06/10/20 09:15	06/10/20 13:30	
280-137514-2	2NDSUMP	Water	06/10/20 09:15	06/10/20 13:30	

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: TRIP BLANK
Date Collected: 06/10/20 09:15
Date Received: 06/10/20 13:30
Lab Sample ID: 280-137514-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	ND		5.0		ug/L			06/11/20 16:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*104*		*70 - 127*		*06/11/20 16:51*	*1*
4-Bromofluorobenzene (Surr)	*107*		*78 - 120*		*06/11/20 16:51*	*1*
Dibromofluoromethane (Surr)	*98*		*77 - 120*		*06/11/20 16:51*	*1*
Toluene-d8 (Surr)	*102*		*80 - 125*		*06/11/20 16:51*	*1*

Client Sample ID: 2NDSUMP
Date Collected: 06/10/20 09:15
Date Received: 06/10/20 13:30
Lab Sample ID: 280-137514-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	**5.5**		5.0		ug/L			06/11/20 17:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*108*		*70 - 127*		*06/11/20 17:12*	*1*
4-Bromofluorobenzene (Surr)	*106*		*78 - 120*		*06/11/20 17:12*	*1*
Dibromofluoromethane (Surr)	*101*		*77 - 120*		*06/11/20 17:12*	*1*
Toluene-d8 (Surr)	*103*		*80 - 125*		*06/11/20 17:12*	*1*

Method: Field Sampling - Field Sampling

Client Sample ID: 2NDSUMP
Date Collected: 06/10/20 09:15
Date Received: 06/10/20 13:30
Lab Sample ID: 280-137514-2
Matrix: Water

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	**6.10**				SU			06/10/20 09:15	1
Field Conductivity	**4633**				umhos/cm			06/10/20 09:15	1
Field Temperature	**13.3**				Degrees C			06/10/20 09:15	1
Field Turbidity	**0.76**				NTU			06/10/20 09:15	1
Field Dissolved Oxygen	**1.59**				mg/L			06/10/20 09:15	1
Field EH/ORP	**134.7**				millivolts			06/10/20 09:15	1

Surrogate Summary

Client: Waste Management
Project/Site: 555|Denver/Arapahoe Chem - 2ND Sump

Job ID: 280-137514-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(70-127)	(78-120)	(77-120)	(80-125)
280-137514-1	TRIP BLANK	104	107	98	102
280-137514-2	2NDSUMP	108	106	101	103
LCS 280-498298/5	Lab Control Sample	104	107	95	102
LCSD 280-498298/6	Lab Control Sample Dup	107	104	99	101
MB 280-498298/10	Method Blank	105	107	99	103

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-498298/10
Matrix: Water
Analysis Batch: 498298

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	ND		5.0		ug/L			06/11/20 09:38	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*105*		*70 - 127*		*06/11/20 09:38*	*1*
4-Bromofluorobenzene (Surr)	*107*		*78 - 120*		*06/11/20 09:38*	*1*
Dibromofluoromethane (Surr)	*99*		*77 - 120*		*06/11/20 09:38*	*1*
Toluene-d8 (Surr)	*103*		*80 - 125*		*06/11/20 09:38*	*1*

Lab Sample ID: LCS 280-498298/5
Matrix: Water
Analysis Batch: 498298

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	25.0	20.1		ug/L		80	65 - 135
1,1-Dichloroethane	25.0	24.1		ug/L		96	65 - 135
1,1-Dichloroethene	25.0	21.7		ug/L		87	65 - 136
1,2-Dichloroethane	25.0	25.0		ug/L		100	65 - 135
1,2-Dichloropropane	25.0	23.8		ug/L		95	64 - 135
1,3-Dichlorobenzene	25.0	23.5		ug/L		94	65 - 135
2-Butanone (MEK)	100	120		ug/L		120	44 - 177
Benzene	25.0	22.4		ug/L		90	65 - 135
Bromodichloromethane	25.0	23.8		ug/L		95	65 - 135
Carbon tetrachloride	25.0	20.5		ug/L		82	65 - 135
Chlorobenzene	25.0	22.8		ug/L		91	65 - 135
Chloroform	25.0	22.5		ug/L		90	65 - 135
Ethylbenzene	25.0	23.6		ug/L		94	65 - 135
Methylene Chloride	25.0	23.4		ug/L		94	54 - 141
Tetrachloroethene	25.0	19.1		ug/L		76	65 - 135
Toluene	25.0	22.6		ug/L		90	65 - 135
trans-1,2-Dichloroethene	25.0	23.4		ug/L		94	65 - 135
Trichloroethene	25.0	22.2		ug/L		89	65 - 135
Vinyl chloride	25.0	24.0		ug/L		96	40 - 137

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*104*		*70 - 127*
4-Bromofluorobenzene (Surr)	*107*		*78 - 120*
Dibromofluoromethane (Surr)	*95*		*77 - 120*
Toluene-d8 (Surr)	*102*		*80 - 125*

Lab Sample ID: LCSD 280-498298/6
Matrix: Water
Analysis Batch: 498298

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane	25.0	21.4		ug/L		85	65 - 135	6	20
1,1-Dichloroethane	25.0	25.1		ug/L		100	65 - 135	4	21
1,1-Dichloroethene	25.0	23.9		ug/L		96	65 - 136	10	20
1,2-Dichloroethane	25.0	26.9		ug/L		108	65 - 135	8	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-498298/6
Matrix: Water
Analysis Batch: 498298

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dichloropropane			25.0	25.4		ug/L		102	64 - 135	7	20
1,3-Dichlorobenzene			25.0	24.1		ug/L		97	65 - 135	3	20
2-Butanone (MEK)			100	128		ug/L		128	44 - 177	7	32
Benzene			25.0	24.4		ug/L		98	65 - 135	8	20
Bromodichloromethane			25.0	25.9		ug/L		104	65 - 135	9	20
Carbon tetrachloride			25.0	22.6		ug/L		90	65 - 135	10	21
Chlorobenzene			25.0	24.1		ug/L		96	65 - 135	6	20
Chloroform			25.0	24.4		ug/L		98	65 - 135	8	20
Ethylbenzene			25.0	25.2		ug/L		101	65 - 135	7	20
Methylene Chloride			25.0	24.4		ug/L		98	54 - 141	4	26
Tetrachloroethene			25.0	20.8		ug/L		83	65 - 135	8	20
Toluene			25.0	23.9		ug/L		96	65 - 135	6	20
trans-1,2-Dichloroethene			25.0	25.0		ug/L		100	65 - 135	7	24
Trichloroethene			25.0	23.5		ug/L		94	65 - 135	6	20
Vinyl chloride			25.0	24.4		ug/L		98	40 - 137	1	24

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*107*		*70 - 127*
4-Bromofluorobenzene (Surr)	*104*		*78 - 120*
Dibromofluoromethane (Surr)	*99*		*77 - 120*
Toluene-d8 (Surr)	*101*		*80 - 125*

QC Association Summary

Client: Waste Management
Job ID: 280-137514-1
Project/Site: 555|Denver/Arapahoe Chem - 2ND Sump

GC/MS VOA

Analysis Batch: 498298

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-137514-1	TRIP BLANK	Total/NA	Water	8260B	
280-137514-2	2NDSUMP	Total/NA	Water	8260B	
MB 280-498298/10	Method Blank	Total/NA	Water	8260B	
LCS 280-498298/5	Lab Control Sample	Total/NA	Water	8260B	
LCSD 280-498298/6	Lab Control Sample Dup	Total/NA	Water	8260B	

Field Service / Mobile Lab

Analysis Batch: 498438

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-137514-2	2NDSUMP	Total/NA	Water	Field Sampling	

Lab Chronicle

Client: Waste Management
Job ID: 280-137514-1
Project/Site: 555|Denver/Arapahoe Chem - 2ND Sump

Client Sample ID: TRIP BLANK
Lab Sample ID: 280-137514-1
Date Collected: 06/10/20 09:15
Matrix: Water
Date Received: 06/10/20 13:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	498298	06/11/20 16:51	AJP	TAL DEN

Client Sample ID: 2NDSUMP
Lab Sample ID: 280-137514-2
Date Collected: 06/10/20 09:15
Matrix: Water
Date Received: 06/10/20 13:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	498298	06/11/20 17:12	AJP	TAL DEN
Total/NA	Analysis	Field Sampling		1			498438	06/10/20 09:15	N1C	TAL DEN

Laboratory References:

TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

Denver TestAmerica #280
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kacy Sylvia	Lab PM: Sara, Betsy A	Carrier Tracking No(s): Courier	COC No: 280-17711-1151.1
Client Contact: Tom Schweitzer	Phone: 303-695-4660	E-Mail: betsy.sara@testamericainc.com		Page: Page 1 of 1
Company: Waste Management				Job #:
Address: 2400 West Union Avenue	Due Date Requested:	Analysis Requested		Preservation Codes: A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify); Other:
City: Englewood	TAT Requested (days):			
State, Zip: CO 80110				
Phone: 303 914-1445	PO #: Purchase Order not required			
Email: Tschweitzer@wm.com	WO #:			
Project Name:555|Denver/Arapahoe Chem. Event Desc: Skip sites/events -log from Resample 6/2017	Project #: 28003048			
Site: Colorado	SSOW#:			

280-137514 Chain of Custody

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - PCE only	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N		
TRIP Blank	6/10/20			W	N		2		
Secondary Sump	6/10/20	0915	G	W	N		3		40 mL glass Vial

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	Kacy Sylvia	6/10/20, 1250	SRES		6-10-20 1250	TA
2		6-10-20 1330	TA		6-10-20 1330	ETAN
3		Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☐ Yes ☐ No
Custody Seal No.: 1420014

Cooler Temperature(s) °C and Other Remarks: 3.8 C ER 8 +0.6 JL 6-10-20

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: OACwPF

Site No.: 1559 Sample Point: 2nd Sump (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark changes, record field data, below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment . . . Dedicated: Y or N

Purging Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

X-Other:

Filter Device: Y or N — 0.45 µ or ____ µ (circle or fill in)

Filter Type: A-In-line Disposable, B-Pressure, C-Vacuum, X-Other

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC)	Depth to Water (DTW) (from TOC)	Groundwater Elevation (site datum, from TOC)
(ft/msl)	(ft)	(ft/msl)

Total Well Depth (from TOC)	Stick Up (from ground elevation)	Casing ID	Casing Material
(ft)	(ft)	(in)	

Note: Total Well Depth, Stick Up, Casing Id. etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and Groundwater Elevation must be current.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm@25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
	1st	1st	1st					
	2nd	2nd	2nd					
	3rd	3rd	3rd					
	4th	4th	4th					
Suggested range for 3 consec. readings or note Permit/State requirements:		+/- 0.2	+/- 3%	--	--	+/- 10%	+/- 25 mV	Stabilize

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site.* ***If more fields above are needed, use separate sheet or form.***

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (umhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L-ppm)	eH/ORP (mV)	Other: Units
06 10 20	6.10	4633	13.3	0.76	1.59	134.7	

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.*

Sample Appearance: Clear Odor: NONE Color: NONE Other:

Weather Conditions (required daily, or as conditions change): Direction/Speed: 5mph W Outlook: Sunny 60's Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required): Sample Time 0915

FIELD COMMENTS

Sample Collected from Sump pump into Clean dedicated bucket & bottled with new clean dipper bottle

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
06/10/20	Kacy Sylvia	Kacy Sylvia	SRES

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client. PINK - Field Copy

TAL-8029WM (1013)

Login Sample Receipt Checklist

Client: Waste Management

Job Number: 280-137514-1

Login Number: 137514
List Number: 1
Creator: Lubin, Julius C

List Source: Eurofins TestAmerica, Denver

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	N/A	

Laboratory Analytical Report 280-138799-1
for
Secondary Sump Sampling on July 22, 2020

eurofins | Environment Testing America



ANALYTICAL REPORT

Eurofins TestAmerica, Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

Laboratory Job ID: 280-138799-1
Client Project/Site: 555|Denver/Arapahoe Chem - 2ND Sump

For:
Waste Management
2400 West Union Avenue
Englewood, Colorado 80110

Attn: Mr. Tom Schweitzer

Betsy Sara

Authorized for release by:
7/31/2020 11:54:43 AM

Betsy Sara, Project Manager II
(303)736-0189
Betsy.Sara@Eurofinset.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.eurofinsus.com/Env

The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: Waste Management
Job ID: 280-138799-1
Project/Site: 555|Denver/Arapahoe Chem - 2ND Sump

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 280-138799-1

Laboratory: Eurofins TestAmerica, Denver

Narrative

CASE NARRATIVE

Client: Waste Management

Project: 555|Denver/Arapahoe Chem - 2ND Sump

Report Number: 280-138799-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

This report may include reporting limits (RLs) less than Eurofins TestAmerica's standard reporting limit. The reported sample results and associated reporting limits are being used specifically to meet the needs of this project. Note that data are not normally reported to these levels without qualification because they are inherently less reliable and potentially less defensible than required by the latest industry standards.

Sample Receiving

The samples were received on 07/22/2020; the samples arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 1.0 C.

Holding Times

All holding times were within established control limits.

Method Blanks

All Method Blanks were within established control limits.

Laboratory Control Samples (LCS)

All Laboratory Control Samples were within established control limits.

Matrix Spike and Matrix Spike Duplicate (MS/MSD)

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) for Method 8260B, however, an LCS/LCSD pair was analyzed to demonstrate method precision and accuracy.

Detection Summary

Client: Waste Management
Job ID: 280-138799-1
Project/Site: 555|Denver/Arapahoe Chem - 2ND Sump

Client Sample ID: 2NDSUMP — Lab Sample ID: 280-138799-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	7.3		5.0		ug/L	1		8260B	Total/NA
Field pH	7.19				SU	1		Field Sampling	Total/NA
Field Conductivity	3943				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	19.7				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	2.52				NTU	1		Field Sampling	Total/NA
Field Dissolved Oxygen	4.63				mg/L	1		Field Sampling	Total/NA
Field EH/ORP	263.1				millivolts	1		Field Sampling	Total/NA

Client Sample ID: FB-1 — Lab Sample ID: 280-138799-2

No Detections.

Client Sample ID: EB-1 — Lab Sample ID: 280-138799-3

No Detections.

Client Sample ID: EB-2 — Lab Sample ID: 280-138799-4

No Detections.

Client Sample ID: DUPLICATE — Lab Sample ID: 280-138799-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	9.0		5.0		ug/L	1		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Waste Management
Job ID: 280-138799-1
Project/Site: 555|Denver/Arapahoe Chem - 2ND Sump

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
Field Sampling	Field Sampling	EPA	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: Waste Management
Job ID: 280-138799-1
Project/Site: 555|Denver/Arapahoe Chem - 2ND Sump

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
280-138799-1	2NDSUMP	Water	07/22/20 10:05	07/22/20 15:10	
280-138799-2	FB-1	Water	07/22/20 10:20	07/22/20 15:10	
280-138799-3	EB-1	Water	07/22/20 09:20	07/22/20 15:10	
280-138799-4	EB-2	Water	07/22/20 09:50	07/22/20 15:10	
280-138799-5	DUPLICATE	Water	07/22/20 00:00	07/22/20 15:10	

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: 2NDSUMP
Date Collected: 07/22/20 10:05
Date Received: 07/22/20 15:10
Lab Sample ID: 280-138799-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	**7.3**		5.0		ug/L			07/23/20 23:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*92*		*70 - 127*		*07/23/20 23:59*	*1*
4-Bromofluorobenzene (Surr)	*89*		*78 - 120*		*07/23/20 23:59*	*1*
Dibromofluoromethane (Surr)	*105*		*77 - 120*		*07/23/20 23:59*	*1*
Toluene-d8 (Surr)	*95*		*80 - 125*		*07/23/20 23:59*	*1*

Client Sample ID: FB-1
Date Collected: 07/22/20 10:20
Date Received: 07/22/20 15:10
Lab Sample ID: 280-138799-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	ND		5.0		ug/L			07/24/20 00:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*92*		*70 - 127*		*07/24/20 00:20*	*1*
4-Bromofluorobenzene (Surr)	*88*		*78 - 120*		*07/24/20 00:20*	*1*
Dibromofluoromethane (Surr)	*105*		*77 - 120*		*07/24/20 00:20*	*1*
Toluene-d8 (Surr)	*94*		*80 - 125*		*07/24/20 00:20*	*1*

Client Sample ID: EB-1
Date Collected: 07/22/20 09:20
Date Received: 07/22/20 15:10
Lab Sample ID: 280-138799-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	ND		5.0		ug/L			07/24/20 00:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*91*		*70 - 127*		*07/24/20 00:41*	*1*
4-Bromofluorobenzene (Surr)	*89*		*78 - 120*		*07/24/20 00:41*	*1*
Dibromofluoromethane (Surr)	*105*		*77 - 120*		*07/24/20 00:41*	*1*
Toluene-d8 (Surr)	*95*		*80 - 125*		*07/24/20 00:41*	*1*

Client Sample ID: EB-2
Date Collected: 07/22/20 09:50
Date Received: 07/22/20 15:10
Lab Sample ID: 280-138799-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	ND		5.0		ug/L			07/24/20 01:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*93*		*70 - 127*		*07/24/20 01:02*	*1*
4-Bromofluorobenzene (Surr)	*88*		*78 - 120*		*07/24/20 01:02*	*1*
Dibromofluoromethane (Surr)	*106*		*77 - 120*		*07/24/20 01:02*	*1*
Toluene-d8 (Surr)	*95*		*80 - 125*		*07/24/20 01:02*	*1*

Client Sample ID: DUPLICATE
Date Collected: 07/22/20 00:00
Date Received: 07/22/20 15:10
Lab Sample ID: 280-138799-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	**9.0**		5.0		ug/L			07/24/20 01:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*94*		*70 - 127*		*07/24/20 01:23*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: DUPLICATE
Date Collected: 07/22/20 00:00
Date Received: 07/22/20 15:10

Lab Sample ID: 280-138799-5
Matrix: Water

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*88*		*78 - 120*		*07/24/20 01:23*	*1*
Dibromofluoromethane (Surr)	*106*		*77 - 120*		*07/24/20 01:23*	*1*
Toluene-d8 (Surr)	*94*		*80 - 125*		*07/24/20 01:23*	*1*

Method: Field Sampling - Field Sampling

Client Sample ID: 2NDSUMP
Date Collected: 07/22/20 10:05
Date Received: 07/22/20 15:10

Lab Sample ID: 280-138799-1
Matrix: Water

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	**7.19**				SU			07/22/20 10:05	1
Field Conductivity	**3943**				umhos/cm			07/22/20 10:05	1
Field Temperature	**19.7**				Degrees C			07/22/20 10:05	1
Field Turbidity	**2.52**				NTU			07/22/20 10:05	1
Field Dissolved Oxygen	**4.63**				mg/L			07/22/20 10:05	1
Field EH/ORP	**263.1**				millivolts			07/22/20 10:05	1

Surrogate Summary

Client: Waste Management
Job ID: 280-138799-1
Project/Site: 555|Denver/Arapahoe Chem - 2ND Sump

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(70-127)	(78-120)	(77-120)	(80-125)
280-138799-1	2NDSUMP	92	89	105	95
280-138799-2	FB-1	92	88	105	94
280-138799-3	EB-1	91	89	105	95
280-138799-4	EB-2	93	88	106	95
280-138799-5	DUPLICATE	94	88	106	94
LCS 280-503307/5	Lab Control Sample	91	88	106	94
LCS 280-503307/7	Lab Control Sample	91	88	105	94
LCSD 280-503307/6	Lab Control Sample Dup	92	89	106	94
LCSD 280-503307/8	Lab Control Sample Dup	93	88	107	94
MB 280-503307/10	Method Blank	93	88	104	95

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-503307/10
Matrix: Water
Analysis Batch: 503307

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	ND		5.0		ug/L			07/23/20 23:37	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*93*		*70 - 127*		*07/23/20 23:37*	*1*
4-Bromofluorobenzene (Surr)	*88*		*78 - 120*		*07/23/20 23:37*	*1*
Dibromofluoromethane (Surr)	*104*		*77 - 120*		*07/23/20 23:37*	*1*
Toluene-d8 (Surr)	*95*		*80 - 125*		*07/23/20 23:37*	*1*

Lab Sample ID: LCS 280-503307/5
Matrix: Water
Analysis Batch: 503307

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	25.0	27.3		ug/L		109	65 - 135
1,1-Dichloroethane	25.0	22.8		ug/L		91	65 - 135
1,1-Dichloroethene	25.0	27.2		ug/L		109	65 - 136
1,2-Dichloroethane	25.0	23.0		ug/L		92	65 - 135
1,2-Dichloropropane	25.0	22.2		ug/L		89	64 - 135
1,3-Dichlorobenzene	25.0	24.0		ug/L		96	65 - 135
2-Butanone (MEK)	100	62.7	J	ug/L		63	44 - 177
Benzene	25.0	23.8		ug/L		95	65 - 135
Bromodichloromethane	25.0	24.3		ug/L		97	65 - 135
Carbon tetrachloride	25.0	28.6		ug/L		115	65 - 135
Chlorobenzene	25.0	24.3		ug/L		97	65 - 135
Chloroform	25.0	24.6		ug/L		98	65 - 135
Ethylbenzene	25.0	24.5		ug/L		98	65 - 135
Methylene Chloride	25.0	24.9		ug/L		100	54 - 141
Tetrachloroethene	25.0	29.1		ug/L		116	65 - 135
Toluene	25.0	25.4		ug/L		101	65 - 135
trans-1,2-Dichloroethene	25.0	26.1		ug/L		105	65 - 135
Trichloroethene	25.0	25.4		ug/L		102	65 - 135
Vinyl chloride	25.0	24.4		ug/L		98	40 - 137

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*91*		*70 - 127*
4-Bromofluorobenzene (Surr)	*88*		*78 - 120*
Dibromofluoromethane (Surr)	*106*		*77 - 120*
Toluene-d8 (Surr)	*94*		*80 - 125*

Lab Sample ID: LCS 280-503307/7
Matrix: Water
Analysis Batch: 503307

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*91*		*70 - 127*
4-Bromofluorobenzene (Surr)	*88*		*78 - 120*
Dibromofluoromethane (Surr)	*105*		*77 - 120*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-503307/7
Matrix: Water
Analysis Batch: 503307

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	*94*		*80 - 125*

Lab Sample ID: LCSD 280-503307/6
Matrix: Water
Analysis Batch: 503307

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane			25.0	27.0		ug/L		108	65 - 135	1	20
1,1-Dichloroethane			25.0	22.2		ug/L		89	65 - 135	3	21
1,1-Dichloroethene			25.0	26.2		ug/L		105	65 - 136	4	20
1,2-Dichloroethane			25.0	23.0		ug/L		92	65 - 135	0	20
1,2-Dichloropropane			25.0	21.9		ug/L		87	64 - 135	1	20
1,3-Dichlorobenzene			25.0	23.7		ug/L		95	65 - 135	1	20
2-Butanone (MEK)			100	73.0	J	ug/L		73	44 - 177	15	32
Benzene			25.0	23.7		ug/L		95	65 - 135	0	20
Bromodichloromethane			25.0	23.9		ug/L		96	65 - 135	2	20
Carbon tetrachloride			25.0	28.0		ug/L		112	65 - 135	2	21
Chlorobenzene			25.0	23.1		ug/L		92	65 - 135	5	20
Chloroform			25.0	24.1		ug/L		96	65 - 135	2	20
Ethylbenzene			25.0	23.8		ug/L		95	65 - 135	3	20
Methylene Chloride			25.0	24.4		ug/L		98	54 - 141	2	26
Tetrachloroethene			25.0	27.9		ug/L		112	65 - 135	4	20
Toluene			25.0	25.2		ug/L		101	65 - 135	1	20
trans-1,2-Dichloroethene			25.0	25.2		ug/L		101	65 - 135	3	24
Trichloroethene			25.0	24.6		ug/L		98	65 - 135	3	20
Vinyl chloride			25.0	22.8		ug/L		91	40 - 137	7	24

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	*92*		*70 - 127*
4-Bromofluorobenzene (Surr)	*89*		*78 - 120*
Dibromofluoromethane (Surr)	*106*		*77 - 120*
Toluene-d8 (Surr)	*94*		*80 - 125*

Lab Sample ID: LCSD 280-503307/8
Matrix: Water
Analysis Batch: 503307

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	*93*		*70 - 127*
4-Bromofluorobenzene (Surr)	*88*		*78 - 120*
Dibromofluoromethane (Surr)	*107*		*77 - 120*
Toluene-d8 (Surr)	*94*		*80 - 125*

QC Association Summary

Client: Waste Management
Job ID: 280-138799-1
Project/Site: 555|Denver/Arapahoe Chem - 2ND Sump

GC/MS VOA

Analysis Batch: 503307

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-138799-1	2NDSUMP	Total/NA	Water	8260B	
280-138799-2	FB-1	Total/NA	Water	8260B	
280-138799-3	EB-1	Total/NA	Water	8260B	
280-138799-4	EB-2	Total/NA	Water	8260B	
280-138799-5	DUPLICATE	Total/NA	Water	8260B	
MB 280-503307/10	Method Blank	Total/NA	Water	8260B	
LCS 280-503307/5	Lab Control Sample	Total/NA	Water	8260B	
LCS 280-503307/7	Lab Control Sample	Total/NA	Water	8260B	
LCSD 280-503307/6	Lab Control Sample Dup	Total/NA	Water	8260B	
LCSD 280-503307/8	Lab Control Sample Dup	Total/NA	Water	8260B	

Field Service / Mobile Lab

Analysis Batch: 503305

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-138799-1	2NDSUMP	Total/NA	Water	Field Sampling	

Lab Chronicle

Client: Waste Management
Job ID: 280-138799-1
Project/Site: 555|Denver/Arapahoe Chem - 2ND Sump

