SOMACH SIMMONS & DUNN
A Professional Corporation
THERESA A. DUNHAM, ESQ. (SBN 187644)
BRENDA C. BASS, ESQ. (SBN 306793)
500 Capitol Mall, Suite 1000
Sacramento, CA 95814
Telephone: (916) 446-7979
Facsimile: (916) 446-8199
Email: tdunham@somachlaw.com
Email: bbass@somachlaw.com

Attorneys for Petitioner Waste Management of Alameda County, Inc.

BEFORE THE

CALIFORNIA STATE WATER RESOURCES CONTROL BOARD

In the Matter of the Petition of Waste Management of Alameda County, Inc. for Review of Action by the Central Valley Regional Water Quality Control Board Assistant Executive Officer.	SWRCB/OCC File _____ **WASTE MANAGEMENT OF ALAMEDA COUNTY, INC.'S PETITION FOR REVIEW; STATEMENT OF POINTS AND AUTHORITIES IN SUPPORT THEREOF** [Wat. Code, § 13320]

Waste Management of Alameda County, Inc. (WMACI) submits this Petition for Review and Statement of Points and Authorities (Petition) to the State Water Resources Control Board (State Water Board) in accordance with Water Code section 13320. WMACI respectfully requests that the State Water Board review the Central Valley Regional Water Quality Control Board's (Central Valley Water Board) Assistant Executive Officer's actions on February 8, 2018, issuing a Water Code section 13267 Order for Technical Reports, Altamont Landfill and Resource Recovery Facility, Alameda County (Order).

The Order requires WMACI to perform three tasks: (1) prepare and submit a work plan by March 23, 2018 to implement an evaluation monitoring program that would include, in part, the installation of monitoring points along a 3,500-foot northern boundary in Fill Area 1, primarily along the lined Unit 2; (2) implement the proposed work plan and conduct the

monitoring; and (3) submit an Amended Report of Waste Discharge (ROWD) within 90 days of delineating the release at issue in the Order.

The Order is improper for numerous reasons. Most significantly, the Order seeks to impose on WMACI a significant, multi-million dollar obligation to install and monitor various groundwater wells when there is no technical or scientific justification for their installation. Ultimately, the unreasonable requirements contained in the Order result in it being illegal because it violates the mandates of Water Code section 13267. The Order is not supported by findings or evidence, and it fails to show how the burden on WMACI is reasonable as compared to the Central Valley Water Board's alleged benefit. Moreover, recent data shows that the water quality impacts that underlie the alleged basis for the Order are improving and that the source of the changes has been controlled. Contrary to the statutory requirements of Water Code section 13267, there are no findings, nor sufficient explanations, to support the need for the ordered technical reports related to groundwater impacts, and no evidence to support requiring WMACI to incur the substantial costs that this Order entails.

This Petition satisfies the requirements of California Code of Regulations, Title 23, section 2050. WMACI requests the opportunity to file supplemental points and authorities in support of this Petition once the administrative record becomes available. WMACI also reserves the right to submit additional arguments and evidence in reply to the Central Valley Water Board's or other interested parties' responses to this Petition.

1. NAME, ADDRESS, TELEPHONE NUMBER, AND EMAIL ADDRESS OF THE PETITIONER

Petitioner is Waste Management of Alameda County, Inc., a California corporation, which operates and maintains the Altamont Landfill and Resource Recovery Facility. Petitioner's address is as follows:

Marcus Nettz, District Manager
Waste Management of Alameda County, Inc.
Altamont Landfill and Resource Recovery Facility
10840 Altamont Pass Road
Livermore, CA 94551
Email: mnettz@wm.com

In addition, WMACI requests that all materials in connection with this Petition and administrative record be provided to WMACI's counsel and special counsel as follows:

Catherine R. Finley
Waste Management
9081 Tujunga Avenue
Sun Valley, CA 91352
Phone: (818) 252-3141
Email: CRiegle@wm.com

Theresa A. Dunham
Somach Simmons & Dunn
500 Capitol Mall, Suite 1000
Sacramento, CA 95814
Phone: (916) 446-7979
Email: tdunham@somachlaw.com

2. PETITIONER

WMACI owns and operates the Altamont Landfill and Resource Recovery Facility (ALRRF). The ALRRF is a Class II/III municipal solid waste landfill that is regulated by the Central Valley Regional Water Quality Control Board (Central Valley Water Board) under Waste Discharge Requirements (WDRs) Order No. R5-2016-0042-01 and its associated Monitoring and Reporting Program (MRP). Currently, waste disposal occurs in Fill Area 1, which is divided into Unit 1 and Unit 2. Unit 1 is an unlined Class III disposal area and Unit 2 is a lined Class II disposal area with a leachate collection and removal system.

3. THE SPECIFIC ACTION OR INACTION OF THE CENTRAL VALLEY WATER BOARD WHICH THE PETITIONER REQUESTS THE STATE WATER BOARD TO REVIEW

WMACI requests that the State Water Board review the Central Valley Water Board Assistant Executive Officer's issuance of the February 8, 2018 Water Code section 13267 Order. A copy of this Order is attached hereto as Exhibit A.

The specific action of the Central Valley Water Board Assistant Executive Officer that WMACI requests the State Water Board to review are the Order's requirements that WMACI prepare a work plan to implement an evaluation monitoring program (EMP) that includes assessing the change in water quality identified in groundwater monitoring well MW-4A, and that includes monitoring groundwater along the 3,500 foot northern boundary of lined Unit 2 of

Fill Area 1. (Exh. A, p. 3.) This action and the challenged requirements in the Order are described more fully in the Statement of Points and Authorities beginning on page 7 of this Petition.

4. THE DATE ON WHICH THE CENTRAL VALLEY WATER BOARD ACTED OR REFUSED TO ACT

The Central Valley Water Board Assistant Executive Officer issued the Order on February 8, 2018.

5. A STATEMENT OF THE REASONS THE ACTION OR FAILURE TO ACT IS INAPPROPRIATE OR IMPROPER

A full and complete statement of the reasons why the Central Valley Water Board's actions were inappropriate or improper is provided in the Statement of Points and Authorities of this Petition, which begins on page 7.

6. THE MANNER IN WHICH PETITIONER IS AGGRIEVED

WMACI is aggrieved by the actions of the Central Valley Water Board's Assistant Executive Officer as described in this Petition because the 13267 Order violates Water Code section 13267. Specifically, the 13267 Order imposes a significant and costly burden on WMACI that is completely unreasonable considering the facts and circumstances surrounding the detections in question. In short, WMACI would be required to install multiple groundwater wells and monitor them for decades at an estimated cost of well over $4 million for the alleged purpose of "assess[ing] the nature and extent of the release identified in groundwater monitoring well MW-4A and along the unmonitored northern limit of Fill Area 1...." (Exh. A, p. 3.) In fact, WMACI has already assessed the nature and extent of the change in groundwater quality detected in MW-4A, and has already implemented measures to address the source of the change. Accordingly, the Order places a substantial burden upon WMACI that does not bear a reasonable relationship to the need for the information to be obtained. Further, contrary to statements in the Order, the EMP in question is not required by Title 27, sections 20415(b)(1)(C)(1-3) and 20415(d)(1)(C) of the California Code of Regulations.

7. THE SPECIFIC ACTION REQUESTED BY PETITIONER

WMACI requests that the State Water Board review the record, the Order and this Petition, find that the Order issued by the Central Valley Water Board Assistant Executive Officer violates the mandates of Water Code section 13267, and direct the Central Valley Water Board to rescind the Order.

8. A STATEMENT OF POINTS AND AUTHORITIES IN SUPPORT OF LEGAL ISSUES RAISED IN THIS PETITION

As required by California Code of Regulations, Title 23, section 2050(a)(7), this Petition includes a Statement of Points and Authorities.

9. A STATEMENT THAT THIS PETITION WAS SENT TO THE CENTRAL VALLEY WATER BOARD

A true and correct copy of this Petition was mailed by First Class Mail to the Central Valley Water Board. The address to which WMACI mailed the copy to the Central Valley Water Board is:

Pamela C. Creedon/Patrick Pulupa
Executive Officer
Central Valley Regional Water Quality Control Board
11020 Sun Center Drive, Suite 200
Rancho Cordova, CA 95670

WMACI is the Petitioner and discharger. Therefore, WMACI did not mail a separate copy of this Petition to the discharger.

10. A STATEMENT AS TO WHETHER THE PETITIONER RAISED THE ISSUES OR OBJECTIONS IN THE PETITION TO THE CENTRAL VALLEY WATER BOARD

Because the Order is issued under Water Code section 13267 by the Central Valley Water Board's Assistant Executive Officer, there was no formal public comment or notice period, and no hearing prior to issuance of the Order. Therefore, there was no formal opportunity for WMACI to raise the substantive issues included in this Petition. However, WMACI prepared an Amended Report of Waste Discharge and proposed EMP on December 21, 2017 pursuant to its obligations under California Code of Regulations, Title 27. In this December submittal, WMACI

provided additional monitoring results and described the actions taken to remediate the problem, and then proposed follow up monitoring. The additional monitoring showed an improvement in groundwater quality, indicating that more extensive monitoring as is being demanded under the Order is unnecessary.

Concurrent with this Petition, WMACI is filing a substantively similar petition for review with the Central Valley Water Board, to provide the Central Valley Water Board with an opportunity to review the Order issued by its Assistant Executive Officer.

WMACI submits this Petition in accordance with Water Code section 13320. WMACI additionally submits that no other applicable law precludes the State Water Board's consideration of these issues in this Petition.

11. STAY OF CHALLENGED REQUIREMENTS

The Water Code and State Water Board regulations provide for the issuance of stays of Regional Water Board orders in connection with a petition for review. Due to the fact that the EMP in the Order is due on March 23, 2018 and is to be implemented upon submittal — only 14 days from the filing date of this Petition — WMACI believes that a stay is necessary in this case. Accordingly, WMACI has concurrently filed a Request for Stay.

SOMACH SIMMONS & DUNN

DATED: March 12, 2018

By _____
Theresa A. Dunham
Attorneys for Petitioner

STATEMENT OF POINTS AND AUTHORITIES

WMACI files this Statement of Points and Authorities in support of its Petition pursuant to California Code of Regulations, Title 23, section 2050(a). WMACI reserves the opportunity to file a supplemental or reply memorandum after receipt of the administrative record and any response by the Central Valley Water Board or other interested parties. WMACI incorporates by reference all comments, testimony, and evidence in the record supporting its Petition.

I. INTRODUCTION

WMACI is the owner and operator of the Altamont Landfill and Resource Recovery Facility (ALRRF), which is a Class II/III municipal solid waste landfill. At all times, WMACI operates the ALRRF responsibly, including taking actions that are necessary to ensure compliance with applicable permitting requirements. The facts and circumstances surrounding this petition are no exception. Central to this Petition are actions taken by WMACI in response to detections of volatile organic compounds (VOCs) in groundwater monitoring well MW4-A at the ALRRF. In short, WMACI responded to the detections timely, appropriately, and independently implemented measures to quickly assess the nature and extent of the change in groundwater quality and to address the source of the change. The data and information collected by WMACI, which have been provided to the Central Valley Water Board, show that WMACI has characterized the source of the change in groundwater quality and that actions to address the source are working.

Unfortunately, however, the Central Valley Water Board's Assistant Executive Officer appears to have reacted to the Amended Report of Waste Discharge and Proposed Evaluation Monitoring Plan submitted by WMACI on December 21, 2017 (December AROWD/EMP) without actually considering the data and information provided therein. Instead of providing comments or feedback to WMACI or otherwise engaging in a productive dialogue, which is the typical protocol, the Central Valley Water Board Assistant Executive Officer issued the 13267 Order at issue here claiming that the December AROWD/EMP submitted by WMACI on December 21, 2017 is "material [sic] deficient." A copy of WMACI's December AROWD/EMP is attached hereto as Exhibit B. WMACI and an expert hydrogeologist with extensive landfill

experience disagree with the Central Valley Water Board Assistant Executive Officer's allegations regarding the December AROWD/EMP. (See Declaration of John D. Gallinatti in Support of Waste Management of Alameda County, Inc.'s Petition for Review and Request for Stay (Gallinatti Declaration), attached hereto as Exhibit C.) Further, the requirements being imposed in the 13267 Order are unnecessary and unreasonable. For these reasons, WMACI finds it necessary to challenge the 13267 Order issued by the Central Valley Water Board Assistant Executive Officer on February 8, 2018.

In summary, the 13267 Order requires WMACI to prepare a work plan to implement a multi-million dollar evaluation monitoring plan (EMP) that entails installing additional groundwater monitoring points along the 3,500-foot upgradient northern boundary of Fill Area 1, which consists primarily of the lined portion of Fill Area 1 (Unit 2). The 13267 Order fails to provide sufficient evidence or findings to support the need for this monitoring. It also fails to establish that the burden of developing and implementing the ordered EMP, is reasonable relative to the purported need or expected benefits of the reports. Therefore, WMACI petitions the State Water Board for review of the 13267 Order in the interest of ensuring that the Central Valley Water Board is held to the statutory requirements established in Water Code section 13267.

In issuing the 13267 Order, the Central Valley Water Board Assistant Executive Officer was required to provide written explanation and evidence regarding the need for the requested technical report. (Water Code, § 13267(b)(1).) However, the 13267 Order fails to do so. Rather, it states that the level of monitoring in the December AROWD/EMP (monthly groundwater samples at MW-4A during the first quarter of 2018) is not enough to assess the nature and extent of the change in groundwater quality related to increased concentrations of bicarbonate alkalinity and volatile organic compound (VOC) detections in MW-4A. (Exh. A, pp. 2-3.) No data or other information supports this assertion. No data or other information supports the 13267 Order's requirement that the requested work plan also include installation of additional groundwater monitoring points along a 3,500 foot border of a distant lined landfill unit as being necessary to determine the nature and extent of the change in water quality detected in MW-4A. (Exh. A, pp. 2-3.) Despite this lack of evidence or explanation supporting the need for the technical reports

requested in the 13267 Order, the Central Valley Water Board Assistant Executive Officer imposes significant burdens on WMACI to prepare and implement the work plan in question, which does not meet the standard of reasonableness required under Water Code section 13267.

In light of the lack of required evidence and explanation contained in the 13267 Order, as well as the unreasonable cost of the requirements included in the 13267 Order, the State Water Board should declare that the Central Valley Water Board Assistant Executive Officer's actions on February 8, 2018 are entirely invalid. The State Water Board should order the Central Valley Water Board to rescind the 13267 Order.

II. BACKGROUND

A. The Altamont Landfill and Resource Recovery Facility and Waste Discharge Requirements Order R5-2016-0042-01

WMACI owns and operates the ALRRF. The ALRRF is a Class II/III municipal solid waste landfill and is regulated by WDRs issued by the Central Valley Water Board in Order No. R5-2016-0042-01. Its associated Monitoring and Reporting Program (MRP) was adopted on June 24, 2016, and revised on October 27, 2016. The MRP calls for semiannual groundwater sampling analysis at MW-4A. (MRP, R5-2016-0042-01, at p. 3.)

The ALRRF is comprised of two Fill Areas: Fill Area 1, which currently accepts solid wastes, and Fill Area 2, which does not currently accept waste for disposal. Within Fill Area 1, there are two Units: Unit 1, which is unlined, and Unit 2, which is lined. (See Technical Memorandum from John Gallinatti, Geosyntec Consultants, Inc., pp. 5, 8 and Figure 2, attached to Gallinatti Declaration as Exhibit 1 (Gallinatti Declaration Exh. 1).) The ALRRF has a comprehensive monitoring well network, as required by California Code of Regulations Title 27 requirements and WMACI's MRP. Based on considerations of the geography and hydrology of the ALRRF, Title 27 and the WDRs do not require groundwater monitoring points along a 3,500-foot upgradient stretch of the northern boundary of Fill Area 1, near Unit 2 between MW-4 and MW-6. (See, e.g., Order No. R5-2016-0042-01, pp. 21-24, ¶¶ 82-94.) As a result, no such groundwater monitoring points currently exist along this 3,500 foot boundary of the lined Unit 2 of Fill Area 1. (See, e.g., Gallinatti Declaration Exh. 1, p. 4 and Figure 2.)

B. May, 23 2017 Sampling Event and Subsequent Reporting and Actions

During the first semiannual sampling analysis event in 2017, conducted on May 23, 2017, concentrations of bicarbonate alkalinity, dissolved calcium, and five VOCs were detected in MW-4A at levels that exceeded concentration limits. Specifically, bicarbonate alkalinity was detected at 600 milligrams per liter (mg/L), above the applicable concentration limit in the WDRs of 480 mg/L. (Exh. B, p. 10.) Dissolved calcium was detected at 70 mg/L, just above the concentration limit of 68.8 mg/L. (*Ibid.*) Five VOCs were detected, but only one was detected above its reporting limit: 1,1 dichloroethane (1,1-DCA) at 1.5 micrograms per liter (µg/L). (*Ibid.*) Four other VOCs were detected at estimated concentrations below their respective reporting limits:[1] cis-1,2-dichloroethene (Cis-1,2-DCE) at 0.74 µg/L; dichlorofluoromethane (DCFM) at 0.55 µg/L; trichloroethene (TCE) at 0.26 µg/L; and methyl tert-butyl ether (MTBE) at 0.38 µg/L. (*Ibid.*) WMACI reported these results to the Central Valley Water Board on June 27, 2017. (*Ibid.*)

Following these results, WMACI conducted resampling of MW-4A to confirm the detections in the May 2017 sample on June 29, 2017 and July 11, 2017. (Exh. B, p. 10.) These sampling results confirmed the bicarbonate alkalinity exceedance, but showed that concentrations were decreasing. VOC concentrations also appeared to be decreasing. The dissolved calcium exceedance was not confirmed, with the two resamples showing concentrations below the concentration limit (57 mg/L and 58 mg/L, respectively). (Exh. B, p. 11.) The June and July resample results showed concentrations of bicarbonate alkalinity at 540 mg/L and 490 mg/L, respectively. (Exh. B, p. 10.) While both concentrations are above the 480 mg/L concentration limit, the concentrations are below those detected in the May sample, and show a downward trend. The five VOCs detected in the May sample (1,1-DCA, Cis-1,2-DCE, DCFM, TCE, and MTBE) were again detected in the June resample results, but all concentrations were below reporting limits. (Exh. B, p. 11.) In the July resample, only three of the five VOCs were detected

[1] Reporting limits are levels of quantification that a laboratory can reliably achieve. Method detection limits are the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in 40 CFR 136, Appendix B, revised as of May 14, 1999. Detected values between the reporting limit and the MDL are considered to be estimated values because the laboratory cannot state with certainty as to the level of detection, rather that it is greater than zero and less than the reporting limit.

(1,1-DCA, Cis-1,2-DCE, and MTBE), and each detection was at a concentration below reporting limits. (*Ibid.*) These resampling results were submitted to the Central Valley Water Board on August 3, 2017, and a technical report summarizing the data collected and describing follow up actions was also submitted on August 10, 2017.

On September 13, 2017, additional samples were taken at MW-4A and the adjacent, deeper monitoring well MW-4B for analysis of constituents of concern (COCs) listed in the MRP at Table 6, specifically dissolved metals, cyanide, and other inorganic compounds; semi-volatile organic compounds (SVOCs); VOCs; chlorophenoxy herbicide compounds; organophosphorus pesticides; and polychlorinated biphenyls (PCBs). (Exh. B, pp. 11-12.) Only two VOCs were detected in MW-4A, and only in trace amounts. (Exh. B, p. 12.) Trace concentrations of one VOC, naphthalene, was detected in MW-4B, but subsequent retesting on December 7, 2017 did not detect any VOCs at this deeper well. (*Ibid.*) Bicarbonate alkalinity was detected at 500 mg/L, just above the concentration limit of 480 mg/L. (*Ibid.*) Trace metals and other inorganic parameters were detected within historical ranges. (*Ibid.*) No other COC parameters were detected in either well. (*Ibid.*)

On October 19, 2017, based on self-reporting activities undertaken by WMACI related to detections of VOCs at MW-4A, the Central Valley Water Board's Enforcement Section issued a Notice of Violation and Work Request (NOV) to WMACI for the ALRRF. The NOV suggested that the EMP to be filed with the Central Valley Water Board pursuant to Title 27 should include groundwater or soil gas monitoring points along the 3,500-foot northern limit of Fill Area 1, located adjacent to the lined Unit 2.

C. Source Identification, Submittal of AROWD/EMP, and Issuance of 13267 Order

Based on the data and information collected by WMACI and based on its considerable knowledge and experience in operating landfills, WMACI determined that the changes in groundwater quality detected in MW-4A were most likely related to landfill gas (LFG) diffusing into groundwater. (Exh. B, p. 14.) Further confirming this determination was the fact that, due to other issues and prior to the May 23, 2017 sampling event, a few LFG extraction wells in Fill

Area 1 were decommissioned and no longer collecting gas flow, and several other gas extraction wells were extracting less gas flow. (Gallinatti Declaration, ¶ 19.)

Based on this information, beginning in October 2017, WMACI made several enhancements to its gas collection and control system (GCCS): first increasing gas flow through several existing gas extraction wells in October 2017, and later through the installation of four new gas extraction wells in the vicinity of MW-4A. (Exh. B, p. 14.) Two new gas extraction wells became operational on November 30, 2017, and the remaining two new gas extraction wells became operational on December 12, 2017. (Exh. B, p. 14.)

Following implementation of these GCCS enhancements, WMACI conducted additional sampling at MW-4A on December 7, 2017 and December 14, 2017. Bicarbonate alkalinity was still above the concentration limit, but the concentrations in both samples were less than the concentration observed in May 2017. (Exh. B, p. 12.) Six VOCs (1,1-DCA, Cis-1,2-DCE, DCFM, TCE, MTBE, and acetone) were detected in the December 7, 2017 sample, but all at concentrations below reporting limits. (Exh. B, p. 12.) No VOCs were detected in the December 14, 2017 sample. (Exh. B, p. 12.)

As explained by WMACI in the December AROWD/EMP, the facts support WMACI's determination that LFG is the source of the detections of VOCs in MW-4A. In addition to the monitoring data collected from MW-4A showing a decline in VOCs since enhancement of the GCCS measures, other facts in support of this determination include: (1) the chemistry in the sampling results from well MW-4A whereby the detections of VOCs in groundwater here were accompanied by an increase in concentrations of bicarbonate alkalinity, calcium, and other cations, which is typical for LFG sources; (2) LFG is most likely to diffuse into groundwater in unlined waste disposal areas, as compared to lined areas, and MW-4A is located near the unlined portion of Fill Area 1; and, (3) VOCs can easily partition to groundwater from LFG. (See Exh. B, p. 13; see also Gallinatti Declaration, ¶¶ 15, 17, 20.)

On December 21, 2017, WMACI submitted the December AROWD/EMP to the Central Valley Water Board related to the detections on May 23, 2017. The December AROWD/EMP's approach to addressing the change in groundwater quality detected at MW-4A, since the

enhancements to the GCCS had already been completed and were controlling the source of the detections, was to conduct monthly monitoring at MW-4A—at a more frequent rate than required under Order R5-2016-0042-01—during the first quarter of 2018. (Exh. B, pp. 14-15.) The December AROWD/EMP also contains provisions to implement a second phase of investigation if the monitoring results in the first quarter of 2018 with respect to VOCs and bicarbonate alkalinity do not continue to improve. (Exh. B, p. 15.) The second phase would include certain actions based on the results of the early 2018 monitoring, such as: (1) well headspace monitoring at MW-4A to further determine the source of water quality changes and whether there is potential for VOCs from gas to directly transfer to water in the well; (2) installing a soil gas monitoring probe near MW-4A to evaluate whether LFG is in the vadose zone; (3) collecting grab-groundwater samples at accessible locations near MW-4A to further identify the extent of VOCs in groundwater; and (4) installing an additional monitoring well at an accessible location downgradient from MW-4A based on grab-groundwater sampling results. (Exh. B, p. 15.)

On February 8, 2018, the Central Valley Water Board Assistant Executive Officer issued an order pursuant to Water Code section 13267, the *Water Code Section 13267 Order for Technical Reports, Altamont Landfill and Resource Recovery Facility, Alameda County*. The 13267 Order provides: "[WMACI] shall submit a work plan, by March 23, 2018, to implement an EMP to assess the nature and extent of the release identified in groundwater monitoring well MW-4A and along the unmonitored northern limit of Fill Area 1, as required by Section 20415(b)(1)(C)(1-3) and Section 20415(d)(2)(C) of Title 27." (Exh. A, p. 3.) The 13267 Order further requires an Amended Report of Waste Discharge, due 90 days after the required EMP is established. (Exh. A, p. 3.)