Client Sample ID: 2NDSUMP
Lab Sample ID: 280-138799-1
Date Collected: 07/22/20 10:05
Matrix: Water
Date Received: 07/22/20 15:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	503307	07/23/20 23:59	PP	TAL DEN
Total/NA	Analysis	Field Sampling		1			503305	07/22/20 10:05	N1C	TAL DEN

Client Sample ID: FB-1
Lab Sample ID: 280-138799-2
Date Collected: 07/22/20 10:20
Matrix: Water
Date Received: 07/22/20 15:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	503307	07/24/20 00:20	PP	TAL DEN

Client Sample ID: EB-1
Lab Sample ID: 280-138799-3
Date Collected: 07/22/20 09:20
Matrix: Water
Date Received: 07/22/20 15:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	503307	07/24/20 00:41	PP	TAL DEN

Client Sample ID: EB-2
Lab Sample ID: 280-138799-4
Date Collected: 07/22/20 09:50
Matrix: Water
Date Received: 07/22/20 15:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	503307	07/24/20 01:02	PP	TAL DEN

Client Sample ID: DUPLICATE
Lab Sample ID: 280-138799-5
Date Collected: 07/22/20 00:00
Matrix: Water
Date Received: 07/22/20 15:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	503307	07/24/20 01:23	PP	TAL DEN

Laboratory References:

TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

Denver #280

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: L. MAJOR / K. Sylvia	Lab PM: Sara, Betsy A	Carrier Tracking No(s): Courier	COC No: 280-17711-1151.1
Client Contact: Tom Schweitzer	Phone: 303-695-4660	E-Mail: betsy.sara@testamericainc.com		Page: Page 1 of 1
Company: Waste Management				Job #: 202107
Address: 2400 West Union Avenue	Due Date Requested:			
City: Englewood	TAT Requested (days): RUSH			
State, Zip: CO 80110				
Phone: 303 914-1445	PO #: Purchase Order not required			
Email: Tschweitzer@wm.com	WO #:			
Project Name:555|Denver/Arapahoe Chem. Event Desc: Skip sites/events -log from Resample 6/2017	Project #: 28003048			
Site: Colorado	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

280-138799 Chain of Custody

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - PCE only	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N		
2ND Sump	7/22/20	1005	G	W	N		3	3	*RUSH* (40mL VOA vial)
FB-1	7/22/20	1020	G	W	N		3	3	*RUSH*
EB-1	7/22/20	0920	G	W	N		3	3	*RUSH*
EB-2	7/22/20	0950	G	W	N		3	3	*RUSH*
Duplicate	7/22/20		G	W	N		3	3	Hold For Special Instructions*

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		7/22/2020	SRES		7-22-20 13:45	TA
2		7-22-20 15:10	TA		7/22/20 1510	BTA-Da
3						

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 1.4 IR10, -0.1 mk, 7/22/20

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: DACwpf

Site No.: SSS Sample Point: 2nd Sump (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark changes, record field data, below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment . . . Dedicated: [Y] or [N]

Filter Device: [Y] or [N] [0.45 µ] or [ ] µ (circle or fill in)

Purging Device [ ] — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Filter Type: [ ] — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other [ ]

Sampling Device [ ]

X-Other: [ ]

Sample Tube Type: [ ] — A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other: [ ]

WELL DATA

Well Elevation (at TOC) [ ] (ft/msl)

Depth to Water (DTW) (from TOC) [ ] (ft)

Groundwater Elevation (site datum, from TOC) [ ] (ft/msl)

Total Well Depth (from TOC) [ ] (ft)

Stick Up (from ground elevation) [ ] (ft)

Casing ID [ ] (in)

Casing Material [ ]

Note: Total Well Depth, Stick Up, Casing Id. etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and Groundwater Elevation must be current.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm@25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
:	1st	1st	1st					
:	2nd	2nd	2nd					
:	3rd	3rd	3rd					
:	4th	4th	4th					
:								
:								
:								
:								
:								
:								
Suggested range for 3 consec. readings or note Permit/State requirements:		+/- 0.2	+/- 3%	--	--	+/- 10%	+/- 25 mV	Stabilize

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site.* ***If more fields above are needed, use separate sheet or form.***

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (umhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L-ppm)	eH/ORP (mV)	Other: Units
07/22/20	7.19	3943	19.7	2.52	4.63	263.1	

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.*

Sample Appearance: Clear Odor: NONE Color: NONE Other:

Weather Conditions (required daily, or as conditions change): Direction/Speed: Calm Outlook: Sunny Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required): Sample Time 1005

FIELD COMMENTS

Sample Collected by Filling a clean, new Sample Bottle and immediately transferring the liquid to the 40 ml VOA VIALS and Sealing the VIAL with no Head Space.

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
07/22/20	Laura Major		SRES
07/22/20	Kacy Sylvia	Kacy Sylvia	SRES

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client. PINK - Field Copy

TAL-8029WM (1013)

Login Sample Receipt Checklist

Client: Waste Management

Job Number: 280-138799-1

Login Number: 138799
List Number: 1
Creator: Bentley, Beau J

List Source: Eurofins TestAmerica, Denver

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	N/A	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	N/A	

Laboratory Analytical Report 280-142922-1
for
Secondary Sump Sampling on November 18, 2020

eurofins | Environment Testing America



ANALYTICAL REPORT

Eurofins TestAmerica, Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

Laboratory Job ID: 280-142922-1
Client Project/Site: 555|Denver/Arapahoe Chem.- 2ND Sump

For:
Waste Management
2400 West Union Avenue
Englewood, Colorado 80110

Attn: Mr. Tom Schweitzer

Betsy Sara

Authorized for release by:
11/27/2020 3:04:00 PM

Betsy Sara, Project Manager II
(303)736-0189
Betsy.Sara@Eurofinset.com

LINKS

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The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: Waste Management
Job ID: 280-142922-1
Project/Site: 555|Denver/Arapahoe Chem.- 2ND Sump

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 280-142922-1

Laboratory: Eurofins TestAmerica, Denver

Narrative

CASE NARRATIVE

Client: Waste Management

Project: 555|Denver/Arapahoe Chem.- 2ND Sump

Report Number: 280-142922-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

This report may include reporting limits (RLs) less than Eurofins TestAmerica's standard reporting limit. The reported sample results and associated reporting limits are being used specifically to meet the needs of this project. Note that data are not normally reported to these levels without qualification because they are inherently less reliable and potentially less defensible than required by the latest industry standards.

Sample Receiving

The samples were received on 11/18/2020; the samples arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 6.5 C.

The samples were received at the laboratory outside the required temperature criteria of 6.0C. The samples were considered acceptable since they were collected and submitted to the laboratory on the same day and there was evidence that the chilling process had begun.

Holding Times

All holding times were within established control limits.

Method Blanks

All Method Blanks were within established control limits.

Laboratory Control Samples (LCS)

All Laboratory Control Samples were within established control limits.

Matrix Spike and Matrix Spike Duplicate (MS/MSD)

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) for Method 8260B, however, an LCS/LCSD pair was analyzed to demonstrate method precision and accuracy.

Detection Summary

Client: Waste Management
Job ID: 280-142922-1
Project/Site: 555|Denver/Arapahoe Chem.- 2ND Sump

Client Sample ID: TRIP BLANK
Lab Sample ID: 280-142922-1

No Detections.

Client Sample ID: 2NDSUMP
Lab Sample ID: 280-142922-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	7.0		5.0		ug/L	1		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Waste Management
Job ID: 280-142922-1
Project/Site: 555|Denver/Arapahoe Chem.- 2ND Sump

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: Waste Management
Job ID: 280-142922-1
Project/Site: 555|Denver/Arapahoe Chem.- 2ND Sump

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
280-142922-1	TRIP BLANK	Water	11/18/20 14:00	11/18/20 15:21	
280-142922-2	2NDSUMP	Water	11/18/20 14:00	11/18/20 15:21	

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: TRIP BLANK
Date Collected: 11/18/20 14:00
Date Received: 11/18/20 15:21
Lab Sample ID: 280-142922-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	ND		5.0		ug/L			11/25/20 21:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*105*		*70 - 127*		*11/25/20 21:54*	*1*
4-Bromofluorobenzene (Surr)	*106*		*78 - 120*		*11/25/20 21:54*	*1*
Dibromofluoromethane (Surr)	*95*		*77 - 120*		*11/25/20 21:54*	*1*
Toluene-d8 (Surr)	*102*		*80 - 125*		*11/25/20 21:54*	*1*

Client Sample ID: 2NDSUMP
Date Collected: 11/18/20 14:00
Date Received: 11/18/20 15:21
Lab Sample ID: 280-142922-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	**7.0**		5.0		ug/L			11/25/20 22:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*106*		*70 - 127*		*11/25/20 22:40*	*1*
4-Bromofluorobenzene (Surr)	*105*		*78 - 120*		*11/25/20 22:40*	*1*
Dibromofluoromethane (Surr)	*97*		*77 - 120*		*11/25/20 22:40*	*1*
Toluene-d8 (Surr)	*101*		*80 - 125*		*11/25/20 22:40*	*1*

Surrogate Summary

Client: Waste Management
Project/Site: 555|Denver/Arapahoe Chem.- 2ND Sump

Job ID: 280-142922-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(70-127)	(78-120)	(77-120)	(80-125)
280-142922-1	TRIP BLANK	105	106	95	102
280-142922-2	2NDSUMP	106	105	97	101
LCS 280-518215/5	Lab Control Sample	104	105	96	100
LCSD 280-518215/6	Lab Control Sample Dup	103	102	97	100
MB 280-518215/10	Method Blank	104	104	95	101

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-518215/10
Matrix: Water
Analysis Batch: 518215

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	ND		5.0		ug/L			11/25/20 21:08	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*104*		*70 - 127*		*11/25/20 21:08*	*1*
4-Bromofluorobenzene (Surr)	*104*		*78 - 120*		*11/25/20 21:08*	*1*
Dibromofluoromethane (Surr)	*95*		*77 - 120*		*11/25/20 21:08*	*1*
Toluene-d8 (Surr)	*101*		*80 - 125*		*11/25/20 21:08*	*1*

Lab Sample ID: LCS 280-518215/5
Matrix: Water
Analysis Batch: 518215

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	25.0	25.0		ug/L		100	65 - 135
1,1-Dichloroethane	25.0	24.1		ug/L		97	65 - 135
1,1-Dichloroethene	25.0	26.8		ug/L		107	65 - 136
1,2-Dichloroethane	25.0	24.8		ug/L		99	65 - 135
1,2-Dichloropropane	25.0	23.4		ug/L		94	64 - 135
1,3-Dichlorobenzene	25.0	23.6		ug/L		95	65 - 135
2-Butanone (MEK)	100	107		ug/L		107	44 - 177
Benzene	25.0	26.2		ug/L		105	65 - 135
Bromodichloromethane	25.0	24.6		ug/L		98	65 - 135
Carbon tetrachloride	25.0	26.3		ug/L		105	65 - 135
Chlorobenzene	25.0	28.4		ug/L		114	65 - 135
Chloroform	25.0	25.1		ug/L		100	65 - 135
Ethylbenzene	25.0	27.5		ug/L		110	65 - 135
Methylene Chloride	25.0	25.9		ug/L		103	54 - 141
Tetrachloroethene	25.0	27.3		ug/L		109	65 - 135
Toluene	25.0	25.4		ug/L		102	65 - 135
trans-1,2-Dichloroethene	25.0	25.2		ug/L		101	65 - 135
Trichloroethene	25.0	25.3		ug/L		101	65 - 135
Vinyl chloride	25.0	29.7		ug/L		119	40 - 137

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*104*		*70 - 127*
4-Bromofluorobenzene (Surr)	*105*		*78 - 120*
Dibromofluoromethane (Surr)	*96*		*77 - 120*
Toluene-d8 (Surr)	*100*		*80 - 125*

Lab Sample ID: LCSD 280-518215/6
Matrix: Water
Analysis Batch: 518215

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane	25.0	24.4		ug/L		98	65 - 135	2	20
1,1-Dichloroethane	25.0	23.3		ug/L		93	65 - 135	3	21
1,1-Dichloroethene	25.0	26.4		ug/L		106	65 - 136	2	20
1,2-Dichloroethane	25.0	24.6		ug/L		99	65 - 135	1	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-518215/6
Matrix: Water
Analysis Batch: 518215

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dichloropropane			25.0	22.9		ug/L		92	64 - 135	2	20
1,3-Dichlorobenzene			25.0	23.7		ug/L		95	65 - 135	0	20
2-Butanone (MEK)			100	104		ug/L		104	44 - 177	4	32
Benzene			25.0	25.9		ug/L		103	65 - 135	1	20
Bromodichloromethane			25.0	24.3		ug/L		97	65 - 135	1	20
Carbon tetrachloride			25.0	26.0		ug/L		104	65 - 135	1	21
Chlorobenzene			25.0	28.4		ug/L		114	65 - 135	0	20
Chloroform			25.0	24.9		ug/L		100	65 - 135	1	20
Ethylbenzene			25.0	27.2		ug/L		109	65 - 135	1	20
Methylene Chloride			25.0	25.5		ug/L		102	54 - 141	1	26
Tetrachloroethene			25.0	27.6		ug/L		110	65 - 135	1	20
Toluene			25.0	25.2		ug/L		101	65 - 135	1	20
trans-1,2-Dichloroethene			25.0	25.0		ug/L		100	65 - 135	1	24
Trichloroethene			25.0	25.1		ug/L		101	65 - 135	1	20
Vinyl chloride			25.0	30.2		ug/L		121	40 - 137	2	24

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 127*
4-Bromofluorobenzene (Surr)	*102*		*78 - 120*
Dibromofluoromethane (Surr)	*97*		*77 - 120*
Toluene-d8 (Surr)	*100*		*80 - 125*

QC Association Summary

Client: Waste Management
Job ID: 280-142922-1
Project/Site: 555|Denver/Arapahoe Chem.- 2ND Sump

GC/MS VOA

Analysis Batch: 518215

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142922-1	TRIP BLANK	Total/NA	Water	8260B	
280-142922-2	2NDSUMP	Total/NA	Water	8260B	
MB 280-518215/10	Method Blank	Total/NA	Water	8260B	
LCS 280-518215/5	Lab Control Sample	Total/NA	Water	8260B	
LCSD 280-518215/6	Lab Control Sample Dup	Total/NA	Water	8260B	

Lab Chronicle

Client: Waste Management
Job ID: 280-142922-1
Project/Site: 555|Denver/Arapahoe Chem.- 2ND Sump

Client Sample ID: TRIP BLANK
Lab Sample ID: 280-142922-1
Date Collected: 11/18/20 14:00
Matrix: Water
Date Received: 11/18/20 15:21

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	518215	11/25/20 21:54	RJS	TAL DEN

Client Sample ID: 2NDSUMP
Lab Sample ID: 280-142922-2
Date Collected: 11/18/20 14:00
Matrix: Water
Date Received: 11/18/20 15:21

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	518215	11/25/20 22:40	RJS	TAL DEN

Laboratory References:
TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

Denver #280

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: L Major / K Sylvia	Lab PM: Sara, Betsy A	Carrier Tracking No(s): Drop OFF	COC No: 280-17711-1151.1
Client Contact: Tom Schweitzer	Phone: 303-695-4660	E-Mail: betsy.sara@testamericainc.com		Page: Page 1 of 1
Company: Waste Management				Job #: 202107
Address: 2400 West Union Avenue	Due Date Requested:			
City: Englewood	TAT Requested (days): RUSH			
State, Zip: CO 80110				
Phone: 303 914-1445	PO #: Purchase Order not required			
Email: Tschweitzer@wm.com	WO #:			
Project Name:555|Denver/Arapahoe Chem. Event Desc: Skip sites/events -log from Resample 6/2017	Project #: 28003048			
Site: Colorado	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - PCE only	Total Number of containers	Special Instructions/Note:
Preservation Code:							N		
Trip Blank	11/18/20	—	—	W			2	2	
2nd Sump	11/18/20	1400	G	W			6	6	*RUSH* 40mL glass vial

280-142922 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by: | Date: | Time: | Method of Shipment:

	Date/Time	Company		Date/Time	Company
Relinquished by: Lacy Sylvia	11/18/20 1521		Received by: Judith R Hall	11/18/20 1521	TA Denver
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 6.8C CF-0.3C IR#11

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: DACWPF
Site No.: 555 Sample Point: 2nd Sump (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark changes, record field data, below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment . . . Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device ____ A-Submersible Pump B-Peristaltic Pump C-QED Bladder Pump D-Bailer E-Piston Pump F-Dipper/Bottle

Filter Type: ____ A-In-line Disposable B-Pressure C-Vacuum X-Other ____

Sampling Device ____

X-Other: ____

Sample Tube Type: ____ A-Teflon B-Stainless Steel C-PVC D-Polypropylene X-Other: ____

WELL DATA

Well Elevation (at TOC) ____ (ft/msl)

Depth to Water (DTW) (from TOC) ____ (ft)

Groundwater Elevation (site datum, from TOC) ____ (ft/msl)

Total Well Depth (from TOC) ____ (ft)

Stick Up (from ground elevation) ____ (ft)

Casing ID ____ (in)

Casing Material ____

Note: Total Well Depth, Stick Up, Casing Id. etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and Groundwater Elevation must be current.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm@25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
	1st	1st	1st					
	2nd	2nd	2nd					
	3rd	3rd	3rd					
	4th	4th	4th					
Suggested range for 3 consec. readings or note Permit/State requirements:		+/- 0.2	+/- 3%	--	--	+/- 10%	+/- 25 mV	Stabilize

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (umhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L-ppm)	eH/ORP (mV)	Other: Units

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.*

FIELD COMMENTS

Sample Appearance: Clear Odor: NONE Color: NONE Other: ____

Weather Conditions (required daily, or as conditions change): Direction/Speed: Calm Outlook: Sunny Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required): Sample time: 1400

Sample collected by snap sampler attached to PVC pipe w/ new clean bottle & immediately transferring liquid to 40 mL vials & sealing the vial w/ no headspace

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
11/18/20	Laura Major		SRES
11/18/20	Kacy Sylvia	Kacy Sylvia	SRES

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

TAL-8029WM (1013)

Login Sample Receipt Checklist

Client: Waste Management

Job Number: 280-142922-1

Login Number: 142922
List Number: 1
Creator: Paul, Ryan D

List Source: Eurofins TestAmerica, Denver

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	False	No: Not present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	Yes: Received same day of collection; chilling process has begun
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	N/A	

APPENDIX B-5

DACWPF Delisting Analytical Results

eurofins | Environment Testing America



ANALYTICAL REPORT

Eurofins TestAmerica, Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

Laboratory Job ID: 280-136380-1
Client Project/Site: 555|Denver/Arapahoe Chem.-Sumps
Sampling Event: Ann. Primary & Comp Sump TCLP - May

For:
Waste Management
2400 West Union Avenue
Englewood, Colorado 80110

Attn: Mr. Tom Schweitzer

Betsy Sara

Authorized for release by:
5/27/2020 4:49:26 PM

Betsy Sara, Project Manager II
(303)736-0189
betsy.sara@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.eurofinsus.com/Env

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: Waste Management
Job ID: 280-136380-1
Project/Site: 555|Denver/Arapahoe Chem.-Sumps

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.

General Chemistry

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-136380-1

Laboratory: Eurofins TestAmerica, Denver

Narrative

CASE NARRATIVE

Client: Waste Management

Project: 555|Denver/Arapahoe Chem.-Sumps

Report Number: 280-136380-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

This report may include reporting limits (RLs) less than Eurofins TestAmerica's standard reporting limit. The reported sample results and associated reporting limits are being used specifically to meet the needs of this project. Note that data are not normally reported to these levels without qualification because they are inherently less reliable and potentially less defensible than required by the latest industry standards.

Sample Receiving

The samples were received on 05/08/2020; the samples arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 0.4 C.

Holding Times

All holding times were within established control limits.

Method Blanks

All Method Blanks were within established control limits.

Laboratory Control Samples (LCS)

All Laboratory Control Samples were within established control limits.

Matrix Spike and Matrix Spike Duplicate (MS/MSD)

Sample SUMPCOMP was selected to fulfill the laboratory batch quality control requirements for Method 7470A. Analysis of the laboratory generated MS/MSD for this sample exhibited recoveries of TCLP Mercury below the lower control limit. Because the corresponding Laboratory Control Sample and the Method Blank sample were within control limits, this anomaly may be due to matrix interference and no corrective action was taken.

Sample PRIMARYSUMP was selected to fulfill the laboratory batch quality control requirements for Method 335.4. Analysis of the laboratory generated MS/MSD for this sample exhibited recoveries of Total Cyanide below the lower control limit. Because the corresponding Laboratory Control Sample and the Method Blank sample were within control limits, this anomaly may be due to matrix interference and no corrective action was taken.

All other MS/MSD samples were within established control limits.

Organics

The samples PRIMARYSUMP and SUMPCOMP formed emulsions during the Method 8151A extraction procedure.

Detection Summary

Client: Waste Management
Job ID: 280-136380-1
Project/Site: 555|Denver/Arapahoe Chem.-Sumps

Client Sample ID: TRIP BLANK — Lab Sample ID: 280-136380-1

No Detections.

Client Sample ID: PRIMARYSUMP — Lab Sample ID: 280-136380-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	0.021		0.010		mg/L	1		8260B	TCLP
Total Cyanide	0.022	F1	0.010		mg/L	1		335.4	Total/NA
Field pH	6.77				SU	1		Field Sampling	Total/NA
Field Conductivity	7741				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	13.6				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	7.06				NTU	1		Field Sampling	Total/NA
Field Dissolved Oxygen	5.27				mg/L	1		Field Sampling	Total/NA
Field EH/ORP	83.7				millivolts	1		Field Sampling	Total/NA

Client Sample ID: SUMPCOMP — Lab Sample ID: 280-136380-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	0.013		0.010		mg/L	1		8260B	TCLP
Total Cyanide	0.013		0.010		mg/L	1		335.4	Total/NA
Field pH	6.88				SU	1		Field Sampling	Total/NA
Field Conductivity	6224				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	13.9				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	4.50				NTU	1		Field Sampling	Total/NA
Field Dissolved Oxygen	5.20				mg/L	1		Field Sampling	Total/NA
Field EH/ORP	78.7				millivolts	1		Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Waste Management
Job ID: 280-136380-1
Project/Site: 555|Denver/Arapahoe Chem.-Sumps

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8270C	Semivolatile Organic Compounds (GC/MS)	SW846	TAL DEN
8081A	Organochlorine Pesticides (GC)	SW846	TAL DEN
8151A	Herbicides (GC)	SW846	TAL DEN
6010B	Metals (ICP)	SW846	TAL DEN
7470A	Mercury (CVAA)	SW846	TAL DEN
335.4	Cyanide, Total	MCAWW	TAL DEN
Field Sampling	Field Sampling	EPA	TAL DEN
1311	TCLP Extraction	SW846	TAL DEN
3010A	Preparation, Total Metals	SW846	TAL DEN
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
7470A	Preparation, Mercury	SW846	TAL DEN
8151A	Extraction (Herbicides)	SW846	TAL DEN
Distill/CN	Distillation, Cyanide	None	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

None = None

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: Waste Management
Job ID: 280-136380-1
Project/Site: 555|Denver/Arapahoe Chem.-Sumps

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
280-136380-1	TRIP BLANK	Water	05/07/20 12:26	05/08/20 10:45	
280-136380-2	PRIMARYSUMP	Water	05/07/20 12:15	05/08/20 10:45	
280-136380-3	SUMPCOMP	Water	05/07/20 12:26	05/08/20 10:45	

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: TRIP BLANK
Date Collected: 05/07/20 12:26
Date Received: 05/08/20 10:45

Lab Sample ID: 280-136380-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		5.0		ug/L			05/14/20 14:50	1
1,2-Dichloroethane	ND		1.0		ug/L			05/14/20 14:50	1
2-Butanone (MEK)	ND		100		ug/L			05/14/20 14:50	1
Benzene	ND		5.0		ug/L			05/14/20 14:50	1
Carbon tetrachloride	ND		1.0		ug/L			05/14/20 14:50	1
Chlorobenzene	ND		5.0		ug/L			05/14/20 14:50	1
Chloroform	ND		5.0		ug/L			05/14/20 14:50	1
Tetrachloroethene	ND		5.0		ug/L			05/14/20 14:50	1
Trichloroethene	ND		5.0		ug/L			05/14/20 14:50	1
Vinyl chloride	ND		2.0		ug/L			05/14/20 14:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*110*		*70 - 127*		*05/14/20 14:50*	*1*
4-Bromofluorobenzene (Surr)	*106*		*78 - 120*		*05/14/20 14:50*	*1*
Dibromofluoromethane (Surr)	*100*		*77 - 120*		*05/14/20 14:50*	*1*
Toluene-d8 (Surr)	*101*		*80 - 125*		*05/14/20 14:50*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) - TCLP

Client Sample ID: PRIMARYSUMP
Date Collected: 05/07/20 12:15
Date Received: 05/08/20 10:45

Lab Sample ID: 280-136380-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.010		mg/L			05/20/20 14:26	1
1,2-Dichloroethane	ND		0.010		mg/L			05/20/20 14:26	1
2-Butanone	ND		0.10		mg/L			05/20/20 14:26	1
Benzene	ND		0.010		mg/L			05/20/20 14:26	1
Carbon tetrachloride	ND		0.010		mg/L			05/20/20 14:26	1
Chlorobenzene	ND		0.010		mg/L			05/20/20 14:26	1
Chloroform	ND		0.010		mg/L			05/20/20 14:26	1
Tetrachloroethene	**0.021**		0.010		mg/L			05/20/20 14:26	1
Trichloroethene	ND		0.010		mg/L			05/20/20 14:26	1
Vinyl chloride	ND		0.010		mg/L			05/20/20 14:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*64 - 129*		*05/20/20 14:26*	*1*
4-Bromofluorobenzene (Surr)	*101*		*78 - 121*		*05/20/20 14:26*	*1*
Dibromofluoromethane (Surr)	*98*		*79 - 119*		*05/20/20 14:26*	*1*
Toluene-d8 (Surr)	*99*		*78 - 120*		*05/20/20 14:26*	*1*