III. ARGUMENT

The 13267 Order issued by the Central Valley Water Board Assistant Executive Officer should be invalidated and rescinded for several reasons. First, the actions taken by WMACI from June 2017 to the present in response to the May 23, 2017 sampling results at MW-4A are reasonable and appropriate, and the December AROWD/EMP is sufficient and protective of groundwater quality. Second, the Order requires WMACI to conduct groundwater monitoring

that is beyond the scope required by Title 27 of the California Code of Regulations. Finally, the 13267 Order violates Water Code section 13267 because it is not supported by evidence, requires the development and implementation of an unreasonable EMP, and the cost and burden on WMACI associated with developing and implementing the EMP does not bear a reasonable relationship to the Central Valley Water Board's need for the report or information.

A. WMACI Acted Appropriately and Responsibly in Response to VOC Detections at MW-4A

Based on its extensive knowledge and understanding of the ALRRF, and the hydrogeology underlying the facility, WMACI responded to the May 2017 detections in MW-4A in a reasonable, responsible and responsive manner. The response has addressed the detections of VOCs identified in May 2017 and is protective of groundwater quality, therefore rendering the preparation and implementation of the EMP requested in the 13267 Order superfluous.

First, all evidence supports WMACI's finding that the source of the change in water quality detected at MW-4A is LFG. Due to unrelated operational changes at the ALRRF, several gas extraction wells located near MW-4A were decommissioned in 2017 before the May 23, 2017 detection of VOCs. (Gallinatti Declaration, ¶ 19.) Other gas extraction wells had reduced gas flow. (Gallinatti Declaration, ¶ 19.) Following the May 23, 2017 detection, the ALRRF's GCCS was adjusted to address LFG as a source of the VOC detections. (Gallinatti Declaration, ¶ 19.) Specifically, flow rates were increased in two existing gas extraction wells located near MW-4A in October 2017, and four new gas extraction wells were installed in the vicinity of MW-4A in November and December 2017. (Gallinatti Declaration, ¶ 19.)

Monitoring data collected from MW-4A following the enhancements made to the GCCS shows that groundwater quality conditions have improved. (Gallinatti Declaration, ¶ 20.) In fact, no VOCs were detected in samples collected at MW-4A on December 14, 2017, just days after the enhancements to the GCCS were completed. (Gallinatti Declaration, ¶ 20.)

More recent monitoring results, from samples collected from MW-4A in January and February 2018 show that the concentrations of bicarbonate alkalinity and VOCs continue to decrease. (Gallinatti Declaration, ¶ 21.) Concentrations of bicarbonate alkalinity were below the

applicable concentration limit in Order No. R5-2016-0042-01 in both samples. (Gallinatti Declaration, ¶ 21.) Only two VOCs were detected, at trace concentrations below the reporting limits, in both the January and February 2018 sampling results. (Gallinatti Declaration, ¶ 21.)

This shows that WMACI's active investigation into the groundwater conditions at MW-4A and its quick response to the detected water quality change have addressed the detections of VOCs at MW-4A in May 2017. (Gallinatti Declaration, ¶¶ 14, 24.) Therefore, there is simply no need for the EMP requested in the 13267 Order because WMACI has addressed the relevant detections, and has produced sufficient information documenting its actions. For this reason alone, the 13267 Order is unnecessary and unreasonably burdensome.

B. The 13267 Order Improperly Interprets Monitoring Requirements in Title 27

Additionally, the Central Valley Water Board Assistant Executive Officer cites to section 20415(b)(1)(C) and section 20415(d)(2)(C) of Title 27 of the California Code of Regulations as the primary support for the requirements contained in the 13267 Order. Specifically, the Order references requirements associated with an EMP that has been triggered by a release, and implies that to comply with these EMP monitoring requirements significant new monitoring wells must be installed along the northern limit of Fill Area 1.

In reality, the referenced requirements from Title 27 state that the EMP must include a *sufficient number of monitoring points* installed at appropriate locations and depths to yield appropriate groundwater samples at varying depths to provide data needed *to evaluate changes in water quality due to the release in question.* (See 27 Cal. Code Regs., §§ 20415(b)(1)(C) and 20415(d)(2)(C) [emphasis added].) What the Central Valley Water Board Assistant Executive Officer fails to recognize is that the monitoring conducted by WMACI has already provided adequate data to evaluate changes in water quality due to the reported change in water quality, and that the work plan and monitoring being ordered in the 13267 Order (i.e., monitoring along the 3,500-foot boundary of lined Unit 2) will not yield data that evaluates changes in water quality due to the detections in MW-4. Specifically, Title 27 requires that an EMP evaluate changes *due to the release in question.* The EMP being ordered in the 13267 Order is unrelated to the VOC detections in question because it mandates monitoring of a 3,500-foot area of the

landfill that is (1) *lined*, and (2) quite some distance away from MW-4A and therefore quite some distance from any evidence of a change in groundwater quality.

John Gallinatti, a Senior Principal Hydrologist with Geosyntec Consultants, Inc. has over 25 years of experience in the field of hydrology, and specifically related to groundwater modeling, aquifer testing, well field design and environmental fate of dissolved organic compounds. (Gallinatti Declaration, ¶ 1.) Mr. Gallinatti has extensive experience in evaluating groundwater beneath landfill facilities in the San Francisco Bay Area of California, and has experience developing modeling to design groundwater remedies for VOCs. (Gallinatti Declaration, ¶ 1.) Based on his review and evaluation of the data and information associated with MW-4A, Mr. Gallinatti finds that the requirement to monitor along the 3,500 foot border of the *lined* Unit 2 would not assess the impact of the detections in MW-4A.

First, MW-4A is located just north of unlined Unit 1, and LFG is a much more likely to be a source of detections such as VOCs and bicarbonate alkalinity in an unlined unit. Mr. Gallinatti also finds that the chemistry of the groundwater in MW-4A clearly indicates that the source of the detections at issue is LFG diffusing into groundwater, the source has been identified and a remedy is already being implemented. (Gallinatti Declaration, ¶¶ 15, 20-21.) Next, Mr. Gallinatti finds that the current monitoring program using MW-4A has properly detected and monitored changes in water quality. Specifically, "[v]ery low concentrations of VOCs currently detected in MW-4A, as well as the decrease of bicarbonate alkalinity concentrations to background levels, show that the lateral extent of the release is effectively being monitored at MW-4A." (Gallinatti Declaration, ¶ 22.) Also, immediately adjacent to MW-4A is MW-4B. MW-4A monitors groundwater from the shallow zone, while MW-4B monitors from a deeper zone. As described above, sampling at MW-4B in September 2017 and again in December 2017 failed to show detections of VOCs (except for one estimated trace value for naphthalene in September). The lack of VOCs in MW-4B "confirms that the vertical extent of the release is known." (Gallinatti Declaration, ¶ 22.)

Taking all of these facts and the declining levels of VOCs in MW-4A together, Mr. Gallinatti finds that monitoring for VOC concentrations in MW-4A "is effective in detecting changes in groundwater quality associated with LFG." (Gallinatti Declaration, ¶ 23.)

The monitoring put forward by WMACI in the December AROWD/EMP, combined with the evidence evaluated by Mr. Gallinatti, provides for sufficient monitoring to evaluate changes in water quality as required by sections 20415(b)(1)(C) and (d)(2)(C) of Title 27 of the California Code of Regulations. (Gallinatti Declaration, ¶¶ 14, 25.) No further monitoring is warranted or required by Title 27. Conversely, monitoring the 3,500 foot boundary of lined Unit 2 at varying depths as is being required by the 13267 Order would *not* provide data useful for evaluating water quality changes detected in MW-4A. Thus, the EMP being demanded by the Central Valley Water Board Assistant Executive Officer is not required by Title 27, and, more importantly, WMACI is in compliance with Title 27.

C. The Burden of the 13267 Order Does Not Bear a Reasonable Relationship to the Need for the Information

Water Code section 13267 authorizes the Central Valley Water Board and its executive officers to issue orders for certain monitoring and reporting programs. (Wat. Code, § 13267(a).) However, with this authority comes the requirement that the Central Valley Water Board consider the burden of the reporting to be required, and ensure that it is related to the need for or benefit to be obtained from the information. (*Id.* at § 13267(b)(1).) Specifically, "[t]he burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports." (*Ibid.*) In practice, this requires that the Central Valley Water Board to articulate both the need for the report or the benefits to be obtained from the report *and* the burden on the discharger of conducting monitoring and preparing the required report. Then, the Central Valley Water Board must compare the two to ensure that the burdens are reasonably related to the need for the information to be provided. The Central Valley Water Board Assistant Executive Officer did not do this when he issued the 13267 Order.

As described above, the 13267 Order requires WMACI to submit a work plan to implement an EMP "to assess the nature and extent of the release identified in groundwater

monitoring well MW-4A *and* along the unmonitored northern limit of Fill Area 1, as required by . . . Title 27." (Exh. A, p. 3 [emphasis added].) However, the 13267 Order does not explain why it is necessary to not only define the nature and extent of the change in groundwater quality detected in MW-4A but also in a 3,500-foot area some distance from the VOC detections, and adjacent to lined Unit 2. Additionally, these requirements impose significant economic and time cost burdens on WMACI to complete.

This additional monitoring required by the 13267 Order is not reasonable, neither is the cost associated with compliance reasonably related to the need for the monitoring. First, the source of the VOC detections in MW-4A has been clearly linked to LFG, as explained above. (Gallinatti Declaration, ¶ 15.) WMACI took action to ensure its GCCS is working properly, and in so doing has addressed the VOC detections identified in MW-4A. (Gallinatti Declaration, ¶ 24.) As described herein, and as shown graphically in Table 1 and Figure 3 of Exhibit 1 to the Gallinatti Declaration, the concentrations of bicarbonate alkalinity and VOCs have been decreasing over time, particularly since the enhancements to the GCCS were made. (Gallinatti Declaration Exh. 1, pp. 7-8.) In fact, all detections of VOCs at MW-4A since June have been below reporting limits. (Exh. B, pp. 11-12; Gallinatti Declaration, ¶¶ 20-21.) Recent monitoring results from MW-4A taken in January and February 2018 show that bicarbonate alkalinity concentrations have dropped below the concentration limit established in Order No. R5-2016-0042-01. (Gallinatti Declaration, ¶ 21; Gallinatti Declaration Exh. 1, p. 12, Table 1.) Accordingly, WMACI's proactive enhancements to their GCCS, including installing four new extraction wells, ensure that LFG is adequately extracted and controlled.

Given that the groundwater monitoring system currently in place detected the change in water quality at MW-4A in May 2017, shortly after some gas extraction wells in the area were decommissioned or were experiencing low gas flows, and since then WMACI has been able to track the improvement of groundwater quality conditions, it is not necessary for WMACI to make an extensive expansion of its groundwater monitoring system as is being required in the 13267 Order. Particularly not when the problem has been adequately identified, tracked, and addressed to date. (See Gallinatti Declaration, ¶ 25.)

Since the 13267 Order describes the Work Plan as being necessary to determine the "nature and extent of the release" linked to the detected change in groundwater quality, the benefit to be obtained from the EMP and its implementation must be information regarding the source of the groundwater change and the extent to which groundwater is impacted. The source has already been identified: LFG. (Gallinatti Declaration, ¶ 15.) Because the VOCs detected at MW-4A were at trace concentrations only slightly above the method detection limit and well below the reporting limit for the parameters detected, it is likely that MW-4A is at the far end of the impacted area. (Gallinatti Declaration, ¶ 22; Gallinatti Declaration Exh. 1 at p. 8.) Therefore, the extent of the groundwater impact is known. This was done through WMACI's initial investigation and subsequent monitoring included in its December AROWD/EMP.

Even beyond the work that WMACI undertook immediately and as part of its December AROWD/EMP, the December AROWD/EMP contained provisions that covered a scenario if the more frequent monitoring during the first quarter of 2018 did not show that the concentrations of bicarbonate alkalinity and VOCs were responding to the enhancements made to the GCCS. This second phase of investigation included taking additional grab groundwater samples from locations in the area other than MW-4A and installing gas probes near MW-4A. Thus, the December AROWD/EMP already contained further monitoring activities and other actions for WMACI to take if the groundwater quality changes identified did not improve as intended. These measures are far less burdensome than the EMP required by the 13267 Order and are more effectively tailored to the change in water quality detected at MW-4A in May 2017. (Gallinatti Declaration, ¶¶ 23, 26.)

Accordingly, the benefits to be obtained from the reports as required do not match the cost burden associated with the requested work. Preparing the requested EMP and subsequently installing wells and conducting the requested monitoring along the 3,500 foot northern limit of Fill Area 1 would cost WMACI approximately $4.8 million over the life of the site, based on the information contained in the 13267 Order and other currently available data and information. (Gallinatti Declaration, ¶ 12; Gallinatti Declaration Exh. 1, pp. 9-10.) WMACI anticipates that the monitoring as requested in the 13267 Order would require the installation of multiple

groundwater monitoring wells at varying depths at nine (9) different locations, which then must be sampled and analyzed periodically for the life of the landfill (42 years) and for the life of the post closure and monitoring years (30 years). (Gallinatti Declaration, ¶ 12, 14; see also Gallinatti Declaration Exh. 1, pp. 9-10.)

In short, the extreme cost burden of producing and implementing the EMP, namely the installation of multiple new monitoring wells at different locations along a 3,500 foot area of a lined landfill unit some distance away from MW-4A are not reasonably related to the benefit to be derived from the requested EMP and its implementation. (Gallinatti Declaration, ¶ 14.) The relevant information has already been produced, as explained previously, making a large-scale expansion of the groundwater monitoring system at the ALRRF unreasonable. And therefore, the high cost burden makes the required EMP even more unreasonable. Therefore, the Central Valley Water Board Assistant Executive Officer's actions violated Water Code section 13267. The 13267 Order should be invalidated and rescinded.

D. The 13267 Order Is Not Supported by Sufficient Explanation or Evidence

In addition to the requirement that the burden of the requested report be reasonably related to the need for or benefit to be obtained from the report, an order issued under Water Code section 13267 must include "a written explanation with regard to the need for the reports, and shall identify the evidence" supporting the need for the discharger to produce the reports. (Wat. Code, § 13267(b)(1).) The Central Valley Water Board Assistant Executive Officer failed to comply with this requirement.

The 13267 Order implies that because bicarbonate alkalinity concentrations at MW-4A still exceeded concentrations limits in December 2017 and some VOCs were still detected, the nature and extent of the change in groundwater quality were not defined. (Exh. A, pp. 1-2.) It then states that the lack of monitoring points in a 3,500 foot north of Fill Area 1 along a lined portion of the landfill prevents staff from assessing the impact of the detections and ensuring compliance with Order R5-2016-0042-01. (Exh. A, p. 2.) The 13267 Order then claims that such

monitoring is required by sections of Title 27, with no further analysis.[2] (*Ibid.*) These explanations are insufficient, and the 13267 Order lacks supporting evidence for its assertions.

First, the 13267 Order fails to recognize that WMACI has identified LFG as the source of the detections of bicarbonate alkalinity and VOCs, and has implemented control measures to address this source. (Gallinatti Declaration, ¶¶ 14, 24.) It further fails to acknowledge that, while bicarbonate alkalinity concentrations were still above the concentration limit based on the December 14, 2017 sampling event, the concentrations had been decreasing since May 2017, indicating that the enhancements made to the GCCS are working properly. (Gallinatti Declaration, ¶¶ 20-21, 24; Gallinatti Declaration Exh. 1, Table 1.) Similarly, though VOCs were detected in samples taken on December 7, 2017, these concentrations have been decreasing over time as well. (Gallinatti Declaration Exh. 1, Table 1 and Figure 3.) No VOCs were detected in samples taken on December 14, 2017. (Gallinatti Declaration, ¶ 20; Gallinatti Declaration Exh. 1, Table 1.) Thus, the sparse explanation given in the 13267 Order does not paint the complete picture of the history of detections of bicarbonate alkalinity and VOCs at MW-4A between May 23, 2017 and December 21, 2017.

Next, the 13267 Order has no justification for requiring the extensive monitoring requested in the 3,500-foot area north of Fill Area 1. In the NOV issued on October 19, 2017, attached to the 13267 Order, the Central Valley Water Board's Compliance and Enforcement Section notes that the topography of Fill Area 1 controls the flow of groundwater, and that the 3,500-foot area is upgradient. (Exh. A, p. 6.) The NOV claims, without other substantiation, that the detection of bicarbonate alkalinity and VOCs in MW-4A indicates that releases can flow from Fill Area 1 to the north. (Exh. A, p. 6.) Though the NOV contains more of an explanation, it does not include sufficient evidence to support the 13267 Order. Specifically, the 3,500-foot area that comprises the northern boundary of Fill Area 1 is quite some distance away from MW-4A, and therefore quite some distance from any evidence of a change in water quality. (Gallinatti Declaration, ¶ 18; Gallinatti Declaration Exh. 1, p. 8.) The 3,500-foot area is also near the part of

[2] As discussed in Part III.B above, Title 27 does not require this extensive additional monitoring.

Fill Area 1 that is lined – Unit 2. (Gallinatti Declaration, ¶ 18; Gallinatti Declaration Exh. 1, p. 8.) As discussed prior, changes in groundwater quality related to LFG are much more likely to occur in unlined areas, such as Unit 1, rather than lined areas like Unit 2. (Gallinatti Declaration, ¶ 17.) Because the 3,500-foot area borders the lined portion of Unit 2, extensive monitoring in the area is not needed. (See Gallinatti Declaration, ¶¶ 24-25.) The 13267 Order does not provide evidence to counter or question that determination.

As explained above, WMACI provided the Central Valley Water Board with sufficient evidence to show that the detections in MW-4A at issue in the 13267 Order have been identified. Based on facility information and chemistry, the source was identified as LFG. (Gallinatti Declaration, ¶ 15.) The extent of the change in groundwater is also known based on monitoring data gathered at MW-4A. The initial exceedances detected at MW-4A were at concentrations only slightly above the applicable concentration or reporting limits for the parameters detected in May 2017, and the concentrations have decreased in subsequent samples, particularly after improvements were made to the ALRRF's GCCS in October and December 2017. (Gallinatti Declaration, ¶¶ 22, 24-25; Gallinatti Declaration Exh. 1, p. 7.) This indicates that MW-4A is located at the far end of the impacted area, and that the change in groundwater quality has been addressed. (Gallinatti Declaration, ¶¶ 22, 24-25.) The fact that none of the VOCs detected at MW-4A were detected in the deeper MW-4B indicates that the vertical extent of the groundwater impact is known. (Gallinatti Declaration, ¶ 22.) Therefore, the nature and extent of the change in groundwater quality as detected at MW-4A is known, and was presented in the December AROWD/EMP. (Gallinatti Declaration, ¶¶ 25-26; see Exh. B, pp. 14-15.) The 13267 Order offers no evidence or explanation to counter these conclusions, nor any evidence to support its determination that groundwater monitoring in the 3,500 foot area along the northern boundary of a lined unit in Fill Area 1 is needed. If there is no evidence to support the need for the *information* to be obtained from the EMP, then there is indeed no evidence supporting the production of the EMP.

The 13267 Order fails to provide sufficient explanation and evidence to support the ordered EMP, including the implementation of additional groundwater monitoring, especially

considering the evidence provided by WMACI about the ALRRF and the groundwater quality changes observed at MW-4A. For this reason, the action of the Central Valley Water Board Assistant Executive Officer violated Water Code section 13267. The 13267 Order should be invalidated and rescinded.

IV. CONCLUSION

For the foregoing reasons, Petitioner requests that the State Water Board grant the relief requested herein.

SOMACH SIMMONS & DUNN

DATED: March 12, 2018

By _____
Theresa A. Dunham
Attorneys for Petitioner

SOMACH SIMMONS & DUNN
A Professional Corporation

PROOF OF SERVICE

I am employed in the County of Sacramento; my business address is 500 Capitol Mall, Suite 1000, Sacramento, California; I am over the age of 18 years and not a party to the foregoing action.

On March 12, 2018, I served a true and correct copy of:

WASTE MANAGEMENT OF ALAMEDA COUNTY, INC.'S PETITION FOR REVIEW; STATEMENT OF POINTS AND AUTHORITIES IN SUPPORT THEREOF

X (by mail) on all parties in said action listed below, in accordance with Code of Civil Procedure § 1013a(3), by placing a true copy thereof enclosed in a sealed envelope in a designated area for outgoing mail, addressed as set forth below. At Somach Simmons & Dunn, mail placed in that designated area is given the correct amount of postage and is deposited that same day, in the ordinary course of business, in a United States mailbox in the City of Sacramento, California.

X Via electronic service to the electronic mail addresses set forth below:

Ms. Pamela Creedon Executive Officer Central Valley Regional Water Quality Control Board 11020 Sun Center Drive, Suite 200 Rancho Cordova, CA 95670-6114 Email: pamela.creedon@waterboards.ca.gov	Adrianna M. Crowl Office of Chief Counsel State Water Resources Control Board P.O. Box 100 Sacramento, CA 95812-0100 Email: waterqualitypetitions@waterboards.ca.gov Adriana.crowl@waterboards.ca.gov
Catherine R. Finley Senior Legal Counsel Waste Management 9081 Tujunga Avenue Sun Valley, CA 91352 Phone: (805) 961-7534 Email: CRiegle@wm.com	Phillip Wyels Assistant Chief Counsel State Water Resources Control Board P.O. Box 100 Sacramento, CA 95812-0100 Email: philip.wyels@waterboards.ca.gov

I declare under penalty of perjury that the foregoing is true and correct under the laws of the State of California. Executed on March 12, 2018, at Sacramento, California.

Jennifer Estabrook

Exhibit A

8 February 2018

Marcus Nettz, District Manager
Waste Management of Alameda County
Altamont Landfill and Resource Recovery Facility
10840 Altamont Pass Road
Livermore, CA 94551

CERTIFIED MAIL
91-7199-9991-7036-7027-5777

WATER CODE SECTION 13267 ORDER FOR TECHNICAL REPORTS, ALTAMONT LANDFILL AND RESOURCE RECOVERY FACILITY, ALAMEDA COUNTY

The Altamont Landfill and Resource Recovery Facility is owned and operated by Waste Management of Alameda County (hereafter Discharger), and is regulated by Waste Discharge Requirements (WDRs) Order R5-2016-0042-01.

Background

Water Board staff reviewed the 19 December 2017 *Amended Report of Waste Discharge and Proposed Evaluation Monitoring Plan for MW-04A (Work Plan)*. The *Work Plan* was submitted in response to Water Board staff's 19 October 2017 *Notice of Violation and Work Request* (*NOV*). The *NOV* (attached) was issued to Waste Management for concentration limit exceedances in groundwater monitoring well MW-4A. On 23 May 2017, bicarbonate, calcium, and five volatile organic compounds (VOCs) were detected in MW-4A above the concentration limits established in the WDRs. Confirmation samples were collected on 29 June and 11 July 2017, and the results confirmed concentration limit exceedance in MW-4A.

To assess the nature and extent of the release, the *NOV* directed Waste Management to submit a work plan to implement an evaluation monitoring program (EMP) as required by the WDRs and Section 20415 of Title 27. Additionally, since the release was detected in MW-4A, which is located 250 feet away from the 3,500 foot long unmonitored northern limit of Fill Area 1, the *NOV* directed the Discharger to include in the EMP a plan to access potential impacts along this 3,500 foot long unmonitored northern limit of Fill Area 1.

Discharger Submitted Work Plan

The Discharger's *Work Plan* documents the results of four additional groundwater samples collected from MW-4A on 8 August, 13 September, 7 December, and 14 December 2017. Again, bicarbonate was detected above its established concentration limit, and multiple VOCs were detected in three of the four additional samples. The *Work Plan* states that reduced landfill gas (LFG) extraction in the northeastern corner of Fill Area 1 was the likely cause of the release recorded MW-4A, and that to address the release, they have increased LFG extraction.

However, even after completing seven separate sampling events, which confirm the occurrence of a release in MW-4A, Waste Management only proposes to collect three additional samples from MW-4A. The Discharger states that if condition improve, no additional work will occur. However, if conditions do not improve, they will evaluate potential sources for the release, and will propose a plan to investigate the release.