Client Sample ID: SUMPCOMP
Date Collected: 05/07/20 12:26
Date Received: 05/08/20 10:45

Lab Sample ID: 280-136380-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.010		mg/L			05/20/20 15:31	1
1,2-Dichloroethane	ND		0.010		mg/L			05/20/20 15:31	1
2-Butanone	ND		0.10		mg/L			05/20/20 15:31	1
Benzene	ND		0.010		mg/L			05/20/20 15:31	1
Carbon tetrachloride	ND		0.010		mg/L			05/20/20 15:31	1
Chlorobenzene	ND		0.010		mg/L			05/20/20 15:31	1
Chloroform	ND		0.010		mg/L			05/20/20 15:31	1

Method: 8260B - Volatile Organic Compounds (GC/MS) - TCLP (Continued)

Client Sample ID: SUMPCOMP
Date Collected: 05/07/20 12:26
Date Received: 05/08/20 10:45

Lab Sample ID: 280-136380-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	**0.013**		0.010		mg/L			05/20/20 15:31	1
Trichloroethene	ND		0.010		mg/L			05/20/20 15:31	1
Vinyl chloride	ND		0.010		mg/L			05/20/20 15:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*64 - 129*		*05/20/20 15:31*	*1*
4-Bromofluorobenzene (Surr)	*103*		*78 - 121*		*05/20/20 15:31*	*1*
Dibromofluoromethane (Surr)	*99*		*79 - 119*		*05/20/20 15:31*	*1*
Toluene-d8 (Surr)	*98*		*78 - 120*		*05/20/20 15:31*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS) - TCLP

Client Sample ID: PRIMARYSUMP
Date Collected: 05/07/20 12:15
Date Received: 05/08/20 10:45

Lab Sample ID: 280-136380-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.10		mg/L		05/12/20 15:00	05/19/20 19:57	1
2,4,5-Trichlorophenol	ND		0.10		mg/L		05/12/20 15:00	05/19/20 19:57	1
2,4,6-Trichlorophenol	ND		0.10		mg/L		05/12/20 15:00	05/19/20 19:57	1
2,4-Dinitrotoluene	ND		0.10		mg/L		05/12/20 15:00	05/19/20 19:57	1
2-Methylphenol	ND		0.10		mg/L		05/12/20 15:00	05/19/20 19:57	1
3-Methylphenol & 4-Methylphenol	ND		0.10		mg/L		05/12/20 15:00	05/19/20 19:57	1
Hexachlorobenzene	ND		0.10		mg/L		05/12/20 15:00	05/19/20 19:57	1
Hexachlorobutadiene	ND		0.10		mg/L		05/12/20 15:00	05/19/20 19:57	1
Hexachloroethane	ND		0.10		mg/L		05/12/20 15:00	05/19/20 19:57	1
Nitrobenzene	ND		0.10		mg/L		05/12/20 15:00	05/19/20 19:57	1
Pentachlorophenol	ND		0.50		mg/L		05/12/20 15:00	05/19/20 19:57	1
Pyridine	ND		0.10		mg/L		05/12/20 15:00	05/19/20 19:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*81*		*50 - 135*	*05/12/20 15:00*	*05/19/20 19:57*	*1*
2-Fluorobiphenyl	*90*		*50 - 135*	*05/12/20 15:00*	*05/19/20 19:57*	*1*
2-Fluorophenol	*77*		*46 - 135*	*05/12/20 15:00*	*05/19/20 19:57*	*1*
Nitrobenzene-d5	*102*		*49 - 135*	*05/12/20 15:00*	*05/19/20 19:57*	*1*
Phenol-d5	*75*		*40 - 135*	*05/12/20 15:00*	*05/19/20 19:57*	*1*
Terphenyl-d14	*95*		*52 - 135*	*05/12/20 15:00*	*05/19/20 19:57*	*1*

Client Sample ID: SUMPCOMP
Date Collected: 05/07/20 12:26
Date Received: 05/08/20 10:45

Lab Sample ID: 280-136380-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.10		mg/L		05/12/20 15:00	05/19/20 21:24	1
2,4,5-Trichlorophenol	ND		0.10		mg/L		05/12/20 15:00	05/19/20 21:24	1
2,4,6-Trichlorophenol	ND		0.10		mg/L		05/12/20 15:00	05/19/20 21:24	1
2,4-Dinitrotoluene	ND		0.10		mg/L		05/12/20 15:00	05/19/20 21:24	1
2-Methylphenol	ND		0.10		mg/L		05/12/20 15:00	05/19/20 21:24	1
3-Methylphenol & 4-Methylphenol	ND		0.10		mg/L		05/12/20 15:00	05/19/20 21:24	1
Hexachlorobenzene	ND		0.10		mg/L		05/12/20 15:00	05/19/20 21:24	1
Hexachlorobutadiene	ND		0.10		mg/L		05/12/20 15:00	05/19/20 21:24	1
Hexachloroethane	ND		0.10		mg/L		05/12/20 15:00	05/19/20 21:24	1
Nitrobenzene	ND		0.10		mg/L		05/12/20 15:00	05/19/20 21:24	1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) - TCLP (Continued)

Client Sample ID: SUMPCOMP
Date Collected: 05/07/20 12:26
Date Received: 05/08/20 10:45

Lab Sample ID: 280-136380-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	ND		0.50		mg/L		05/12/20 15:00	05/19/20 21:24	1
Pyridine	ND		0.10		mg/L		05/12/20 15:00	05/19/20 21:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*77*		*50 - 135*	*05/12/20 15:00*	*05/19/20 21:24*	*1*
2-Fluorobiphenyl	*82*		*50 - 135*	*05/12/20 15:00*	*05/19/20 21:24*	*1*
2-Fluorophenol	*72*		*46 - 135*	*05/12/20 15:00*	*05/19/20 21:24*	*1*
Nitrobenzene-d5	*94*		*49 - 135*	*05/12/20 15:00*	*05/19/20 21:24*	*1*
Phenol-d5	*69*		*40 - 135*	*05/12/20 15:00*	*05/19/20 21:24*	*1*
Terphenyl-d14	*79*		*52 - 135*	*05/12/20 15:00*	*05/19/20 21:24*	*1*

Method: 8081A - Organochlorine Pesticides (GC) - TCLP

Client Sample ID: PRIMARYSUMP
Date Collected: 05/07/20 12:15
Date Received: 05/08/20 10:45

Lab Sample ID: 280-136380-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Endrin	ND		0.00050		mg/L		05/12/20 15:00	05/18/20 23:49	1
Heptachlor	ND		0.00050		mg/L		05/12/20 15:00	05/18/20 23:49	1
Heptachlor epoxide	ND		0.00050		mg/L		05/12/20 15:00	05/18/20 23:49	1
gamma-BHC (Lindane)	ND		0.00050		mg/L		05/12/20 15:00	05/18/20 23:49	1
Toxaphene	ND		0.020		mg/L		05/12/20 15:00	05/18/20 23:49	1
Methoxychlor	ND		0.0010		mg/L		05/12/20 15:00	05/18/20 23:49	1
Technical Chlordane	ND		0.0050		mg/L		05/12/20 15:00	05/18/20 23:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*74*		*34 - 122*	*05/12/20 15:00*	*05/18/20 23:49*	*1*
Tetrachloro-m-xylene	*66*		*28 - 115*	*05/12/20 15:00*	*05/18/20 23:49*	*1*

Client Sample ID: SUMPCOMP
Date Collected: 05/07/20 12:26
Date Received: 05/08/20 10:45

Lab Sample ID: 280-136380-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Endrin	ND		0.00050		mg/L		05/12/20 15:00	05/19/20 00:06	1
Heptachlor	ND		0.00050		mg/L		05/12/20 15:00	05/19/20 00:06	1
Heptachlor epoxide	ND		0.00050		mg/L		05/12/20 15:00	05/19/20 00:06	1
gamma-BHC (Lindane)	ND		0.00050		mg/L		05/12/20 15:00	05/19/20 00:06	1
Toxaphene	ND		0.020		mg/L		05/12/20 15:00	05/19/20 00:06	1
Methoxychlor	ND		0.0010		mg/L		05/12/20 15:00	05/19/20 00:06	1
Technical Chlordane	ND		0.0050		mg/L		05/12/20 15:00	05/19/20 00:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*68*		*34 - 122*	*05/12/20 15:00*	*05/19/20 00:06*	*1*
Tetrachloro-m-xylene	*57*		*28 - 115*	*05/12/20 15:00*	*05/19/20 00:06*	*1*

Method: 8151A - Herbicides (GC) - TCLP

Client Sample ID: PRIMARYSUMP
Date Collected: 05/07/20 12:15
Date Received: 05/08/20 10:45

Lab Sample ID: 280-136380-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	ND		0.040		mg/L		05/14/20 14:22	05/22/20 10:58	1
2,4,5-TP (Silvex)	ND		0.010		mg/L		05/14/20 14:22	05/22/20 10:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*73*		*10 - 131*	*05/14/20 14:22*	*05/22/20 10:58*	*1*

Client Sample ID: SUMPCOMP
Date Collected: 05/07/20 12:26
Date Received: 05/08/20 10:45

Lab Sample ID: 280-136380-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	ND		0.040		mg/L		05/14/20 14:22	05/22/20 11:26	1
2,4,5-TP (Silvex)	ND		0.010		mg/L		05/14/20 14:22	05/22/20 11:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*69*		*10 - 131*	*05/14/20 14:22*	*05/22/20 11:26*	*1*

Method: 6010B - Metals (ICP) - TCLP

Client Sample ID: PRIMARYSUMP
Date Collected: 05/07/20 12:15
Date Received: 05/08/20 10:45

Lab Sample ID: 280-136380-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050		mg/L		05/14/20 09:30	05/22/20 03:41	1
Barium	ND		0.50		mg/L		05/14/20 09:30	05/22/20 03:41	1
Cadmium	ND		0.010		mg/L		05/14/20 09:30	05/22/20 03:41	1
Chromium	ND		0.010		mg/L		05/14/20 09:30	05/22/20 03:41	1
Lead	ND		0.030		mg/L		05/14/20 09:30	05/22/20 03:41	1
Nickel	ND		0.10		mg/L		05/14/20 09:30	05/22/20 03:41	1
Selenium	ND		0.050		mg/L		05/14/20 09:30	05/22/20 03:41	1
Silver	ND		0.010		mg/L		05/14/20 09:30	05/22/20 03:41	1
Thallium	ND		0.10		mg/L		05/14/20 09:30	05/22/20 03:41	1

Client Sample ID: SUMPCOMP
Date Collected: 05/07/20 12:26
Date Received: 05/08/20 10:45

Lab Sample ID: 280-136380-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050		mg/L		05/14/20 09:30	05/22/20 03:54	1
Barium	ND		0.50		mg/L		05/14/20 09:30	05/22/20 03:54	1
Cadmium	ND		0.010		mg/L		05/14/20 09:30	05/22/20 03:54	1
Chromium	ND		0.010		mg/L		05/14/20 09:30	05/22/20 03:54	1
Lead	ND		0.030		mg/L		05/14/20 09:30	05/22/20 03:54	1
Nickel	ND		0.10		mg/L		05/14/20 09:30	05/22/20 03:54	1
Selenium	ND		0.050		mg/L		05/14/20 09:30	05/22/20 03:54	1
Silver	ND		0.010		mg/L		05/14/20 09:30	05/22/20 03:54	1
Thallium	ND		0.10		mg/L		05/14/20 09:30	05/22/20 03:54	1

Method: 7470A - Mercury (CVAA) - TCLP

Client Sample ID: PRIMARYSUMP — **Lab Sample ID: 280-136380-2**
Date Collected: 05/07/20 12:15 — **Matrix: Water**
Date Received: 05/08/20 10:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020		mg/L		05/22/20 12:00	05/22/20 18:26	1

Client Sample ID: SUMPCOMP — **Lab Sample ID: 280-136380-3**
Date Collected: 05/07/20 12:26 — **Matrix: Water**
Date Received: 05/08/20 10:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	F1	0.0020		mg/L		05/22/20 12:00	05/22/20 18:28	1

General Chemistry

Client Sample ID: PRIMARYSUMP — **Lab Sample ID: 280-136380-2**
Date Collected: 05/07/20 12:15 — **Matrix: Water**
Date Received: 05/08/20 10:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Cyanide	**0.022**	**F1**	0.010		mg/L		05/12/20 12:03	05/13/20 11:46	1

Client Sample ID: SUMPCOMP — **Lab Sample ID: 280-136380-3**
Date Collected: 05/07/20 12:26 — **Matrix: Water**
Date Received: 05/08/20 10:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Cyanide	**0.013**		0.010		mg/L		05/12/20 12:03	05/13/20 11:52	1

Method: Field Sampling - Field Sampling

Client Sample ID: PRIMARYSUMP — **Lab Sample ID: 280-136380-2**
Date Collected: 05/07/20 12:15 — **Matrix: Water**
Date Received: 05/08/20 10:45

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	**6.77**				SU			05/07/20 12:15	1
Field Conductivity	**7741**				umhos/cm			05/07/20 12:15	1
Field Temperature	**13.6**				Degrees C			05/07/20 12:15	1
Field Turbidity	**7.06**				NTU			05/07/20 12:15	1
Field Dissolved Oxygen	**5.27**				mg/L			05/07/20 12:15	1
Field EH/ORP	**83.7**				millivolts			05/07/20 12:15	1

Client Sample ID: SUMPCOMP — **Lab Sample ID: 280-136380-3**
Date Collected: 05/07/20 12:26 — **Matrix: Water**
Date Received: 05/08/20 10:45

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	**6.88**				SU			05/07/20 12:26	1
Field Conductivity	**6224**				umhos/cm			05/07/20 12:26	1
Field Temperature	**13.9**				Degrees C			05/07/20 12:26	1
Field Turbidity	**4.50**				NTU			05/07/20 12:26	1
Field Dissolved Oxygen	**5.20**				mg/L			05/07/20 12:26	1
Field EH/ORP	**78.7**				millivolts			05/07/20 12:26	1

Surrogate Summary

Client: Waste Management
Project/Site: 555|Denver/Arapahoe Chem.-Sumps

Job ID: 280-136380-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(70-127)	(78-120)	(77-120)	(80-125)
280-136276-A-5 MS	Matrix Spike	108	105	100	101
280-136276-A-5 MSD	Matrix Spike Duplicate	110	104	100	101
280-136380-1	TRIP BLANK	110	106	100	101
LCS 280-494809/4	Lab Control Sample	108	105	100	101
MB 280-494809/9	Method Blank	111	105	100	101

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water — **Prep Type: TCLP**

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(64-129)	(78-121)	(79-119)	(78-120)
280-136380-2	PRIMARYSUMP	103	101	98	99
280-136380-2 MS	PRIMARYSUMP	100	100	98	99
280-136380-2 MSD	PRIMARYSUMP	100	99	99	98
280-136380-3	SUMPCOMP	103	103	99	98
LB3 280-494351/1-A	Method Blank	103	101	100	99
LCS 280-494351/2-A	Lab Control Sample	103	100	100	99

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Matrix: Water — **Prep Type: TCLP**

		Percent Surrogate Recovery (Acceptance Limits)					
		TBP	FBP	2FP	NBZ	PHL	TPHL
Lab Sample ID	Client Sample ID	(50-135)	(50-135)	(46-135)	(49-135)	(40-135)	(52-135)
280-136380-2	PRIMARYSUMP	81	90	77	102	75	95
280-136380-2 MS	PRIMARYSUMP	85	89	75	104	72	100
280-136380-2 MSD	PRIMARYSUMP	82	88	75	100	73	83
280-136380-3	SUMPCOMP	77	82	72	94	69	79
LB3 280-494349/1-C	Method Blank	73	67	66	72	60	90
LCS 280-494349/2-C	Lab Control Sample	73	67	66	71	59	87

Surrogate Legend

TBP = 2,4,6-Tribromophenol
FBP = 2-Fluorobiphenyl
2FP = 2-Fluorophenol
NBZ = Nitrobenzene-d5
PHL = Phenol-d5
TPHL = Terphenyl-d14

Surrogate Summary

Client: Waste Management
Job ID: 280-136380-1
Project/Site: 555|Denver/Arapahoe Chem.-Sumps

Method: 8081A - Organochlorine Pesticides (GC)

Matrix: Water
Prep Type: TCLP

		Percent Surrogate Recovery (Acceptance Limits)	
		DCBP1	TCX1
Lab Sample ID	Client Sample ID	(34-122)	(28-115)
280-136380-2	PRIMARYSUMP	74	66
280-136380-3	SUMPCOMP	68	57
280-136380-3 MS	SUMPCOMP	70	59
280-136380-3 MSD	SUMPCOMP	74	60
LB3 280-494349/1-D	Method Blank	71	57
LCS 280-494349/2-D	Lab Control Sample	77	69

Surrogate Legend

DCBP = DCB Decachlorobiphenyl

TCX = Tetrachloro-m-xylene

Method: 8151A - Herbicides (GC)

Matrix: Water
Prep Type: TCLP

		Percent Surrogate Recovery (Acceptance Limits)
		DCPAA1
Lab Sample ID	Client Sample ID	(10-131)
280-136380-2	PRIMARYSUMP	73
280-136380-3	SUMPCOMP	69
280-136380-3 MS	SUMPCOMP	73
280-136380-3 MSD	SUMPCOMP	72
LB3 280-494349/1-E	Method Blank	74
LCS 280-494349/2-E	Lab Control Sample	77

Surrogate Legend

DCPAA = 2,4-Dichlorophenylacetic acid

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-494809/9
Matrix: Water
Analysis Batch: 494809

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		5.0		ug/L			05/14/20 11:28	1
1,2-Dichloroethane	ND		1.0		ug/L			05/14/20 11:28	1
2-Butanone (MEK)	ND		100		ug/L			05/14/20 11:28	1
Benzene	ND		5.0		ug/L			05/14/20 11:28	1
Carbon tetrachloride	ND		1.0		ug/L			05/14/20 11:28	1
Chlorobenzene	ND		5.0		ug/L			05/14/20 11:28	1
Chloroform	ND		5.0		ug/L			05/14/20 11:28	1
Tetrachloroethene	ND		5.0		ug/L			05/14/20 11:28	1
Trichloroethene	ND		5.0		ug/L			05/14/20 11:28	1
Vinyl chloride	ND		2.0		ug/L			05/14/20 11:28	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*111*		*70 - 127*		*05/14/20 11:28*	*1*
4-Bromofluorobenzene (Surr)	*105*		*78 - 120*		*05/14/20 11:28*	*1*
Dibromofluoromethane (Surr)	*100*		*77 - 120*		*05/14/20 11:28*	*1*
Toluene-d8 (Surr)	*101*		*80 - 125*		*05/14/20 11:28*	*1*

Lab Sample ID: LCS 280-494809/4
Matrix: Water
Analysis Batch: 494809

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	25.0	24.5		ug/L		98	65 - 135
1,1-Dichloroethane	25.0	24.2		ug/L		97	65 - 135
1,1-Dichloroethene	25.0	20.6		ug/L		82	65 - 136
1,2-Dichloroethane	25.0	26.3		ug/L		105	65 - 135
1,2-Dichloropropane	25.0	24.7		ug/L		99	64 - 135
1,3-Dichlorobenzene	25.0	24.0		ug/L		96	65 - 135
2-Butanone (MEK)	100	102		ug/L		102	44 - 177
Benzene	25.0	23.4		ug/L		94	65 - 135
Bromodichloromethane	25.0	25.4		ug/L		102	65 - 135
Carbon tetrachloride	25.0	24.0		ug/L		96	65 - 135
Chlorobenzene	25.0	24.3		ug/L		97	65 - 135
Chloroform	25.0	24.1		ug/L		96	65 - 135
Ethylbenzene	25.0	24.5		ug/L		98	65 - 135
Methylene Chloride	25.0	22.4		ug/L		90	54 - 141
Tetrachloroethene	25.0	23.3		ug/L		93	65 - 135
Toluene	25.0	23.7		ug/L		95	65 - 135
trans-1,2-Dichloroethene	25.0	22.5		ug/L		90	65 - 135
Trichloroethene	25.0	23.0		ug/L		92	65 - 135
Vinyl chloride	25.0	19.1		ug/L		76	40 - 137

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*108*		*70 - 127*
4-Bromofluorobenzene (Surr)	*105*		*78 - 120*
Dibromofluoromethane (Surr)	*100*		*77 - 120*
Toluene-d8 (Surr)	*101*		*80 - 125*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 280-136276-A-5 MS
Matrix: Water
Analysis Batch: 494809

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	ND		25.0	23.8		ug/L		95	65 - 135
1,1-Dichloroethane	ND		25.0	23.4		ug/L		94	65 - 135
1,1-Dichloroethene	ND		25.0	20.3		ug/L		79	65 - 136
1,2-Dichloroethane	ND		25.0	25.4		ug/L		102	65 - 135
1,2-Dichloropropane	ND		25.0	23.8		ug/L		95	64 - 135
1,3-Dichlorobenzene	ND		25.0	23.0		ug/L		92	65 - 135
2-Butanone (MEK)	ND		100	ND		ug/L		96	44 - 177
Benzene	ND		25.0	22.7		ug/L		91	65 - 135
Bromodichloromethane	ND		25.0	24.6		ug/L		98	65 - 135
Carbon tetrachloride	ND		25.0	23.4		ug/L		94	65 - 135
Chlorobenzene	ND		25.0	23.3		ug/L		93	65 - 135
Chloroform	ND		25.0	23.2		ug/L		92	65 - 135
Ethylbenzene	ND		25.0	23.3		ug/L		93	65 - 135
Methylene Chloride	ND		25.0	21.2		ug/L		85	54 - 141
Tetrachloroethene	ND		25.0	22.3		ug/L		89	65 - 135
Toluene	ND		25.0	22.9		ug/L		92	65 - 135
trans-1,2-Dichloroethene	ND		25.0	22.0		ug/L		87	65 - 135
Trichloroethene	12		25.0	32.8		ug/L		84	65 - 135
Vinyl chloride	ND		25.0	17.5		ug/L		70	40 - 137

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*108*		*70 - 127*
4-Bromofluorobenzene (Surr)	*105*		*78 - 120*
Dibromofluoromethane (Surr)	*100*		*77 - 120*
Toluene-d8 (Surr)	*101*		*80 - 125*

Lab Sample ID: 280-136276-A-5 MSD
Matrix: Water
Analysis Batch: 494809

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane	ND		25.0	23.5		ug/L		94	65 - 135	1	20
1,1-Dichloroethane	ND		25.0	22.9		ug/L		92	65 - 135	2	21
1,1-Dichloroethene	ND		25.0	19.7		ug/L		77	65 - 136	3	20
1,2-Dichloroethane	ND		25.0	25.1		ug/L		100	65 - 135	1	20
1,2-Dichloropropane	ND		25.0	23.0		ug/L		92	64 - 135	3	20
1,3-Dichlorobenzene	ND		25.0	22.1		ug/L		88	65 - 135	4	20
2-Butanone (MEK)	ND		100	ND		ug/L		96	44 - 177	0	32
Benzene	ND		25.0	22.0		ug/L		88	65 - 135	3	20
Bromodichloromethane	ND		25.0	24.3		ug/L		97	65 - 135	1	20
Carbon tetrachloride	ND		25.0	22.6		ug/L		90	65 - 135	4	21
Chlorobenzene	ND		25.0	22.8		ug/L		91	65 - 135	2	20
Chloroform	ND		25.0	23.0		ug/L		91	65 - 135	1	20
Ethylbenzene	ND		25.0	23.0		ug/L		92	65 - 135	1	20
Methylene Chloride	ND		25.0	20.7		ug/L		83	54 - 141	2	26
Tetrachloroethene	ND		25.0	22.1		ug/L		88	65 - 135	1	20
Toluene	ND		25.0	22.3		ug/L		89	65 - 135	3	20
trans-1,2-Dichloroethene	ND		25.0	21.3		ug/L		84	65 - 135	3	24

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 280-136276-A-5 MSD
Matrix: Water
Analysis Batch: 494809

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Trichloroethene	12		25.0	32.3		ug/L		82	65 - 135	1	20
Vinyl chloride	ND		25.0	18.9		ug/L		76	40 - 137	8	24

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*110*		*70 - 127*
4-Bromofluorobenzene (Surr)	*104*		*78 - 120*
Dibromofluoromethane (Surr)	*100*		*77 - 120*
Toluene-d8 (Surr)	*101*		*80 - 125*

Lab Sample ID: LB3 280-494351/1-A
Matrix: Water
Analysis Batch: 495564

Client Sample ID: Method Blank
Prep Type: TCLP

Analyte	LB3 Result	LB3 Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.010		mg/L			05/20/20 13:43	1
1,2-Dichloroethane	ND		0.010		mg/L			05/20/20 13:43	1
2-Butanone	ND		0.10		mg/L			05/20/20 13:43	1
Benzene	ND		0.010		mg/L			05/20/20 13:43	1
Carbon tetrachloride	ND		0.010		mg/L			05/20/20 13:43	1
Chlorobenzene	ND		0.010		mg/L			05/20/20 13:43	1
Chloroform	ND		0.010		mg/L			05/20/20 13:43	1
Tetrachloroethene	ND		0.010		mg/L			05/20/20 13:43	1
Trichloroethene	ND		0.010		mg/L			05/20/20 13:43	1
Vinyl chloride	ND		0.010		mg/L			05/20/20 13:43	1

Surrogate	*LB3 %Recovery*	*LB3 Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*64 - 129*		*05/20/20 13:43*	*1*
4-Bromofluorobenzene (Surr)	*101*		*78 - 121*		*05/20/20 13:43*	*1*
Dibromofluoromethane (Surr)	*100*		*79 - 119*		*05/20/20 13:43*	*1*
Toluene-d8 (Surr)	*99*		*78 - 120*		*05/20/20 13:43*	*1*

Lab Sample ID: LCS 280-494351/2-A
Matrix: Water
Analysis Batch: 495564

Client Sample ID: Lab Control Sample
Prep Type: TCLP

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	0.250	0.255		mg/L		102	71 - 136
1,2-Dichloroethane	0.250	0.256		mg/L		102	70 - 135
2-Butanone	1.00	1.02		mg/L		102	44 - 150
Benzene	0.250	0.241		mg/L		96	74 - 135
Carbon tetrachloride	0.250	0.208		mg/L		83	67 - 135
Chlorobenzene	0.250	0.245		mg/L		98	76 - 135
Chloroform	0.250	0.239		mg/L		95	76 - 120
Tetrachloroethene	0.250	0.230		mg/L		92	70 - 135
Trichloroethene	0.250	0.226		mg/L		90	73 - 135
Vinyl chloride	0.250	0.177		mg/L		71	40 - 144

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-494351/2-A
Matrix: Water
Analysis Batch: 495564

Client Sample ID: Lab Control Sample
Prep Type: TCLP

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	*103*		*64 - 129*
4-Bromofluorobenzene (Surr)	*100*		*78 - 121*
Dibromofluoromethane (Surr)	*100*		*79 - 119*
Toluene-d8 (Surr)	*99*		*78 - 120*

Lab Sample ID: 280-136380-2 MS
Matrix: Water
Analysis Batch: 495564

Client Sample ID: PRIMARYSUMP
Prep Type: TCLP

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	ND		0.250	0.220		mg/L		88	71 - 136
1,2-Dichloroethane	ND		0.250	0.226		mg/L		91	70 - 135
2-Butanone	ND		1.00	0.996		mg/L		100	44 - 150
Benzene	ND		0.250	0.205		mg/L		82	74 - 135
Carbon tetrachloride	ND		0.250	0.183		mg/L		73	67 - 135
Chlorobenzene	ND		0.250	0.207		mg/L		83	76 - 135
Chloroform	ND		0.250	0.205		mg/L		82	76 - 120
Tetrachloroethene	0.021		0.250	0.221		mg/L		80	70 - 135
Trichloroethene	ND		0.250	0.198		mg/L		77	73 - 135
Vinyl chloride	ND		0.250	0.192		mg/L		77	40 - 144

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	*100*		*64 - 129*
4-Bromofluorobenzene (Surr)	*100*		*78 - 121*
Dibromofluoromethane (Surr)	*98*		*79 - 119*
Toluene-d8 (Surr)	*99*		*78 - 120*

Lab Sample ID: 280-136380-2 MSD
Matrix: Water
Analysis Batch: 495564

Client Sample ID: PRIMARYSUMP
Prep Type: TCLP

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	ND		0.250	0.248		mg/L		99	71 - 136	12	20
1,2-Dichloroethane	ND		0.250	0.238		mg/L		95	70 - 135	5	20
2-Butanone	ND		1.00	0.996		mg/L		100	44 - 150	0	32
Benzene	ND		0.250	0.219		mg/L		87	74 - 135	6	20
Carbon tetrachloride	ND		0.250	0.192		mg/L		77	67 - 135	5	21
Chlorobenzene	ND		0.250	0.215		mg/L		86	76 - 135	4	20
Chloroform	ND		0.250	0.219		mg/L		87	76 - 120	6	20
Tetrachloroethene	0.021		0.250	0.235		mg/L		85	70 - 135	6	20
Trichloroethene	ND		0.250	0.207		mg/L		80	73 - 135	5	20
Vinyl chloride	ND		0.250	0.182		mg/L		73	40 - 144	6	24

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	*100*		*64 - 129*
4-Bromofluorobenzene (Surr)	*99*		*78 - 121*
Dibromofluoromethane (Surr)	*99*		*79 - 119*
Toluene-d8 (Surr)	*98*		*78 - 120*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: LB3 280-494349/1-C
Matrix: Water
Analysis Batch: 495789

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 494578

Analyte	LB3 Result	LB3 Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.10		mg/L		05/12/20 15:00	05/22/20 04:37	1
2,4,5-Trichlorophenol	ND		0.10		mg/L		05/12/20 15:00	05/22/20 04:37	1
2,4,6-Trichlorophenol	ND		0.10		mg/L		05/12/20 15:00	05/22/20 04:37	1
2,4-Dinitrotoluene	ND		0.10		mg/L		05/12/20 15:00	05/22/20 04:37	1
2-Methylphenol	ND		0.10		mg/L		05/12/20 15:00	05/22/20 04:37	1
3-Methylphenol & 4-Methylphenol	ND		0.10		mg/L		05/12/20 15:00	05/22/20 04:37	1
Hexachlorobenzene	ND		0.10		mg/L		05/12/20 15:00	05/22/20 04:37	1
Hexachlorobutadiene	ND		0.10		mg/L		05/12/20 15:00	05/22/20 04:37	1
Hexachloroethane	ND		0.10		mg/L		05/12/20 15:00	05/22/20 04:37	1
Nitrobenzene	ND		0.10		mg/L		05/12/20 15:00	05/22/20 04:37	1
Pentachlorophenol	ND		0.50		mg/L		05/12/20 15:00	05/22/20 04:37	1
Pyridine	ND		0.10		mg/L		05/12/20 15:00	05/22/20 04:37	1

Surrogate	*LB3 %Recovery*	*LB3 Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*73*		*50 - 135*	*05/12/20 15:00*	*05/22/20 04:37*	*1*
2-Fluorobiphenyl	*67*		*50 - 135*	*05/12/20 15:00*	*05/22/20 04:37*	*1*
2-Fluorophenol	*66*		*46 - 135*	*05/12/20 15:00*	*05/22/20 04:37*	*1*
Nitrobenzene-d5	*72*		*49 - 135*	*05/12/20 15:00*	*05/22/20 04:37*	*1*
Phenol-d5	*60*		*40 - 135*	*05/12/20 15:00*	*05/22/20 04:37*	*1*
Terphenyl-d14	*90*		*52 - 135*	*05/12/20 15:00*	*05/22/20 04:37*	*1*

Lab Sample ID: LCS 280-494349/2-C
Matrix: Water
Analysis Batch: 495789

Client Sample ID: Lab Control Sample
Prep Type: TCLP
Prep Batch: 494578

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dichlorobenzene	0.248	0.149		mg/L		60	44 - 135
2,4,5-Trichlorophenol	0.248	0.181		mg/L		73	56 - 135
2,4,6-Trichlorophenol	0.248	0.184		mg/L		74	53 - 135
2,4-Dinitrotoluene	0.0990	0.0598	J	mg/L		60	37 - 135
2-Methylphenol	0.248	0.173		mg/L		70	51 - 135
3-Methylphenol & 4-Methylphenol	0.495	0.341		mg/L		69	50 - 135
Hexachlorobenzene	0.0990	0.0700	J	mg/L		71	60 - 135
Hexachlorobutadiene	0.248	0.132		mg/L		53	41 - 135
Hexachloroethane	0.248	0.131		mg/L		53	41 - 135
Nitrobenzene	0.248	0.174		mg/L		70	50 - 135
Pentachlorophenol	0.495	0.368	J	mg/L		74	33 - 135
Pyridine	0.248	0.145		mg/L		58	10 - 135

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4,6-Tribromophenol	*73*		*50 - 135*
2-Fluorobiphenyl	*67*		*50 - 135*
2-Fluorophenol	*66*		*46 - 135*
Nitrobenzene-d5	*71*		*49 - 135*
Phenol-d5	*59*		*40 - 135*
Terphenyl-d14	*87*		*52 - 135*

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 280-136380-2 MS
Matrix: Water
Analysis Batch: 495434

Client Sample ID: PRIMARYSUMP
Prep Type: TCLP
Prep Batch: 494578

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dichlorobenzene	ND		0.253	0.187		mg/L		74	44 - 135
2,4,5-Trichlorophenol	ND		0.253	0.214		mg/L		85	56 - 135
2,4,6-Trichlorophenol	ND		0.253	0.212		mg/L		84	53 - 135
2,4-Dinitrotoluene	ND		0.101	ND		mg/L		68	37 - 135
2-Methylphenol	ND		0.253	0.240		mg/L		95	51 - 135
3-Methylphenol & 4-Methylphenol	ND		0.505	0.465		mg/L		92	50 - 135
Hexachlorobenzene	ND		0.101	ND		mg/L		87	60 - 135
Hexachlorobutadiene	ND		0.253	0.154		mg/L		61	41 - 135
Hexachloroethane	ND		0.253	0.197		mg/L		78	41 - 135
Nitrobenzene	ND		0.253	0.277		mg/L		110	50 - 135
Pentachlorophenol	ND		0.505	ND		mg/L		78	33 - 135
Pyridine	ND		0.253	0.181		mg/L		72	10 - 135

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2,4,6-Tribromophenol	*85*		*50 - 135*
2-Fluorobiphenyl	*89*		*50 - 135*
2-Fluorophenol	*75*		*46 - 135*
Nitrobenzene-d5	*104*		*49 - 135*
Phenol-d5	*72*		*40 - 135*
Terphenyl-d14	*100*		*52 - 135*

Lab Sample ID: 280-136380-2 MSD
Matrix: Water
Analysis Batch: 495434

Client Sample ID: PRIMARYSUMP
Prep Type: TCLP
Prep Batch: 494578

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dichlorobenzene	ND		0.251	0.183		mg/L		73	44 - 135	2	30
2,4,5-Trichlorophenol	ND		0.251	0.214		mg/L		85	56 - 135	0	30
2,4,6-Trichlorophenol	ND		0.251	0.206		mg/L		82	53 - 135	3	30
2,4-Dinitrotoluene	ND		0.101	ND		mg/L		67	37 - 135	2	30
2-Methylphenol	ND		0.251	0.229		mg/L		91	51 - 135	5	30
3-Methylphenol & 4-Methylphenol	ND		0.503	0.452		mg/L		90	50 - 135	3	30
Hexachlorobenzene	ND		0.101	ND		mg/L		75	60 - 135	14	30
Hexachlorobutadiene	ND		0.251	0.160		mg/L		64	41 - 135	4	30
Hexachloroethane	ND		0.251	0.198		mg/L		79	41 - 135	1	30
Nitrobenzene	ND		0.251	0.273		mg/L		109	50 - 135	2	30
Pentachlorophenol	ND		0.503	ND		mg/L		79	33 - 135	1	30
Pyridine	ND		0.251	0.169		mg/L		67	10 - 135	7	50

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2,4,6-Tribromophenol	*82*		*50 - 135*
2-Fluorobiphenyl	*88*		*50 - 135*
2-Fluorophenol	*75*		*46 - 135*
Nitrobenzene-d5	*100*		*49 - 135*
Phenol-d5	*73*		*40 - 135*
Terphenyl-d14	*83*		*52 - 135*

Method: 8081A - Organochlorine Pesticides (GC)

Lab Sample ID: LB3 280-494349/1-D
Matrix: Water
Analysis Batch: 495217

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 494579

Analyte	LB3 Result	LB3 Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Endrin	ND		0.00050		mg/L		05/12/20 15:00	05/19/20 00:59	1
Heptachlor	ND		0.00050		mg/L		05/12/20 15:00	05/19/20 00:59	1
Heptachlor epoxide	ND		0.00050		mg/L		05/12/20 15:00	05/19/20 00:59	1
gamma-BHC (Lindane)	ND		0.00050		mg/L		05/12/20 15:00	05/19/20 00:59	1
Toxaphene	ND		0.020		mg/L		05/12/20 15:00	05/19/20 00:59	1
Methoxychlor	ND		0.0010		mg/L		05/12/20 15:00	05/19/20 00:59	1
Technical Chlordane	ND		0.0050		mg/L		05/12/20 15:00	05/19/20 00:59	1

Surrogate	*LB3 %Recovery*	*LB3 Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*71*		*34 - 122*	*05/12/20 15:00*	*05/19/20 00:59*	*1*
Tetrachloro-m-xylene	*57*		*28 - 115*	*05/12/20 15:00*	*05/19/20 00:59*	*1*

Lab Sample ID: LCS 280-494349/2-D
Matrix: Water
Analysis Batch: 495217

Client Sample ID: Lab Control Sample
Prep Type: TCLP
Prep Batch: 494579

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Endrin	0.00490	0.00441		mg/L		90	56 - 139
Heptachlor	0.00490	0.00397		mg/L		81	52 - 133
Heptachlor epoxide	0.00490	0.00435		mg/L		89	54 - 134
gamma-BHC (Lindane)	0.00490	0.00418		mg/L		85	53 - 131
Methoxychlor	0.00490	0.00433		mg/L		88	54 - 138

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl	*77*		*34 - 122*
Tetrachloro-m-xylene	*69*		*28 - 115*

Lab Sample ID: 280-136380-3 MS
Matrix: Water
Analysis Batch: 495217

Client Sample ID: SUMPCOMP
Prep Type: TCLP
Prep Batch: 494579

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Endrin	ND		0.00481	0.00434		mg/L		90	72 - 126
Heptachlor	ND		0.00481	0.00381		mg/L		77	65 - 122
Heptachlor epoxide	ND		0.00481	0.00420		mg/L		87	69 - 121
gamma-BHC (Lindane)	ND		0.00481	0.00388		mg/L		81	68 - 119
Methoxychlor	ND		0.00481	0.00537		mg/L		112	67 - 127

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
DCB Decachlorobiphenyl	*70*		*34 - 122*
Tetrachloro-m-xylene	*59*		*28 - 115*

Lab Sample ID: 280-136380-3 MSD
Matrix: Water
Analysis Batch: 495217

Client Sample ID: SUMPCOMP
Prep Type: TCLP
Prep Batch: 494579

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Endrin	ND		0.00490	0.00439		mg/L		90	72 - 126	1	30

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: 280-136380-3 MSD
Matrix: Water
Analysis Batch: 495217

Client Sample ID: SUMPCOMP
Prep Type: TCLP
Prep Batch: 494579

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Heptachlor	ND		0.00490	0.00380		mg/L		76	65 - 122	0	30
Heptachlor epoxide	ND		0.00490	0.00438		mg/L		89	69 - 121	4	30
gamma-BHC (Lindane)	ND		0.00490	0.00396		mg/L		81	68 - 119	2	30
Methoxychlor	ND		0.00490	0.00524		mg/L		107	67 - 127	2	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
DCB Decachlorobiphenyl	*74*		*34 - 122*
Tetrachloro-m-xylene	*60*		*28 - 115*

Method: 8151A - Herbicides (GC)

Lab Sample ID: LB3 280-494349/1-E
Matrix: Water
Analysis Batch: 495736

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 494888

Analyte	LB3 Result	LB3 Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	ND		0.040		mg/L		05/14/20 14:22	05/22/20 10:04	1
2,4,5-TP (Silvex)	ND		0.010		mg/L		05/14/20 14:22	05/22/20 10:04	1

Surrogate	*LB3 %Recovery*	*LB3 Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*74*		*10 - 131*	*05/14/20 14:22*	*05/22/20 10:04*	*1*

Lab Sample ID: LCS 280-494349/2-E
Matrix: Water
Analysis Batch: 495736

Client Sample ID: Lab Control Sample
Prep Type: TCLP
Prep Batch: 494888

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
2,4-D			0.0481	0.0364	J	mg/L		76	13 - 115		
2,4,5-TP (Silvex)			0.0481	0.0382		mg/L		79	10 - 158		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4-Dichlorophenylacetic acid	*77*		*10 - 131*

Lab Sample ID: 280-136380-3 MS
Matrix: Water
Analysis Batch: 495736

Client Sample ID: SUMPCOMP
Prep Type: TCLP
Prep Batch: 494888

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
2,4-D	ND		0.0490	ND		mg/L		57	13 - 115		
2,4,5-TP (Silvex)	ND		0.0490	0.0319		mg/L		65	10 - 158		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2,4-Dichlorophenylacetic acid	*73*		*10 - 131*

Method: 8151A - Herbicides (GC) (Continued)

Lab Sample ID: 280-136380-3 MSD
Matrix: Water
Analysis Batch: 495736

Client Sample ID: SUMPCOMP
Prep Type: TCLP
Prep Batch: 494888

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,4-D	ND		0.0481	ND		mg/L		57	13 - 115	2	30
2,4,5-TP (Silvex)	ND		0.0481	0.0320		mg/L		67	10 - 158	0	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2,4-Dichlorophenylacetic acid	*72*		*10 - 131*

Method: 6010B - Metals (ICP)

Lab Sample ID: LB3 280-494349/1-B
Matrix: Water
Analysis Batch: 495900

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 494454

Analyte	LB3 Result	LB3 Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050		mg/L		05/14/20 09:30	05/22/20 03:31	1
Barium	ND		0.50		mg/L		05/14/20 09:30	05/22/20 03:31	1
Cadmium	ND		0.010		mg/L		05/14/20 09:30	05/22/20 03:31	1
Chromium	ND		0.010		mg/L		05/14/20 09:30	05/22/20 03:31	1
Lead	ND		0.030		mg/L		05/14/20 09:30	05/22/20 03:31	1
Nickel	ND		0.10		mg/L		05/14/20 09:30	05/22/20 03:31	1
Selenium	ND		0.050		mg/L		05/14/20 09:30	05/22/20 03:31	1
Silver	ND		0.010		mg/L		05/14/20 09:30	05/22/20 03:31	1
Thallium	ND		0.10		mg/L		05/14/20 09:30	05/22/20 03:31	1

Lab Sample ID: LCS 280-494349/2-B
Matrix: Water
Analysis Batch: 495900

Client Sample ID: Lab Control Sample
Prep Type: TCLP
Prep Batch: 494454

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	5.00	4.80		mg/L		96	80 - 118
Barium	12.0	11.9		mg/L		99	80 - 120
Cadmium	2.00	1.95		mg/L		98	80 - 117
Chromium	6.00	5.96		mg/L		99	80 - 120
Lead	6.00	5.80		mg/L		97	80 - 120
Nickel	1.00	0.995		mg/L		99	80 - 115
Selenium	3.00	2.83		mg/L		94	80 - 119
Silver	1.05	0.971		mg/L		92	80 - 120
Thallium	2.00	1.93		mg/L		97	80 - 118

Lab Sample ID: LCSD 280-494349/3-B
Matrix: Water
Analysis Batch: 495900

Client Sample ID: Lab Control Sample Dup
Prep Type: TCLP
Prep Batch: 494454

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	5.00	4.88		mg/L		98	80 - 118	2	20
Barium	12.0	12.0		mg/L		100	80 - 120	1	20
Cadmium	2.00	1.99		mg/L		100	80 - 117	2	20
Chromium	6.00	6.07		mg/L		101	80 - 120	2	20
Lead	6.00	5.87		mg/L		98	80 - 120	1	20
Nickel	1.00	1.02		mg/L		102	80 - 115	2	20

Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: LCSD 280-494349/3-B
Matrix: Water
Analysis Batch: 495900

Client Sample ID: Lab Control Sample Dup
Prep Type: TCLP
Prep Batch: 494454

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Selenium			3.00	2.86		mg/L		95	80 - 119	1	20
Silver			1.05	0.985		mg/L		94	80 - 120	1	20
Thallium			2.00	1.98		mg/L		99	80 - 118	2	20

Lab Sample ID: 280-136380-2 MS
Matrix: Water
Analysis Batch: 495900

Client Sample ID: PRIMARYSUMP
Prep Type: TCLP
Prep Batch: 494454

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	ND		5.00	5.11		mg/L		102	75 - 125
Barium	ND		12.0	12.0		mg/L		99	75 - 120
Cadmium	ND		2.00	1.95		mg/L		98	75 - 121
Chromium	ND		6.00	6.04		mg/L		101	75 - 123
Lead	ND		6.00	5.79		mg/L		96	75 - 119
Nickel	ND		1.00	1.08		mg/L		100	75 - 118
Selenium	ND		3.00	2.95		mg/L		97	75 - 121
Silver	ND		1.05	1.01		mg/L		96	75 - 120
Thallium	ND		2.00	1.92		mg/L		96	75 - 115

Lab Sample ID: 280-136380-2 MSD
Matrix: Water
Analysis Batch: 495900

Client Sample ID: PRIMARYSUMP
Prep Type: TCLP
Prep Batch: 494454

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	ND		5.00	5.12		mg/L		102	75 - 125	0	20
Barium	ND		12.0	12.1		mg/L		101	75 - 120	1	20
Cadmium	ND		2.00	1.97		mg/L		99	75 - 121	1	20
Chromium	ND		6.00	6.09		mg/L		101	75 - 123	1	20
Lead	ND		6.00	5.82		mg/L		97	75 - 119	1	20
Nickel	ND		1.00	1.10		mg/L		102	75 - 118	2	20
Selenium	ND		3.00	2.98		mg/L		98	75 - 121	1	20
Silver	ND		1.05	1.02		mg/L		97	75 - 120	1	20
Thallium	ND		2.00	1.95		mg/L		98	75 - 115	2	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: LB3 280-494349/1-F
Matrix: Water
Analysis Batch: 496102

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 495858

Analyte	LB3 Result	LB3 Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020		mg/L		05/22/20 12:00	05/22/20 18:22	1

Lab Sample ID: LCS 280-494349/2-F
Matrix: Water
Analysis Batch: 496102

Client Sample ID: Lab Control Sample
Prep Type: TCLP
Prep Batch: 495858

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury			0.00500	0.00539		mg/L		108	90 - 116

Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: 280-136380-3 MS
Matrix: Water
Analysis Batch: 496102

Client Sample ID: SUMPCOMP
Prep Type: TCLP
Prep Batch: 495858

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND	F1	0.00500	0.00519	F1	mg/L		83	90 - 116

Lab Sample ID: 280-136380-3 MSD
Matrix: Water
Analysis Batch: 496102

Client Sample ID: SUMPCOMP
Prep Type: TCLP
Prep Batch: 495858

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND	F1	0.00500	0.00531	F1	mg/L		86	90 - 116	2	10

Method: 335.4 - Cyanide, Total

Lab Sample ID: MB 280-494545/4-A
Matrix: Water
Analysis Batch: 494714

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 494545

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Cyanide	ND		0.010		mg/L		05/12/20 12:03	05/13/20 11:44	1

Lab Sample ID: HLCS 280-494545/1-A
Matrix: Water
Analysis Batch: 494714

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 494545

Analyte	Spike Added	HLCS Result	HLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Cyanide	0.350	0.346		mg/L		99	90 - 110

Lab Sample ID: LCS 280-494545/3-A
Matrix: Water
Analysis Batch: 494714

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 494545

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Cyanide	0.100	0.0946		mg/L		95	90 - 110

Lab Sample ID: LLCS 280-494545/2-A
Matrix: Water
Analysis Batch: 494714

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 494545

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Cyanide	0.100	0.0947		mg/L		95	90 - 110

Lab Sample ID: 280-136380-2 MS
Matrix: Water
Analysis Batch: 494714

Client Sample ID: PRIMARYSUMP
Prep Type: Total/NA
Prep Batch: 494545

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Cyanide	0.022	F1	0.100	0.0976	F1	mg/L		76	90 - 110

Client: Waste Management
Project/Site: 555|Denver/Arapahoe Chem.-Sumps

Job ID: 280-136380-1

Method: 335.4 - Cyanide, Total (Continued)

Lab Sample ID: 280-136380-2 MSD
Matrix: Water
Analysis Batch: 494714

Client Sample ID: PRIMARYSUMP
Prep Type: Total/NA
Prep Batch: 494545

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Cyanide	0.022	F1	0.100	0.111		mg/L		90	90 - 110	13	20

QC Association Summary

Client: Waste Management
Project/Site: 555|Denver/Arapahoe Chem.-Sumps

Job ID: 280-136380-1

GC/MS VOA

Leach Batch: 494351

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136380-2	PRIMARYSUMP	TCLP	Water	1311	
280-136380-3	SUMPCOMP	TCLP	Water	1311	
LB3 280-494351/1-A	Method Blank	TCLP	Water	1311	
LCS 280-494351/2-A	Lab Control Sample	TCLP	Water	1311	
280-136380-2 MS	PRIMARYSUMP	TCLP	Water	1311	
280-136380-2 MSD	PRIMARYSUMP	TCLP	Water	1311	

Analysis Batch: 494809

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136380-1	TRIP BLANK	Total/NA	Water	8260B	
MB 280-494809/9	Method Blank	Total/NA	Water	8260B	
LCS 280-494809/4	Lab Control Sample	Total/NA	Water	8260B	
280-136276-A-5 MS	Matrix Spike	Total/NA	Water	8260B	
280-136276-A-5 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Analysis Batch: 495564

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136380-2	PRIMARYSUMP	TCLP	Water	8260B	494351
280-136380-3	SUMPCOMP	TCLP	Water	8260B	494351
LB3 280-494351/1-A	Method Blank	TCLP	Water	8260B	494351
LCS 280-494351/2-A	Lab Control Sample	TCLP	Water	8260B	494351
280-136380-2 MS	PRIMARYSUMP	TCLP	Water	8260B	494351
280-136380-2 MSD	PRIMARYSUMP	TCLP	Water	8260B	494351

GC/MS Semi VOA

Leach Batch: 494349

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136380-2	PRIMARYSUMP	TCLP	Water	1311	
280-136380-3	SUMPCOMP	TCLP	Water	1311	
LB3 280-494349/1-C	Method Blank	TCLP	Water	1311	
LCS 280-494349/2-C	Lab Control Sample	TCLP	Water	1311	
280-136380-2 MS	PRIMARYSUMP	TCLP	Water	1311	
280-136380-2 MSD	PRIMARYSUMP	TCLP	Water	1311	