Material Deficient Report

The 19 December 2017 *Work Plan* is **material deficient**, because the Discharger only proposes to collect three additional groundwater samples. The *Work Plan* **does not** contain a proposal to physically install monitoring points to assess the nature and extent of the release identified north of Fill Area 1, as required by the WDRs and Title 27.

Water Code Section 13267 Request for Technical Reports

Section 13267 of the California Water Code states, in part:

> *In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging...or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging... waste outside of its region that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports.*

Section 13268 of the California Water Code states, in part:

> *(a) Any person failing or refusing to furnish technical or monitoring program reports as required by subdivision (b) of Section 13267...or falsifying and information provided therein, is guilty of a misdemeanor and may be liable civilly in accordance with subdivision (b).*
>
> *(b)(1) Civil liability may be administratively imposed by a regional board in accordance with Article 2.5 (commencing with section 13323) of Chapter 5 for a violation of subdivision (a) in an amount which shall not exceed one thousand dollars ($1,000) for each day in which the violation occurs.*

Waste Management's failure to comply with Water Boards staff's request for a work plan, as required by the WDRs and Title 27, prevents staff from assessing the impact to and evaluating changes in water quality due to the release of waste north of Fill Area 1. In order to ensure that Water Board staff has sufficient information to assess the impact from this release, evaluate changes in water quality due to the release, and to ensure compliance with the WDRs and Title 27, Waste Management is hereby directed to submit the following technical reports. This request is made pursuant to Section 13267 of the California Water Code. Waste Management of Alameda County owns and operates the facility cited herein and is responsible for all waste generated at the facility.

Required Technical Reports

1. As originally requested in the 19 October 2017 *NOV*, Waste Management of Alameda County shall submit a work plan, by **23 March 2018**, to implement an EMP to assess the nature and extent of the release identified in groundwater monitoring well MW-4A and along the unmonitored northern limit of Fill Area 1, as required by Section 20415(b)(1)(C)(1-3) and Section 20415(d)(2)(C) of Title 27.

   Sections 20415(b)(1)(C)(1-3) of Title 27 states:

   For EMP — for an evaluation monitoring program under §20425:

   1. *a sufficient number of Monitoring Points installed at appropriate locations and depths to yield ground water samples from the uppermost aquifer that represent the quality of ground water passing the Point of Compliance and at other locations in the uppermost aquifer to provide the data needed to evaluate changes in water quality due to the release from the Unit;*

   2. *a sufficient number of Monitoring Points and Background Monitoring Points installed at appropriate locations and depths to yield ground water samples from portions of the zone of saturation, including other aquifers, not monitored pursuant to ¶(b)(1)(C)1., to provide the data needed to evaluate changes in water quality due to the release from the Unit; and*

   3. *a sufficient number of Monitoring Points and Background Monitoring Points installed at appropriate locations and depths to yield ground water samples from zones of perched water to provide the data needed to evaluate changes in water quality due to the release from the Unit; and*

   Section 20415(d)(2)(C) of Title 27 states:

   For EMP — for an evaluation monitoring program (under §20425), a sufficient number of Monitoring Points established at appropriate locations and depths to yield soil pore liquid samples or soil pore liquid measurements that provide the data to evaluate changes in water quality due to the release from the Unit; and

2. The Discharger has selected LFG extraction as the corrective action method to control and remediate the release identified in MW-4A. Because the extent of the release has not been defined, the proposed corrective action will be considered an interim measure. Title 27 allows 90 days for a Discharger to delineate the release. Once the extent of the release has been defined, an amended report of waste discharge shall be submitted to comply with Section 20425(d) of Title 27, which states:

   ***90 Days to Amend ROWD** — Based on the data collected pursuant to ¶(b) and on the engineering feasibility study submitted pursuant to ¶(c), the discharger shall submit an amended report of waste discharge to establish a corrective action program meeting the requirements of §20430. The discharger shall submit this report to the RWQCB within 90 days of establishing an evaluation monitoring program.*

All required data, documents, and reports must be uploaded to GeoTracker and you must notify us by e-mail at centralvalleysacramento@waterboards.ca.gov after uploading each report. To ensure that each GeoTracker upload is routed to the appropriate staff, please include the following information in the body of the email: Staff Name, Compliance Unit, Title 27, the date and title of the report uploaded, the GeoTracker upload confirmation number for the report uploaded, and the facility's CIWQS place ID (CW-205295).

If you have any questions regarding this letter or the site in general, please contact Paul Sanders at 916-464-4817 or via e-mail at paul.sanders@waterboards.ca.gov.

Original signed by

ANDREW ALTEVOGT
Assistant Executive Officer

Enclosure: 19 October 2017, Notice of Violation and Work Request

cc: Mayumi Okamoto, Office of Enforcement, Sacramento
Wing Suen, Alameda County Environmental Health, Alameda
Kelly Runyon, City of Livermore Public Works Department, Livermore
Tianna Nourot, Waste Management of Alameda County, Livermore
Glen Roycroft, Waste Management of Alameda County, Livermore
Audrey Lundin, Waste Management of Alameda County, Livermore
Stefan Solomon, Waste Management of Alameda County, Livermore

CALIFORNIA
Water Boards

EDMUND G. BROWN JR.
GOVERNOR

MATTHEW RODRIQUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

Central Valley Regional Water Quality Control Board

19 October 2017

Marcus Nettz, District Manager
Waste Management of Alameda County
Altamont Landfill and Resource Recovery Facility
10840 Altamont Pass Road
Livermore, CA 94551

NOTICE OF VIOLATION AND WORK REQUEST, ALTAMONT LANDFILL AND RESOURCE RECOVERY FACILITY, ALAMEDA COUNTY

The Altamont Landfill and Resource Recovery Facility is owned and operated by Waste Management of Alameda County (hereafter Discharger), and is regulated by Waste Discharge Requirements (WDRs) Order R5-2016-0042-01.

Water Board staff reviewed the 10 August 2017 *Resample Results MW-4A, First Semiannual 2017, (Resampling Report)*. The *Resampling Report* documents the confirmation of volatile organic compounds (VOCs) in groundwater beneath the site in violation of Prohibition A.5 of the WDRs, which states: *The discharge of waste constituents to the unsaturated zone or to groundwater is prohibited.* Outlined below is a brief discussion regarding the report and a request for additional site work to address the VOC release in accordance with the WDRs and Title 27.

Report Summary

The *Resampling Report* documents the exceedance of select inorganics and VOCs in well MW-4A during the 23 May 2017 semi-annual sampling event, and also in confirmation samples collected from MW-4A on 29 June 2017 and 11 July 2017. Bicarbonate alkalinity, dissolved calcium, and five VOCs were detected in the May 2017 sample, and bicarbonate alkalinity, 1,1-DCA, cis-1,2-DCE, and MTBE were confirmed during the 29 June 2017 and 11 July 2017 resampling events.

The Discharger states that they collected another sample from monitoring well MW-4A on 8 August 2017, and that they will use the combined re-sampling data set to better understand the nature of the release and determine what additional action is warranted. Water Board staff concurs with this course of action. However, now that a release is confirmed, the Discharger is required to establish an evaluation monitoring program as outlined in Sections 20385(a)(2), 20415(b)(1)(C), 20415 (d)(2)(C), and 20425 of Title 27.

Given the release was detected in MW-4A, located at the far northeastern or upgradient limit of Fill Area 1, evaluation monitoring will be required beyond MW-4A. The Discharger's Hydrogeologic Model states that groundwater flow is primarily controlled by topography, with

groundwater recharge on hilltops, and discharge into valley bottoms. This argument has been used by the Discharger to defend the absence of any groundwater or soil gas monitoring points along the entire 3,500 foot long northern, topography upgradient, limit of Fill Area 1. However, the confirmed detection of landfill constituents in MW-4A demonstrates that pathways for constituent migration to the north exist. Therefore, the required evaluation monitoring program must address all potential pathways and zones affected by the release along the northern limit of Fill Area 1, between wells MW-4A and MW-6.

Required Work

To comply with the requirements outlined in both the WDRs and Title 27, Waste Management shall submit a work plan, by **22 December 2017**, to implement an evaluation monitoring program to assess the nature and extent of the release identified in MW-4A. Given the release was detected along the unmonitored northern limit of Fill Area 1, where the Discharger's Hydrogeologic Model suggest a release was unlikely to occur, the evaluation monitoring program must address the entire 3,500 foot long northern boundary of the site, between wells MW-4A and MW-6.

All required data, documents, and reports must be uploaded to GeoTracker and you must notify us by e-mail at centralvalleysacramento@waterboards.ca.gov after uploading each report. To ensure that each GeoTracker upload is routed to the appropriate staff, please include the following information in the body of the email: Staff Name, Compliance Unit, Title 27, the date and title of the report uploaded, the GeoTracker upload confirmation number for the report uploaded, and the facility's CIWQS place ID (CW-205295).

If you have any questions regarding this letter or the site in general, please contact Paul Sanders at 916-464-4817 or via e-mail at paul.sanders@waterboards.ca.gov.

Howard Hold

HOWARD HOLD, PG #7466
Acting Supervisor
Compliance and Enforcement Section

cc: Wing Suen, Alameda County Environmental Health, Alameda
Kelly Runyon, City of Livermore Public Works Department, Livermore
Tianna Nourot, Waste Management of Alameda County, Livermore
Glen Roycroft, Waste Management of Alameda County, Livermore
Jamison Pfister, Waste Management of Alameda County, Livermore

CIWQS Violation ID: 1033426

Exhibit B

Altamont Landfill & Resource Recovery Facility
10840 Altamont Pass Road, Livermore, CA 94551

VIA E-mail, GeoTracker Upload

December 21, 2017

Mr. Howard Hold, P.G.
California Regional Water Quality Control Board
Central Valley Region
11020 Sun Center Drive, Suite 200
Rancho Cordova, California 95670

Re: Amended Report of Waste Discharge/Proposed Evaluation Monitoring Plan
Altamont Landfill and Resource Recovery Facility

Dear Mr. Hold:

Waste Management of Alameda County, Inc. (WMAC) has uploaded to Geotracker an Amended Report of Waste Discharge/Proposed Evaluation Monitoring Plan (AROWD/EMP) for monitoring well MW-04A at the Altamont Landfill and Resource Recovery Facility. This document was prepared by Geosyntec Consultants in response to the estimated (trace-level) concentrations of volatile organic compounds (VOCs) detected in MW-04A, as well as bicarbonate alkalinity concentrations detected above statistically-derived concentration limits.

Low-level VOC detections in groundwater accompanied by increases in bicarbonate alkalinity are often associated with landfill gas (LFG) effects. Monitoring well MW-04A is located near the boundary between the unlined portion of the facility (Unit 1) and the lined portion of the facility (Unit 2). However, nearly the entire 3,500-foot boundary of the landfill between MW-04A and MW-06 is adjacent to composite-lined Unit 2. If LFG is the source of the water quality changes observed, the unlined portion of the landfill could have the highest potential to allow migration of gas outside of the landfill. As a proactive measure, WMAC recently installed four additional gas extraction wells in this area. Based on preliminary monitoring results, it appears that this proactive measure of enhanced gas extraction near the margins of the unlined cell is having a positive effect on the water quality changes recently observed in MW-04A. The most recent sample from MW-04A indicates that no VOCs were detected and the bicarbonate alkalinity concentration has decreased.

In a letter dated 19 October 2017, you stated that the evaluation monitoring program (EMP) needed to address all potential pathways and zones affected by the release along the entire 3,500-foot long northern boundary of the landfill between MW-04A and MW-06. Increased monitoring

along the 3,500-foot long northern boundary is not required by the regulations, nor is it necessary to determine the cause of the observed water quality changes in MW-04A.

WMAC's submittal meets the requirements of Title 27 of the California Code of Regulations. The proposed EMP meets the requirements of §20425, and is consistent with the intent and purposes of an evaluation monitoring program. Further, as WMAC implements the EMP, if WMAC determines that the EMP is not sufficient, WMAC may to submit an amended report of waste discharge to make any appropriate changes. However, considering the facts and evidence before WMAC at this time, increased monitoring along the 3,500-foot northern boundary is unwarranted.

In summary, the AROWD/EMP includes steps for further assessing any water quality changes in the MW 04A area consistent with Title 27 requirements. Please contact me if you have any questions or concerns regarding the information provided.

Very truly yours,
ALTAMONT LANDFILL & RESOURCE RECOVERY FACILITY

Marcus Nettz
District Manager

Enclosure:

Cc via E-mail: Wing Suen, Alameda County Environmental Health
Kelly Runyon, City of Livermore Public Works
Mark Verwiel, Waste Management
Tianna Nourot, Waste Management
Glen Roycroft, Waste Management
Nicole Gotberg, Geosyntec

Prepared for

Waste Management of Alameda County, Inc
10840 Altamont Pass Road
Livermore, California, 94551

AMENDED REPORT OF WASTE DISCHARGE AND PROPOSED EVALUATION MONITORING PLAN FOR MW-04A

ALTAMONT LANDFILL AND RESOURCE RECOVERY FACILITY

Prepared by

Geosyntec consultants

engineers | scientists | innovators

1111 Broadway, 6th Floor
Oakland, California 94607

Project Number: WR1895F

19 December 2017

Amended Report of Waste Discharge and Proposed Evaluation Monitoring Plan for MW-04A

Altamont Landfill and Resource Recovery Facility
Alameda County, California

Prepared by

Geosyntec Consultants, Inc.
1111 Broadway, 6th Floor
Oakland, California 94607

Nicole Gotberg, P.G.
Senior Geologist

Project Number: WR1895F
19 December 2017

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

LIST OF ACRONYMS AND ABBREVIATIONS

ALRRF	Altamont Landfill and Resource Recovery Facility
AROWD	Amended Report of Waste Discharge
CCR	California Code of Regulations
COCs	contituents of concern
EMP	Evaluation Monitoring Plan
GCCS	gas collection and control system
Geosyntec	Geosyntec Consultants, Inc.
LCRS	leachate collection and removal system
LFG	Landfill Gas
MRP	Monitoring and Reporting Program
RLs	Reporting limits
RWQCB	Central Valley Regional Water Quality Control Board
SCFM	standard cubic feet per minute
VOCs	volatile organic compounds
WDR	Waste Discharge Requirements
WMAC	Waste Management of Alameda County, Inc.

1. INTRODUCTION

Geosyntec Consultants, Inc. (Geosyntec) prepared this Amended Report of Waste Discharge (AROWD) and Evaluation Monitoring Plan (EMP) report on behalf of Waste Management of Alameda County, Inc. (WMAC) to to evaluate the detections of volatile organic compounds (VOCs) and the exceedance of the bicarbonate alkalinity concentration limit in groundwater at monitoring well MW-04A, at the Altamont Landfill and Resource Recovery Facility (ALRRF) in Livermore, Alameda County, California (Site, Figure 1).

Estimated trace levels of volatile organic compounds (VOCs), which are below laboratory reporting limits (RLs), have been detected in monitoring well MW-04A, and bicarbonate alkalinity has been detected at MW-04A at concentrations above the statistically-derived concentration limit. Detections of trace levels of VOCs and bicarbonate alkalinity above the concentration limit at MW-04A were first observed during the May 2017 sampling event. It is important to note that during the most recent sampling event on 14 December 2017 VOCs were not detected in the sample from MW-04A.

California Code of Regulations (CCR) Title 27 Section 20420 (k)(5) requires that if a "measurably significant" evidence of a release is indicated an AROWD proposing an EMP be provided to the Regional Water Quality Control Board (RWQCB) including the following information:

- **Constituents of Concern (COC) Concentrations** - the maximum concentration of each COC at each Monitoring Point as determined during the most recent COC sampling event
- **Proposed Monitoring System Changes -** any proposed changes to the water quality monitoring systems at the Unit necessary to meet the provisions of section 20425;
- **Proposed Monitoring Changes -** any proposed changes to the monitoring frequency, sampling and analytical prodecdures or methods, or statistical methods used at the Unit necessary to meet the provisions of section 20425; and,
- **Proposed Delineation Approach –** a detailed description of the measures to be taken by the discharger to assess the nature and extent of the release from the Unit.

VOCs can partition from landfill gas into groundwater. MW-04A is located near the boundary between Fill Area 1 Unit 1, which is unlined, and Fill Area 1 Unit 2, which is lined (Figure 2). The unlined portion of the landfill (Fill Area 1 Unit 1) has the highest

potential to allow migration of landfill gas outside the extent of the landfill and gas extraction wells are operated to prevent gas migration.

In 2017 several of the gas extraction wells (680, 506, 605) in the northeast portion of Fill Area 1 near MW-04A, had reduced flow and/or were decommissioned. In November 2017 WMAC installed four new gas extraction wells (GW-27, GW-31, GW-33, GW-34) in the northeast portion of Fill Area 1 to replace the gas extraction wells that had reduced flow and had been decommissioned (Figure 2). The new gas extraction wells were connected to the gas collection and control system (GCCS). GW-27 and GW-31 were started on 30 November 2017 and GW-33 and GW-34 were started on 12 December 2017. These wells are currently flowing 234 standard cubic feet per minuite (SCFM). After two weeks of operation of GW-27 and GW-31 and two days of operation of GW-33 and GW-34, VOCs were not detected in groundwater at MW-04A during the most recent sampling event on 14 December 2017.

2. BACKGROUND

ALRRF is a Class II/III municipal solid waste landfill that is monitored on a regular basis in compliance with Waste Discharge Requirement (WDR) No. R5-2016-0042 and its associated Monitoring and Reporting Program (MRP) issued by the RWQCB. Waste placement occurs in Fill Area 1, which is comprised of Unit 1 and Unit 2. Unit 1 includes 122 acres of an unlined Class III disposal area that began accepting waste in 1980. In 1994, Unit 2 was opened as a lined Class II disposal area and covers approximately 113 acres. Unit 2 was constructed in six "stages" and includes a composite liner and leachate collection and removal system (LCRS). Figure 2 shows the location of Unit 1 and Unit 2.

During the first semiannual 2017 monitoring event at ALRRF conducted on May 23, 2017, an initial indication of measurably significant results for bicarbonate alkalinity, dissolved calcium, and five volatile organic compounds (VOCs) were observed in the groundwater sample collected from well MW-04A. The 2017 results for MW-04A are summarized in Table 1. Laboratory reports are included in Appendix A.

3. CONSITUENT OF CONCERN CONCENTRATIONS

A summary of the maximum concentrations of each constituent of concern (COC) at each monitoring point at ALRRF for the most recent sampling event conducted at the monitoring point are included in the following tables:

- Table 2 Fill Area 1 groundwater monitoring wells general chemistry;
- Table 3 Fill Area 1 groundwater monitoring wells VOCs;

- Table 4 Fill Area 2 groundwater monitoring wells;
- Table 5 Corrective action groundwater monitoring wells;
- Table 6 Summary of 5-year constituents of concern;
- Table 7 Unsaturated zone monitoring;
- Table 8 Leachate and condensate; and,
- Table 9 Surface water basins.

3.1 First Semiannual Data – May 2017

The May 2017 monitoring event conducted by SCS Engineers was the first monitoring event where VOCs were detected and inorganic compounds were detected at concentrations above the MW-04A concentration limits as follows:

- **Bicarbonate Alkalinity.** Bicarbonate alkalinity was detected in MW-04A at a concentration of 600 milligrams per liter (mg/l), which was above the MRP Table VIII concentration limit of 480 mg/l.

- **Dissolved Calcium.** Dissolved calcium was detected in MW-04A at a concentration of 70 mg/l, which was slightly above the MRP Table VIII concentration limit of 68.8 mg/l. (Note: method blank contamination for calcium was also reported by the lab).

- **VOCs.** Five VOCs were detected in the MW-04A sample. The VOCs included 1,1-dichloroethane (1,1-DCA at 1.5 micrograms per liter [µg/l]) detected above the RL, and estimated concentrations below the RL of cis-1,2-dichloroethene (Cis-1,2-DCE at 0.74 µg/l), dichlorofluoromethane (DCFM at 0.55 µg/l), trichlorothene (TCE at 0.26 µg/l), and methyl tert-butyl ether (MTBE at 0.38 µg/l).

The RWQCB was notified of the results via email on 27 June 2017.

3.2 Resample Results – June/July 2017

Resampling of MW-04A was performed by SCS Engineers on 29 June 2017 and 11 July 2017. The resampling results are summarized as follows:

- **Bicarbonate Alkalinity**. The bicarbonate alkalinity concentrations in the June and July resamples were 540 and 490 mg/l, respectively, both at concentrations less than the May 2017 sample result. The second resample result (490 mg/l) was only slightly above the concentration limit of 480 mg/l.

- **Dissolved Calcium.** The dissolved calcium concentrations in the two resamples were 57 and 58 mg/l, both less than the May 2017 sample result and both less than the concentration limit of 68.8 mg/L.

- **VOCs.** Below RL concentrations of all five VOCs were detected in the June 2017 resample at estimated concentrations less than originally observed results from the May 2017 sample. In the July 2017 resample, only three of the five VOCs were detected and the concentrations were again all below the RL. The three trace level VOCs detected in the July 2017 resample were 1,1-DCA, cis-1,2-DCE, and MTBE, and the estimated concentrations were lower than those in the first resample. No DCFM or TCE was detected in the July 2017 sample.

The RWQCB was notified by email on 3 August 2017 of the concentration limit exceedances for bicarbonate alkalinity and of the verified presence of two or more trace level (below RL) concentrations of VOCs in MW-4A. A technical report was also submitted to the RWQCB on 10 August 2017 (SCS Engineers, 2017) summarizing the analytical data collected, and indicating what follow-up actions were planned.

As indicated in the data summaries above, the resampling results indicated that the initial calcium exceedance was not confirmed, and that the bicarbonate alkalinity concentrations were decreasing and only slightly exceeded the concentration limit in July 2017. In addition, the VOC concentrations also appeared to be diminishing with the latest results indicating only trace level detections. Based on indications that the initial change in groundwater quality may be attenuating relatively quickly, WMAC instructed SCS Engineers to collect an additional sample from MW-4A for VOC analysis on August 8, 2017. Figure 3 shows the VOC detections in groundwater at MW-04A from May 2017 to present.

3.3 COC Sampling – September 2017

As a result of the verified statistical exceedance of bicarbonate alkalinity, and the confirmed detection of trace level VOCs in MW-04A, additional samples were collected for analysis of the constituents of concern (COCs) identified in Table 6 of the MRP. Samples were collected from both MW-04A and MW-04B (located adjacent to MW-04A but screened in a deeper zone). The samples were collected by SCS Engineers on 13 September 2017, and the laboratory reports are included in Appendix A.

The COC sampling event included testing for the following constituents:

- Dissolved metals, cyanide and other inorganic compounds

- Semi-volatile organic compounds (SVOCs)
- Volatile organic compounds (VOCs)
- Chlorophenoxy herbicide compounds
- Organophosphorus pesticides
- Polychlorinated biphenyls (PCBs)

The results of the lab testing indicate that the only organic compounds detected were trace concentrations of 1,1-DCA (0.51 ug/L) and cis-1,2-DCE (0.34 ug/L) in MW-04A, and trace naphthalene (0.37 ug/L) in MW-04B (Table 1). MW-04B was resampled for VOCs on 7 December 2017 and no VOCs were detected (Appendix A). No SVOCs, herbicides, pesticides or PCBs were detected in the groundwater in either well. With regard to inorganic compounds, bicarbonate alkalinity was detected at a concentration of 500 mg/L, exceeding the statistical limit of 480 mg/L. No other inorganic parameters were detected above statistical limits established in the MRP, and trace metal concentrations were within historical ranges (SCS 2017).

3.4 Sampling – 7 and 14 December 2017

Given that enhancements had been made to the GCCS on 26 October, 30 November and 12 December 2017, WMAC instructed SCS Engineers to collect additional samples from MW-04A to assess potential changes in water quality that may result from the increased gas flow in the area. Sampling of MW-04A was performed by SCS Engineers on 7 and 14 December 2017. The sampling results are summarized as follows:

- **Bicarbonate Alkalinity**. The bicarbonate alkalinity concentrations in the 7 and 14 December samples were 550 mg/l and 520 mg/l, respecitively, at concentrations less than the May 2017 sample result (600 mg/L) but above the concentration limit of 480 mg/L.