Prep Batch: 494578

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136380-2	PRIMARYSUMP	TCLP	Water	3510C	494349
280-136380-3	SUMPCOMP	TCLP	Water	3510C	494349
LB3 280-494349/1-C	Method Blank	TCLP	Water	3510C	494349
LCS 280-494349/2-C	Lab Control Sample	TCLP	Water	3510C	494349
280-136380-2 MS	PRIMARYSUMP	TCLP	Water	3510C	494349
280-136380-2 MSD	PRIMARYSUMP	TCLP	Water	3510C	494349

Analysis Batch: 495434

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136380-2	PRIMARYSUMP	TCLP	Water	8270C	494578
280-136380-3	SUMPCOMP	TCLP	Water	8270C	494578
280-136380-2 MS	PRIMARYSUMP	TCLP	Water	8270C	494578
280-136380-2 MSD	PRIMARYSUMP	TCLP	Water	8270C	494578

QC Association Summary

Client: Waste Management
Project/Site: 555|Denver/Arapahoe Chem.-Sumps

Job ID: 280-136380-1

GC/MS Semi VOA

Analysis Batch: 495789

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LB3 280-494349/1-C	Method Blank	TCLP	Water	8270C	494578
LCS 280-494349/2-C	Lab Control Sample	TCLP	Water	8270C	494578

GC Semi VOA

Leach Batch: 494349

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136380-2	PRIMARYSUMP	TCLP	Water	1311	
280-136380-3	SUMPCOMP	TCLP	Water	1311	
LB3 280-494349/1-D	Method Blank	TCLP	Water	1311	
LB3 280-494349/1-E	Method Blank	TCLP	Water	1311	
LCS 280-494349/2-D	Lab Control Sample	TCLP	Water	1311	
LCS 280-494349/2-E	Lab Control Sample	TCLP	Water	1311	
280-136380-3 MS	SUMPCOMP	TCLP	Water	1311	
280-136380-3 MSD	SUMPCOMP	TCLP	Water	1311	

Prep Batch: 494579

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136380-2	PRIMARYSUMP	TCLP	Water	3510C	494349
280-136380-3	SUMPCOMP	TCLP	Water	3510C	494349
LB3 280-494349/1-D	Method Blank	TCLP	Water	3510C	494349
LCS 280-494349/2-D	Lab Control Sample	TCLP	Water	3510C	494349
280-136380-3 MS	SUMPCOMP	TCLP	Water	3510C	494349
280-136380-3 MSD	SUMPCOMP	TCLP	Water	3510C	494349

Prep Batch: 494888

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136380-2	PRIMARYSUMP	TCLP	Water	8151A	494349
280-136380-3	SUMPCOMP	TCLP	Water	8151A	494349
LB3 280-494349/1-E	Method Blank	TCLP	Water	8151A	494349
LCS 280-494349/2-E	Lab Control Sample	TCLP	Water	8151A	494349
280-136380-3 MS	SUMPCOMP	TCLP	Water	8151A	494349
280-136380-3 MSD	SUMPCOMP	TCLP	Water	8151A	494349

Analysis Batch: 495217

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136380-2	PRIMARYSUMP	TCLP	Water	8081A	494579
280-136380-3	SUMPCOMP	TCLP	Water	8081A	494579
LB3 280-494349/1-D	Method Blank	TCLP	Water	8081A	494579
LCS 280-494349/2-D	Lab Control Sample	TCLP	Water	8081A	494579
280-136380-3 MS	SUMPCOMP	TCLP	Water	8081A	494579
280-136380-3 MSD	SUMPCOMP	TCLP	Water	8081A	494579

Analysis Batch: 495736

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136380-2	PRIMARYSUMP	TCLP	Water	8151A	494888
280-136380-3	SUMPCOMP	TCLP	Water	8151A	494888
LB3 280-494349/1-E	Method Blank	TCLP	Water	8151A	494888
LCS 280-494349/2-E	Lab Control Sample	TCLP	Water	8151A	494888
280-136380-3 MS	SUMPCOMP	TCLP	Water	8151A	494888
280-136380-3 MSD	SUMPCOMP	TCLP	Water	8151A	494888

Metals

Leach Batch: 494349

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136380-2	PRIMARYSUMP	TCLP	Water	1311	
280-136380-3	SUMPCOMP	TCLP	Water	1311	
LB3 280-494349/1-B	Method Blank	TCLP	Water	1311	
LB3 280-494349/1-F	Method Blank	TCLP	Water	1311	
LCS 280-494349/2-B	Lab Control Sample	TCLP	Water	1311	
LCS 280-494349/2-F	Lab Control Sample	TCLP	Water	1311	
LCSD 280-494349/3-B	Lab Control Sample Dup	TCLP	Water	1311	
280-136380-2 MS	PRIMARYSUMP	TCLP	Water	1311	
280-136380-2 MSD	PRIMARYSUMP	TCLP	Water	1311	
280-136380-3 MS	SUMPCOMP	TCLP	Water	1311	
280-136380-3 MSD	SUMPCOMP	TCLP	Water	1311	

Prep Batch: 494454

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136380-2	PRIMARYSUMP	TCLP	Water	3010A	494349
280-136380-3	SUMPCOMP	TCLP	Water	3010A	494349
LB3 280-494349/1-B	Method Blank	TCLP	Water	3010A	494349
LCS 280-494349/2-B	Lab Control Sample	TCLP	Water	3010A	494349
LCSD 280-494349/3-B	Lab Control Sample Dup	TCLP	Water	3010A	494349
280-136380-2 MS	PRIMARYSUMP	TCLP	Water	3010A	494349
280-136380-2 MSD	PRIMARYSUMP	TCLP	Water	3010A	494349

Prep Batch: 495858

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136380-2	PRIMARYSUMP	TCLP	Water	7470A	494349
280-136380-3	SUMPCOMP	TCLP	Water	7470A	494349
LB3 280-494349/1-F	Method Blank	TCLP	Water	7470A	494349
LCS 280-494349/2-F	Lab Control Sample	TCLP	Water	7470A	494349
280-136380-3 MS	SUMPCOMP	TCLP	Water	7470A	494349
280-136380-3 MSD	SUMPCOMP	TCLP	Water	7470A	494349

Analysis Batch: 495900

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136380-2	PRIMARYSUMP	TCLP	Water	6010B	494454
280-136380-3	SUMPCOMP	TCLP	Water	6010B	494454
LB3 280-494349/1-B	Method Blank	TCLP	Water	6010B	494454
LCS 280-494349/2-B	Lab Control Sample	TCLP	Water	6010B	494454
LCSD 280-494349/3-B	Lab Control Sample Dup	TCLP	Water	6010B	494454
280-136380-2 MS	PRIMARYSUMP	TCLP	Water	6010B	494454
280-136380-2 MSD	PRIMARYSUMP	TCLP	Water	6010B	494454

Analysis Batch: 496102

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136380-2	PRIMARYSUMP	TCLP	Water	7470A	495858
280-136380-3	SUMPCOMP	TCLP	Water	7470A	495858
LB3 280-494349/1-F	Method Blank	TCLP	Water	7470A	495858
LCS 280-494349/2-F	Lab Control Sample	TCLP	Water	7470A	495858
280-136380-3 MS	SUMPCOMP	TCLP	Water	7470A	495858
280-136380-3 MSD	SUMPCOMP	TCLP	Water	7470A	495858

QC Association Summary

Client: Waste Management
Project/Site: 555|Denver/Arapahoe Chem.-Sumps

Job ID: 280-136380-1

General Chemistry

Prep Batch: 494545

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136380-2	PRIMARYSUMP	Total/NA	Water	Distill/CN	
280-136380-3	SUMPCOMP	Total/NA	Water	Distill/CN	
MB 280-494545/4-A	Method Blank	Total/NA	Water	Distill/CN	
HLCS 280-494545/1-A	Lab Control Sample	Total/NA	Water	Distill/CN	
LCS 280-494545/3-A	Lab Control Sample	Total/NA	Water	Distill/CN	
LLCS 280-494545/2-A	Lab Control Sample	Total/NA	Water	Distill/CN	
280-136380-2 MS	PRIMARYSUMP	Total/NA	Water	Distill/CN	
280-136380-2 MSD	PRIMARYSUMP	Total/NA	Water	Distill/CN	

Analysis Batch: 494714

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136380-2	PRIMARYSUMP	Total/NA	Water	335.4	494545
280-136380-3	SUMPCOMP	Total/NA	Water	335.4	494545
MB 280-494545/4-A	Method Blank	Total/NA	Water	335.4	494545
HLCS 280-494545/1-A	Lab Control Sample	Total/NA	Water	335.4	494545
LCS 280-494545/3-A	Lab Control Sample	Total/NA	Water	335.4	494545
LLCS 280-494545/2-A	Lab Control Sample	Total/NA	Water	335.4	494545
280-136380-2 MS	PRIMARYSUMP	Total/NA	Water	335.4	494545
280-136380-2 MSD	PRIMARYSUMP	Total/NA	Water	335.4	494545

Field Service / Mobile Lab

Analysis Batch: 494444

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136380-2	PRIMARYSUMP	Total/NA	Water	Field Sampling	
280-136380-3	SUMPCOMP	Total/NA	Water	Field Sampling	

Lab Chronicle

Client: Waste Management
Job ID: 280-136380-1
Project/Site: 555|Denver/Arapahoe Chem.-Sumps

Client Sample ID: TRIP BLANK
Lab Sample ID: 280-136380-1
Date Collected: 05/07/20 12:26
Matrix: Water
Date Received: 05/08/20 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	494809	05/14/20 14:50	JLS	TAL DEN

Client Sample ID: PRIMARYSUMP
Lab Sample ID: 280-136380-2
Date Collected: 05/07/20 12:15
Matrix: Water
Date Received: 05/08/20 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			1.0 g	1.0 mL	494351	05/11/20 08:26	DEN	TAL DEN
TCLP	Analysis	8260B		1	0.5 mL	5 mL	495564	05/20/20 14:26	AJP	TAL DEN
TCLP	Leach	1311			1.0 g	1.0 mL	494349	05/11/20 08:24	DEN	TAL DEN
TCLP	Prep	3510C			201 mL	1 mL	494578	05/12/20 15:00	DFB1	TAL DEN
TCLP	Analysis	8270C		1			495434	05/19/20 19:57	AJE	TAL DEN
TCLP	Leach	1311			1.0 g	1.0 mL	494349	05/11/20 08:24	DEN	TAL DEN
TCLP	Prep	3510C			101 mL	10 mL	494579	05/12/20 15:00	DFB1	TAL DEN
TCLP	Analysis	8081A		1			495217	05/18/20 23:49	MD	TAL DEN
TCLP	Leach	1311			1.0 g	1.0 mL	494349	05/11/20 08:24	DEN	TAL DEN
TCLP	Prep	8151A			100 mL	10 mL	494888	05/14/20 14:22	DFB1	TAL DEN
TCLP	Analysis	8151A		1			495736	05/22/20 10:58	TMC	TAL DEN
TCLP	Leach	1311			1.0 g	1.0 mL	494349	05/11/20 08:24	DEN	TAL DEN
TCLP	Prep	3010A			10 mL	50 mL	494454	05/14/20 09:30	NK	TAL DEN
TCLP	Analysis	6010B		1			495900	05/22/20 03:41	MRJ	TAL DEN
TCLP	Leach	1311			1.0 g	1.0 mL	494349	05/11/20 08:24	DEN	TAL DEN
TCLP	Prep	7470A			30 mL	50 mL	495858	05/22/20 12:00	AL	TAL DEN
TCLP	Analysis	7470A		1			496102	05/22/20 18:26	AL	TAL DEN
Total/NA	Prep	Distill/CN			50 mL	50 mL	494545	05/12/20 12:03	JMB	TAL DEN
Total/NA	Analysis	335.4		1	50 mL	50 mL	494714	05/13/20 11:46	JMB	TAL DEN
Total/NA	Analysis	Field Sampling		1			494444	05/07/20 12:15	S1S	TAL DEN

Client Sample ID: SUMPCOMP
Lab Sample ID: 280-136380-3
Date Collected: 05/07/20 12:26
Matrix: Water
Date Received: 05/08/20 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			1.0 g	1.0 mL	494351	05/11/20 08:26	DEN	TAL DEN
TCLP	Analysis	8260B		1	0.5 mL	5 mL	495564	05/20/20 15:31	AJP	TAL DEN
TCLP	Leach	1311			1.0 g	1.0 mL	494349	05/11/20 08:24	DEN	TAL DEN
TCLP	Prep	3510C			199 mL	1 mL	494578	05/12/20 15:00	DFB1	TAL DEN
TCLP	Analysis	8270C		1			495434	05/19/20 21:24	AJE	TAL DEN
TCLP	Leach	1311			1.0 g	1.0 mL	494349	05/11/20 08:24	DEN	TAL DEN
TCLP	Prep	3510C			99 mL	10 mL	494579	05/12/20 15:00	DFB1	TAL DEN
TCLP	Analysis	8081A		1			495217	05/19/20 00:06	MD	TAL DEN
TCLP	Leach	1311			1.0 g	1.0 mL	494349	05/11/20 08:24	DEN	TAL DEN
TCLP	Prep	8151A			104 mL	10 mL	494888	05/14/20 14:22	DFB1	TAL DEN
TCLP	Analysis	8151A		1			495736	05/22/20 11:26	TMC	TAL DEN

Lab Chronicle

Client: Waste Management
Job ID: 280-136380-1
Project/Site: 555|Denver/Arapahoe Chem.-Sumps

Client Sample ID: SUMPCOMP
Lab Sample ID: 280-136380-3
Date Collected: 05/07/20 12:26
Matrix: Water
Date Received: 05/08/20 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			1.0 g	1.0 mL	494349	05/11/20 08:24	DEN	TAL DEN
TCLP	Prep	3010A			10 mL	50 mL	494454	05/14/20 09:30	NK	TAL DEN
TCLP	Analysis	6010B		1			495900	05/22/20 03:54	MRJ	TAL DEN
TCLP	Leach	1311			1.0 g	1.0 mL	494349	05/11/20 08:24	DEN	TAL DEN
TCLP	Prep	7470A			30 mL	50 mL	495858	05/22/20 12:00	AL	TAL DEN
TCLP	Analysis	7470A		1			496102	05/22/20 18:28	AL	TAL DEN
Total/NA	Prep	Distill/CN			50 mL	50 mL	494545	05/12/20 12:03	JMB	TAL DEN
Total/NA	Analysis	335.4		1	50 mL	50 mL	494714	05/13/20 11:52	JMB	TAL DEN
Total/NA	Analysis	Field Sampling		1			494444	05/07/20 12:26	S1S	TAL DEN

Laboratory References:

TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Denver SVC
280

Chain of Custody Record

Denver TestAmerica #280
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: L. Major / K. Sylvia	Lab PM: Sara, Betsy A	Carrier Tracking No(s): Courier	COC No: 280-17709-1152.1
Client Contact: Tom Schweitzer	Phone: 303-695-4660	E-Mail: betsy.sara@testamericainc.com		Page: Page 1 of 1
Company: Waste Management				Job #: 21207.03
Address: 2400 West Union Avenue	Due Date Requested:			
City: Englewood	TAT Requested (days):			
State, Zip: CO 80110				
Phone: 202 914-1445	PO #: Purchase Order not required			
Email: Tschweitzer@wm.com	WO #:			
Project Name: 555|Denver/Arapahoe Chem. Event Desc: Ann. Primary & Comp Sump TCLP - May	Project #: 28003048			
Site: Colorado	SSOW#:			

Analysis Requested

280-136380 Chain of Custody

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B TCLP	8270C/8081A/8151A TCLP	335.4 - Total Cyanide	TCLP Metals	Total Number of containers	Special Instructions/Note:
Preservation Code:							N	N	N	N		
Trip Blank	5/7/20	—	—	W			1				1	
Primary Sump	5/7/20	1215	G	W			4				5	
								2			2	
									1		1	
										2	2	
Sump Comp	5/7/20	1226	C	W			4	2	1	2	9	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		5/8/2020, 0855	SRES		5-08-20 0855	TA
2		5-08-20 1045	TA		5-8-20 1045	ET-Ka
3		Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: -0.1°C IR +0.6 TC 5-9-20

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: DACWPF

Site No.: 555 Sample Point: Primary Sump (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark changes, record field data, below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment . . . Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

X-Other:

Filter Type: A-In-line Disposable, B-Pressure, C-Vacuum, X-Other

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (site datum, from TOC) (ft/msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Well Depth, Stick Up, Casing Id. etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and Groundwater Elevation must be current.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm@25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
	1st	1st	1st					
	2nd	2nd	2nd					
	3rd	3rd	3rd					
	4th	4th	4th					
Suggested range for 3 consec. readings or note Permit/State requirements:		+/- 0.2	+/- 3%	--	--	+/- 10%	+/- 25 mV	Stabilize

Annual leachate 2020

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site.* ***If more fields above are needed, use separate sheet or form.***

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (umhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L-ppm)	eH/ORP (mV)	Other: Units
05/07/20	6.77	7741	13.6	7.06	5.27	837	

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.*

Sample Appearance: Clear Odor: NONE Color: NONE Other: —

Weather Conditions (required daily, or as conditions change): Direction/Speed: 5mph SE Outlook: Sunny 60's Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required): Sample Time: 1205

FIELD COMMENTS

Sample collected from Sump Pump into clean dedicated bucket & bottled with new clean dipper bottle.

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05/07/20	Laura Major		SRES
05/07/20	Kaity Sylvia	Kaity Sylvia	SRES

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client. PINK - Field Copy

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: DACWPF

Site No.: 555 Sample Point: SumpComp (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark changes, record field data, below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment . . . Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Filter Type: A-In-line Disposable, B-Pressure, C-Vacuum, X-Other

X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (site datum, from TOC) (ft/msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Well Depth, Stick Up, Casing Id. etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and Groundwater Elevation must be current.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm@25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
	1st	1st	1st					
	2nd	2nd	2nd					
	3rd	3rd	3rd					
	4th	4th	4th					
Suggested range for 3 consec. readings or note Permit/State requirements:		+/- 0.2	+/- 3%	--	--	+/- 10%	+/- 25 mV	Stabilize

Annual leachate 2020

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site.* ***If more fields above are needed, use separate sheet or form.***

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (umhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L-ppm)	eH/ORP (mV)	Other: Units
05 07 20	6.88	6224	13.9	4.50	5.20	78.7	

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.*

Sample Appearance: Clear Odor: NONE Color: NONE Other:

Weather Conditions (required daily, or as conditions change): Direction/Speed: 5-10mph SE Outlook: Sunny 60's Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required): Sample Time: 1226

FIELD COMMENTS

Sample collected from equal portions of leachate from primary & secondary sumps, mixed in clean buckets and bottled with new clean dipper.

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05/07/20	Laura Major		SRES
05/07/20	Kacy Sylvia	Kacy Sylvia	SRES

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client. PINK - Field Copy

Peel here and attach label to package.
Keep this liner for your records.
FedEx Express
Expanded Billable Stamp
Use only for shipments within the U.S. Saturday delivery available.
1 From See optional release signature below.
ORDER: 00851499
DECLARED VALUE $100
PACKAGE WEIGHT
( ) . lbs
2 To Shipment will not be accepted if address below is altered.
SAMPLE RECEIVING
TESTAMERICA DENVER
4955 YARROW ST
ARVADA, CO 80002
(303) 736-0100
FedEx Priority Overnight®
Next business morning by 10:30 a.m. Not available to all locations. Please consult the current FedEx Service Guide for specific commitments.
NONREDEEMABLE
Please see back for declared value information and important terms and conditions.
SATURDAY DELIVERY
Shipments tendered on Friday are delivered on Saturday to most locations.
8156 5923 8355
REF:
For FedEx Use Only
Release Signature
For nonresidential deliveries.
Employee Number
Base Charges
Other
Total Charges
By signing you authorize us to deliver this shipment without obtaining a signature and agree to indemnify and hold us harmless from any resulting claims.
fedex.com 1800GoFedEx 1800.463.3339
M-10691 Rev. 12/17
Form ID 0667
There is an artificial watermark on this document. Hold at an angle to view.
280-13380 Waybill

Login Sample Receipt Checklist

Client: Waste Management

Job Number: 280-136380-1

Login Number: 136380
List Number: 1
Creator: Lubin, Julius C

List Source: Eurofins TestAmerica, Denver

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	N/A	

APPENDIX C

DUMPStat Results for DACWPF Landfill 2020

SWIFT RIVER
ENVIRONMENTAL SERVICES, LLC
An Alaska Native Corporation
26 West Dry Creek Circle, Suite 470 ♦ Littleton, CO 80120 ♦ 303-695-4660

March 3, 2021 S202107.02

Waste Management
2400 West Union Avenue
Englewood, CO 80110

Attention: Tom Schweitzer, P.E.
Engineering Manager

RE: Transmittal of 2020 DUMPStat® Results
Denver Arapahoe Chemical Waste Processing Facility (DACWPF)

Dear Mr. Schweitzer:

This letter presents the results of the 2020 groundwater and leachate data evaluation using the statistical software program DUMPStat® for the Denver Arapahoe Chemical Waste Processing Facility (DACWPF). Statistical analysis was conducted in accordance with "Statistical Methods for Ground-Water Monitoring at the DACWPF Landfill" (Gibbons, February 2002)[1]. Background monitoring was completed from October 1999 through 2001; detection monitoring began in 2002 and continues through the present. Statistical Methods (Gibbons, 2002) describes the appropriate statistical methodology for intra-well comparisons using combined Shewhart-CUSUM control charts, which is consistent with USEPA's "Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities – Unified Guidance" (US EPA, March 2009)[2] and 2009 DACWPF RCRA Permit, 2009 to 2019, Attachment 7, Section 2.8. In addition, volatile organic compounds (VOCs) are monitored for verified quantifications above the reporting limits (RLs) in Table A-7.

The 2020 laboratory analytical groundwater data, as provided by Eurofins TestAmerica, Denver, were compared to existing intra-well statistical limits at each monitoring well using DUMPStat®. The following 2020 data were merged into DUMPStat® for the statistical analyses.

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[1] Gibbons RD (2002). *Statistical Methods for Ground-Water Monitoring at the DACWPF Landfill.*

[2] US Environmental Protection Agency (1992). *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities – Unified Guidance*. Office of Resource Conservation and Recovery, Program Implementation and Information Division. EPA 530-R-09-007.

2020 Analytical Data	TestAmerica File
1H20 groundwater data for wells P-112, P-113, P-114A-R, and P-115 [1]	280-136567-1.txt
2H20 groundwater data for wells P-112, P-113, P-114A-R, and P-115 [2]	280-142501-1.txt
1H20 leachate data for Primary Sump and Composite [1]	280-136380-1.txt
1H20 leachate data for Secondary Sump [3]	280-136377-1.txt
1H20 leachate data for Secondary Sump – Re-sample for PCE [3]	280-137514-1.txt
1H20 leachate data for Secondary Sump – Re-sample for PCE [4]	280-138799-1.txt
1H20 leachate data for Secondary Sump – Re-sample for PCE [5]	280-142922-1.txt
2H20 leachate data for Primary and Secondary Sumps; REV 1 [2]	280-143640-1.txt
2H20 leachate data for Primary and Secondary Sumps (PFOA/PFOS) [2]	280-143641-1.txt

[1] The 1H20 groundwater monitoring of the four uppermost aquifer wells and 1H20 leachate monitoring of the Primary Sump and Composite was conducted under the 2009 Permit, issued September 30, 2009; effective date October 30, 2009.

[2] The 2H20 groundwater monitoring of the four uppermost aquifer wells and 2H20 leachate monitoring of the Primary and Secondary Sumps was conducted under the 2020 Permit, issued April 21, 2020; effective date May 21, 2020.

[3] The original tetrachloroethene (PCE) result of 7.2 micrograms per liter (µg/L), sampled on May 7, was verified with the PCE result of 5.5 µg/L from the re-sample collected on June 10;

[4] The PCE result of 7.3 µg/L from verification re-sample collected on July 22; and

[5] The PCE result of 7.0 µg/L from verification re-sample collected on November 18, 2020.

SUMMARY OF MONITORING RESULTS, DACWPF 2020

Volatile Organic Compounds

- There were no confirmed volatile organic compound (VOC) detections in the uppermost aquifer groundwater samples (i.e., VOCs were not reported at, or above, the reporting limit).
- With the exception of 1,1,1-trichloroethane at former well P-114A in October and December 2015, no VOCs have been confirmed in groundwater at the DACWPF wells, including at replacement well P-114A-R, since interim status quarterly groundwater monitoring for VOCs began in 1990. Therefore, the "background" value for each of the monitored VOCs is set at the "reporting limit" (RL), which is designated the non-parametric prediction limit for statistical evaluation purposes.

DUMPStat® Analyses of Inorganic Parameters

As described in the 2009 DACWPF RCRA Permit (issued September 30, 2009; effective date October 30, 2009), Attachment 7, Section 2.8, and 2020 DACWPF RCRA Permit (issued April 21, 2020; effective date May 21, 2020), Attachment F, Section 2.8, and because of the documented natural spatial variability of the monitored groundwater, intra-well statistical comparisons are used (i.e., compliance data for each well are compared to its own background).

- There were no exceedances of statistically determined background concentrations in down-gradient wells P-113, P-114A-R, and P-115 for any of the eight metals analyzed in groundwater.
- As described in the 2009 DACWPF RCRA Permit, Attachment 7, Section 2.8, and 2020 DACWPF RCRA Permit, Attachment F, Section 2.8, a comparison of the

designated up-gradient well chemistry to designated down-gradient well chemistry is provided for informational purposes and to document the natural water-quality spatial variability of the monitored groundwater.