- **VOCs.** Six VOCs were detected in the 7 December 2017 MW-04A sample with estimated concentration detections below the RL of 1,1-DCA 0.73 µg/L, Cis-1,2-DCE 0.73 µg/l, DCFM 0.31 µg/l, TCE 0.25 µg/l, MTBE 0.41 µg/l, and acetone 2.5 µg/l. VOCs were not detected in the 14 December 2017 MW-04A sample.

4. EVALUATION OF POTENTIAL SOURCES OF VOCS IN GROUNDWATER

Detections of VOCs in groundwater at landfill sites can be associated with a release of leachate from the landfill, landfill gas (LFG) impacts to groundwater, or other sources that are not associated with the landfill.

4.1 Leachate

Impacts to groundwater from a release of leachate typically include increasing concentrations of total dissolved solids (TDS), chloride and other inorganic leachate indicator parameters. However, the groundwater quality data collected from MW-04A indicate that there has been no increasing concentrations of TDS or chloride associated with the trace level VOCs observed from May 2017 to December 2017, or throughout the historical record (Figure 4).

The leachate samples collected in 2017 indicate that 1,1 DCA, DCFM, and TCE were not detected above reporting limits and the maximum concentrations of cis-1,2 DCE and MTBE were 2.2 and 1.5 ug/L, respectively (Table 8). Therefore, it is unlikely a release of leachate would result in the detection of these five VOCs in groundwater.

4.2 Landfill Gas

Landfill gas (LFG) appears to be a more likely source for the small change in water quality observed in MW-04A. VOCs including 1,1-DCA and cis-1,2-DCE can partition from LFG to groundwater (Kerfoot 1994). In addition, LFG effects on groundwater often include an increase in the concentration of bicarbonate alkalinity, calcium, magnesium and other cations. These changes result from the partitioning of carbon dioxide from vapor into the groundwater, the formation of carbonic acid, and subsequent buffering and dissolution of carbonate minerals in the water-bearing zone (Kerfoot 2004).

MW-04A is located adjacent to Fill Area 1, Unit 1, which is unlined and several of the gas extraction wells (680, 506, 605) near MW-04A, had reduced flow and/or were decommissioned in 2017 prior to the detection of VOCs in groundwater at MW-04A. Four new gas extraction wells were installed in this area in November 2017 and after the new gas extraction wells were in operation VOCs were not detected in groundwater at MW-04A on 14 December 2017.

In contrast to sites where aqueous-phase contaminant sources (i.e., landfill leachate) are affecting water quality, LFG effects on groundwater are often limited in vertical extent because of the limiting effects of chemical diffusion. That is, the mass of the chemical transferred from LFG to groundwater can be quite small compared to the mass introduced into groundwater by a leachate release. Additionally, when minor LFG-related impacts occur in groundwater, enhancement of the GCCS often provides an effective remedy.

4.3 Other Sources

No sources other than the landfill have been investigated or identified as potential sources of the VOCs detected at MW-04A at this time.

5. PROPOSED EVALUATION MONITOIRNG PLAN (EMP)

5.1 GCCS System Changes

ALRRF has an active gas collection and control system (GCCS) in place throughout the existing waste disposal units, including the northeast portion of the site in the vicinity of MW-04A in both the unlined Fill Area 1, Unit 1 and lined Fill Area 1 Unit 2 (Figure 2). Several active gas extraction wells are located in the northeast part of the landfill near MW-04A, including gas extraction wells 508, 516, 517, 678, 679, 680, 681 and 682, and newly installed gas extraction wells GW-27, GW-31, GW-33 and GW-34 (Figure 2). The GCCS is intended to prevent landfill gas migration and to control air emissions. The GCCS is also utilized to collect gas for energy production on site, and to supply a liquid natural gas conversion facility. The operation of the GCCS is regulated by the Bay Area Air Quality Management District (BAAQMD) under Permit to Operate No. A2066.

Although the source of the trace level detections of VOCs in MW-04A has not been confirmed, WMAC has already made adjustments to the GCCS in the vicinity of MW-04A. WMAC LFG staff reviewed the wellfield metrics and determined that the flow rates in wells 681 and 682 could be increased. These adjustments were made on 26 October 2017 and resulted in an additional 350 SCFM. WMAC LFG staff also determined that there has been a reduction in gas flow from well 680 due to a partially crushed lateral. It is currently flowing 62 SCFM. Repairs to this line will be completed in early 2018.

In addition to the efforts described above, four new gas extraction wells were installed in November 2017 in this area of the site. Two gas wells (506 and 605) had become pinched off and were recently decommissioned due to a loss of gas flow. Start up of GW-27 and GW-31 occured on 30 November 2017 and GW-33 and GW-34 on 12 December 2017. These wells are currently flowing at 234 SCFM. After two weeks of operation of GW-27 and GW-31 and two days of operation of GW-33 and GW-34, VOCs were not detected in groundwater at MW-04A, during the most recent sampling event on 14 December 2017. All of the efforts described above should enhance gas collection in this portion of the site.

5.2 Proposed Monitoring Changes

Based on the improved groundwater conditions observed in MW-04A and lack of

detections of VOCs at MW-04A during the most recent groundwater monitoring event following the GCCS enhancements it is recommended that a phased approach for follow-up actions be implemented. The first phase would include monthly groundwater sampling from monitoring well MW-04A for analysis of VOCs and general inorganic water quality parameters during the first quarter of 2018.

5.3 Proposed Delineation Approach

During the most recent groundwater monitoring event on 14 December 2017 following the GCCS enhancements, VOCs were not detected in MW-04A and the bicarbonate alkalinity concentration decreased. Based on this sampling result, it appears that the nature of the measurably significant change in water quality at MW-04A was associated with LFG and that the GCCS enhancements may have mitigated this effect such that VOCs are no longer detected at MW-04A. To further assess the effectiveness of the gas extraction remedy, monthly sampling of MW-04A is proposed during the first quarter of 2018. If the conditions do not continue to improve following the adjustments made to the GCCS and VOCs are detected in MW-04A during the supplemental sampling performed during the first quarter of 2018, then WMAC will conduct further evaluation of the potential source of the groundwater quality changes and will propose a plan to the RWQCB for additional investigation of the nature and extent of the release. This second phase of investigation may include the following:

- Well headspace sampling at monitoring well MW-04A to help determine if LFG is the source of the water quality changes, and to assess the potential for direct transfer of VOCs from gas to groundwater within the monitoring well itself.
- Installation of a soil gas monitoring probe in the vinity of MW-04A to evaluate the potential occurrence of LFG in the vadose zone.
- Collection of grab-groundwater samples at accessable locations in the vicinity of MW-04A to identify the extent of VOC detections in groundwater.
- Installation of an additional monitoring well at an accessable location downgradient of MW-04A based on the grab-groundwater sampling results.

5.4 Reporting

An updated AROWD including the first quarter 2018 MW-04A sampling results will be submitted to the RWQCB within 90 days of acceptance of this EMP by the RWQCB. If the concentrations of VOCs continue to remain at non-detect levels at MW-04A during the first quarter of 2018, the adjustments that have already been made to the GCCS will serve as the corrective action and sampling of MW-04A will be proposed to be returned

to a semi-annual basis. If VOCs are detected at MW-04A at the end of the first quarter 2018 the updated AROWD will include a work plan to conduct further evaluation of the nature and extent of the release as discussed in Section 5.3 above.

6. REFERENCES

Kerfoot, H.B. 1994, Landfill Gas Effects on Ground Water Samples at a Municipal Soild Waste Facility. Journal Air & Waste Management, Vol. 4-4: pp 1293-1298

Kerfoot et al,2004, Geochemical Changes in Ground Water Due to Landfill Gas Effects, Groundwater Monitoring and Remediation 24, no 1, winter, pp 60-65

SCS Engineers 2017, First Semiannual 2017 Groundwater Monitoring Report, Altamont Landfill and Resource Recovery Facility, 1 August

TABLES

TABLE 1
MW-04A AND MW-04B 2017 ANALYTICAL RESULTS SUMMARY
ALTAMONT LANDFILL AND RESOURCE RECOVERY FACILITY

Sample Location	Sample Date	Alkalkinity, Bicarbonate (as CaCO3)	Calcium (dissolved)	Cis-1,2-dichloroethene	1,1-Dichloroethane	Dichlorofluoromethane	Methyl tert-butyl ether (MTBE)	Naphthalene	Trichloroethene	All Other VOCs
		-------- mg/L --------		---------- µg/L ----------						
MW-04A	5/23/2017	600	70 C	0.74A	1.5	0.55 A	0.38 A	<0.22	0.26 A	ND
	6/29/2017	540	57	0.43 A	0.73 A	0.33 A	0.37 A	<0.22	0.23 A	ND
	7/11/2017	490	58	0.33 A	0.56 A	<0.22	0.28 A	<0.22	<0.16	ND
	8/8/2017	--	--	0.38 A	0.57 A	0.28 A	0.25 A	<0.22	<0.16	ND
	9/13/2017	500	55 C	0.34 A	0.51 A	<0.22	<0.25	<0.22	<0.16	ND
	12/7/2017	550	--	0.73 A	0.73 A	0.31 A	0.41 A	<0.22	0.25 A	Acetone 2.5
	12/14/2017	520	--	<0.15	<0.22	<0.22	<0.25	<0.22	<0.16	ND
MW-04B	9/13/2017	550	5.5 C	<0.15	<0.22	<0.22	<0.25	0.37 A	<0.16	ND

Notes:
< = analyte not detected at or above method detection limit
-- = not analyzed
A = flag denotes concentration reported is estimated because it is below the reporting limit and above its method detection limit.
C = compound was found in blank and sample
mg/L = milligrams per Liter
ND = not detected above laboratory method detection limit
µg/L = micrograms per Liter
VOCs = volatile organic compounds

TABLE 2.
ANALYTICAL RESULTS FOR FILL AREA 1 GROUNDWATER MONITORING WELLS, GENERAL CHEMISTRY
ALTAMONT LANDFILL AND RESOURCE RECOVERY FACILITY

Sample Location	Sample Date	Field Parameters					General Chemistry												
		pH	Specific Conductance	Turbidity	Temperature	Oxygen-Dissolved	Alkalinity, Bicarbonate (as CaCO3)	Alkalinity, Carbonate (as CaCO3)	Chemical Oxygen Demand	Sulfide	Chloride	Nitrate as Nitrogen	Total Kjeldahl Nitrogen	Total Dissolved Solids	Sulfate	Calcium (dissolved)	Magnesium (dissolved)	Potassium (dissolved)	Sodium (dissolved)	Manganese (dissolved)
		pH units	µmhos/cm	NTU	Celsius	mg/l	mg/l													
E-03A	**5/23/2017**	7.33	2,180	0.0	24.6	3.0	680	<5	<10	<4	380	4.6	<0.5	1,300	96	80 C	67 C	4.5	360	0.00032 A
E-05	**5/19/2017**	7.16	1,970	0.0	22.7	2.0	890	<5	9.9 A	<4	210	<0.1	0.46 A	1,200	13	130	110	3.6 C	210 C	1.2 C
E-07	**5/19/2017**	7.40	1,880	0.0	25.0	2.4	540	100	7.9 A	<4	280	0.38	0.36 A	1,200	24	41	45	42 C	340 C	0.21 C
E-17	**5/18/2016**	7.38	2,520	0.0	20.5	0.0	620	<5	11	--	440	1.2	0.52 C	1,400	74	47	34	1.2 A	500	---
E-20B	**5/24/2017**	7.41	1,740	0.0	22.9	2.6	850	<5	<10	<4	200	2.1	0.35 A	1,200	41	110 C	120	5.7	180	0.0041 AC
E-21	**5/23/2017**	6.79	2,040	0.0	23.0	2.9	700	<5	<10	<4	310	12	<0.5	1,300	88	94 C	75 C	3.6	330	0.0061 A
E-22	**5/24/2017**	7.64	955	0.0	20.1	1.8	300	<5	<10	2.4 A	150	<0.1	1.9	590	47	25 C	27	4.0	160	0.011 C
E-23	**5/23/2017**	6.61	1,510	0.0	22.2	1.1	520	<5	<10	<4	250	0.18	1.2	980	4.3 A	20 C	18 C	3.3	380	0.031
MW-1A	**5/23/2017**	7.16	929	0.0	20.9	3.4	330	<5	<10	<4	73	9.4	<0.5	620	100	50 C	38C	2.2 A	130	0.0019 A
MW-2A	**5/22/2017**	7.45	1,740	0.0	21.0	1.9	540	<5	9.9 A	<4	150 C	<0.1	1.1	1,300	320 C	9.5	3.9	2.9 A	430	0.050 C
MW-3B	**5/22/2017**	7.81	1,310	0.0	24.1	1.0	600	<5	5.1 A	<4	130 C	<0.10	1.2	790	0.74 AC	16	45	4.0	230	0.014 C
MW-4A	**9/13/2017**	7.54	1,060	0.0	21.0	2.0	500	<5	<10	<4	170 B	0.13	0.49 J	1,100	190 B	55 B	60	6.6	300	0.087
MW-4B	**9/13/2017**	8.11	2,140	0.0	22.1	1.6	550	29	<10	<4	210 B	<0.1	1.4	1,400	380 B	5.5 B	1.9	5.1	580	0.024
MW-5A	**5/22/2017**	7.35	4,040	0.0	22.1	3.8	370	<5	<10	0.80 A	1,200 C	0.096 A	0.92	2,500	95 C	7.9	1.6	5.4	900	0.030 C
MW-6	**5/18/2017**	7.40	893	0.0	21.1	1.9	350	<5	5.4 A	<4	80 C	6.0 C	<0.5	580	57 C	40	38	3.6 C	120 C	0.0028 AC
MW-7	**5/24/2017**	7.44	2,800	0.0	18.9	2.0	490	<5	<10	<4	520	<0.1	0.89	1,800	330	29 C	24	7.6	570	0.045 C
MW-11	**5/22/2017**	7.51	6,230	0.0	21.5	1.8	580	<5	7.2 A	0.80 A	480 C	<0.1	2.3	4,700	3,000 C	42	18	9.9	1,500	0.18 C

Notes:
< = Analyte not detected at or above reporting limit.
mg/l = milligram per liter
µmhos/cm = micromhos per centimeter
NTU = nephelometric turbidity units
NM = Not Measured

-- = Not Analyzed

A flag denotes concentration reported is estimated because it is below the reporting limit and above method detection limit.
C flag denotes analyte was also detected in the associated method blank.
T flag denotes constituent also found in trip blank.
D flag denotes duplicate sample collected from same well, same day.
Q flag denotes an elevated reporting limit due to high analyte levels.
L flag denotes a serial dilution of a digestate in the analytical batch indicating that physical and chemical interferences are present.
G flag denotes an elevated reporting limit due to matrix interference.
H = Analysis conducted out of recommended holding time.

--- = Semiannual/annual parameters added in Order R5-2016-0042. To see earlier data, review the 5-Year COC data summary table, Table 12.

5-Year COC event was preformed during the 3rd Qtr 2005 (SCS, January 2006) and 4th Qtr 2010 (SCS, January 2011).
Source: 2001 and 2002 data from HLA reports dated 7/12/2001, 1/29/2002, 7/15/2002, and 1/15/2003.

TABLE 3.
ANALYTICAL RESULTS FOR FILL AREA 1 GROUNDWATER MONITORING WELLS, VOLATILE ORGANIC COMPOUNDS*
ALTAMONT LANDFILL AND RESOURCE RECOVERY FACILITY

Sample Location	Sample Date	Acetone	Benzene	2-Butanone	Bromomethane	Carbon Disulfide	Chloroethane	Chlorobenzene	Chloroform	Chloromethane	1,2-Dichlorobenzene	1,4-Dichlorobenzene	Cis-1,2-dichloroethene	1,1-Dichloroethane	1,1-Dichloroethene	1,2-Dichloropropane	1,2-Dichloroethane	Dichlorodifluoromethane	Dichlorofluoromethane	Diethyl Ether / Ethyl Ether	Methylene Chloride	Methyl tert-butyl ether (MTBE)	Tert-Butyl Alcohol	Tetrachloroethene	Tetrahydrofuran	Toluene	Trans-1,2-dichloroethene	Trichloroethene	Vinyl Chloride
		µg/l																											
E-03A	5/23/2017	3.4 AX	<1	<6	<2	<2	<2	<1	<1	<2	<1	<1	<1	<1	<1	<1	<0.5	<2	<2	<2	<2	<5	<50	<1	<7	<1	<1	<1	<0.5
E-05	5/19/2017	15 TF	<1	<6	<2	<2	<2	<1	<1	<2	<1	0.78 A	<1	<1	<1	<1	<0.5	<2	<2	2.7	<2	0.48 A	57	<1	8.5	<1	<1	<1	<0.5
E-07	5/19/2017	<10	<1	<6	<2	<2	<2	<1	<1	<2	<1	0.22 A	0.57 A	1.3	<1	<1	<0.5	<2	<2	<2	<2	0.32 A	<50	0.51 A	<7	<1	<1	0.46 A	<0.5
E-17	5/18/2016	<10	<1	<6	<1	<2	<2	<1	<1	<2	<1	<1	<1	<1	<1	<1	<0.5	<2	<2	<2	<2	<5	<50	<1	<7	<1	<1	<1	<0.5
E-20B	5/24/2017	<10	<1	<6	<2	<2	<2	<1	<1	<2	<1	0.21 A	1.4	3.0	<1	<1	<0.5	<2	6.1	2.1	<2	<5.0	<50	<1	5.0 A	<1	<1	<1	<0.5
E-21	5/23/2017	3.1 ATF	<1	<6	<2	<2	<2	<1	<1	<2	<1	<1	<1	<5	<1	<1	<0.5	<2	<2	<2	<2	<5	<50	<5	<7	<1	<1	<1	<0.5
E-22	5/24/2017	12 X	<1	<6	<2	<2	<2	<1	<1	<2	<1	<1	<1	<1	<1	<1	<0.5	<2	<2	<2	<2	<5	<50	<1	<7	<1	<1	<1	<0.5
E-23	5/23/2017	12 TF	<1	<6	<2	<2	<2	<1	<1	<2	<1	<1	<1	<1	<1	<1	<0.5	<2	<2	<2	<2	<5	<50	<1	<7	<1	<1	<1	<0.5
MW-1A	5/23/2017	4.8 ATF	<1	<6	<2	<2	<2	<1	<1	<2	<1	<1	<1	<1	<1	<1	<0.5	<2	<2	<2	<2	<5	<50	<1	<7	<1	<1	<1	<0.5
MW-2A	5/22/2017	2.9 AX	<1	<6	<2	<2	<2	<1	<1	<2	<1	<1	<1	<1	<1	<1	<0.5	<2	<2	<2	<2	<5	<50	<1	<7	<1	<1	<1	<0.5
MW-3B	5/22/2017	5.7 AX	<1	<6	<2	<2	<2	<1	<1	<2	<1	<1	<1	<1	<1	<1	<0.5	<2	<2	<2	<2	<2	<50	<1	<7	<1	<1	<1	<0.5
MW-4A	12/14/2017	<10	<1	<6	<2	<2	<2	<1	<1	<2	<1	<1	<1	<1	<1	<1	<0.5	<2	<2	<2	<2	<5	<50	<1	<7	<1	<1	<1	<0.5
MW-4B	9/13/2017	<10	<1	<6	<2	<2	<2	<1	<1	<2	<1	<1	<1	<1	<1	<1	<0.5	<2	<2	<2	<2	<5	<50	<1	<7	<1	<1	<1	<0.5
MW-5A	5/22/2017	3.9 AX	<1	<6	<2	<2	<2	<1	<1	<2	<1	<1	<1	<1	<1	<1	<0.5	<2	<2	<2	<2	<5	<50	<1	<7	<1	<1	<1	<0.5
MW-6	5/18/2017	6.2 AT	<1	<6	<2	<2	<2	<1	<1	<2	<1	<1	<1	<1	<1	<1	<0.5	<2	<2	<2	<2	<5	<50	<1	<7	<1	<1	<1	<0.5
MW-7	5/24/2017	7.7 AX	<1	<6	<2	<2	<2	<1	<1	<2	<1	<1	<1	<1	<1	<1	<0.5	<2	<2	<2	<2	<5	<50	<1	<7	<1	<1	<1	<0.5
MW-11	5/22/2017	<10	<1	<6	<2	<2	<2	<1	<1	<2	<1	<1	<1	<1	<1	<1	<0.5	<2	<2	<2	<2	<5	<50	<1	<7	<1	<1	<1	<0.5

Notes:
µg/l = microgram per liter
* Only volatile organic compounds detected in one or more samples are listed. See lab reports for full list of analytes.
< = Analyte not detected at or above reporting limit.
A flag denotes concentration reported is estimated because it is below the reporting limit and above its method detection limit.
T denotes constituent also found in trip blank.
F denotes constituent also found in field blank.
X flag denotes analyte was detected in method, trip, and/or field blanks associated with a different lot during the same monitoring event.
-- = Not analyzed. Previously only a 5-Year COC parameter. Added as a routine VOC analyte in 2009 WDR.

TABLE 4.
ANALYTICAL RESULTS FOR FUTURE FILL AREA 2 AND 5-YEAR EVALUATION GROUNDWATER MONITORING WELLS
ALTAMONT LANDFILL AND RESOURCE RECOVERY FACILITY

Well [1]	Date Sampled	Field Parameters					General Chemistry														VOCs*					
		pH	Specific conductance	Turbidity	Temperature	Dissolved oxygen	Specific conductance	Alkalinity, total (as CaCO3)	Alkalinity, bicarbonate (as CaCO3)	Alkalinity, carbonate (as CaCO3)	Chemical Oxygen Demand	Sulfide	Chloride	Nitrogen, ammonia	Nitrogen, nitrate	Nitrogen, total Kjeldahl	Total dissolved solids	Sulfate	Calcium (dissolved)	Magnesium (dissolved)	Potassium (dissolved)	Sodium (dissolved)	Manganese (dissolved)	Acetone	Methylene Chloride	Benzene	Toluene	2-Butanone (MEK)	Carbon Disulfide
		pH units	µmhos/cm	NTU	C	mg/l	µmhos/cm	mg/l																µg/l					
MW-1B	12/21/2016	7.11	986	0.0	17.5	0.0	--	--	300 C	<5	<10	<4	90	--	<0.1	<0.5	540	85	31	30	2.9 A	140	0.21	3.6 ATE	<2	<1	0.27 ACTE	<6	<2
MW-2B	12/21/2016 [8]	7.60	2650	0.0	18.3	0.0	--	--	710 C	<5	<10	<4	230	--	<0.1	0.72	1,600	290	5	1.1	2.3 A	570	0.046	3.3 ATE	<2	<1	0.34 ACTE	<6	<2
MW-2C	12/22/2016	7.24	5560	0.0	17.3	0.0	--	--	460	<5	11	<4	1,400 C	--	<0.1	2.3 C	3,000	1.2 AC	15	2.7	2.7 A	1,100	0.12	<10	<2	<1	<1	<6	<2
MW-3C	12/22/2016	8.16	2620	0.0	18.1	0.0	---	--	750	45 C	<10	<4	190 C	---	<0.1	1.4 A	1,500	210 C	3.0A	0.7	1.5 A	610	0.0062 A	<10	<2	<1	<1	<6	<2
MW-4B	12/22/2016	8.22	2,850	0.0	18.5	0.0	--	--	530	48 C	<10	<4	260 C	--	<0.1	1.9 C	1,700	390 C	5.5	1.6	2.3 A	610	0.017	<10	<2	<1	<1	<6	<2
MW-5B	12/22/2016 [9]	7.60	3,730	0.0	17.1	0.0	--	--	390	<5	<10	<4	900 C	--	<0.1	1.6 C	2,000	23 C	5.3	860	2.0 A	760	0.024	<10	<2	<1	<1	<6	<2
MW-8A	5/19/2017	8.03	933	0.0	20.3	1.6	--	--	290	<5	<10	<4	83	--	11 H	<0.5	590	74	41	30	2.2 AC	150 C	0.00077 AC	11 TF	<2	<1	<1	<6	<2
MW-8B	5/19/2016	7.49	1,310	0.0	20.1	6.9	--	--	330 C	<5	<10	--	150	--	5.9	<0.5	710	95	53	40	2.5 A	170 C	--	<10	<2	<1	<1	<6	<2
MW-9	5/20/2016	7.41	2,150	0.0	18.4	0.0	--	--	830	<5	<10	--	200 C	--	2.8	<0.5	1,200	53 C	26	28	3.0	450	--	<10	<2	<1	<1	<6	<2
MW-10	5/19/2016	7.88	2,100	0.0	18.8	0.0	--	--	570 C	<5	<10	--	190	--	0.061 A	0.71 C	1,200	190	26	19	3.3	430 C	--	<10	<2	<1	<1	<6	<2
MW-13B	5/19/2017	7.71	1,040	0.0	20.8	2.2	--	--	270	<5	4.7 A	<4	93	--	5.0	<0.5	640	150	53	37	2.5 AC	140 C	0.00073 AC	4.8 ATF	<2	<1	<1	<6	<2
MW-14	5/19/2017	7.80	766	0.0	20.2	1.3	--	--	160	<5	4.4 A	<4	97	--	<0.1	0.25 A	480	120	46	23	6.3 C	98 C	0.042 C	<10	<2	<1	<1	<6	<2
MW-14R	9/13/2017	7.51	941	0	22.1	4.2	--	--	390	<5	<10	<4	130	--	9.8	<0.5	1,000	220	79	70	6	200	0.00065	4.6	<2	<1	<1	<6	<2
MW-15B	5/18/2017	7.40	5,520	0.0	20.9	1.3	--	--	510	<5	120	<4	640	--	0.37 C	3.2	4,100	2,000	32	19	7.1 C	1,500 C	0.043 C	3.1 AT	<2	<1	<1	<6	<2
MW-16	5/18/2017	7.92	3,800	0.0	19.4	2.5	--	--	680	<5	5.1 A	<4	520 C	--	0.059 AC	1.9	2,800	1,000 C	24	16	4.5 C	1,000 C	0.032 C	3.5 AT	<2	<1	<1	<6	<2
MW-18	5/18/2017	7.50	1,880	0.0	19.4	2.7	--	--	460	<5	<10	0.80 A	230 C	--	7.1 C	<0.5	1,200	290 C	30	21	3.7 C	420 C	0.0041 AC	<10	<2	<1	<1	<6	<2
MW-19	9/13/2017	7.19	527	0.0	20.7	2.4	--	--	<5	80	<10	<4	130	--	1.3	0.62	130	71	10	1.9	7.6	170	0.044	7.2	<2	<1	<1	<6	<2
MW-21	9/13/2017	7.17	795	0.0	21.7	1.7	--	--	330	<5	<10	<4	110	--	6.5		800	170	72	58	4.0	160	0.0015	<10	<2	<1	<1	<6	<2
PC-1B	5/26/2016	8.62	2,040	0.0	18.4	0.0	--	--	670	29	11	<4	230	--	<0.10	1.1	1,200	0.46 A	3.5	1.3	2.1 A	510 C	--	<10	<2	<1	<1	<6	<2
PC-1C	5/26/2016	7.65	1,310	0.0	20	0.0	--	--	360	<5	5.5 A	--	120	--	2.0	<0.5	760	160	76	51	2.1 A	140 C	--	<10	<2	<1	<1	<6	<2
PC-2A	5/26/2016	7.93	1,430	0.0	21.1	0.0	--	--	340	<5	<10	<4	180	--	5.6	<0.5	820	140	69	47	1.4 A	190 C	0.0003 A	<10	<2	<1	<1	<6	<2
PC-2B	5/31/2016	8.18	1,710	0.0	24.2	0.0	--	--	690	<5	5.1 A	<4	170	--	0.21	0.34 A	1,100	62	15	18	2.8 A	420 C	0.14	<10	<2	<1	<1	<6	<2
PC-2C	5/26/2016	8.05	1,380	0.0	21.0	0.0	--	--	340	<5	<10	<4	170	--	5.7	<0.5	780	110	54	38	1.7 A	200 C	0.0029 A	<10	<2	<1	<1	<6	<2
PC-6B(R)	5/23/2017	7.16	2,590	0.0	20.2	1.8	--	--	640	<5	18	<4	320	--	<0.1	1.2	1,800	490	55 C	84 C	6.6	500	0.36	2.3 AT	<2	<1	<1	<6	<2
P2	5/31/2016	8.27	1,570	10	22.0	0.0	--	--	440	<5	11	<4	240	--	3.5	0.72	1,200	260	78	54	3.0	200 C	0.065	<10	<2	<1	<1	<6	<2
WM-2	5/18/2016	8.00	2,230	0.0	25.1	0.0	--	--	780	<5	<10	<4	280	--	<0.1	0.7	1,300	82	23	37	3.3	480	0.022	<10	<2	<1	<1	<6	<2

Notes:
mg/l = milligram per liter
µmhos/cm = micromhos per centimeter
NTU = nephelometric turbidity units
< = Analyte not detected at or above reporting limit.
* = Only VOCs detected are listed. For full list see laboratory reports.
-- = Not Analyzed. Order R5-2009-0055 did not require specific conductance, total alkalinity, ammonia, and silicon. New semiannual/annual parameter added in Order R5-2016-0042. For sulfide and manganese, see earlier data in 5-Year COC data
--- = Not analyzed. Insufficient liquid in well casing.
Note: During background data collection events, 20 dissolved metals were also analyzed. See applicable lab reports for the data.

µg/l = microgram per liter
°C = Celsius
NM = Not measured.

A flag denotes concentration reported is estimated because it is below the reporting limit.
C flag denotes analyte was also detected in the associated method blank at a reportable limit.
E flag denotes analyte was also detected in the associated equipment blank at a reportable limit.
Q flag denotes elevated reporting limit due to high analyte levels.
G flag denotes elevated reporting limit due to matrix interference.
T flag denotes analyte detected in associated trip blank.
F flag denotes analyte detected in associated field blank.
X flag denotes analyte was detected in method, trip, and/or field blanks associated with a different lot during the same monitoring event.

TABLE 5.
GROUNDWATER ANALYTICAL RESULTS - CORRECTIVE ACTION MONITORING WELLS E-20B and MW-12
ALTAMONT LANDFILL AND RESOURCE RECOVERY FACILITY

Well	Date Sampled	Field Parameters					General Chemistry															VOCs *				
		pH	Specific conductance	Turbidity	Temperature	Oxygen-dissolved	Specific conductance	Alkalinity, total (as CaCO3)	Alkalinity, bicarbonate (as CaCO3)	Alkalinity, carbonate (as CaCO3)	Chemical Oxygen Demand	Chloride	Nitrogen, ammonia	Nitrogen, nitrate	Nitrogen, total kjeldahl	Total dissolved solids	Sulfate	Calcium (dissolved)	Magnesium (dissolved)	Potassium (dissolved)	Sodium (dissolved)	Manganese (dissolved)	Acetone	Methylene Chloride	Diethyl Ether	Cis-1,2-Dichloroethene	1,1-Dichloroethane
		pH units	µmhos/cm	NTU	Celsius	mg/l	µmhos/cm	mg/l															µg/l				
E-20B	5/24/2017	7.41	1,740	0.0	22.9	2.6	--	--	850	<5	<10	200	--	2.1	0.35 A	1,200	41	110 C	120	5.7	180	0.0041 AC	<10	<2	2.1	1.4	3.0
MW-12	5/19/2017	6.90	1,810	0.0	20.2	3.1	---	---	540	<5	6.8 A	340	---	1.8	0.38 A	1,200	77	200	77	5.3 C	130 C	0.0028 AC	14 TF	<2	<2	0.20 A	0.34 A

Notes:
mg/l = milligram per liter.
µg/l = microgram per liter.
µmhos/cm = micromhos per centimeter.
NTU = nephelometric turbidity units.
< = Analyte not detected at or above reporting limit.
VOC = Volatile Organic Compounds
* = = Only VOCs detected in downgradient wells MW-12, PC-1B, and PC-1C are listed. See Table 5 for all VOCs detected. For full list see laboratory reports.
-- = New semiannual parameter in Order R5- 2016-0042. To see earlier data, review the 5-Year COC data summmary table, Table 12.
--- = Not Analyzed. Order R5-2009-0055 did not require specific conductance, total alkalinity, ammonia, and silicon. New semiannual/annual parameter added in Order R5-2016-0042. For sulfide and manganese, see earlier data in 5-Year COC data summary table, Table 12.

A flag denotes concentration reported is estimated because it is below the reporting limit.
C flag denotes analyte was also detected in the associated method blank at a reportable limit.
T flag denotes analyte detected in associated trip blank.
F flag denotes analyte detected in associated field blank.

TABLE 6.

SUMMARY OF 5-YEAR CONSTITUENTS-OF-CONCERN RESULTS
ALTAMONT LANDFILL AND RESOURCE RECOVERY FACILITY

Sample Location*	Date of Collection	METHOD: 8270C	8081A	8151A	8141A	8082	5310B	9030B	9010A	6010B/6020 (Dissolved)																		7470A
		Semi-Volatile Organic Compounds	Organochlorine Pesticides	Chlorophenoxy Herbicides	Organophosphorus Pesticides	PCBs	Total Organic Carbon	Sulfide**	Cyanide**	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Nickel	Selenium	Silver	Thallium	Tin	Vanadium	Zinc	Mercury
		µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	µg/L																		
Groundwater Monitoring Wells																												
E-03A	**11/10/2015** [1]	ND	ND	ND	ND	ND	1.4	<4	0.023 **Resample 1** = <0.01 **Resample 2** = 0.0069 A	<100	0.54 A	1.3 A	100 X	<5	<1	<10	<10	3.9 A	<100	<1	1.5 AC	4.8	0.94 A	<10	<1	<100	<10	5.9 A	<0.2
E-05	**11/17/2015** [1]	Acetophenone-0.59 A; bis(2-ethylhexyl)Phthalate- 9.9 A **Resample 1** = Acetophenone-1.1 A; bis(2-ethylhexyl)Phthalate- 2.2 A **Resample 2** = Acetophenone-0.57 A; bis(2-ethylhexyl)Phthalate- 3.2 A	ND	ND	ND	ND	2.4	<4	0.0048 A	<100	<2	0.66 A	120 X	<5	<1	2.1 A	<10	<10	320 C	<1	140 X	6.4	<5	1.5AC	<1	<100	<10	<20	<0.2
E-07	**11/10/2015**	ND	ND	ND	ND	ND	2.4	<4	<0.01	<100	<2	0.62 A	140 X	<5	<1	<10	<10	3.4 A	<100	<1	390 C	7.0	<5	<10	<1	<100	<10	<20	<0.2
E-17	**11/16/2015**	ND	ND	ND	ND	ND	3.5	<4	0.0034 A	<100	1.1 A	0.81 A	140 C	<5	<1	<10	<10	4.2 A	<100	<1	120 X	8.1	<5	<10	0.060 A	<100	2.8 A	<20	<0.2
E-20B	**11/13/2015**	ND	ND	ND	ND	ND	2.0	<4	<0.01	<100	0.49 A	0.44 A	200 C	<5	<1	1.1 A	2.1 A	1.8 A	<100	<1	22 C	2.4	<5	<10	0.11 A	<100	1.2 A	5.5 A	<0.2
E-21	**9/6/2005**	ND	ND	ND	ND	ND	--	<4	<0.01	70 AC	0.045 A	1.7 A	140	<5	<1	<10	<10	<10	26 A	<1	12	3.1 C	0.7 A	<10	<1	<100	<10	7.0 A	<0.2
E-22	**9/6/2005**	ND	ND	ND	ND	ND	--	0.8 A	<0.01	64 AC	<2	0.52 A	150	<5	<1	<10	<10	<10	<100	<1	7.6 A	0.22 AC	<5	<10	<1	<100	<10	6.6 A	<0.2
E-23	**11/11/2015**	ND	ND	ND	ND	ND	1.3	1.3 A	0.0027 A	<100	<2	0.68 A	190 X	<5	<1	<10	<10	<10	45 AC	<1	33 C	5.0	<5	<10	<1	<100	<10	6.8 A	<0.2
MW-1A	**12/21/2016**	bis(2-Ethylhexyl) phthalate - 1.4 A	ND	ND	ND	ND	0.74 A	<4	<0.01	<100	<2	<5	78	<5	<1	<10	<10	<10	<100	<1	<10	<2	3.2 A	1.0 AC	<1	<100	1.1 AC	<20	<0.2
MW-1B	**12/21/2016**	bis(2-Ethylhexyl) phthalate - 0.59 A	ND	ND	ND	ND	0.87 A	<4	<0.01	<100	0.51 A	2.1 A	42	<5	<1	<10	1.7 A	<10	320	1.1	210	0.57 A	<5	1.2 AC	<1	<100	<10	<20	0.030 A
MW-2A	**11/11/2015**	ND	ND	ND	ND	ND	2.2	<4	0.0048 A	<100	<2	3.1 A	9.2 A	<5	<1	1.3 A	<10	1.9 A	25 AC	<1	43 C	1.3 A	<5	0.96 AC	<1	<100	<10	<20	<0.2
MW-2B	**12/21/2016**	ND	ND	ND	ND	ND	1.1	<4	0.0036 A	<100	<2	4.0 A	6.2 A	<5	<1	<10	<10	<10	210	<1	46	0.49 A	<5	<10	<1	<100	<10	<20	<0.2
MW-2C	**12/22/2016**	ND	ND	ND	ND	ND	2.5	<4	0.0033 A	<100	<2	17	410 C	<5	<1	<10	<10	<10	630	<1	120	0.53 A	<5	<10	<1	<100	<10	<20	<0.2
MW-3B	**12/22/2016**	ND	ND	ND	ND	ND	1.1	<4	0.0020 A	<100	<2	1.9 A	410 C	<5	<1	<10	<10	<10	290	<1	18	0.42 A	<5	<10	<1	<100	<10	<20	<0.2
MW-3C	**12/22/2016**	ND	ND	ND	ND	ND	0.84 A	<4	0.0064 A	50 A	<2	0.48 A	24 C	<5	<1	<10	<10	<10	<100	<1	6.2 A	0.36 A	<5	<10	<1	<100	1.3 A	<20	<0.2
MW-4A	**9/13/2017**	ND	ND	ND	ND	ND	1.1	--	--	<100	<2	0.92 A	26	<5	<1	5.0 A	<10	<10	28 A	<1	0.087	0.82 A	<5	1.2 A	<1	<100	<10	<20	<0.2
MW-4B	**9/13/2017**	ND	ND	ND	ND	ND	1.7	--	--	2000	<2	<5	14	<5	<1	5.7 A	<10	<10	1000	1.6	0.024	0.50 A	<5	<10	<1	<100	<10	24	<0.2
MW-5A	**11/13/2015** [1]	bis(2-Ethylhexyl) phthalate - 46 **Resample 1** = 3.9 A **Resample 2** = 5.2 A (Duplicate = 3.5 A)	ND	ND	ND	ND	1.7	<4	<0.01	<100	9.4	120	85 C	<5	<1	0.86 A	<10	2.8 A	<100	<1	38 C	<2	<5	<10	<1	<100	2.5 A	<20	<0.2
MW-5B	**12/22/2016**	ND	ND		ND	ND	2.8	<4	0.0073 A	<100	<2	11	150 C	<5	<1	<10	<10	<10	<100	0.23 A	24	0.82 A	<5	<10	<1	<100	<10	<20	0.030 A
MW-6	**11/11/2015** [1]	bis(2-Ethylhexyl) phthalate - 10 **Resample 1** = 3.2 A **Resample 2** = 4.7 A	ND	ND	ND	ND	0.84 A	<4	0.0032 A	<100	<2	0.54 A	38 X	<5	<1	1.2 A	<10	<10	<100	<1	2.4 AC	<2	<5	1.4 AC	0.10 A	<100	<10	<20	<0.2
MW-7	**11/17/2015**	ND	ND	ND	ND	ND	0.79 A	<4	0.0034 A	18 A	<2	3.7 A	23 X	<5	<1	2.2 A	<10	<10	150 C	<1	55 X	1.1 A	<5	1.1 AC	<1	<100	<10	<20	<0.2
MW-8A	**5/16/2014**	ND	ND	ND	ND	ND	0.77 AC	<4	<0.01	<100	0.47 A	0.61 A	170 C	<5	<1	2.0 A	<10	2.9 AC	61 A	<1	0.37 A	<2	4.1 A	<10	0.071 A	<100	2.8 A	<20	<0.2
MW-8B	**5/14/2014**	ND	ND	ND	ND	ND	0.93 A	<4	<0.01	<100	0.52 A	<20	120	<5	<1	1.8 A	<10	<10	30 A	<1	0.41 A	0.60 A	4.2 A	<10	<1	<100	1.5 A	<20	<0.2
MW-9	**5/14/2014**	ND	ND	ND	ND	ND	1.1	<4	<0.01	<100	<2	1.2 A	110	<5	<1	<10	<10	<10	<100	<1	34	0.42 A	<5	<10	<1	<100	2.0 A	<20	<0.2
MW-10	**6/6/2014**	Dimethyl phthalate - 0.23 A	ND	Dinoseb - 0.70 **Resample** - <0.05	ND	ND	1.6	0.80 A	<0.01	<100	0.58 A	0.87 A	23	<5	<1	<10	<10	92 Resample - 0.46 AC	130	<1	22 C	<2	<5	1.0 A	0.15 A	<100	1.1 A	16 A	0.047 AC
MW-11	**5/18/2016**	Benzyl Alcohol - 0.38 AX	ND	Dinoseb - 1.4 11-13-2016 - <0.60	ND	ND	1.0	<4	0.0030 A	<100	<2.0	2.5 A	18	<5	<1	<10	8.0 A	<10	170	<1	150	0.56 A	<5	<10	<1	<100	<10	<20	<0.2
MW-12	**9/29/2014**	ND	ND	ND	ND	ND	1.5	<4	<0.01	370	<2	0.67	100 C	<5	<1	2.3 A	1.4 A	3.0 A	560	<1	130	3.0	2.2 AC	<10	<1	<100	3.9 A	7.4 A	0.037 AC
MW-13B	**9/29/2014**	ND	ND	ND	ND	ND	0.91 A	<4	<0.01	<100	<2	0.47 A	70 C	<5	<1	0.93 A	<10	2.0 A	<100	<1	3.7 A	2.0	4.5 AC	<10	<1	<100	2.4 A	6.6 A	<0.2
MW-14	**9/29/2014**	ND	ND	ND	ND	ND	2.0	<4	<0.01	51 A	1.9 A	6.8	5.4 AC	<5	<1	<10	<10	2.3 A	<100	<1	14	1.5 A	2.1 AC	1.3 A	<1	<100	3.7 A	5.7 A	0.036 AC
MW-14R	**5/1/2017**	ND	ND	ND	ND	ND	1.4	<4	<0.01	<18	0.48 A	1.5 A	35	<5	<1	6.6 A	<10	5.3 A	66 A	<1	2.7 A	0.66 A	14	<10	<1	<100	2.6 A	<20	<0.2
MW-15B	**1/6/2016**	Isophorone - 1.3 AC	ND	ND	ND	ND	9.7	<4	0.0028 A	180	7.8	34	21 C	<5	<1	2.8 A	<10	2.1 A	160 C	0.15 AC	4.0 AC	3.5 C	2.6 A	<10	<2	2.9 AC	35	10 A	<0.2
MW-16	**6/2/2016**	Benzyl Alcohol - 1.7 ACE; bis(2-ethylhexyl) phthalate - 2.0 A; diethyl phthalate - 0.37 A 8-11-2016 bis(2-ethylhexyl) phthalate - <10; diethyl phthalate - 0.63 A 8-30-2016 bis(2-ethylhexyl) phthalate - <10; diethyl phthalate - 1.0AC	ND	ND	ND	ND	1.9	<4	0.0056 A	<100	8.4	<1	17 C	<5	<1	<10	<10	<10	<100	<1	20	1.4 A	0.89 A	<10	<1	<100	2.0 A	5.7 A	<0.2
MW-18	**6/2/2016**	Benzyl Alcohol - 0.59 ACE; bis(2-ethylhexyl) phthalate - 4.3 A	ND	ND	ND	ND	1.1	<4	0.0079 A	<100	0.99 A	0.53 A	59 C	<5	<1	<10	<10	<10	22 A	<1	27	1.5 A	6.6	<10	<1	<100	<10	<20	<0.2
MW-19	**5/1/2017**	bis(2-ethylhexyl pthalate - 0.57 A	ND	ND	ND	ND	2.2	<4	<0.01	2,800	1.8 A	7.2	41	0.16 A	<1	50	<10	9.9 A	2,700	0.90 A	34	3.6	14	<10	0.051 A	<100	24	8.0 A	<0.2
MW-21	**5/2/2017**	ND	ND	ND	ND	ND	1.5	0.80 A	0.0030 AC	<100	0.48 A	0.69 A	43	0.25 A	<1	2.2 A	<10	<10	94 A	<1	1.8 A	0.45 A	7.2	<10	0.083 A	<100	1.6 A	<20	<0.2
PC-6B(R)	**6/2/2016**	Acetophenone - 0.32 A; benzyl alcohol - 1.9 AC	ND	ND	ND	ND	1.9	<4	0.0022 A	<100	<2	1.3 A	120 C	<5	<1	0.99 A	7.3 A	<10	310	<1	430	6.2	1.2 A	<10	<1	<100	<10	11 A	<0.2
PC-1B	**5/26/2016**	Benzyl Alcohol - 0.23 AX	ND	ND	ND	ND	3.1	<4	<0.01	<100	<2	13	99	<5	<1	<10	<10	<10	75 C	<1	28	<2	<5	<10	<1	<100	<10	<20	<0.2
PC-1C	**11/2/2010**	ND	ND		ND	ND	0.65 A	<4	0.0020 A	<100	0.13 A	0.63 A	120 C	<5	<1	<10	<10	1.6 A	<100	<1	0.44 A	2.5	1.0 AC	<10	0.030 A	<100	<10	5.1 A	<0.2
	5/26/2016	ND	ND	ND	ND	ND	1.5	<4	0.0040 A	<100	<2	0.60 A	130	<5	<1	0.68 A	<10	<10	<100	<1	<10	1.0 A	1.9 A	<10	<1	<100	<10	<20	<0.2
PC-2A	**5/26/2016**	ND	ND	ND	ND	ND	0.80 A	<4	0.0068 A	<100	<2	0.49 A	130	<5	<1	1.8 A	<10	<10	24 A	<1	0.30 A	0.56 A	3.1 A	<10	<1	<100	2.2 A	<20	<0.2
PC-2B	**5/31/2016**	ND	ND	2,4,5-TP(Silvex) - 0.22 AP	ND	ND	1.9	<4	0.0034 AC	83 A	<2	4.5 A	40	<5	<1	<10	<10	<10	220	<1	140	1.8 A	<5	<10	<1	<100	<10	<20	<0.2
PC-2C	**5/26/2016**	ND	ND	ND	ND	ND	0.71 A	<4	0.0041 A	72 A	<2	0.36 A	94	<5	<1	1.7 A	<10	<10	69 A	<1	2.9 A	0.55 A	3.3 A	<10	<1	<100	<10	<20	<0.2
P2	**5/31/2016**	Benzyl Alcohol - 0.24 A	ND	ND	ND	ND	3.9	<4	0.0031 AC	1,200	<2	1.2 A	310	<5	<1	3.1 A	<10	6.7 A	1,200	0.53 A	65	2.9	4.9 A	<10	<1	<100	6.0 A	7.8 A	<0.2
WM-2	**5/18/2016**	ND	ND	ND	ND	ND	0.69 A	<4	0.0038 A	<100	<2	0.58 A	48	<5	<1	<10	4.2 A	<10	30 A	<1	22	0.80 A	<5	<10	<1	<100	<10	<20	<0.2

TABLE 6.