- The groundwater gradient of the uppermost aquifer (lower sandstone) is nearly flat where water elevations in the monitoring wells are nearly the same but that indicate a slight and consistent gradient to the west-northwest. Considering the slight groundwater gradient, the flow velocity in the lower sandstone is very slow.

Leachate Chemistry

- The Secondary Sump was sampled under the 2009 Permit in the first half of 2020. The Primary and Secondary Sumps were sampled under the 2020 Permit in the second half of 2020. The differences in leachate sampling requirements between the 2009 and 2020 Permits are the following:

    1. Under the now-expired 2009 Permit, the Secondary Sump was sampled semi-annually for the analyte list of 10 VOCs and arsenic in accordance with that permit's Attachment 8, Table A-8. The Secondary Sump was sampled under the 2009 Permit in the first half 2020. Verification re-sampling for tetrachloroethene (PCE) continued through November 18, 2020, under the 2009 Permit.
    2. Under the 2020 Permit, both the Primary and Secondary Sumps are sampled semi-annually, in accordance with Attachment C, 1.0 (h), for the analyte list that includes PFOA and PFOS in addition to the 10 VOCs and arsenic tested for under the 2009 permit (Attachment G, Table G-1). The Primary and Secondary Sumps were sampled under the 2020 Permit in the second half 2020.

- <u>Secondary Sump results sampled in the first half 2020 under the 2009 Permit</u>. With the exception of PCE in the Secondary Sump, there were no confirmed detections for arsenic or the other monitored VOCs (1,1-dichloroethene, 1,2-dichloroethane, benzene, carbon tetrachloride, chlorobenzene, chloroform, methyl ethyl ketone, trichloroethene, and vinyl chloride) analyzed in the leachate samples from the Secondary Sump.

  Regarding PCE, the Secondary Sump was sampled on May 7, 2020, and reported in the laboratory analytical report dated June 9, 2020. Because the detection of PCE (7.2 µg/L) was above the reporting limit (RL) (5.0 µg/L) with no apparent laboratory QA/QC issues, verification re-sampling for PCE was conducted on June 10, 2020 and reported in the laboratory analytical report dated July 31. The re-sample result for PCE was reported at a similar low-level concentration of 5.5 µg/L. A second verification re-sample was collected on July 22 and the re-sample result for PCE was reported at 7.3 µg/L in the original sample and at 9.0 µg/L in a duplicate sample. A third verification re-sample was collected November 18 to assess whether the secondary sump pump and/or discharge hose were contaminating the samples. In order to collect the sample, the pump and its discharge hose were removed and a grab sampler was used to collect the sample because minimal fluid was present in the sump. This re-sample result for PCE was reported at a similar, low-level concentration of 7.0 µg/L. Additional detail may be

found in the letter from Waste Management to CDPHE, dated December 29, 2020, including the conclusion that continued monitoring and pumping of the secondary sump will continue to be performed with no other further action. The letter confirms the detection of PCE in the Secondary Sump leachate above its detection limit (5.0 µg/L) under the 2009 DACWPF RCRA Permit, Attachment 8, Table A-8. The results are included in Table 1, Leachate Parameter Detections.

- Secondary Sump results sampled in the second half 2020 under the 2020 Permit. With the exception of PCE and PFOA and PFOS, there were no confirmed detections for arsenic, or the other monitored VOCs (1,1-dichloroethene, 1,2-dichloroethane, benzene, carbon tetrachloride, chlorobenzene, chloroform, methyl ethyl ketone, trichloroethene, and vinyl chloride) analyzed in the leachate samples from the Secondary Sump.

  Regarding PCE, the Secondary Sump was sampled on December 9, 2020 and reported in the laboratory analytical report dated December 18, 2020. Because the reported, low-level PCE detection (6.6 µg/L) was above the reporting limit (RL) (5.0 µg/L), with no apparent field or laboratory QA/QC issue, the laboratory was requested to perform a Data Quality Review. The laboratory investigated the PCE result, confirmed the reported PCE detection, and issued the revised laboratory analytical report on January 6, 2021. The result is included in Table 1, Leachate Parameter Detections.

  Note that the December 9, 2020 grab sample was collected without any leachate being purged, because minimal fluid was present in the sump. A similar condition was encountered during sample collection at the Secondary Sump on November 18, 2020.

  PFOA and PFOS results are included in Table 2, Leachate PFOA and PFOS Detections.

PROCEDURE FOR GROUNDWATER DATA ANALYSES

Intra-well statistical analyses using DUMPStat® generate Intra-Well Control Charts/Prediction Limits, Summary Statistics and Intermediate Combined Shewhart-CUSUM Control Charts table, Statistical Power, and Historical VOC Detections table for the 2020 groundwater data (identified as DACWPF [upper]). Statistical analyses were performed for sample results from wells P-112, P-113, P-114A-R, and P-115 for eight metals: arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver.

Statistical analyses were performed for the 2020 sample results at replacement well P-114A-R. Since the installation of replacement well P-114A-R in July 2016, groundwater samples collected from the replacement well were considered to be representative samples of the former P-114A location. From 2016 through 2019, analytical results for P-114A-R were presented on time-series graphs until eight semi-annual monitoring events had been completed. Starting in 2020, intra-well statistical analyses are performed for sample results for P-114A-R by comparing the 2020 analytical results to the background dataset comprised of the 2016 through 2019 analytical results.

In accordance with the DACWPF RCRA Permit Attachment 7, Section 2.4, Step 5, Sample Handling, the samples collected for metals analyses were field filtered and preserved prior to shipment to the laboratory.

PROCEDURE FOR LEACHATE DATA ANALYSES

Because this 2020 Annual Report is the last to be issued under the 2009 RCRA Permit, future samples collected from the Secondary Sump will be assessed in accordance with the requirements of the 2020 Permit.

This 2020 Annual Report is the first to be issued under the 2020 RCRA Permit and VOC, arsenic, and PFOA and PFOS detections are reported. The second half 2020 groundwater and leachate sampling events were conducted under the 2020 RCRA Permit. Since the action limits in the 2020 Permit are stayed because they are being challenged and under judicial review, no action is presently required if an action limit from the Secondary Sump, summarized in Appendix G, Table G-1, is exceeded.

PROCEDURAL NOTES

Updating of DUMPStat® background data (i.e., incorporating semi-annual groundwater data through December 2018) for metals at wells P-112, P-113, and P-115 was last completed before the 2018 data statistical evaluation was performed, in accordance with the DACWPF RCRA Permit, Attachment 7, Section 2.8, Step 5. The update was justified because there were no statistically significant increases above background (SSI) in the down-gradient wells for any monitoring parameter during 2017 and 2018.

The next updating of background data for metals at wells P-112, P-113, and P-115 will be completed prior to performing the 2021 data statistical evaluation since there are no SSIs in down-gradient wells for any monitoring parameter in 2019 and 2020.

Intra-well statistical analyses were performed for sample results for P-114A-R starting in 2020. The 2020 analytical results were compared to the background dataset comprised of the 2016 through 2019 analytical results. The next updating of background data for metals at well P-114A-R should be completed prior to performing the 2022 data statistical evaluation.

The updating of background for metals will be completed in accordance with the 2020 DACWPF RCRA Permit, Attachment F, Section 2.8, Step 5.

If you have any questions pertaining to this statistical analysis, please contact us by telephone at (303) 695-4660 or by electronic mail at Cathryn.Stewart@SwiftRiverES.com.

Sincerely,
Swift River Environmental Services, LLC





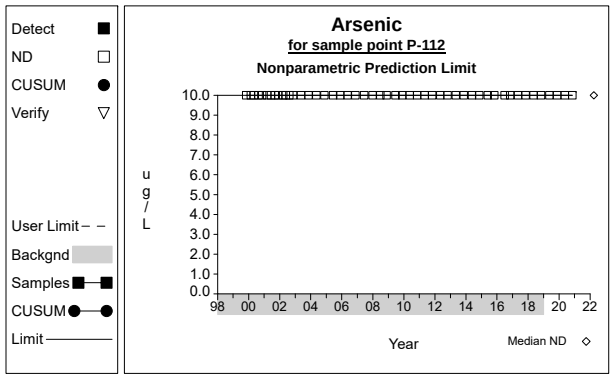
Cathryn Stewart, C.P.G.
Project Manager

Pete Zlatev, P.E.
Principal Engineer

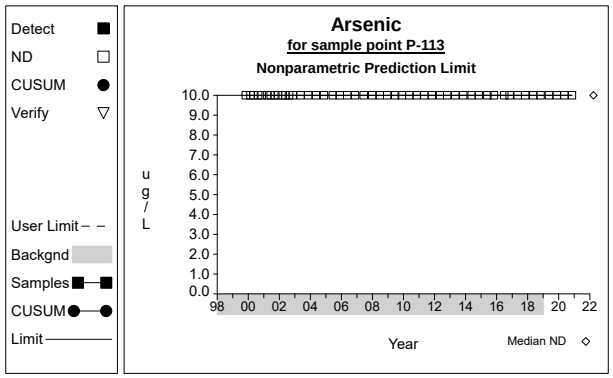
attachment: DUMPStat® statistical results, DACWPF, 2020, January 6 and February 10, 2021.

cc: Sara Harkins, P.G., Golder Associates
Louis Bull, R.G., P. HG., Waste Management

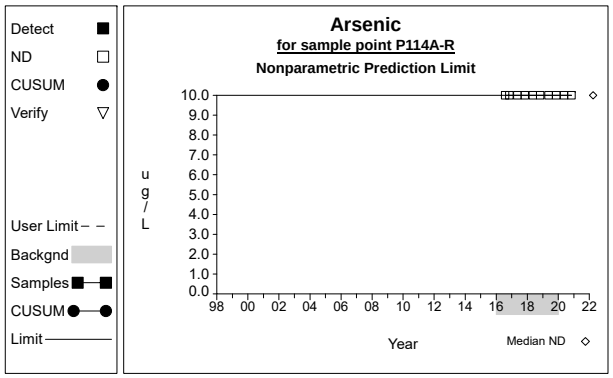
Intra-Well Control Charts / Prediction Limits



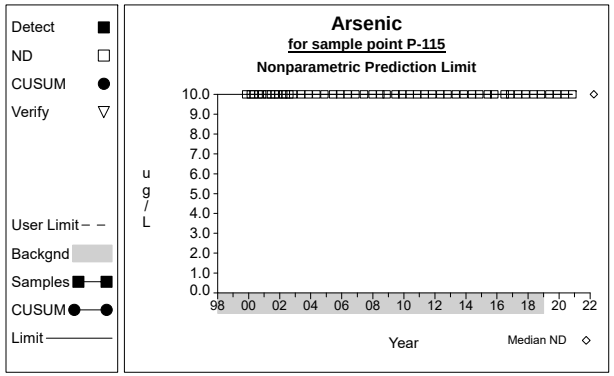
Graph 1



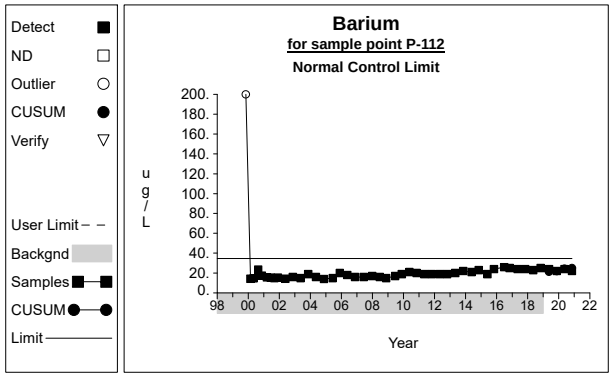
Graph 2



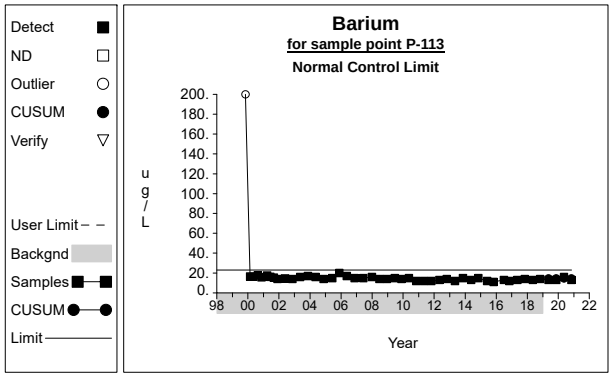
Graph 3



Graph 4



Graph 5



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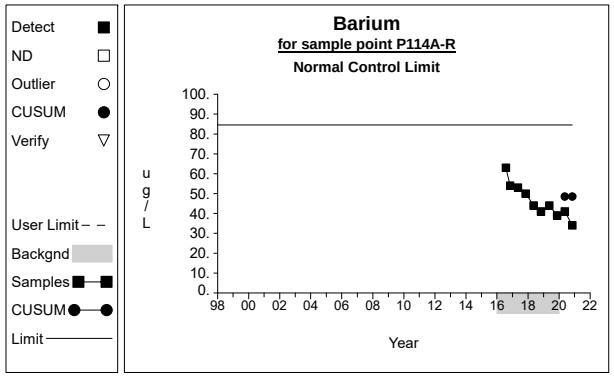

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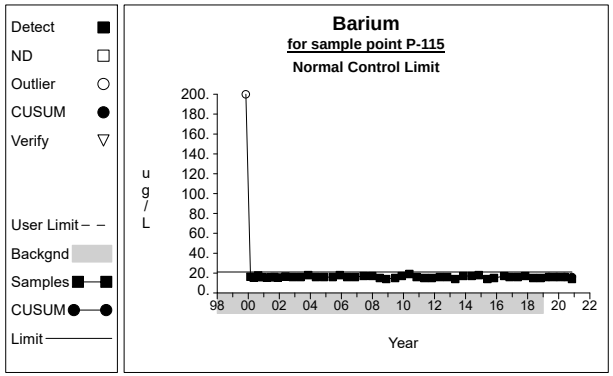
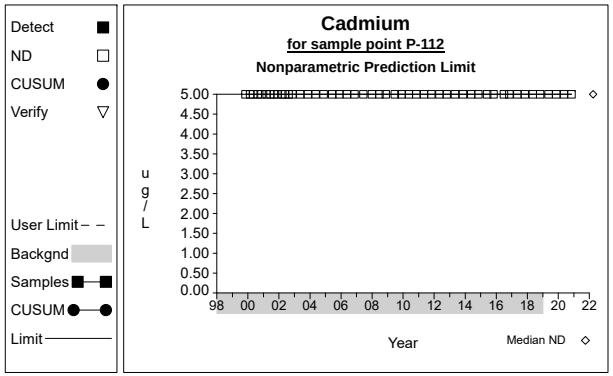
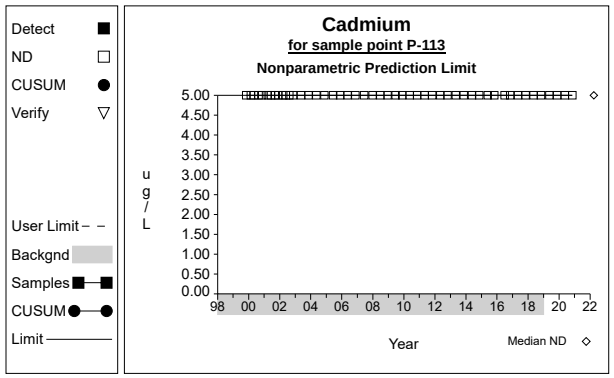


Graph 8

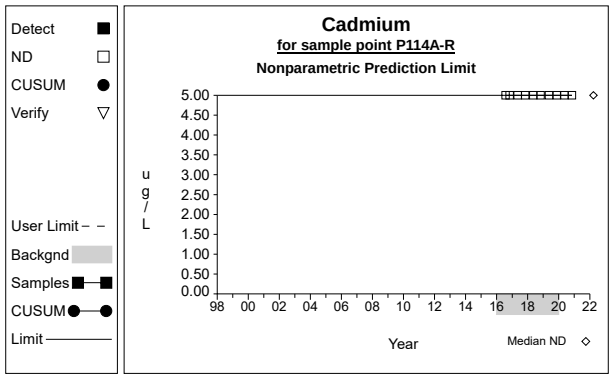


Graph 9

Intra-Well Control Charts / Prediction Limits



Graph 10



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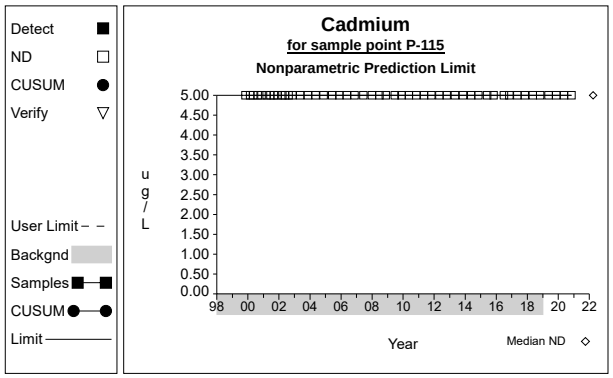

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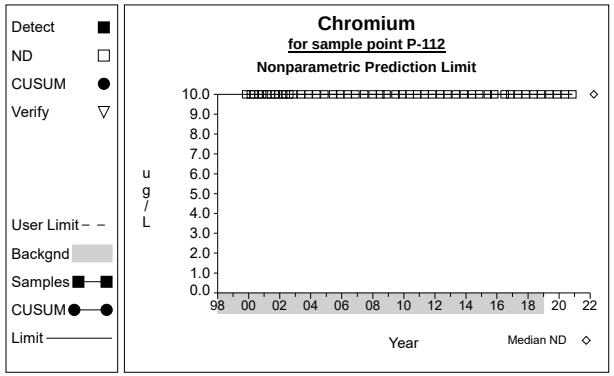

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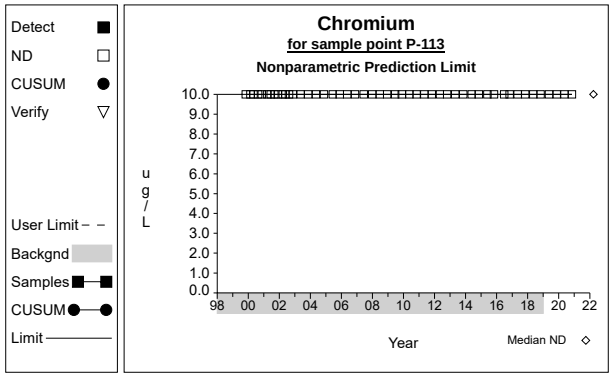
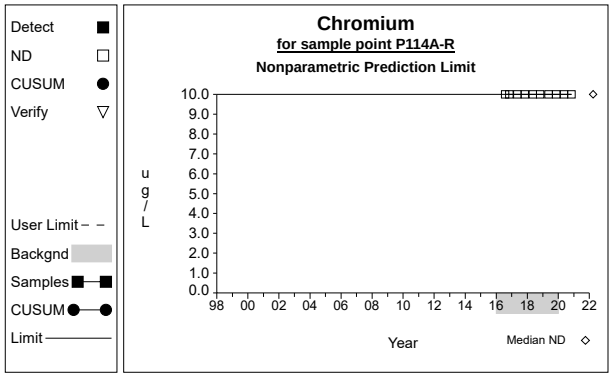
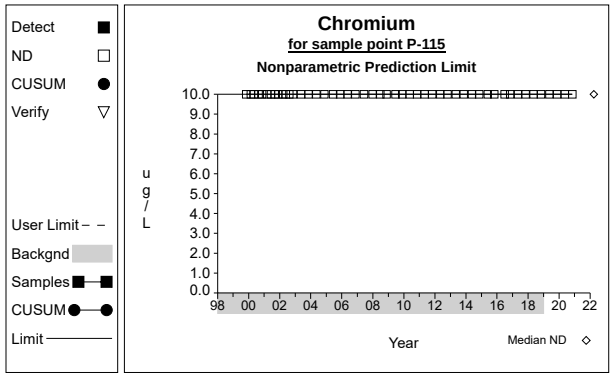


Graph 14



Graph 15



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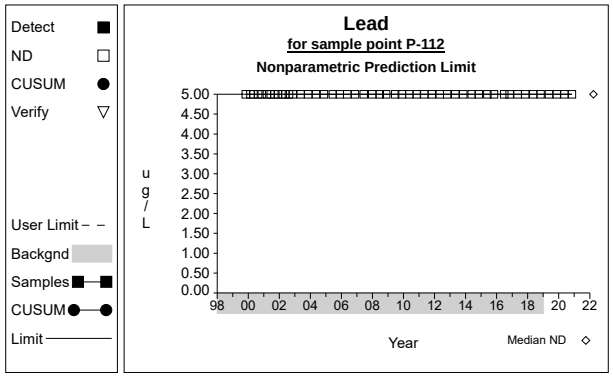

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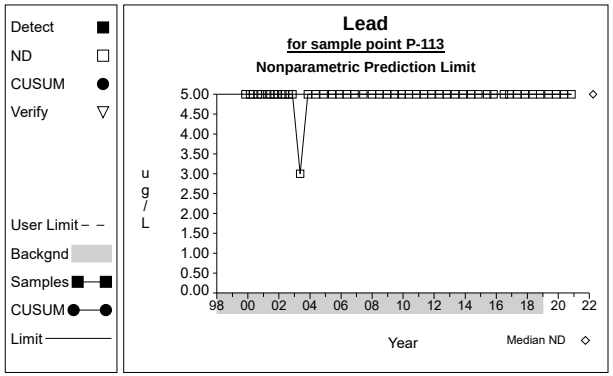
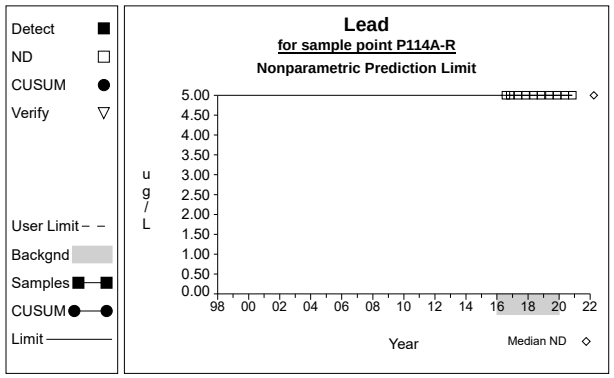


Graph 18

Intra-Well Control Charts / Prediction Limits



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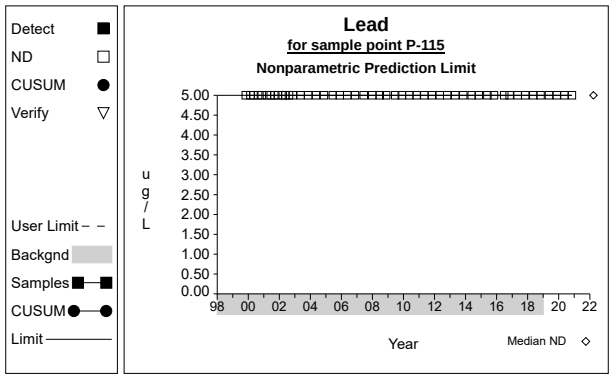

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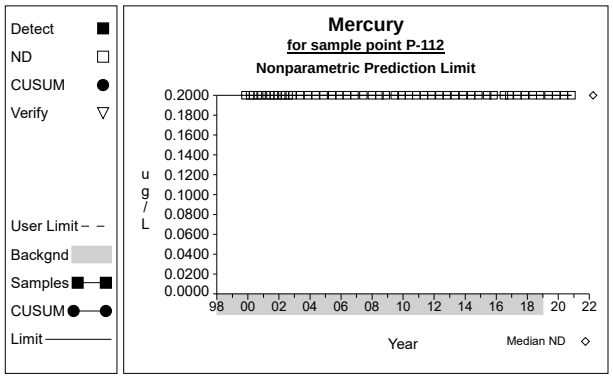

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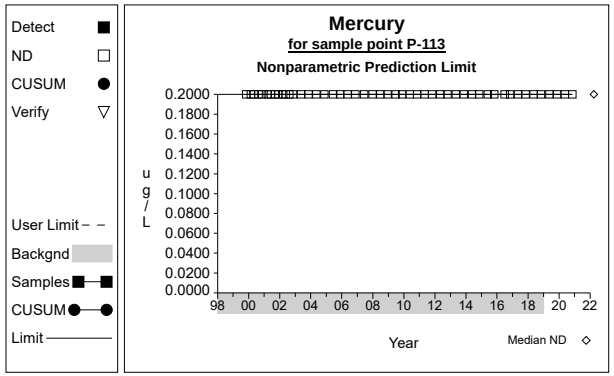

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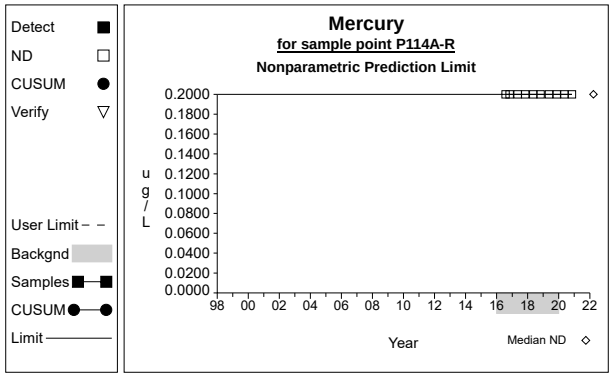