SUMMARY OF 5-YEAR CONSTITUENTS-OF-CONCERN RESULTS
ALTAMONT LANDFILL AND RESOURCE RECOVERY FACILITY

Sample Location*	Date of Collection	METHOD: 8270C Semi-Volatile Organic Compounds	8081A Organochlorine Pesticides	8151A Chlorophenoxy Herbicides	8141A Organophosphorus Pesticides	8082 PCBs	5310B Total Organic Carbon	9030B Sulfide**	9010A Cyanide**	6010B/6020 (Dissolved) Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Nickel	Selenium	Silver	Thallium	Tin	Vanadium	Zinc	7470A Mercury
		µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	µg/L																		
Unsaturated Zone Monitoring Points																												
VZM-A	**12/1/2015** [2]	Benzyl Alcohol - 0.26 A **Resample** - 0.97 A	ND	Dinoseb - 2.5 **Resample** - <0.6	ND	ND	3.1	<4	<0.01	<100	0.71 A	2.3 A	190	<5	<1	2.8 A	<10	<10	43 A	<1	320	2.8	<5	<10	<1	<100	<10	140	<0.2
VZM-B	**4/8/2016**	ND	ND	Dinoseb - 0.65 P	ND	ND	2.9	<4	0.0030 AC	<100	1.9A	3.3 A	60	<5	<1	3.1 A	2.3 A	5.6 A	<100	<1	2.6 A	0.98 A	3.3 A	<10	<1	<100	3.4 A	17 A	<0.2
VD	**11/17/2015**	ND	ND	ND	ND	ND	4.3	<4	0.0056 A	<100	0.49 A	1.1 A	370	<5	<1	0.87 A	<10	<10	86 AC	<1	2,200	4.7	<5	2.1 AC	<1	<100	2.1 A	160	<0.2
VD2	**12/1/2015** [2]	bis(2-Ethylhexyl) phthalate - 1.4 A **Resample** - 4.3 A	ND	Dinoseb - 5.3 **Resample** - <4.1 (8270C) /5.4 (8151A)	ND	ND	19	<4	0.0041 A	150	1.4 A	14	580	<5	<1	4.6 A	<10	7.7 A	960	0.79 A	820	8.6	<5	<10	<1	<100	<10	30	0.037 A
UD-1	**2/6/2017**	ND	ND	ND	ND	ND	1.4 C	<4	0.0024 A	<100	1.4 A	0.34 A	79	<5	<1	1.5 A	<10	<10	<100	<1	0.45 A	0.62 A	4.3 A	<10	<1	<100	<10	<20	0.058 AC
Leachate Monitoring Points																												
LS-3	**6/23/2016**	Benzyl Alcohol - 0.47 AC, Bis(2-ethylhexyl) phthalate - 0.98 A	ND	Dinoseb - 1.8	ND	ND	2.4	<4	0.0023 A	<100	1.4 A	0.59 A	360	<5	<1	<10	<10	<10	22 AC	0.27 A	2.8 A	0.89 A	1.5 A	<10	0.15 A	<100	1.2 A	<20	<0.2
LS2	**12/1/2015** [2]	ND	ND	ND	Atrazine - 1.5 AP **Resample** - 1.6 A	ND	480	<4	0.0082 A	<100	26	190	340	<5	<1	67	8.2 A	<10	1,600	0.22 A	1,000	170	1.3 A	<10	0.071 A	<100	88	100	<0.2
LS	**12/1/2015** [2]	2,4-Dimethylphenol - 1.8 A; 2-Methylnapthalene - 0.29 A; 2-Methylphenol - 1.8 A; Acenapthene - 0.52 A; Acetophenone - 0.54 A; Bis(2-ethylhexyl) phthalate - 0.70 A; Fluoranthene - 0.27 A; o -Toluidine- 4.3 A **Resample -** 2,4-Dimethylphenol - <10; 2-Methylnapthalene -<10; 2-Methylphenol - <10; Acenapthene - 0.62 A; Acetophenone - <10; Bis(2-ethylhexyl) phthalate - <10; Fluoranthene - <10; o -Toluidine- 6.0 A	ND	ND	Atrazine - 0.40 AP **Resample** - <10	ND	110	<4	0.0046 A	<100	0.71 A	2.5 A	840	<5	<1	11	<10	<10	640	<1	2,100	29	<5	<10	<1	<100	2.4 A	70	<0.2
Storm Water In Basin Samples																												
In Basin A	**12/22/2015**	bis(2-Ethylhexyl) phthalate - 0.60 A	ND	ND	ND	ND	14	<4	0.0069 A	32 A	1.4 A	1.8 A	68	<5	<1	2.2 A	<10	10	48 A	0.26 A	23	3.2	<5	<10	0.085 A	<100	<10	27	<0.20
In Basin B	**3/7/2016**	ND	ND	ND	ND	ND	27	<4	0.0040 A	<100	1.4 A	3.5 A	150	<5	<1	2.7 A	<10	10	22 A	<1	3.3 A	6.2	<5	<10	<1	<100	2.2 A	26	<0.20
In Basin C	**1/5/2016**	ND	ND	2,4-D - 0.25 AP	ND	ND	19	<4	<0.01	<100	2.6	3.2 A	62	<5	<1	2.4 A	<10	19	27 A	0.30 A	82 C	7.0	0.74 A	<10	<1	<100	2.1 A	17 A	<0.20
Primary MCLs		bis(2-Ethylhexyl) phthalate - 4.0	--	--	--	--	--	--	0.15	1,000	6	10	1000	4	5	50	--	1,300^ 1,000^^	300^^	15^	50^^ 500^^^	100	50	100^^	2	--	50	5,000^^	2

Notes:
PCBs = Polychlorinated Biphenyls
* Groundwater monitoring wells E-18, E-21, and E-22 and leachate monitoring points GWIB and WWTP Effluent were sampled as part of the 2005 COC event (SCS, January 2006), however are no longer required to be sampled as part of the 2009 WDR/MRP and therefore are not included on this table.
** 2005, 2010, 2015 - groundwater cyanide and sulfide filtered in the field; 2005 leachate/unsaturated zone samples not filtered; 2010/2015 leachate/unsaturated zone samples filtered in the field; surface water not filtered.
µg/L = micrograms per liter mg/L = milligrams per liter < = Analyte not detected at or above reporting limit. -- = Not Applicable
MCLs = Maximum Contaminant Levels ^ = Action Level ^^ = Secondary MCL ^^^ = Notification Level
A = Estimated value. Result is less than reporting Limit and greater than the method detection limit.
C = Constituent also detected in method blank.
P = More than 40% relative percent difference between primary and confirmation column results. The lower of the two results is reported. Project laboratory formerly used "COL" as flag for this condition.
ND = None Detected, none of constituents detected, all with various detection limits. See lab reports for detection limits. If constituent detected, constituent listed with concentration.
1 = Resamples #1 collected at E-03A on December 28, 2015, MW-5A on January 6, 2016, and E-05 and MW-6 on January 15, 2016. Resamples #2 collected at E03A and MW-5 on May 20, 2016 and at E-05 and MW-6 on May 19, 2016.
2 = Resamples collected at VD2, VZMA, LS, and LS2 on June 14, 2016.

TABLE 7.
ANALYTICAL RESULTS FOR UNSATURATED ZONE MONITORING
ALTAMONT LANDFILL AND RESOURCE RECOVERY FACILITY

Sample Location	Sample Date	FIELD PARAMETERS: pH	Specific Conductance	Turbidity	Temperature	GENERAL CHEMISTRY: Chemical Oxygen Demand	Total Dissolved Solids	Carbonate Alkalinity	Bicarbonate Alkalinity	Chloride	Sulfate	Nitrate as Nitrogen	Total Kjeldahl Nitrogen	Calcium (dissolved) [5]	Magnesium (dissolved) [5]	Manganese (dissolved)	Potassium (dissolved) [5]	Sodium (dissolved) [5]	Pentachlorophenol	Arsenic	Copper	Chromium
		pH units	µmhos/cm	NTU	Celsius	mg/l																
FILL AREA 1																						
VZM-A	5/26/2017	7.37	1,480	12.3	21.9	--	1,480	<5	1.8A	15	600	14H	--	10C	1.1	1.1	0.72AC	2.2AC	--	--	--	--
VD	5/25/2017	6.92	1,890	55.6	24.3	--	1,200	<5	770C	240	<5	<0.1	--	150C	93C	2.5	9.2C	190C	---	---	---	---
VD-2	5/26/2017	7.42	2,050	35.8	33.8	--	1,400	<5	830	120	<5.0	1.2	--	49C	31	0.46	6.1C	450C	---	---	---	---
FILL AREA 2																						
VZM-B	5/25/2017	7.22	1,620	0	19.0	--	1,200	6.9	190	54	610	1.6	--	62C	13C	0.0014A	2.4A	320	--	--	--	--
UD-1	2/6/2017	7.53	1,101	2.41	17.1	<10	710	<5	370	64	150	6.5	<0.5	65	47	0.00045A	4.1	130C	<0.05	0.00034A	<0.01	0.0015A

Sample Location	Sample Date	VOLATILE ORGANIC COMPOUNDS*: Acetone	Benzene	2-Butanone (MEK)	Carbon Disulfide	Chlorobenzene	Chloroethane	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,1-Dichloroethane	1,1-Dichloroethene	1,2-Dichloroethane	Cis-1,2-Dichloroethene	Dichlorodifluoromethane	Dichlorofluoromethane	1,2-Dichloropropane	Trans-1,2-Dichloroethene	Trans-1,3-Dichloropropene	Ethylbenzene	Diethyl Ether / Ethyl Ether	2-Hexanone	Iodomethane	Methylene Chloride	Methyl tert-butyl ether	4-Methyl-2-pentanone (MIBK)	Naphthalene	Styrene	Tert-Butyl Alcohol	Tetrachloroethene	Tetrahydrofuran	Toluene	Trichloroethene	Vinyl Chloride	Xylenes
		µg/l																																	
FILL AREA 1																																			
VZM-A	5/26/2017	<10	<1	35	<2	<1	<2	<1	<1	0.49A	<1	<1	<0.5	<1	<2	<2	<1	<1	<3	<1	<2	<6.8	<1	<2	<5	<5	2.1	<1	930	<1	28	<1	<1	<0.5	<2
VD	5/25/2017	9.3A	1.7	<6	<2	5.6	<2	0.61A	<1	6.0	0.25A	<1	<0.5	0.37A	<2	<2	<1	<1	<3	<1	2.1	<5	<1	<2	0.53A	<5	5.4	<1	190	<1	20	0.51A	<1	0.70	1.2A
VD-2	5/26/2017	11	1.2	7.2	<2	0.51A	<2	0.27A	<1	3.2	<1	<1	<0.5	0.61A	<2	<1	<1	<1	<3	0.83A	0.69A	<5	<1	<2	0.62A	<0.98	0.56A	<1	140	<1	6.8A	1.6	<1	0.14A	1.6A
FILL AREA 2																																			
VZM-B	5/25/2017	5.7ATF	<1	<6	<2	<1	<2	<1	<1	<1	<1	<1	<0.5	<1	<2	<2	<1	<1	<3	<1	<2	<5	<1	<2	<5	<5	<1	<1	<1	<1	<7	<1	<1	<0.5	<2
UD-1	2/6/2017	<10	<1	<6	<2	<1	<2	<1	<1	<1	<1	<1	<0.5	<1	<2	<2	<1	<1	<3	<1	<2	<5	<1	<2	<5	<5	<1	<1	<50	<1	<7	<1	<1	<0.5	<2

Notes:
mg/l = milligram per liter
µg/l = microgram per liter

µmhos/cm = micromhos per centimeter
NTU = nephelometric turbidity units

* Only volatile organic compounds detected in one or more samples are listed. See lab reports for full list of analytes.
< = Analyte not detected at or above reporting limit.
A flag denotes concentration reported is estimated because it is below the reporting limit.
C flag denotes analyte was also detected in the associated method blank at a reportable limit.
F flag denotes constituent also found in field blank.
Q flag denotes elevated reporting limit due to high analyte levels.
T flag denotes constituent also found in trip blank.
L flag denotes a serial dilution of a digestate in the analytical batch indicating that physical and chemical interferences are pres
G flag denotes an elevated reporting limit due to matrix interference.
H flag denotes sample was prepped or analyzed beyond the specified holding time.

NR = Information not in HLA reports dated 7/15/2002 and 1/15/2003
NM = Not Measured
-- = Not Analyzed
--- = Previous 5-Year COC parameter. VOC species were added as a routine VOC analyte in Order R5-2009-0055. Semiannual/annual parameters added in Order R5-2016-0042. To see earlier data, review the 5-Year COC data summary table, Table 12.
1 = Original sample (collected in 11/05) was lost during shipment to STL Arvada. Resampled for VOCs only since insufficient liquid for rest of bottle suite.
2 = The 4/10/2008 sample also contained 0.19A µg/l of chloroform.
3 = Sometime between late 2005 and early 2006, during renovations completed near adjacent LS2 and VD2 risers, the labels on the LS2 and VD2 sample ports were switched. The first and second quarter 2007 samples for VD2 and LS2 are from the correct sampling locations.
4 = The 11/19/2010 sample of VD also contained 2.1A µg/l of isopropyl ether.
5 = Total concentrations also analyzed as of 2014 and reported in the associated laboratory report.

Source: 2001 and 2002 data from HLA reports dated 7/12/2001, 1/29/2002, 7/15/2002, and 1/15/2003
5-Year COC event was performed during the 3rd Quarter 2005 (SCS, Jan 2006).

TABLE 8.
ANALYTICAL RESULTS FOR LEACHATE AND CONDENSATE MONITORING, ALTAMONT LANDFILL AND RESOURCE RECOVERY FACILITY

Sample Location[1]	Sample Date	FIELD PARAMETERS pH	Turbidity	Temperature	Specific Conductance	GENERAL CHEMISTRY Total Dissolved Solids	Carbonate Alkalinity	Bicarbonate Alkalinity	Chloride	Sulfate	Nitrate as Nitrogen	Calcium (dissolved)[3]	Magnesium (dissolved)[3]	Manganese (dissolved)	Potassium (dissolved)[3]	Sodium (dissolved)[3]	Pentachlorophenol	Sulfide	Arsenic	Copper	Chromium
		pH units	NTU	C	µmhos/cm	mg/l															
LS	5/25/2017	7.32	93.2	27.5	4,950	2,900	<5	1,600 C	890	7.3	0.41	130 C	200 C	1.5	94 C	610 C	<0.05	<4	--	--	--
LS-2	5/26/2017	7.39	91.3	32.4	14,800	10,000	<5	2,500 C	3,100	2,500	<0.21	130	1,000 C	1.1	160	1,900	<0.081	<4	--	--	--
LS-3 [4]	5/25/2017	8.08	130	19.3	721	410	<5	120	65	110	3.3	70 C	14 C	0.0061 A	4.2 C	58 C	<0.05	<4	--	--	--
CONDEN-SATE	5/25/2017	6.58	196	22.7	5,030	2,000	<5	1,500 C	410	8.3	<0.21	8.1 C	15 C	1.2	73 C	400 C	<4	<4	--	--	--

Sample Location[1]	VOLATILE ORGANIC COMPOUNDS* Acetone	Benzene	2-Butanone (MEK)	Carbon Disulfide	Chloroethane	Chloroform	Chlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,1-Dichloroethane	1,2-Dichloroethane	Cis-1,2-Dichloroethene	1,1-Dichloroethene	Dichlorofluoromethane	trans-1,2-Dichloroethene	1,2-Dichloropropane
	µg/l																
LS	28 X	2.0	35	<2	<2	<1	3.1	0.88 A	0.50 A	14	<1	<0.5	2.2	<1	<2	<1	<1
LS-2	32 T	1.6	4.3 A	0.72 A	<2	<1	0.31 A	0.32 A	3.1	3.3	<1	<0.5	0.85 A	<1	<2	<1	<1
LS-3 [4]	<10	<1	<6	<2	<2	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<2	<1	<1
CONDEN-SATE	<19,000	<1,600	45,000	<4,500	<4,100	<1,600	<1,700	<1,500	<1,300	<1,600	<2,200	<1,300	<1,500	<2,400	<2,200	<1,500	<1,800

Sample Location[1]	Ethylbenzene	Diethyl ether / Ethyl ether	2-Hexanone	Methylene chloride	4-Methyl-2-pentanone (MIBK)	Naphthalene	Styrene	Tetrahydrofuran	Tetrachloroethene	Toluene	1,2,4-Trichlorobenzene	Trichloroethene	Vinyl chloride	Xylenes (total)	Tert-Butyl Alcohol	Methyl tert-butyl ether (MTBE)
	µg/l															
LS	0.39 A	2.7	<5	<2	2.7 A	5.8	<1	42	<1	2.3	0.41 A	<1	1.2	2.4	290	0.65 A
LS-2	2.0	1.3 A	<5	<2	1.7 A	2.3	0.31 A	48	<1	2.2	<1	<1	<0.5	2.0	1,000	1.5 A
LS-3 [4]	<1	<2	<5	<2	<5	<1	<1	63	<1	<1	<1	<1	<0.5	<2	<50	<5
CONDEN-SATE	<1,600	<2,600	<17,000	<3,200	<9,800	<2,200	<1,700	<20,000	<2,000	<1,700	<2,200	<1,600	<1,000	<1,900	<110,000	<2,500

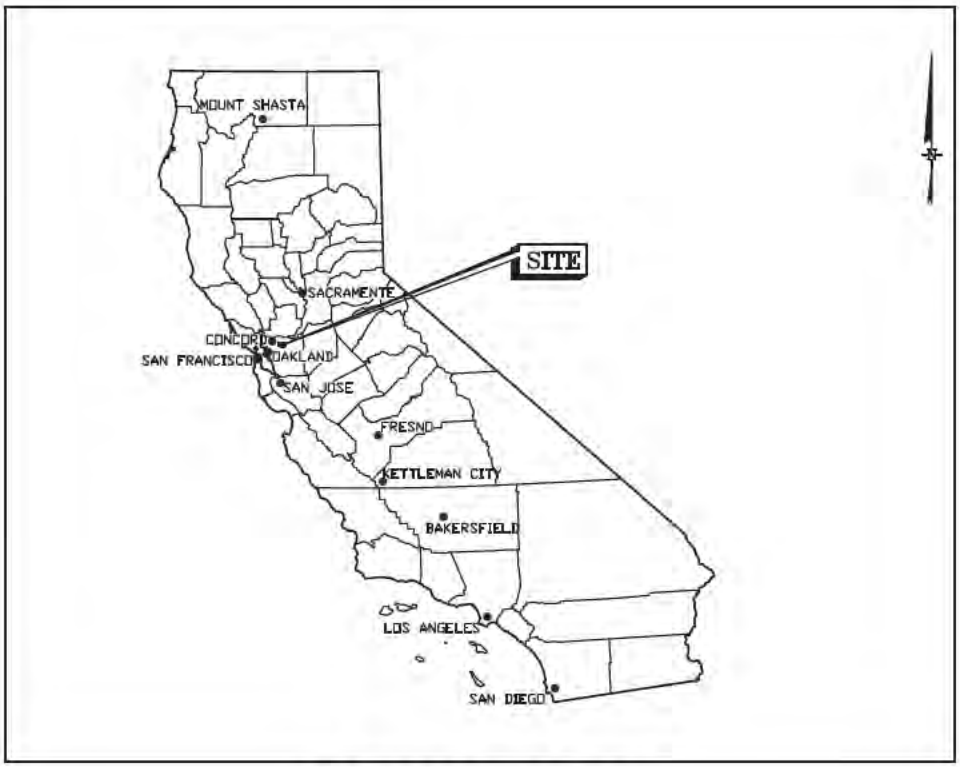
Notes:
mg/l = milligram per liter
µg/l = microgram per liter
µmhos/cm = micromhos per centimeter
C = Celsius
NTU = nephelometric turbidity units
* Only volatile organic compounds detected in one or more samples are listed. See lab reports for full list of analytes.
** Metals collected on March 26, 2003.
*** Sampling of LS or ammonia, total kjeldahl nitrogen, chemical oxygen demand, total dissolved solids, and nitrate was conducted on March 13, 2008. In addition the March 7, 2008 sample contained 0.93A µg/l of 3-chloropropene.
**** Analyzed as soil due to dense consistency of the sample. Metals are reported as total metals rather than dissolved. All results, where applicable, are reported in milligrams/kilogram (mg/kg). Percent Moisture = 95%. Field Parameters not measured due to nature of samples.
[1] - WWTP ceased operation in February 2010 therefore WWTP is no longer sampled.
2 - Sometime between late 2005 and early 2006, during renovations completed near adjacent LS2 and VD2 risers, the labels on the LS2 and VD2 sample ports were switched. The first and second quarter 2007 samples for VD2 and LS2 are from the correct sampling locations. 12/1/15 sample from LS2 also contained 0.82A µg/l of iodomethane.
[3] - Total concentrations also analyzed as of 2014 and reported in the associated laboratory report.
[4] - Sample locations and parameters required under the Order R5-2016-0042-01
[5]= The 12/28/2016 sample of Condensate also contained 5,800,000 µg/l of ethanol.
< = Analyte not detected at or above reporting limit.
A flag denotes concentration reported is estimated because it is below the reporting limit and above the method detection limit.
C flag denotes analyte was also detected in the associated method blank at a reportable limit.
G flag denotes elevated reporting limit due to matrix interference.
Q flag denotes elevated reporting limit due to high analyte levels.
F flag denotes constituent also found in field blank.
T flag denotes constituent also found in trip blank.
D flag denotes duplicate sample.
X flag denotes analyte was detected in trip, field, and/or method blank associated with a different lot during the same monitoring event.
NR = Information not report in HLA report dated 7/12/2001
NM = Not Measured
-- = Not Analyzed
--- = New semiannual or annual parameter in order R5-2016-0042. Previously tested on a five year cycle. Please see table 12 for past data.
MEK = Methyl Ethyl Ketone
MBK = Methyl Butyl Ketone
Source: 2001 and 2002 data HLA Reports dated 7/12/2001, 1/29/2002, 7/15/2002, and 1/15/2003.

TABLE 9.
ANALYTICAL RESULTS FOR SURFACE WATER DISCHARGE AND IN BASIN SAMPLES
ALTAMONT LANDFILL AND RESOURCE RECOVERY FACILITY

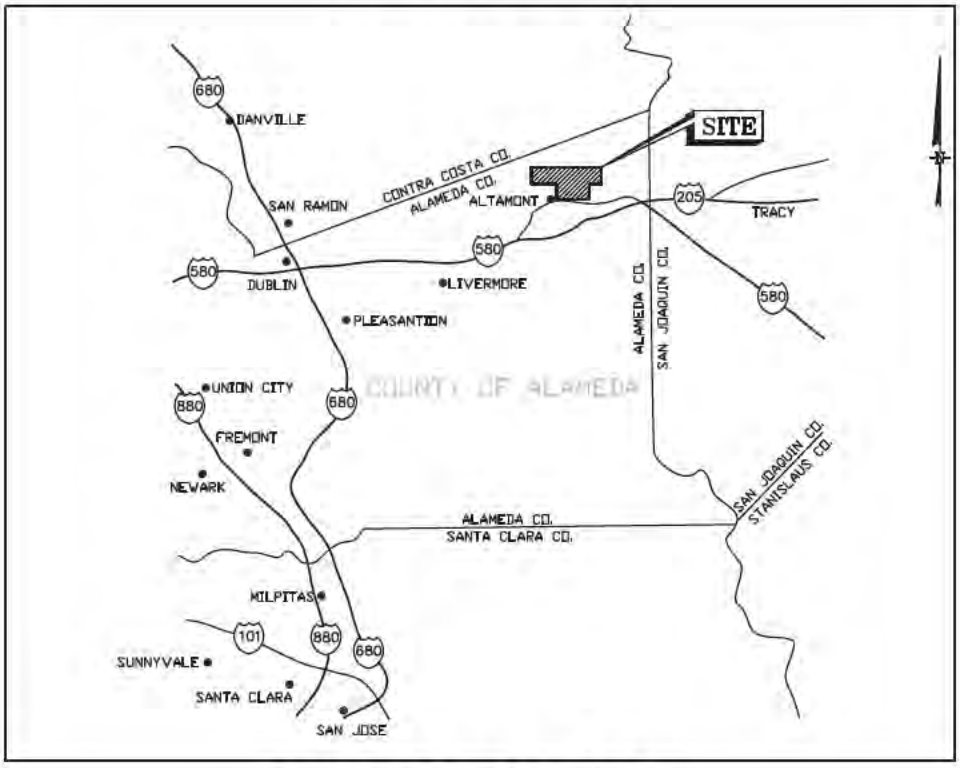
Well Location*	Sample Date	Field Parameters														VOCs*											
		pH	Specific conductance	Turbidity	Temperature	Total Dissolved Solids	Bicarbonate Alkalinity	Carbonate Alkalinity	Chloride	Sulfate	Nitrate	Calcium (total)	Magnesium (total)	Potassium (total)	Sodium (total)	Acetone	2-Butanone (MEK)	Tert-Butyl Alcohol	Carbon Disulfide	Methylene Chloride	Tetrahydrofuran	4-Methyl-2-Pentanone (Methyl Isobutyl Ketone MIBK)	Toluene	Naphthalene	Chloromethane	Ethanol	Iodomethane	1,1-Dichloroethene
		pH units	µmhos/cm	NTU	Celsius	mg/l										µg/l											
Samples collected from water inside the sedimentation basins.																											
In Basin A	**5/2/2017**	8.44	1990	0.0	24.40	1,200	580 C	27 C	250 C	75 C	2.6	68	64 C	5.9	280	<10	<6	<50	<2	<2	<7	<5	<1	<1	<2	<300	<1	<1
In Basin B	**5/25/2017**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	28 E	<6	<50	<2	<2	<7	<5	<1	<1	<2	<300	<1	<1
In Basin C	**5/25/2017**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	110 E	13	<50	2.3	<2	<7	1.2 A	2.7	<1	<2	<300	<1	<1
SB-2 [1]	**12/12/2016** [Z]	8.77	1,139	13.3	12.2	700	100 C	15	150	240	0.36	61	31	2.9 A	140	7.3 AZ	<6	<50	<2	<2	<7	<5	<1	<1	<2	<300	<1	<1

Notes:
* VOC - Only volatile organic compounds (VOCs) detected are reported. See lab reports for full list of constituents.
µmhos/cm = micromhos per centimeter
mg/l = milligram per liter
µg/l = microgram per liter
NTU = nephelometric turbidity units
-- = Not analyzed/Not measured
A flag denotes concentration reported is estimated because it is below the reporting limit and above the method detection limit.
C flag denotes analyte was also detected in the associated method blank at a reportable limit.
T flag denotes analyte was also detected in the associated trip blank.
Z flag denotes below reporting limit concentrations of styrene and/or chloromethane were also detected in each 12/12/2016 sample. TAL laboratory report states acetone should be considered a laboratory contaminant. The TAL report also states styrene and chloromethane detections were due to the purge and trap piece of the MS VOA instrument breaking down. The piece was replaced after the trace detections of acetone, chloromethane, and styrene observed in the samples IN BASIN C, IN BASIN A, IN BASIN B, and SB-2. The detections of these analytes should be considered due to laboratory artifact.
L = Measured at the laboratory.
1 = For the first semiiannul 2017 period, storm water basin SB-2 was monitored under a storm water construction permit rather than the Industrial Activities Storm Water General Permit Order No. 2014-0057-DWQ.
Sampling of discharge from the basin is not required in Order R5-2016-0042-1. Discharge samples are sampled in compliance with the 2014 Industrial Activities Storm Water General Permit Order No. 2014-0057-DWQ.

FIGURES



VICINITY MAP



LOCATION MAP

Geosyntec consultants

SITE VICINITY MAPS ALTAMONT LANDFILL & RESOURCE RECOVERY FACILITY ALAMEDA COUNTY, CALIFORNIA	FIGURE NO. 1 PROJECT NO. WR1895 DATE: May 2014

P:\CADD\Land Projects 3\WA\Altamont\JTD (WG1288)\dwg\MRP\MRP_Fig_B-1.dwg 11-20-09 10:58:01 AM JBernardini

MW-4A
MW-4B
UNIT 2 OF FILL AREA 2
UNIT 1 OF FILL AREA 2
UNIT 2 OF FILL AREA 1
UNIT 1 OF FILL AREA 1
GW27
GW31
GW33
GW34
24”
12”
6”
8”
4”
677
678
679
680
681
682
517
508
510
728
727
729
646
647
665
726
730
725
705
704
706
516
605
676
674
684

NOTES:

1. SITE AERIAL PHOTOGRAPHY PROVIDED BY MILLER CREEK AERIAL MAPPING, LLC. AERIAL PHOTO DATED 17 MAY 2017.
2. EXISTING LANDFILL GAS WELLS SHOWN FROM JANUARY 2017 AS-BUILT AND NOVEMBER 2017 CONSTRUCTION SURVEY BY CORNERSTONE.

LEGEND

MW-4A EXISTING MONITORING WELL LOCATION

EXISTING LANDFILL GAS WELL (APPROXIMATE LOCATION) (NOTE 2)

0 150
SCALE IN FEET

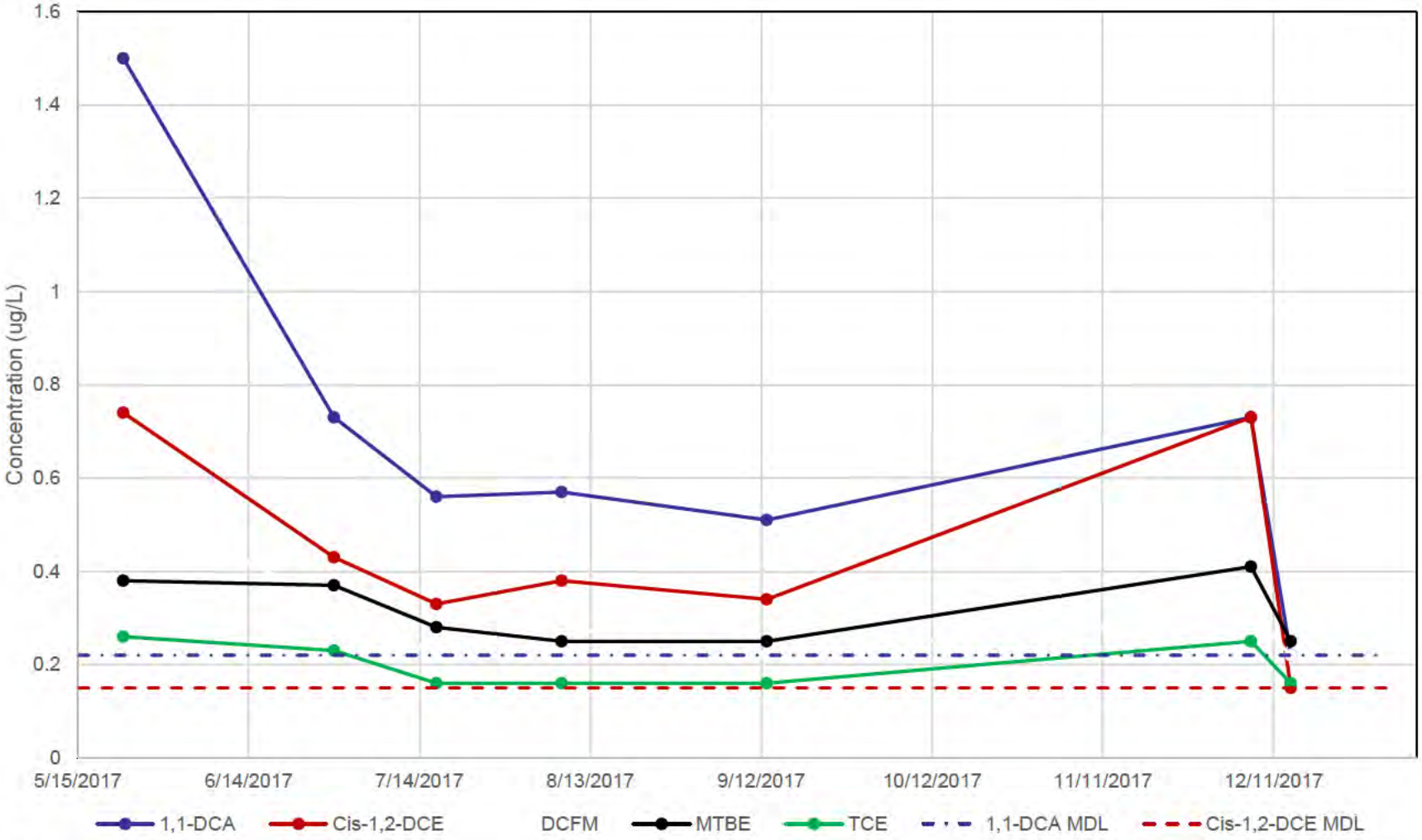
MONITORING WELL AND LANDFILL GAS SYSTEM LOCATION MAP
ALTAMONT LANDFILL & RESOURCE RECOVERY FACILITY
ALAMEDA COUNTY, CALIFORNIA

Geosyntec consultants

FIGURE 2

PROJECT NO: WR1895F | NOVEMBER 2017

P:\CADD\CIVIL 3D\WM\ALTAMONT\WR1895\WR1895E\GW MONITORING+SPRINGS+LFG



Notes:
Empty/open circles shown where analyte not detected above MDL
1,1-DCA = 1,1-Dichloroethane
cis-1,2-DCE = Cis-1,2-dichloroethene
DCFM = Dichlorofluoromethane
MTBE = methyl tert-butyl ether
TCE = trichloroethene
µg/L = micrograms per liter
MDL = method detection limit
VOCs = volatile organic compounds

Figure 3
MW-04A VOCs

Altamont Landfill & Resource Recovery Facility
Alameda County, California

Project: WR1895F	October 2017	Geosyntec consultants

\\sacramento-01\data\Projects\WR1895_WM Altamont Landfill\600 Documents\MW04A AMWD and EMP 2017\Figures

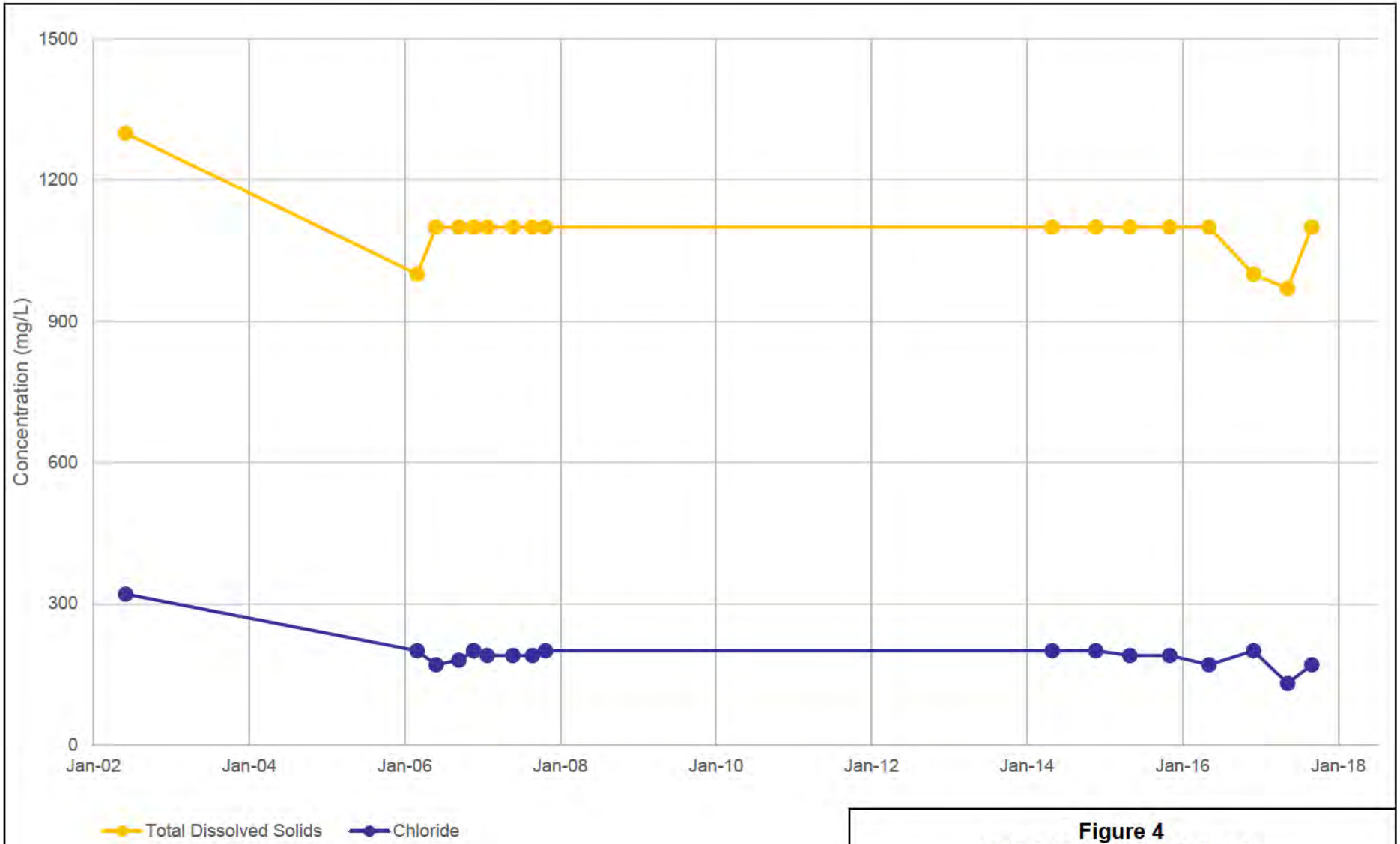


Figure 4
MW-04A TDS and Chloride

Altamont Landfill & Resource Recovery Facility
Alameda County, California

Notes:
TDS = total dissolved solids
mg/L = milligrams per Liter
MDL = method detection limit

Project: WR1895F	October 2017	Geosyntec consultants

\\sacramento-01\data\Projects\WR1895_WM Altamont Landfill\600 Documents\MW04A AMWD and EMP 2017\Figures

APPENDIX A

Laboratory Reports

ANALYTICAL REPORT

Job Number: 280-101170-1

Job Description: 236|Altamont Landfill - Groundwater

For:
Waste Management
10840 Altamont Pass Road
Livermore, CA 94550

Attention: Ms. Tianna Nourot

Approved for release.
Betsy A Sara
Project Manager II
10/11/2017 8:57 AM

Betsy A Sara, Project Manager II
4955 Yarrow Street, Arvada, CO, 80002
(303)736-0189
betsy.sara@testamericainc.com
10/11/2017

cc: Mr. Will Neal
Ms. Tina Schmiesing

The Lab Certification ID# is 4025.
The Lab California Certification is # 2513.

Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.

Table of Contents

CASE NARRATIVE

Client: Waste Management

Project: 236|Altamont Landfill - Groundwater

Report Number: 280-101170-1

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 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 09/14/2017; the samples arrived in good condition, properly preserved and on ice. The temperatures of the coolers at receipt were 5.5º C and 8.7º C.

One of two coolers was received at the laboratory outside the required temperature criteria at a temperature of 8.7 C. The ice was melted. This cooler contained all sample volume for sample MW-4A. The laboratory proceeded with the requested analyses. The client was notified.

Holding Times

All holding times were met.

Method Blanks

The Method 8011 surrogate recovery of 1,2-Dibromopropane was above control limits for the Method Blank. Because the data are considered to be biased high and all target analytes in the Method Blank were non-detect above the reporting limits, corrective action was deemed unnecessary.

Dissolved Calcium Method 6010B, Chloride, Sulfate Method 300.0 and Carbonate Alkalinity Method 2320B were detected in the Method Blanks below the project established reporting limits. No corrective action is taken for any values in Method Blanks that are below the requested reporting limits.

All other Method Blanks were within established control limits.

Laboratory Control Samples (LCS)

The Method 8260B (batch 280-389018) LCS recovery for Propionitrile was above control limits. Because the data are considered to be biased high and all associated samples were non-detect above the reporting limit for Propionitrile, corrective action was deemed unnecessary.

The Method 8270C (batch 280-389003) LCS and/or LCSD exhibited recoveries of 3,3'-Dimethylbenzidine, 4-Phenylenediamine below the lower control limits. These compounds are AP9 compounds. AP9 compounds are controlled with advisory LCS limits. No corrective action will be taken for these compounds when recoveries are >10% and <200%.

All other Laboratory Control Sample results were within established control limits.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD)

The Matrix Spikes and Matrix Spike Duplicates performed on samples from other clients exhibited recoveries outside control limits for 2,4-Dimethylphenol, 4-Chloro-3-methylphenol, 2-Nitrophenol, 3,3'-Dichlorobenzidine, 3-Nitroaniline, 4-Nitroaniline Method 8270C, Chemical Oxygen Demand (COD) Method 410.4, and Total Cyanide Method 9012A. In addition, the RPD result was outside the RPD limit for 3-Nitroaniline. Because the corresponding Laboratory Control Samples and the Method Blank samples were within control limits, these anomalies may be due to matrix interference and no corrective action was taken.

The method required MS/MSD could not be performed for Method 8270C, Method 8011, Method 8081A, Method 8082 and Method 8141A due to insufficient sample volume, however, LCS/LCSD pairs were analyzed to demonstrate method precision and accuracy.

Sample MW-21 (101175) was selected to fulfill the laboratory batch quality control requirements for Method 6020. Analysis of the laboratory generated MS/MSD for this sample exhibited recoveries of Dissolved Beryllium above the upper 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 MW-4A was selected to fulfill the laboratory batch quality control requirements for Method 9034. Analysis of the laboratory generated MS/MSD for this sample exhibited recoveries of Sulfide 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 and MSD samples were within established control limits.

Organics

The samples MW-4A and MW-4B required a sulfuric acid clean-up to reduce matrix interferences during the Method 8082 extraction process.

The samples MW-4A and MW-4B formed emulsions during the Method 8151A extraction procedure.

General Comments

For samples requiring analysis at a dilution, the dilution factor has been multiplied by the Method Detection Limit (MDL) for each analyte and evaluated versus the project-specific reporting limit (PSRL). If the obtained value is below the PSRL, then the PSRL is preserved as the reporting limit for the diluted result, otherwise, the obtained value becomes the reporting limit. This is done in order to maintain the PSRL to meet permit requirements at the request of the client and to report the lowest possible RL for each analyte.

EXECUTIVE SUMMARY - Detections

Client: Waste Management Job Number: 280-101170-1

Lab Sample ID / Analyte	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
280-101170-1	**MW-4A**					
1,1-Dichloroethane		0.51	J	1.0	ug/L	8260B
cis-1,2-Dichloroethene		0.34	J	1.0	ug/L	8260B
Depth to water		71.33			ft	Field Sampling
Field pH		7.54			SU	Field Sampling
Field Conductivity		1060			umhos/cm	Field Sampling
Field Temperature		21.0			Degrees C	Field Sampling
Field Turbidity		0.0			NTU	Field Sampling
Field Dissolved Oxygen		2.0			mg/L	Field Sampling
Field EH/ORP		107			millivolts	Field Sampling
Chloride		170	B	1.5	mg/L	300.0
Nitrate as N		0.13		0.10	mg/L	300.0
Sulfate		190	B	5.0	mg/L	300.0
Nitrogen, Kjeldahl		0.49	J	0.50	mg/L	351.2
Total Anions		19			meq/L	SM 1030E
Total Cations		21			meq/L	SM 1030E
Percent Difference		5.4			%	SM 1030E
Bicarbonate Alkalinity as CaCO3		500		5.0	mg/L	SM 2320B
Total Dissolved Solids		1100		10	mg/L	SM 2540C
Total Organic Carbon - Average		1.1		1.0	mg/L	SM 5310B
Dissolved						
Calcium		55	B	0.20	mg/L	6010B
Magnesium		60		0.20	mg/L	6010B
Barium		26		10	ug/L	6010B
Potassium		6.6		3.0	mg/L	6010B
Chromium		5.0	J	10	ug/L	6010B
Sodium		300		5.0	mg/L	6010B
Iron		28	J	100	ug/L	6010B
Manganese		0.087		0.010	mg/L	6010B
Silver		1.2	J	10	ug/L	6010B
Arsenic		0.92	J	5.0	ug/L	6020
Nickel		0.82	J	2.0	ug/L	6020

EXECUTIVE SUMMARY - Detections

Client: Waste Management Job Number: 280-101170-1

Lab Sample ID / Analyte	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
280-101170-2	**MW-4B**					
Naphthalene		0.37	J	1.0	ug/L	8260B
Depth to water		66.54			ft	Field Sampling
Field pH		8.11			SU	Field Sampling
Field Conductivity		2140			umhos/cm	Field Sampling
Field Temperature		22.1			Degrees C	Field Sampling
Field Turbidity		0.0			NTU	Field Sampling
Field Dissolved Oxygen		1.6			mg/L	Field Sampling
Field EH/ORP		-233			millivolts	Field Sampling
Chloride		210	B	2.5	mg/L	300.0
Sulfate		380	B	5.0	mg/L	300.0
Nitrogen, Kjeldahl		1.4		0.50	mg/L	351.2
Total Anions		25			meq/L	SM 1030E
Total Cations		26			meq/L	SM 1030E
Percent Difference		0.75			%	SM 1030E
Bicarbonate Alkalinity as CaCO3		550		5.0	mg/L	SM 2320B
Carbonate Alkalinity as CaCO3		29	B	5.0	mg/L	SM 2320B
Total Dissolved Solids		1400		10	mg/L	SM 2540C
Total Organic Carbon - Average		1.7		1.0	mg/L	SM 5310B
Dissolved						
Calcium		5.5	B	0.20	mg/L	6010B
Aluminum		2000		100	ug/L	6010B
Magnesium		1.9		0.20	mg/L	6010B
Barium		14		10	ug/L	6010B
Potassium		5.1		3.0	mg/L	6010B
Chromium		5.7	J	10	ug/L	6010B
Sodium		580		5.0	mg/L	6010B
Iron		1000		100	ug/L	6010B
Manganese		0.024		0.010	mg/L	6010B
Zinc		24		20	ug/L	6010B
Arsenic		9.2		5.0	ug/L	6020
Beryllium		0.28	J	5.0	ug/L	6020
Lead		1.6		1.0	ug/L	6020
Nickel		0.50	J	2.0	ug/L	6020

METHOD SUMMARY

Client: Waste Management Job Number: 280-101170-1

Description	Lab Location	Method	Preparation Method
Matrix: Water			
Volatile Organic Compounds (GC/MS)	TAL DEN	SW846 8260B	
Purge and Trap	TAL DEN		SW846 5030B
Semivolatile Organic Compounds (GC/MS)	TAL DEN	SW846 8270C	
Liquid-Liquid Extraction (Continuous)	TAL DEN		SW846 3520C
EDB, DBCP, and 1,2,3-TCP (GC)	TAL DEN	SW846 8011	
Microextraction	TAL DEN		SW846 8011
Organochlorine Pesticides (GC)	TAL DEN	SW846 8081A	
Liquid-Liquid Extraction (Separatory Funnel)	TAL DEN		SW846 3510C
Polychlorinated Biphenyls (PCBs) by Gas Chromatography	TAL DEN	SW846 8082	
Liquid-Liquid Extraction (Separatory Funnel)	TAL DEN		SW846 3510C
Organophosphorous Pesticides (GC)	TAL DEN	SW846 8141A	
Liquid-Liquid Extraction (Separatory Funnel)	TAL DEN		SW846 3510C
Herbicides (GC)	TAL DEN	SW846 8151A	
Extraction (Herbicides)	TAL DEN		SW846 8151A
Metals (ICP)	TAL DEN	SW846 6010B	
Preparation, Total Recoverable or Dissolved Metals	TAL DEN		SW846 3005A
Sample Filtration, Field			FIELD_FLTRD
Metals (ICP/MS)	TAL DEN	SW846 6020	
Preparation, Total Recoverable or Dissolved Metals	TAL DEN		SW846 3005A
Sample Filtration, Field			FIELD_FLTRD
Mercury (CVAA)	TAL DEN	SW846 7470A	
Preparation, Mercury	TAL DEN		SW846 7470A
Sample Filtration, Field			FIELD_FLTRD
Anions, Ion Chromatography	TAL DEN	MCAWW 300.0	
Nitrogen, Total Kjeldahl	TAL DEN	MCAWW 351.2	
Nitrogen, Total Kjeldahl	TAL DEN		MCAWW 351.2
COD	TAL DEN	MCAWW 410.4	
Cyanide, Total and/or Amenable	TAL DEN	SW846 9012A	
Cyanide, Total and/or Amenable, Distillation	TAL DEN		SW846 9012A
Sulfide, Acid Soluble and Insoluble (Titrimetric)	TAL DEN	SW846 9034	
Sulfide, Distillation (Acid Soluble and Insoluble)	TAL DEN		SW846 9030B
Cation Anion Balance	TAL DEN	SM SM 1030E	
Alkalinity	TAL DEN	SM SM 2320B	
Solids, Total Dissolved (TDS)	TAL DEN	SM SM 2540C	
Organic Carbon, Total (TOC)	TAL DEN	SM SM 5310B	
Field Sampling	TAL DEN	EPA Field Sampling	

Lab References:

TAL DEN = TestAmerica Denver

METHOD SUMMARY

Client: Waste Management Job Number: 280-101170-1

Description	Lab Location	Method	Preparation Method

Method 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.

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.