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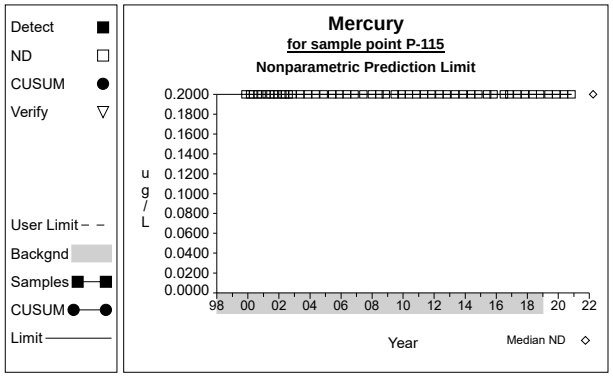
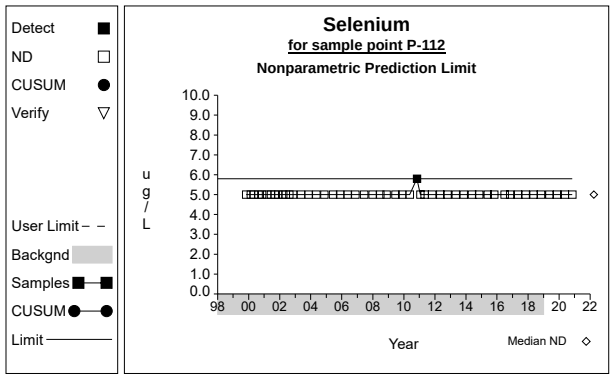


Graph 24



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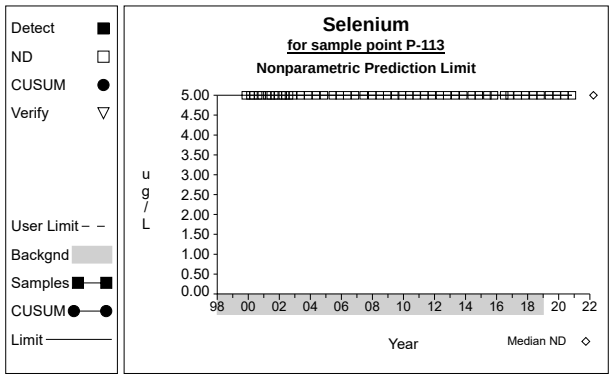

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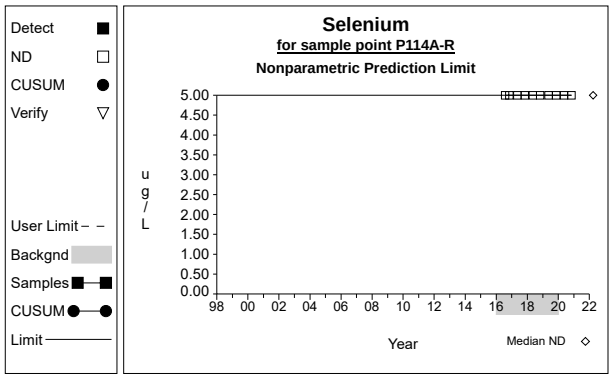
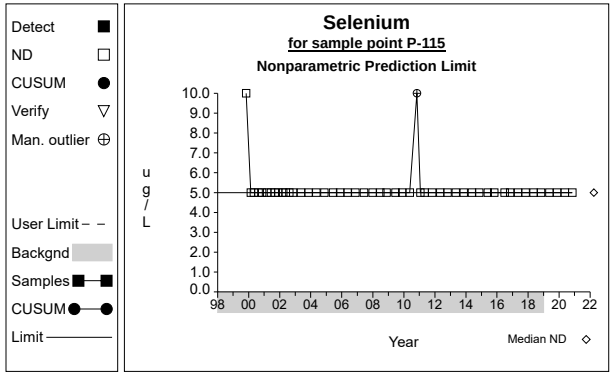
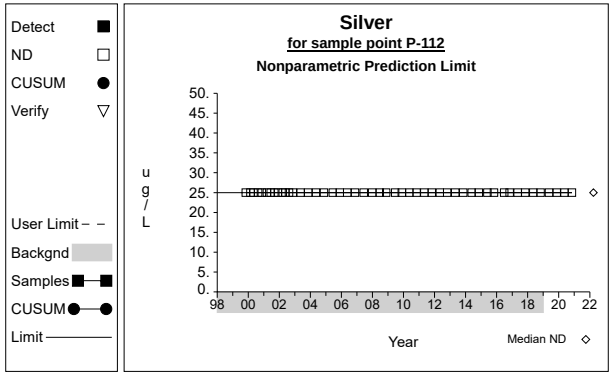


Graph 27

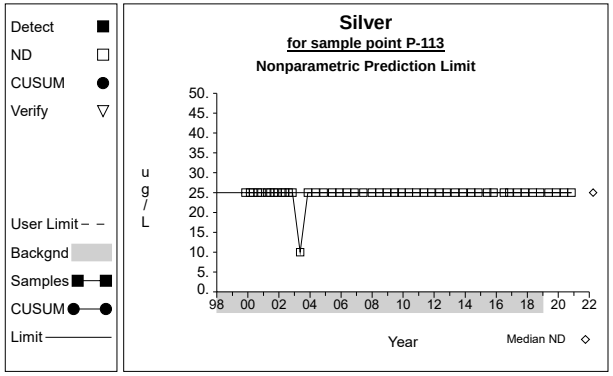
Intra-Well Control Charts / Prediction Limits



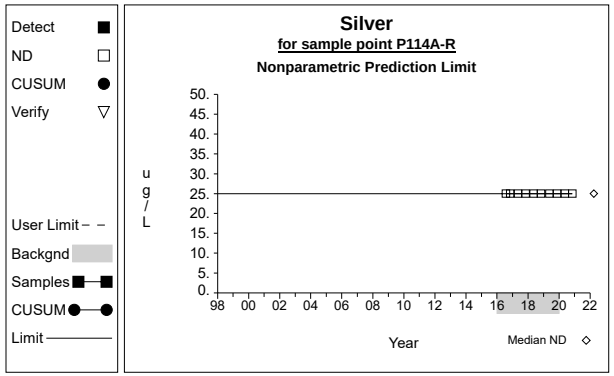
Graph 28



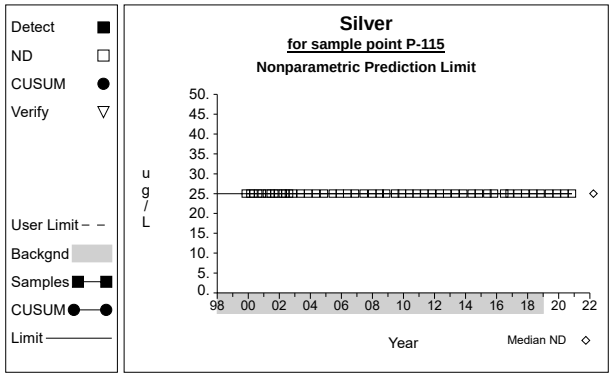
Graph 29



Graph 30



Graph 31



Graph 32

Table 1

Summary Statistics and Intermediate Computations for Combined Shewhart-CUSUM Control Charts

Constituent	Units	Well	N(back)	N(mon)	N(tot)	Mean	SD	R(i-1)	R(i)	S(i-1)	S(i)	Limit	Type	Conf	
Arsenic	ug/L	P-112	45	4	49			10.0000	10.0000			10.0000	nonpar	.99	**
Arsenic	ug/L	P-113	45	4	49			10.0000	10.0000			10.0000	nonpar	.99	**
Arsenic	ug/L	P114A-R	8	2	10			10.0000	10.0000			10.0000	nonpar	.99	**
Arsenic	ug/L	P-115	45	4	49			10.0000	10.0000			10.0000	nonpar	.99	**
Barium	ug/L	P-112	42	4	47	18.7476	3.5431	24.0000	22.0000	24.5327	25.1278	34.6917	normal		
Barium	ug/L	P-113	42	4	47	14.5429	1.8878	16.0000	13.0000	14.5841	14.5429	23.0382	normal		
Barium	ug/L	P114A-R	8	2	10	48.5000	8.0178	41.0000	34.0000	48.5000	48.5000	84.5803	normal		
Barium	ug/L	P-115	42	4	47	16.0857	1.1099	16.0000	14.0000	16.0857	16.0857	21.0805	normal		
Cadmium	ug/L	P-112	45	4	49			5.0000	5.0000			5.0000	nonpar	.99	**
Cadmium	ug/L	P-113	45	4	49			5.0000	5.0000			5.0000	nonpar	.99	**
Cadmium	ug/L	P114A-R	8	2	10			5.0000	5.0000			5.0000	nonpar	.99	**
Cadmium	ug/L	P-115	45	4	49			5.0000	5.0000			5.0000	nonpar	.99	**
Chromium	ug/L	P-112	45	4	49			10.0000	10.0000			10.0000	nonpar	.99	**
Chromium	ug/L	P-113	45	4	49			10.0000	10.0000			10.0000	nonpar	.99	**
Chromium	ug/L	P114A-R	8	2	10			10.0000	10.0000			10.0000	nonpar	.99	**
Chromium	ug/L	P-115	45	4	49			10.0000	10.0000			10.0000	nonpar	.99	**
Lead	ug/L	P-112	45	4	49			5.0000	5.0000			5.0000	nonpar	.99	**
Lead	ug/L	P-113	45	4	49			5.0000	5.0000			5.0000	nonpar	.99	**
Lead	ug/L	P114A-R	8	2	10			5.0000	5.0000			5.0000	nonpar	.99	**
Lead	ug/L	P-115	45	4	49			5.0000	5.0000			5.0000	nonpar	.99	**
Mercury	ug/L	P-112	45	4	49			0.2000	0.2000			0.2000	nonpar	.99	**
Mercury	ug/L	P-113	45	4	49			0.2000	0.2000			0.2000	nonpar	.99	**
Mercury	ug/L	P114A-R	8	2	10			0.2000	0.2000			0.2000	nonpar	.99	**
Mercury	ug/L	P-115	45	4	49			0.2000	0.2000			0.2000	nonpar	.99	**
Selenium	ug/L	P-112	46	4	50			5.0000	5.0000			5.8000	nonpar	.99	**
Selenium	ug/L	P-113	45	4	49			5.0000	5.0000			5.0000	nonpar	.99	**
Selenium	ug/L	P114A-R	8	2	10			5.0000	5.0000			5.0000	nonpar	.99	**
Selenium	ug/L	P-115	45	4	50			5.0000	5.0000			5.0000	nonpar	.99	**
Silver	ug/L	P-112	45	4	49			25.0000	25.0000			25.0000	nonpar	.99	**
Silver	ug/L	P-113	45	4	49			25.0000	25.0000			25.0000	nonpar	.99	**
Silver	ug/L	P114A-R	8	2	10			25.0000	25.0000			25.0000	nonpar	.99	**
Silver	ug/L	P-115	45	4	49			25.0000	25.0000			25.0000	nonpar	.99	**

N(back) and N(mon) = Non-outlier measurements in the background and monitoring periods.
N(tot) = All independent measurements for that constituent and well.
For transformed data, mean and SD in transformed units and control limit in original units.
Conf = confidence level for passing initial test or one of two verification resamples (nonparametric test only).
* - Insufficient Data.
** - Detection Frequency < 25%.
*** - Zero Variance.

False Positive and False Negative Rates for Current Intra-Well Control Charts Monitoring Program

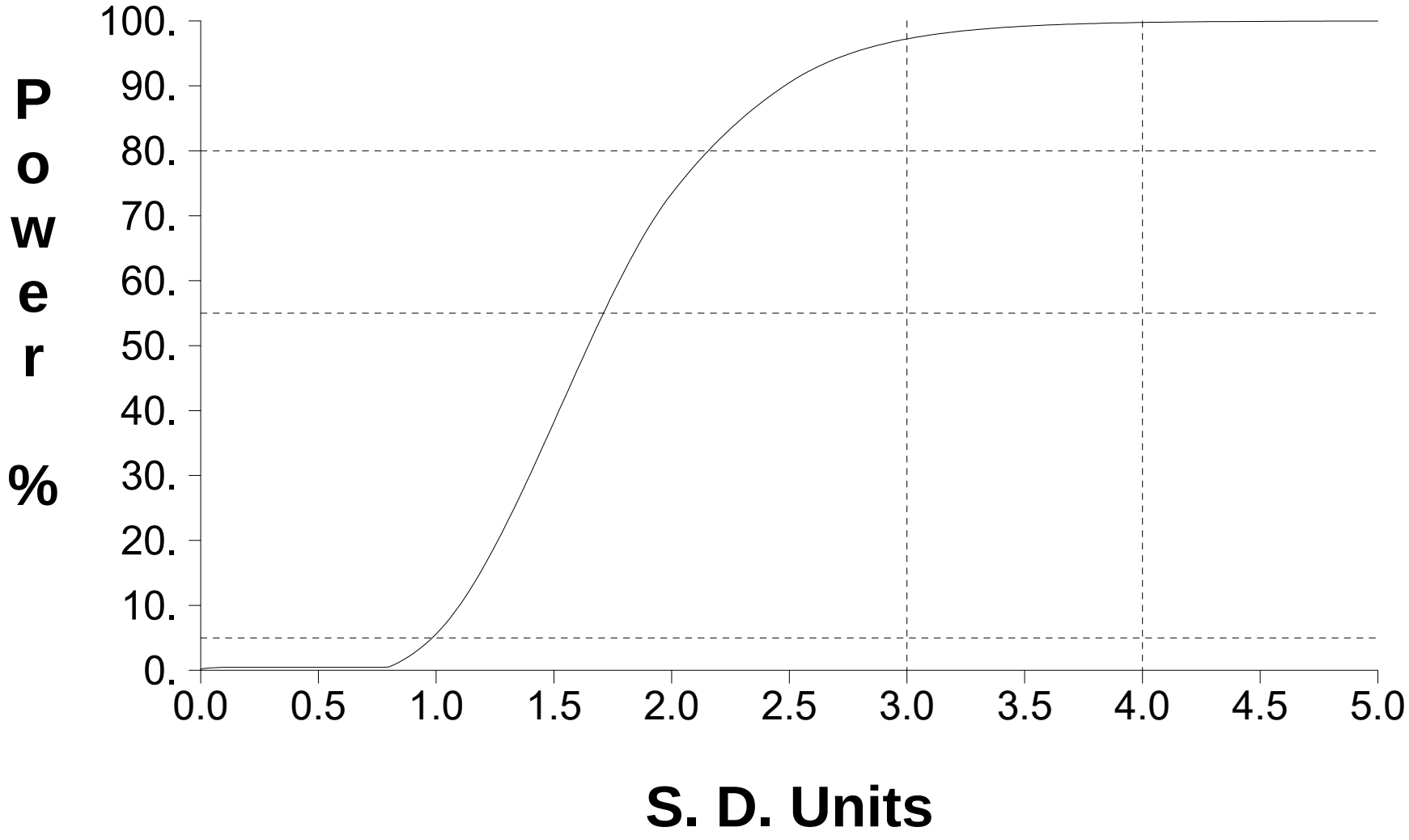


Table 1

Historical Volatile Organic Compound Detections

Constituent	Well	Date	Identifier	Result	Limit	Units

Detections are shown for the constituents and sample points selected for the analysis
The Limit column refers to the laboratory reporting limit

Table 1

Leachate Parameter Detections

Constituent	Well	Date	Identifier	Result	Limit	Units
Arsenic	SECONDARY SUMP	12/17/2004		5.8	5.0	ug/L
Tetrachloroethene	SECONDARY SUMP	5/07/2020		7.2	5.0	ug/L
Tetrachloroethene	SECONDARY SUMP	6/10/2020		5.5	5.0	ug/L
Tetrachloroethene	SECONDARY SUMP	7/22/2020		7.3	5.0	ug/L
Tetrachloroethene	SECONDARY SUMP	11/18/2020		7.0	5.0	ug/L
Tetrachloroethene	SECONDARY SUMP	12/09/2020		6.6	5.0	ug/L

Detections are shown for the constituents and sample points selected for the analysis
The Limit column refers to the laboratory reporting limit

Table 2

Leachate PFOA and PFOS Detections

Constituent	Well	Date	Identifier	Result	Limit	Units
Perfluorooctane Sulfonate (PFOS)	SECONDARY SUMP	12/09/2020		.061	.010	ug/L
Perfluorooctanoic acid	SECONDARY SUMP	12/09/2020		.11	.01	ug/L

Detections are shown for the constituents and sample points selected for the analysis
The Limit column refers to the laboratory reporting limit

APPENDIX D

DACWPF Delisting Petition Detection Limits and Exposure Point Concentrations

DACWPF LEACHATE

ANALYTICAL REPORTING LIMITS USED IN RISK ASSESSMENT FOR DELISTING PETITION

Inorganics	Reporting Limit in mg/L
Arsenic	0.05
Barium	0.5
Cadmium	0.01
Chromium	0.01
Cyanide	0.02
Lead	0.05
Mercury	0.003
Nickel	0.1
Selenium	0.1
Silver	0.01
Thallium	0.1

Pesticides and Herbicides	Reporting Limit in µg/L
Chlordane	14
Endrin	6
Heptachlor	3
Heptachlor epoxide	83
gamma-BHC	4
Methoxychlor	180
Toxaphene	240
2,4-D	500
2,4,5-TP	100

Organics	Reporting Limit in µg/L
Benzene	10
Carbon tetrachloride	50
Chlorobenzene	50
Chloroform	50
1,2 Dichloroethane	50
1,1 Dichloroethene	50
Methyl ethyl ketone	1,000
Tetrachloroethene	50
Trichloroethene	50
Vinyl chloride	100
o-Cresol	100
m&p-Cresol	100
1,4-Dichlorobenzene	100
2,4-Dinitrotoluene	100
Hexachlorobenzene	100
Hexachlorobutadiene	100
Hexachloroethane	100
Nitrobenzene	100
Pentachlorophenol	500
Pyridine	100
2,4,5-Trichlorophenol	100
2,4,6-Trichlorophenol	100

Notes:
mg/L: milligrams per liter
µg/L: micrograms per liter

DACWPF LEACHATE

EXPOSURE POINT CONCENTRATIONS (EPC) USED IN RISK ASSESSMENT FOR DELISTING PETITION

Inorganics	EPC in mg/L
Arsenic	0.110
Barium	0.700
Cadmium	0.080
Chromium	0.030
Cyanide	0.280
Lead	0.100
Mercury	0.014
Nickel	0.510
Selenium	0.300
Silver	0.160
Thallium	0.300

Pesticides and Herbicides	EPC in µg/L
Chlordane	7
Endrin	3
Heptachlor	2
Heptachlor epoxide	42
gamma-BHC	2
Methoxychlor	90
Toxaphene	120
2,4-D	250
2,4,5-TP	50

Organics	EPC in µg/L
Benzene	5
Carbon tetrachloride	25
Chlorobenzene	25
Chloroform	25
1,2 Dichloroethane	25
1,1 Dichloroethene	25
Methyl ethyl ketone	500
Tetrachloroethene	25
Trichloroethene	25
Vinyl chloride	50
o-Cresol	50
m&p-Cresol	50
1,4-Dichlorobenzene	50
2,4-Dinitrotoluene	50
Hexachlorobenzene	50
Hexachlorobutadiene	50
Hexachloroethane	50
Nitrobenzene	50
Pentachlorophenol	250
Pyridine	50
2,4,5-Trichlorophenol	50
2,4,6-Trichlorophenol	50

Notes:
mg/L: milligrams per liter
µg/L: micrograms per liter

APPENDIX E

2020 Primary and Secondary Sump Generation Rates, Graphs, and Inspection Reports

DACWPF RECONSTRUCTED CELL FACILITY
LIQUIDS GENERATION RATE FOR THE PRIMARY AND SECONDARY SUMPS

PRIMARY SUMP

Pumping Date: 2/18/2020

- Gallons Removed: 1,000
- Date Sump was Previously Pumped: 11/07/2019
- Days Between Pumping Dates: 103
- Approximate Leachate Generation Rate = 1,000 gals/103 days = 9.7 gals/day
- Calculation Date: 04/21/2020

Pumping Date: 5/5/2020

- Gallons Removed: 800
- Date Sump was Previously Pumped: 02/18/2020
- Days Between Pumping Dates: 77
- Approximate Leachate Generation Rate = 800 gals/77 days = 10.4 gals/day
- Calculation Date: 05/11/2020

Pumping Date: 6/10/2020

- Gallons Removed: 700
- Date Sump was Previously Pumped: 5/5/2020
- Days Between Pumping Dates: 36
- Approximate Leachate Generation Rate = 700 gals/36 days = 19.4 gals/day
- Calculation Date: 06/15/2020

Pumping Date: 11/05/2020

- Gallons Removed: 800
- Date Sump was Previously Pumped: 6/10/2020
- Days Between Pumping Dates: 148
- Approximate Leachate Generation Rate = 800 gals/148days = 5.4 gals/day
- Calculation Date: 11/13/2020

DACWPF RECONSTRUCTED CELL FACILITY
LIQUIDS GENERATION RATE FOR THE PRIMARY AND SECONDARY SUMPS

SECONDARY SUMP

Pumping Date: 02/18/2020

- Gallons Removed: 500
- Date Sump was Previously Pumped: 11/07/2019
- Days Between Pumping Dates: 103
- Approximate Leachate Generation Rate = 500 gals/103 days = 4.9 gals/day
- Calculation Date: 02/24/2020

Pumping Date: 04/27/2020

- Gallons Removed: 200
- Date Sump was Previously Pumped: 2/18/2020
- Days Between Pumping Dates: 69
- Approximate Leachate Generation Rate = 200 gals/69 days = 2.9 gals/day
- Calculation Date: 05/04/2020

Pumping Date: 6/10/2020

- Gallons Removed: 400
- Date Sump was Previously Pumped: 4/27/2020
- Days Between Pumping Dates: 44
- Approximate Leachate Generation Rate = 400 gals/44 days = 9.1 gals/day
- Calculation Date: 06/16/2020

Pumping Date: 11/05/2020

- Gallons Removed: 100
- Date Sump was Previously Pumped: 06/10/2020
- Days Between Pumping Dates: 148
- Approximate Leachate Generation Rate = 100 gals/148 days = 0.7 gals/day
- Calculation Date: 11/11/2020

FIGURE E-1

Pumping Summary
Primary and Secondary Sumps

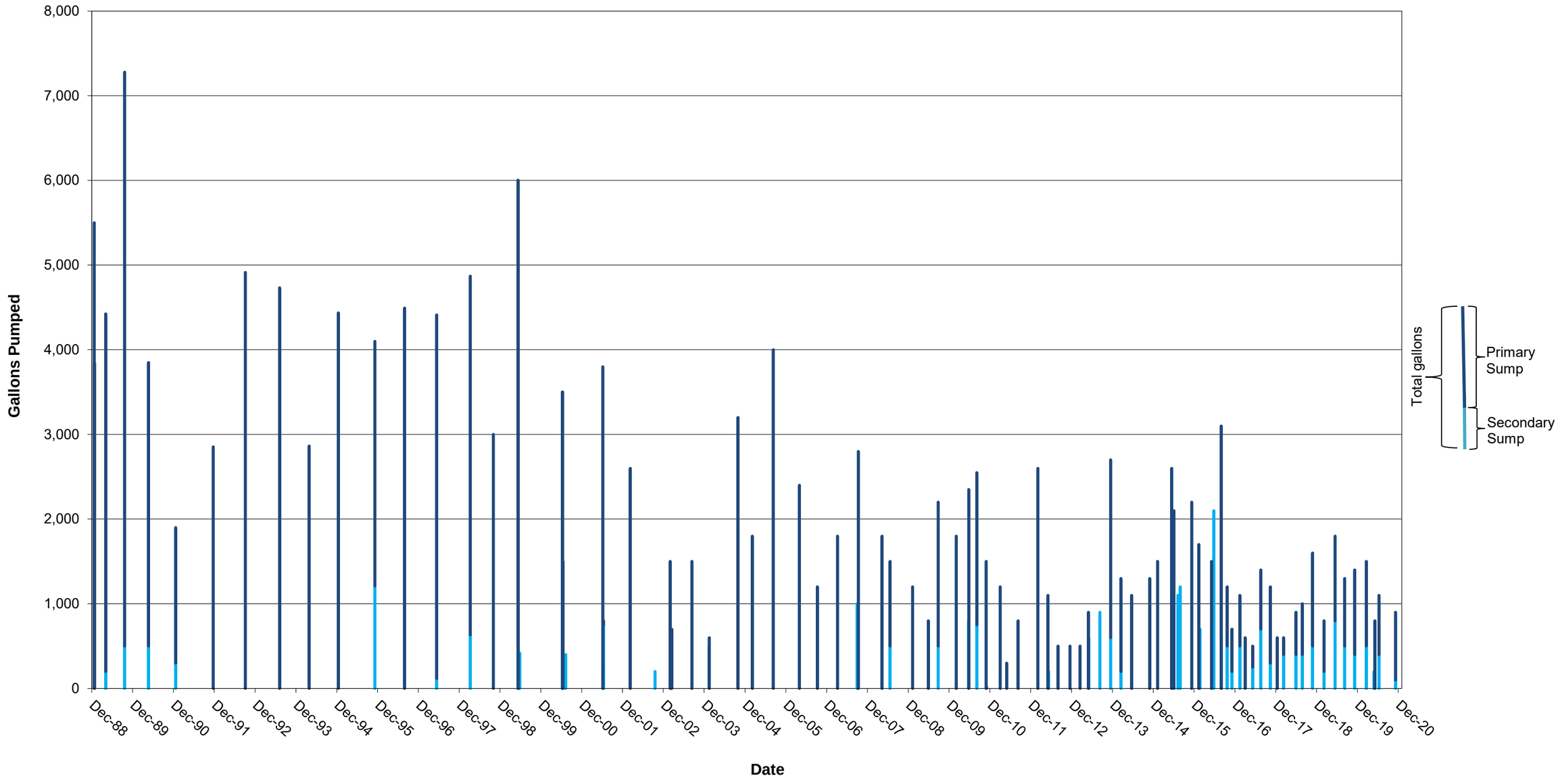


FIGURE E-1
Cumulative Pumping Summary
Primary and Secondary Sumps

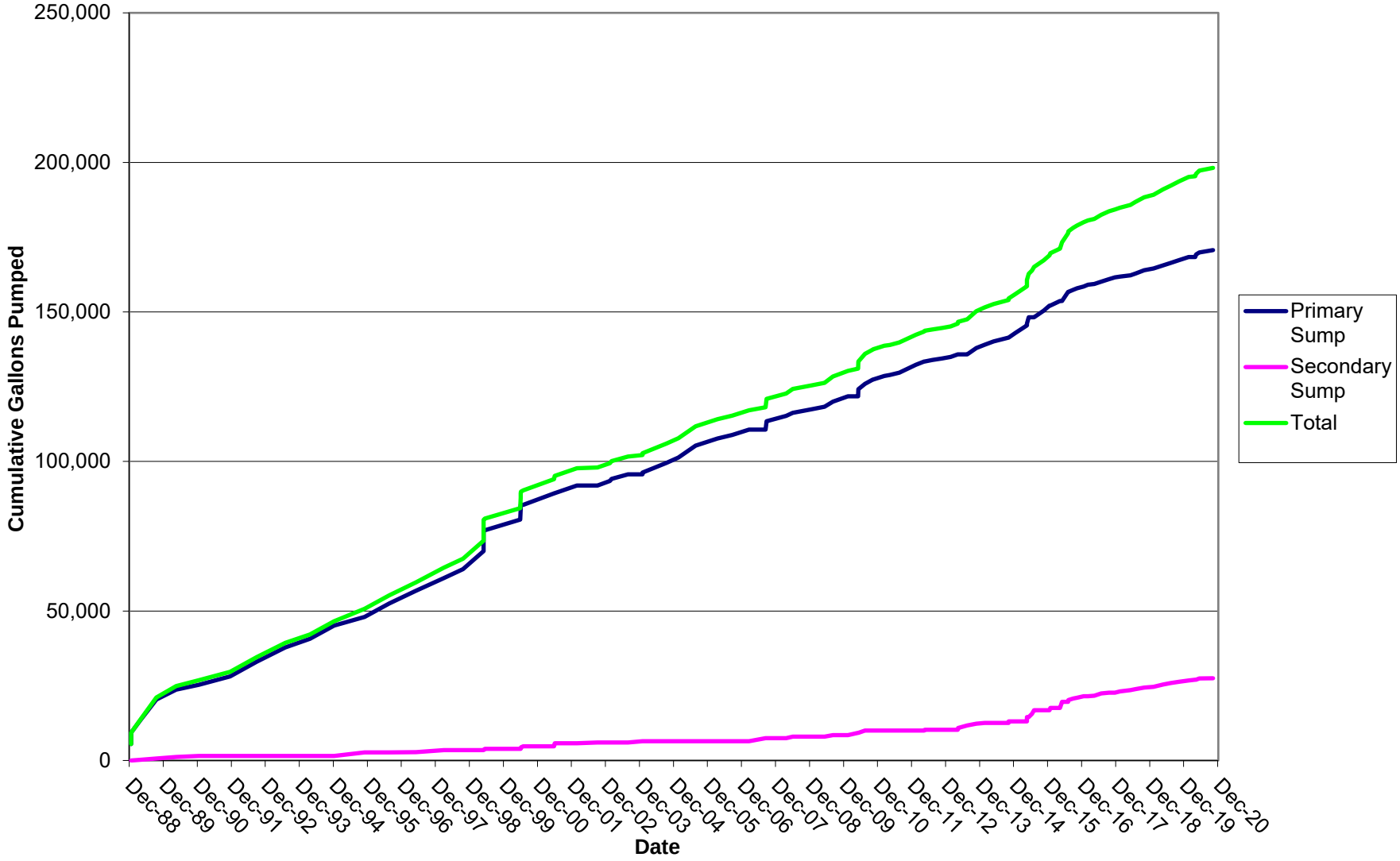
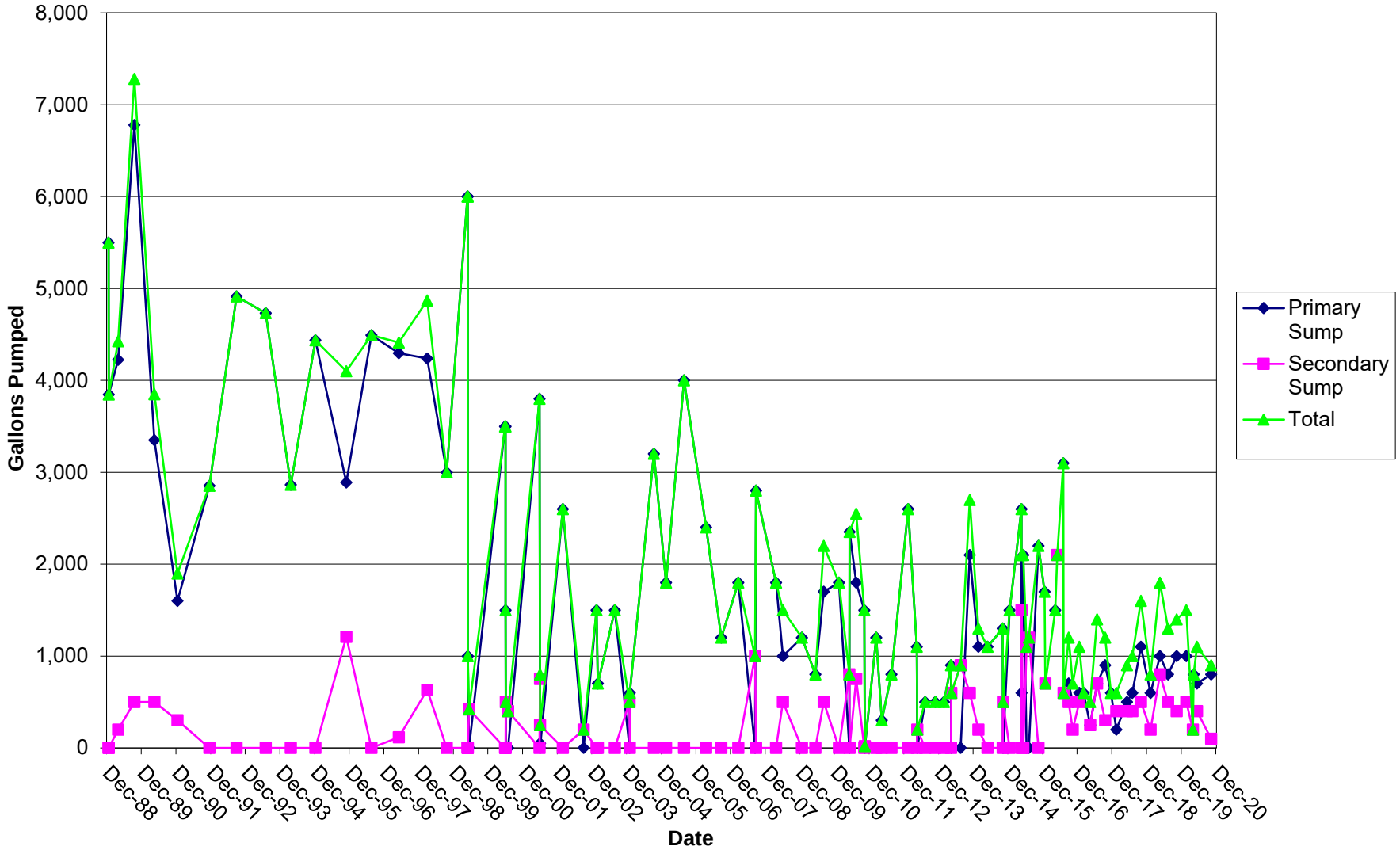


FIGURE E-1
Pumping Summary
Primary and Secondary Sumps



DACWPF

Date: 5/13/2020
Inspected by: Adm + KES
Supervisor: Cathryn Stewart
Page 1 of 4

INSPECTION FORM FOR MONITORING WELLS, PIEZOMETERS, AND BENCHMARKS

Purpose of Inspection: H20 SEMi ANNual Site INSpection

WELL NUMBER	DATE OF INSPECTION	DEPTH TO WATER	CONDITION/REMARKS*
P-112	5/13/2020	61.23	Well in good Condition
P-113	5/13/2020	75.45	Well in good Condition
P-114A	5/13/2020	76.12	Well in good Condition
P-115	5/13/2020	75.39	Well in good condition

Inspect wells for broken seals or caps, nonfunctional pumps, cracked casings, other broken or malfunctioning equipment, and labeling.

PIEZOMETER NUMBER	DATE OF INSPECTION	DEPTH TO WATER	CONDITION/REMARKS*
GC-18	5/13/2020	17.52	Well in good Condition
GC-16	5/13/2020	40.86	Well in good Condition
GC-22	5/13/2020	38.03	Well in good Condition
GC-26	5/13/2020	40.11	Well in good Condition
GC-21	5/13/2020	22.31	Well in good Condition
P-107	5/13/2020	21.31	Well in good Condition

Inspect piezometers for broken seals or caps, cracked casings, other broken equipment, painting and labeling.

BENCHMARK INSPECTION	DATE OF INSPECTION	CONDITION/REMARKS*
BM-1A	5/13/2020	in good Condition, Legible & Sturdy
BM-2A	5/13/2020	in good Condition, Legible & Sturdy

Inspect benchmarks for any observable damage or movement.

Any repair required? If yes, notify the Project Manager and complete a repair certification.	YES	NO
		✓

*If additional explanation is required, complete on separate page(s) and attach hereto.

FIGURE 1

DACWPF

Date: 5/13/2020
Inspected by: AM & KES
Supervisor: Cathryn Stewart

INSPECTION FORM FOR LEACHATE COLLECTION SYSTEM

Purpose of Inspection: 1H20 Semi-Annual Site Inspection

SUMP	DATE OF INSPECTION	CONDITION/REMARKS*
Primary	5/7/2020	Primary Sump in good Condition
Secondary	5/7/2020	secondary sump in good Condition

Inspect the leachate collection system for presence and depth of fluids in the primary sump, nonfunctioning or broken pipe(s), nonfunctioning or broken sump cover(s), nonfunctioning or broken casing, and nonfunctioning or broken pump(s).

If liquids are present in the **primary** sump, provide information specified below as applicable.

Depth to liquid	36.2
Depth to bottom of sump	38.4 ft
Depth of liquid	2.2 ft
Liquids generation rate (to be calculated when the sump is pumped)	NA
Gallons of liquid removed	≈ 4 Gallons for LG Sample
Were liquids samples taken for analysis?	Yes

If liquids are present in the **secondary** sump, provide information specified below as applicable.

Elevation top of sump	5780.26 ft
Depth to liquid	113.7 ft. measured on the side slope
Depth to bottom of sump	118.3 ft measured on the side slope
Depth of liquid	4.6 ft. measured on the side slope
Liquids generation rate (to be calculated when the sump is pumped)	NA
Gallons of liquid removed	≈ 4 Gallons for LG Samples
Were liquids samples taken for analysis?	Yes

Any repair required? If yes, notify the Project Manager and complete a repair certification.	YES	NO
		✓

*If additional explanation is required, complete on separate page(s) and attach hereto.

DACWPF

Date: 5/13/2020
Inspected by: Amd. KES
Supervisor: Cathryn Stewart

INSPECTION FORM FOR THE RECONSTRUCTED CELL COVER, DRAINAGE CHANNELS, THE PERCHED WATER DRAIN, AND SECURITY FENCE

Purpose of Inspection: 1H20 Semi-Annual Site Inspection

	DATE OF INSPECTION	CONDITION/REMARKS*
RECONSTRUCTED CELL COVER	5/13/2020	Cell Cover Free from Cracks, Holes, Breaches, Rodent Burrows
Inspect cell cover for: cracks, holes, other breaches of the cap, rodent burrows, consistency of gravel cover, erosion of cap, and evidence of subsidence.		

DRAINAGE CHANNEL	DATE OF INSPECTION	CONDITION/REMARKS*
DITCH 'A'	5/13/2020	Ditch "A" in Good Condition
DITCH 'B'	5/13/2020	Ditch "B" in Good Condition
Inspect ditches for blockages and erosive damage.		

	DATE OF INSPECTION	CONDITION/REMARKS*
PERCHED WATER DRAIN	5/13/2020	Perched water drain in Good Condition No Seepage Observed
Inspect drain for blockages		

	DATE OF INSPECTION	CONDITION/REMARKS*
SECURITY FENCE	5/13/2020	Security Fence in Good Condition. No Cut Sections in Link, no Burrows
Inspect security fence for broken or cut sections in chain link or barbed wire, burrows under fence, damaged or defective locks, and signs.		

Any repair required? If yes, notify the Project Manager and complete a repair certification.	YES	NO
		✓
*If additional explanation is required, complete on separate page(s) and attach hereto.		

FIGURE 3

DACWPF

Date: 5/13/2020
Inspected by: LAM & KES
Supervisor: CAthryn Stewart
Page 4 of 4

REPAIR CERTIFICATION

ITEM BEING REPAIRED: NONE

DESCRIPTION OF OF REPAIR: NA

REPAIR BEGAN ON: _____ AND WAS COMPLETED ON: _____

OTHER COMMENTS: NA

FIGURE 4

DACWPF

Date: 11/6/20
Inspected by: LAMT KES
Supervisor: Cathryn Stewart
Page 1 of 4

INSPECTION FORM FOR MONITORING WELLS, PIEZOMETERS, AND BENCHMARKS

Purpose of Inspection: 2H20 Semi-Annual Site Inspection

WELL NUMBER	DATE OF INSPECTION	DEPTH TO WATER	CONDITION/REMARKS*
P-112	11/6/2020	61.71	well in good Condition
P-113	11/6/2020	75.78	well in good Condition
****P-114A-R**	11/6/2020	76.42	well in good Condition
P-115	11/6/2020	75.61	well in good Condition

Inspect wells for broken seals or caps, nonfunctional pumps, cracked casings, other broken or malfunctioning equipment, and labeling. ** P114A decommissioned and P114A-R installed July 2016

PIEZOMETER NUMBER	DATE OF INSPECTION	DEPTH TO WATER	CONDITION/REMARKS*
GC-18	11/6/2020	20.57	well in good Condition
GC-16	11/6/2020	41.15	well in good Condition
GC-22	11/6/2020	38.48	well in good Condition
GC-26	11/6/2020	40.71	well in good Condition
GC-21	11/6/2020	DRY @ 26.3	well in good Condition
P-107	11/6/2020	22.86	well in good Condition

Inspect piezometers for broken seals or caps, cracked casings, other broken equipment, painting and labeling.

BENCHMARK INSPECTION	DATE OF INSPECTION	CONDITION/REMARKS*
BM-1A	11/6/2020	in Good Condition, legible & Sturdy
BM-2A	11/6/2020	in Good Condition, Legible & Sturdy

Inspect benchmarks for any observable damage or movement.

Any repair required? If yes, notify the Project Manager and complete a repair certification.	YES	NO
		✓

*If additional explanation is required, complete on separate page(s) and attach hereto.

DACWPF

Date: 11/6/20
Inspected by: LGM+KES
Supervisor: Cathryn Stewart
Page 2 of 4

INSPECTION FORM FOR LEACHATE COLLECTION SYSTEM

Purpose of Inspection: 2H20 Semi-Annual Site Inspection

SUMP	DATE OF INSPECTION	CONDITION/REMARKS*
Primary	11/6/2020	primary Sump in good Condition
Secondary	11/6/2020	Secondary Sump in good Condition

Inspect the leachate collection system for presence and depth of fluids in the primary sump, nonfunctioning or broken pipe(s), nonfunctioning or broken sump cover(s), nonfunctioning or broken casing, and nonfunctioning or broken pump(s).

If liquids are present in the **primary** sump, provide information specified below as applicable.

Depth to liquid	35.9
Depth to bottom of sump	38.4 ft
Depth of liquid	2.5 ft
Liquids generation rate (to be calculated when the sump is pumped)	NA
Gallons of liquid removed	NONE
Were liquids samples taken for analysis?	NO SAMPLES TAKEN

If liquids are present in the **secondary** sump, provide information specified below as applicable.

Elevation top of sump	5780.26 ft
Depth to liquid	115.3 ft. measured on the side slope
Depth to bottom of sump	118.3 ft measured on the side slope
Depth of liquid	3.0 ft. measured on the side slope
Liquids generation rate (to be calculated when the sump is pumped)	NA
Gallons of liquid removed	NONE
Were liquids samples taken for analysis?	NO SAMPLES TAKEN

Any repair required? If yes, notify the Project Manager and complete a repair certification.	YES	NO
		✓

*If additional explanation is required, complete on separate page(s) and attach hereto.

INSPECTION FORM FOR THE RECONSTRUCTED CELL COVER, DRAINAGE CHANNELS, THE PERCHED WATER DRAIN, AND SECURITY FENCE

Purpose of Inspection: 2H20 Semi-Annual Site Inspection

	DATE OF INSPECTION	CONDITION/REMARKS*
RECONSTRUCTED CELL COVER	11/6/20	Cell Cover Free From Cracks, Holes, Breaches, Rodent Burrows
Inspect cell cover for: cracks, holes, other breaches of the cap, rodent burrows, consistency of gravel cover, erosion of cap, and evidence of subsidence.		

DRAINAGE CHANNEL	DATE OF INSPECTION	CONDITION/REMARKS*
DITCH 'A'	11/6/20	Ditch "A" in Good Condition
DITCH 'B'	11/6/20	Ditch "B" in Good Condition
Inspect ditches for blockages and erosive damage.		

	DATE OF INSPECTION	CONDITION/REMARKS*
PERCHED WATER DRAIN	11/6/20	Perched water drain in good condition; no seepage observed
Inspect drain for blockages		

	DATE OF INSPECTION	CONDITION/REMARKS*
SECURITY FENCE	11/6/20	Security fence in good condition. No cut sections in Link, no Burrows
Inspect security fence for broken or cut sections in chain link or barbed wire, burrows under fence, damaged or defective locks, and signs.		

	YES	NO
Any repair required? If yes, notify the Project Manager and complete a repair certification.		✓

*If additional explanation is required, complete on separate page(s) and attach hereto.

DACWPF

Date: 11/6/20
Inspected by: LAM + KES
Supervisor: Cathryn Stewart
Page 4 of 4

REPAIR CERTIFICATION

ITEM BEING REPAIRED: NONE

DESCRIPTION OF OF REPAIR: NA

REPAIR BEGAN ON: _____ AND WAS COMPLETED ON: _____

OTHER COMMENTS: NA

FIGURE C-4

SWIFT RIVER
ENVIRONMENTAL SERVICES, LLC
An Alaska Native Corporation
26 West Dry Creek Circle, Suite 470 ♦ Littleton, CO 80120 ♦ 303-695-4660

June 5, 2020 S202107

Waste Management of Colorado, Inc.
2400 West Union Avenue
Englewood, CO 80110

Attention: Tom Schweitzer
Engineering Manager

RE: Leachate Levels at LCRS Sumps, Second Quarter 2020
DACWPF Reconstructed Cell Facility, Arapahoe County, CO

Dear Mr. Schweitzer:

Swift River Environmental Services, LLC (Swift River) provides the table of leachate level measurements in the two sumps at DACWPF. The Primary and Secondary Sumps were measured for the presence and depth of fluid on May 7, 2020 in accordance with the DACWPF State RCRA Permit, effective October 30, 2009. The table presents depth to liquid data as vertical depth for the Primary Sump and side-slope depth for the Secondary Sump.

Fluid was present in the Primary and Secondary Sumps on May 7, 2020. The depth of fluid in the Primary Sump on May 7 was 2.2 feet. We understand that you use a criterion of fluid depth approaching three feet of leachate to arrange for pumping of the Primary Sump.

The calculated leachate level in the Secondary Sump on May 7 was approximately 0.8 feet below the top of the liner. This is in compliance of the permit condition that there be not more than one foot of leachate above the leachate detection liner system (Permit, Inspection and Maintenance Plan, (h), page 2 of 6).

The next quarterly leachate measurement is scheduled for August 2020.

If you have any questions pertaining to the landfill monitoring, please contact us at (303) 695-4660 or by electronic mail at cathryn.stewart@swiftriveres.com.

Sincerely,

Swift River Environmental Services, LLC

Laura Major
Project Assistant

Cathryn Stewart, C.P.G.
Project Manager

Attachment: Table of Leachate Levels, DACWPF, Second Quarter 2020

Leachate Levels at LCRS Sumps, Second Quarter 2020
DACWPF Reconstructed Cell Facility

Date Measured: May 7, 2020	Primary Sump (feet)
Measured depth to bottom of sump [1]	38.4
Measured depth to liquid [1]	36.2
Calculated depth of liquid in sump	2.2

Date Measured: May 7, 2020	Secondary Sump (feet)
Elevation of top of riser pipe [2]	5780.26
Elevation of top of liner [3]	5747.6
Measured depth to liquid [4]	113.7
Calculated elevation of liquid [5]	5746.8
Calculated head level of liquid in sump with respect to the elevation of the top of liner [6]	-0.8

Notes:

1 Depth to liquid in the Primary Sump, and Depth to bottom of Primary Sump, are vertical measurements made using a water-level measuring tape. Depth to liquid is recorded to the nearest 1/100th of one foot. Depth to bottom of sump is recorded to the nearest 1/10th of one foot.

2 Elevation of top of Secondary Sump riser pipe is from the Inspection Form for the Leachate Collection System, 2H08, by Earth Tech AECOM, dated 11/19/08.

3 Elevation of Top of Liner is from the Sections and Details Leachate Collection Systems, Sheet 21, Golder Associates, 10/88 (as-built).

4 Depth to liquid in the Secondary Sump is a non-vertical measurement made in a side-slope riser pipe installed at an approximately 3:1 slope, (17.1 degrees below horizontal is used as actual slope), using a water-level measuring tape fastened to a small-diameter PVC pipe and extended into the riser pipe. Depth to liquid is recorded to the nearest 1/10th of one foot.

5 Calculation of elevation of liquid measured in riser pipe =
Elevation of top of riser pipe - (Depth to liquid measured on 17.1 degree slope*sin 17.1 degrees).

6 A negative value indicates the leachate level is below the Top of Liner.

SWIFT RIVER
ENVIRONMENTAL SERVICES, LLC
An Alaska Native Corporation
26 West Dry Creek Circle, Suite 470 ♦ Littleton, CO 80120 ♦ 303-695-4660

January 26, 2021 S202107

Waste Management of Colorado, Inc.
2400 West Union Avenue
Englewood, CO 80110

Attention: Tom Schweitzer
Engineering Manager

RE: Leachate Levels at LCRS Sumps, Fourth Quarter 2020
DACWPF Reconstructed Cell Facility, Arapahoe County, CO

Dear Mr. Schweitzer:

Swift River Environmental Services, LLC (Swift River) provides the table of leachate level measurements in the two sumps at DACWPF. The Primary and Secondary Sumps were measured for the presence and depth of fluid on November 6, 2020 in accordance with the DACWPF State RCRA Permit, effective May 21, 2020. The table presents depth to liquid data as vertical depth for the Primary Sump and side-slope depth for the Secondary Sump.

Fluid was present in the Primary and Secondary Sumps on November 6, 2020. The depth of fluid in the Primary Sump on November 6 was 2.5 feet. We understand that you use a criterion of fluid depth approaching three feet of leachate to arrange for pumping of the Primary Sump.

The calculated leachate level in the Secondary Sump on November 6 was approximately 1.2 feet below the top of the liner. This is in compliance of the permit condition that there be not more than one foot of leachate above the leachate detection liner system (Permit, Inspection and Maintenance Plan, (h), page C-2).

The next quarterly leachate measurement is scheduled for February 2021.

If you have any questions pertaining to the landfill monitoring, please contact us at (303) 695-4660 or by electronic mail at cathryn.stewart@swiftriveres.com.

Sincerely,

Swift River Environmental Services, LLC

Laura Major
Project Assistant

Cathryn Stewart, C.P.G.
Project Manager

Attachment: Table of Leachate Levels, DACWPF, Fourth Quarter 2020

Leachate Levels at LCRS Sumps, Fourth Quarter 2020
DACWPF Reconstructed Cell Facility

Date Measured: November 6, 2020	Primary Sump (feet)
Measured depth to bottom of sump [1]	38.4
Measured depth to liquid [1]	35.9
Calculated depth of liquid in sump	2.5

Date Measured: November 6, 2020	Secondary Sump (feet)
Elevation of top of riser pipe [2]	5780.26
Elevation of top of liner [3]	5747.6
Measured depth to liquid [4]	115.3
Calculated elevation of liquid [5]	5746.4
Calculated head level of liquid in sump with respect to the elevation of the top of liner [6]	-1.2

Notes:

1 Depth to liquid in the Primary Sump, and Depth to bottom of Primary Sump, are vertical measurements made using a water-level measuring tape. Depth to liquid is recorded to the nearest 1/100th of one foot. Depth to bottom of sump is recorded to the nearest 1/10th of one foot.

2 Elevation of top of Secondary Sump riser pipe is from the Inspection Form for the Leachate Collection System, 2H08, by Earth Tech AECOM, dated 11/19/08.

3 Elevation of Top of Liner is from the Sections and Details Leachate Collection Systems, Sheet 21, Golder Associates, 10/88 (as-built).

4 Depth to liquid in the Secondary Sump is a non-vertical measurement made in a side-slope riser pipe installed at an approximately 3:1 slope, (17.1 degrees below horizontal is used as actual slope), using a water-level measuring tape fastened to a small-diameter PVC pipe and extended into the riser pipe. Depth to liquid is recorded to the nearest 1/10th of one foot.

5 Calculation of elevation of liquid measured in riser pipe =
Elevation of top of riser pipe - (Depth to liquid measured on 17.1 degree slope*sin 17.1 degrees).

6 A negative value indicates the leachate level is below the Top of Liner.



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