METHOD / ANALYST SUMMARY

Client: Waste Management

Job Number: 280-101170-1

Method	Analyst	Analyst ID
SW846 8260B	Lines, Jeremy N	JNL
SW846 8270C	Hoefler, Alexandra F	AFH
SW846 8011	Persson, Kristoffer R	KRP
SW846 8081A	Wells, David A	DAW
SW846 8082	Jackson, Todd D	TDJ
SW846 8141A	Moore, Tegan E	TEM
SW846 8151A	Kenyon, Kayla D	KDK
SW846 6010B	Broander, Laura L	LLB
SW846 6010B	Lackey, Cara M	CML
SW846 6020	Rhoades, Chris R	CRR
SW846 7470A	Henning, Christopher D	CDH
EPA Field Sampling	Sabsin, Chanchai	CS
MCAWW 300.0	Phan, Thu L	TLP
MCAWW 351.2	Moore, Kevin A	KAM
MCAWW 410.4	Jewell, Connie C	CCJ
SW846 9012A	Lehman, Jeffrey M	JML
SW846 9034	Schroder, Aaron L	ALS
SM SM 1030E	Allen, Andrew J	AJA
SM SM 2320B	Duplin, Alysha 1	A1D
SM SM 2540C	Pedrick, Joshua A	JAP
SM SM 5310B	Jewell, Connie C	CCJ

SAMPLE SUMMARY

Client: Waste Management

Job Number: 280-101170-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
280-101170-1	MW-4A	Water	09/13/2017 1155	09/14/2017 0850
280-101170-2	MW-4B	Water	09/13/2017 1300	09/14/2017 0850

SAMPLE RESULTS

Client Sample ID: **MW-4A**

Lab Sample ID: 280-101170-1 Date Sampled: 09/13/2017 1155
Client Matrix: Water Date Received: 09/14/2017 0850

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	280-389018	Instrument ID:	VMS_MS9
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	MS9_1334.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	09/26/2017 2101			Final Weight/Volume:	20 mL
Prep Date:	09/26/2017 2101				

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane	ND		0.21	1.0
1,1,1-Trichloroethane	ND		0.16	1.0
1,1,2,2-Tetrachloroethane	ND		0.21	1.0
1,1,2-Trichloroethane	ND		0.27	1.0
1,1-Dichloroethane	0.51	J	0.22	1.0
1,1-Dichloroethene	ND		0.23	1.0
1,1-Dichloropropene	ND		0.19	1.0
1,2,3-Trichloropropane	ND		0.33	2.5
1,2,4-Trichlorobenzene	ND		0.21	1.0
1,2-Dichlorobenzene	ND		0.15	1.0
1,2-Dichloroethane	ND		0.13	0.50
1,2-Dichloropropane	ND		0.18	1.0
1,3-Dichlorobenzene	ND		0.13	1.0
1,3-Dichloropropane	ND		0.22	1.0
1,4-Dichlorobenzene	ND		0.16	1.0
2,2-Dichloropropane	ND		0.18	1.0
2-Butanone (MEK)	ND		2.0	6.0
2-Hexanone	ND		1.7	5.0
4-Methyl-2-pentanone (MIBK)	ND		0.98	5.0
Acetone	ND		1.9	10
Acetonitrile	ND		9.6	30
Acrolein	ND		2.8	20
Acrylonitrile	ND		1.4	20
Allyl chloride	ND		0.17	2.0
Benzene	ND		0.16	1.0
Bromochloromethane	ND		0.10	1.0
Bromodichloromethane	ND		0.17	1.0
Bromoform	ND		0.19	1.0
Bromomethane	ND		0.21	2.0
Carbon disulfide	ND		0.45	2.0
Carbon tetrachloride	ND		0.19	0.50
Chlorobenzene	ND		0.17	1.0
Chloroethane	ND		0.41	2.0
Chloroform	ND		0.16	1.0
Chloromethane	ND		0.30	2.0
Chloroprene	ND		0.21	1.0
cis-1,2-Dichloroethene	0.34	J	0.15	1.0
cis-1,3-Dichloropropene	ND		0.16	1.0
Dibromochloromethane	ND		0.17	1.0
Dibromomethane	ND		0.17	1.0
Dichlorodifluoromethane	ND		0.31	2.0
Dichlorofluoromethane	ND		0.22	2.0
Diethyl ether	ND		0.26	2.0
Ethanol	ND		94	300
Ethyl methacrylate	ND		0.86	3.0
Ethylbenzene	ND		0.16	1.0

Client: Waste Management Job Number: 280-101170-1

Client Sample ID: MW-4A

Lab Sample ID: 280-101170-1 Date Sampled: 09/13/2017 1155
Client Matrix: Water Date Received: 09/14/2017 0850

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	280-389018	Instrument ID:	VMS_MS9
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	MS9_1334.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	09/26/2017 2101			Final Weight/Volume:	20 mL
Prep Date:	09/26/2017 2101				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Hexachlorobutadiene	ND		0.36	1.0
Iodomethane	ND		0.23	1.0
Isobutyl alcohol	ND		37	110
Isopropyl ether	ND		0.74	10
Methacrylonitrile	ND		1.6	10
Methyl methacrylate	ND		1.1	4.0
Methyl tert-butyl ether	ND		0.25	5.0
Methylene Chloride	ND		0.32	2.0
Naphthalene	ND		0.22	1.0
Propionitrile	ND	*	3.7	20
Styrene	ND		0.17	1.0
Tert-amyl methyl ether	ND		1.4	5.0
tert-Butyl alcohol	ND		11	50
Tert-butyl ethyl ether	ND		1.2	5.0
Tetrachloroethene	ND		0.20	1.0
Tetrahydrofuran	ND		2.0	7.0
Toluene	ND		0.17	1.0
trans-1,2-Dichloroethene	ND		0.15	1.0
trans-1,3-Dichloropropene	ND		0.19	3.0
trans-1,4-Dichloro-2-butene	ND		0.80	3.0
Trichloroethene	ND		0.16	1.0
Trichlorofluoromethane	ND		0.29	2.0
Vinyl acetate	ND		0.94	3.0
Vinyl chloride	ND		0.10	0.50
Xylenes, Total	ND		0.19	2.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	95		70 - 127
4-Bromofluorobenzene (Surr)	103		78 - 120
Dibromofluoromethane (Surr)	101		77 - 120
Toluene-d8 (Surr)	105		80 - 125

Client: Waste Management

Job Number: 280-101170-1

Client Sample ID: MW-4A

Lab Sample ID: 280-101170-1
Client Matrix: Water

Date Sampled: 09/13/2017 1155
Date Received: 09/14/2017 0850

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	280-389018	Instrument ID:	VMS_MS9
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	MS9_1334.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	09/26/2017 2101			Final Weight/Volume:	20 mL
Prep Date:	09/26/2017 2101				

Tentatively Identified Compounds **Number TIC's Found: 2**

Cas Number	Analyte	RT	Est. Result (ug/L)	Qualifier
	Unknown	12.70	3.4	T J
	Unknown	14.29	27	T J

Client: Waste Management Job Number: 280-101170-1

Client Sample ID: MW-4B

Lab Sample ID: 280-101170-2 Date Sampled: 09/13/2017 1300
Client Matrix: Water Date Received: 09/14/2017 0850

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	280-389018	Instrument ID:	VMS_MS9
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	MS9_1335.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	09/26/2017 2121			Final Weight/Volume:	20 mL
Prep Date:	09/26/2017 2121				

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane	ND		0.21	1.0
1,1,1-Trichloroethane	ND		0.16	1.0
1,1,2,2-Tetrachloroethane	ND		0.21	1.0
1,1,2-Trichloroethane	ND		0.27	1.0
1,1-Dichloroethane	ND		0.22	1.0
1,1-Dichloroethene	ND		0.23	1.0
1,1-Dichloropropene	ND		0.19	1.0
1,2,3-Trichloropropane	ND		0.33	2.5
1,2,4-Trichlorobenzene	ND		0.21	1.0
1,2-Dichlorobenzene	ND		0.15	1.0
1,2-Dichloroethane	ND		0.13	0.50
1,2-Dichloropropane	ND		0.18	1.0
1,3-Dichlorobenzene	ND		0.13	1.0
1,3-Dichloropropane	ND		0.22	1.0
1,4-Dichlorobenzene	ND		0.16	1.0
2,2-Dichloropropane	ND		0.18	1.0
2-Butanone (MEK)	ND		2.0	6.0
2-Hexanone	ND		1.7	5.0
4-Methyl-2-pentanone (MIBK)	ND		0.98	5.0
Acetone	ND		1.9	10
Acetonitrile	ND		9.6	30
Acrolein	ND		2.8	20
Acrylonitrile	ND		1.4	20
Allyl chloride	ND		0.17	2.0
Benzene	ND		0.16	1.0
Bromochloromethane	ND		0.10	1.0
Bromodichloromethane	ND		0.17	1.0
Bromoform	ND		0.19	1.0
Bromomethane	ND		0.21	2.0
Carbon disulfide	ND		0.45	2.0
Carbon tetrachloride	ND		0.19	0.50
Chlorobenzene	ND		0.17	1.0
Chloroethane	ND		0.41	2.0
Chloroform	ND		0.16	1.0
Chloromethane	ND		0.30	2.0
Chloroprene	ND		0.21	1.0
cis-1,2-Dichloroethene	ND		0.15	1.0
cis-1,3-Dichloropropene	ND		0.16	1.0
Dibromochloromethane	ND		0.17	1.0
Dibromomethane	ND		0.17	1.0
Dichlorodifluoromethane	ND		0.31	2.0
Dichlorofluoromethane	ND		0.22	2.0
Diethyl ether	ND		0.26	2.0
Ethanol	ND		94	300
Ethyl methacrylate	ND		0.86	3.0
Ethylbenzene	ND		0.16	1.0

Client Sample ID: MW-4B

Lab Sample ID: 280-101170-2 Date Sampled: 09/13/2017 1300
Client Matrix: Water Date Received: 09/14/2017 0850

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	280-389018	Instrument ID:	VMS_MS9
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	MS9_1335.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	09/26/2017 2121			Final Weight/Volume:	20 mL
Prep Date:	09/26/2017 2121				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Hexachlorobutadiene	ND		0.36	1.0
Iodomethane	ND		0.23	1.0
Isobutyl alcohol	ND		37	110
Isopropyl ether	ND		0.74	10
Methacrylonitrile	ND		1.6	10
Methyl methacrylate	ND		1.1	4.0
Methyl tert-butyl ether	ND		0.25	5.0
Methylene Chloride	ND		0.32	2.0
Naphthalene	0.37	J	0.22	1.0
Propionitrile	ND	*	3.7	20
Styrene	ND		0.17	1.0
Tert-amyl methyl ether	ND		1.4	5.0
tert-Butyl alcohol	ND		11	50
Tert-butyl ethyl ether	ND		1.2	5.0
Tetrachloroethene	ND		0.20	1.0
Tetrahydrofuran	ND		2.0	7.0
Toluene	ND		0.17	1.0
trans-1,2-Dichloroethene	ND		0.15	1.0
trans-1,3-Dichloropropene	ND		0.19	3.0
trans-1,4-Dichloro-2-butene	ND		0.80	3.0
Trichloroethene	ND		0.16	1.0
Trichlorofluoromethane	ND		0.29	2.0
Vinyl acetate	ND		0.94	3.0
Vinyl chloride	ND		0.10	0.50
Xylenes, Total	ND		0.19	2.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	103		70 - 127
4-Bromofluorobenzene (Surr)	101		78 - 120
Dibromofluoromethane (Surr)	103		77 - 120
Toluene-d8 (Surr)	101		80 - 125

Client: Waste Management

Job Number: 280-101170-1

Client Sample ID: MW-4B

Lab Sample ID: 280-101170-2
Client Matrix: Water

Date Sampled: 09/13/2017 1300
Date Received: 09/14/2017 0850

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	280-389018	Instrument ID:	VMS_MS9
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	MS9_1335.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	09/26/2017 2121			Final Weight/Volume:	20 mL
Prep Date:	09/26/2017 2121				

Tentatively Identified Compounds **Number TIC's Found: 1**

Cas Number	Analyte	RT	Est. Result (ug/L)	Qualifier
	Unknown	12.66	2.1	T J

Client Sample ID: **MW-4A**

Lab Sample ID: 280-101170-1 Date Sampled: 09/13/2017 1155
Client Matrix: Water Date Received: 09/14/2017 0850

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-389003	Instrument ID:	SMS_G6
Prep Method:	3520C	Prep Batch:	280-387938	Lab File ID:	G6_30889.D
Dilution:	1.0			Initial Weight/Volume:	1048.1 mL
Analysis Date:	09/27/2017 0308			Final Weight/Volume:	1 mL
Prep Date:	09/18/2017 0940			Injection Volume:	0.5 uL

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,2,4,5-Tetrachlorobenzene	ND		1.7	10
1,3,5-Trinitrobenzene	ND		3.8	50
1,3-Dinitrobenzene	ND		1.9	10
1,4-Naphthoquinone	ND		13	50
1-Naphthylamine	ND		3.0	10
2,3,4,6-Tetrachlorophenol	ND		1.9	50
2,4,5-Trichlorophenol	ND		0.43	10
2,4-Dichlorophenol	ND		0.61	10
2,4-Dimethylphenol	ND		0.55	10
2,4-Dinitrophenol	ND		9.5	50
2,4-Dinitrotoluene	ND		1.6	10
2,6-Dichlorophenol	ND		1.3	10
2,6-Dinitrotoluene	ND		1.8	10
2-Acetylaminofluorene	ND		6.7	100
2-Chloronaphthalene	ND		0.25	10
2-Chlorophenol	ND		1.9	10
2-Methylnaphthalene	ND		0.28	10
2-Methylphenol	ND		0.94	10
2-Naphthylamine	ND		2.9	10
2-Nitroaniline	ND		1.7	50
2-Nitrophenol	ND		0.37	10
3,3'-Dichlorobenzidine	ND		1.9	50
3,3'-Dimethylbenzidine	ND	*	3.8	20
3-Methylcholanthrene	ND		1.6	20
3-Methylphenol	ND		0.24	10
3-Nitroaniline	ND		1.9	50
4,6-Dinitro-2-methylphenol	ND		3.8	50
4-Aminobiphenyl	ND		4.3	50
4-Bromophenyl phenyl ether	ND		0.41	10
4-Chloro-3-methylphenol	ND		2.3	10
4-Chloroaniline	ND		2.0	10
4-Chlorophenyl phenyl ether	ND		1.6	10
4-Dimethylaminoazobenzene	ND		1.9	20
4-Methylphenol	ND		0.24	10
4-Nitroaniline	ND		1.9	50
4-Nitrophenol	ND		1.2	50
4-Phenylenediamine	ND	*	4.8	100
5-Nitro-o-toluidine	ND		1.3	20
7,12-Dimethylbenz(a)anthracene	ND		1.5	20
Acenaphthene	ND		0.27	10
Acenaphthylene	ND		0.47	10
Acetophenone	ND		0.23	10
Anthracene	ND		0.40	10
Benzo[a]anthracene	ND		0.33	10
Benzo[a]pyrene	ND		0.30	10
Benzo[b]fluoranthene	ND		0.51	10

Client Sample ID: **MW-4A**

Lab Sample ID: 280-101170-1 Date Sampled: 09/13/2017 1155
Client Matrix: Water Date Received: 09/14/2017 0850

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-389003	Instrument ID:	SMS_G6
Prep Method:	3520C	Prep Batch:	280-387938	Lab File ID:	G6_30889.D
Dilution:	1.0			Initial Weight/Volume:	1048.1 mL
Analysis Date:	09/27/2017 0308			Final Weight/Volume:	1 mL
Prep Date:	09/18/2017 0940			Injection Volume:	0.5 uL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Benzo[g,h,i]perylene	ND		0.48	10
Benzo[k]fluoranthene	ND		0.44	10
Benzyl alcohol	ND		0.22	10
bis(2 chloro-1-methylethyl) ether	ND		0.27	10
Bis(2-chloroethoxy)methane	ND		0.93	10
Bis(2-chloroethyl)ether	ND		0.39	10
Bis(2-ethylhexyl) phthalate	ND		0.53	10
Butyl benzyl phthalate	ND		0.95	10
Chlorobenzilate	ND		0.63	10
Chrysene	ND		0.52	10
Diallate	ND		0.53	20
Dibenz(a,h)anthracene	ND		0.49	10
Dibenzofuran	ND		0.28	10
Dibutylphthalate	ND		1.1	10
Diethyl phthalate	ND		0.36	10
Dimethyl phthalate	ND		0.20	10
Di-n-octyl phthalate	ND		0.33	10
Diphenylamine	ND		1.0	10
Ethyl methanesulfonate	ND		0.90	10
Famphur	ND		1.5	200
Fluoranthene	ND		0.19	10
Fluorene	ND		0.30	10
Hexachlorobenzene	ND		0.63	10
Hexachlorocyclopentadiene	ND		9.5	50
Hexachloroethane	ND		2.0	10
Hexachloropropene	ND		1.9	100
Indeno[1,2,3-cd]pyrene	ND		0.62	10
Isodrin	ND		1.7	10
Isophorone	ND		0.20	10
Isosafrole	ND		0.95	20
Methapyrilene	ND		19	50
Methyl methanesulfonate	ND		0.95	10
Nitrobenzene	ND		0.77	10
N-Nitrosodiethylamine	ND		1.7	10
N-Nitrosodimethylamine	ND		0.28	10
N-Nitrosodi-n-butylamine	ND		1.2	10
N-Nitrosodi-n-propylamine	ND		0.33	10
N-Nitrosodiphenylamine	ND		0.42	10
N-Nitrosomethylethylamine	ND		1.7	10
N-Nitrosopiperidine	ND		1.9	10
N-Nitrosopyrrolidine	ND		0.77	10
o,o',o''-Triethylphosphorothioate	ND		1.9	50
o-Toluidine	ND		1.3	10
Pentachlorobenzene	ND		1.9	10
Pentachloronitrobenzene	ND		1.9	50
Pentachlorophenol	ND		19	50

Client Sample ID: **MW-4A**

Lab Sample ID: 280-101170-1 Date Sampled: 09/13/2017 1155
Client Matrix: Water Date Received: 09/14/2017 0850

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-389003	Instrument ID:	SMS_G6
Prep Method:	3520C	Prep Batch:	280-387938	Lab File ID:	G6_30889.D
Dilution:	1.0			Initial Weight/Volume:	1048.1 mL
Analysis Date:	09/27/2017 0308			Final Weight/Volume:	1 mL
Prep Date:	09/18/2017 0940			Injection Volume:	0.5 uL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Phenacetin	ND		1.0	20
Phenanthrene	ND		0.25	10
Phenol	ND		1.9	10
Pronamide	ND		1.9	20
Pyrene	ND		0.35	10
Safrole	ND		1.1	50

Surrogate	%Rec	Qualifier	Acceptance Limits
2,4,6-Tribromophenol	80		48 - 135
2-Fluorobiphenyl	64		48 - 135
2-Fluorophenol	66		41 - 135
Nitrobenzene-d5	64		42 - 135
Phenol-d5	67		46 - 135
Terphenyl-d14	92		20 - 135

Client Sample ID: **MW-4B**

Lab Sample ID: 280-101170-2 Date Sampled: 09/13/2017 1300
Client Matrix: Water Date Received: 09/14/2017 0850

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-389003	Instrument ID:	SMS_G6
Prep Method:	3520C	Prep Batch:	280-387938	Lab File ID:	G6_30890.D
Dilution:	1.0			Initial Weight/Volume:	1053.1 mL
Analysis Date:	09/27/2017 0335			Final Weight/Volume:	1 mL
Prep Date:	09/18/2017 0940			Injection Volume:	0.5 uL

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,2,4,5-Tetrachlorobenzene	ND		1.6	10
1,3,5-Trinitrobenzene	ND		3.8	50
1,3-Dinitrobenzene	ND		1.9	10
1,4-Naphthoquinone	ND		13	50
1-Naphthylamine	ND		2.9	10
2,3,4,6-Tetrachlorophenol	ND		1.9	50
2,4,5-Trichlorophenol	ND		0.43	10
2,4-Dichlorophenol	ND		0.61	10
2,4-Dimethylphenol	ND		0.55	10
2,4-Dinitrophenol	ND		9.5	50
2,4-Dinitrotoluene	ND		1.6	10
2,6-Dichlorophenol	ND		1.3	10
2,6-Dinitrotoluene	ND		1.8	10
2-Acetylaminofluorene	ND		6.6	100
2-Chloronaphthalene	ND		0.25	10
2-Chlorophenol	ND		1.9	10
2-Methylnaphthalene	ND		0.28	10
2-Methylphenol	ND		0.93	10
2-Naphthylamine	ND		2.9	10
2-Nitroaniline	ND		1.6	50
2-Nitrophenol	ND		0.37	10
3,3'-Dichlorobenzidine	ND		1.9	50
3,3'-Dimethylbenzidine	ND	*	3.8	20
3-Methylcholanthrene	ND		1.6	20
3-Methylphenol	ND		0.24	10
3-Nitroaniline	ND		1.9	50
4,6-Dinitro-2-methylphenol	ND		3.8	50
4-Aminobiphenyl	ND		4.3	50
4-Bromophenyl phenyl ether	ND		0.41	10
4-Chloro-3-methylphenol	ND		2.3	10
4-Chloroaniline	ND		2.0	10
4-Chlorophenyl phenyl ether	ND		1.6	10
4-Dimethylaminoazobenzene	ND		1.9	20
4-Methylphenol	ND		0.24	10
4-Nitroaniline	ND		1.9	50
4-Nitrophenol	ND		1.2	50
4-Phenylenediamine	ND	*	4.7	100
5-Nitro-o-toluidine	ND		1.3	20
7,12-Dimethylbenz(a)anthracene	ND		1.5	20
Acenaphthene	ND		0.27	10
Acenaphthylene	ND		0.47	10
Acetophenone	ND		0.23	10
Anthracene	ND		0.40	10
Benzo[a]anthracene	ND		0.33	10
Benzo[a]pyrene	ND		0.29	10
Benzo[b]fluoranthene	ND		0.50	10

Client Sample ID: **MW-4B**

Lab Sample ID: 280-101170-2 Date Sampled: 09/13/2017 1300
Client Matrix: Water Date Received: 09/14/2017 0850

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-389003	Instrument ID:	SMS_G6
Prep Method:	3520C	Prep Batch:	280-387938	Lab File ID:	G6_30890.D
Dilution:	1.0			Initial Weight/Volume:	1053.1 mL
Analysis Date:	09/27/2017 0335			Final Weight/Volume:	1 mL
Prep Date:	09/18/2017 0940			Injection Volume:	0.5 uL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Benzo[g,h,i]perylene	ND		0.47	10
Benzo[k]fluoranthene	ND		0.44	10
Benzyl alcohol	ND		0.22	10
bis(2 chloro-1-methylethyl) ether	ND		0.27	10
Bis(2-chloroethoxy)methane	ND		0.92	10
Bis(2-chloroethyl)ether	ND		0.39	10
Bis(2-ethylhexyl) phthalate	ND		0.53	10
Butyl benzyl phthalate	ND		0.95	10
Chlorobenzilate	ND		0.62	10
Chrysene	ND		0.51	10
Diallate	ND		0.53	20
Dibenz(a,h)anthracene	ND		0.48	10
Dibenzofuran	ND		0.28	10
Dibutylphthalate	ND		1.1	10
Diethyl phthalate	ND		0.36	10
Dimethyl phthalate	ND		0.20	10
Di-n-octyl phthalate	ND		0.33	10
Diphenylamine	ND		1.0	10
Ethyl methanesulfonate	ND		0.90	10
Famphur	ND		1.5	200
Fluoranthene	ND		0.19	10
Fluorene	ND		0.29	10
Hexachlorobenzene	ND		0.63	10
Hexachlorocyclopentadiene	ND		9.5	50
Hexachloroethane	ND		2.0	10
Hexachloropropene	ND		1.9	100
Indeno[1,2,3-cd]pyrene	ND		0.62	10
Isodrin	ND		1.7	10
Isophorone	ND		0.20	10
Isosafrole	ND		0.95	20
Methapyrilene	ND		19	50
Methyl methanesulfonate	ND		0.95	10
Nitrobenzene	ND		0.77	10
N-Nitrosodiethylamine	ND		1.6	10
N-Nitrosodimethylamine	ND		0.28	10
N-Nitrosodi-n-butylamine	ND		1.2	10
N-Nitrosodi-n-propylamine	ND		0.33	10
N-Nitrosodiphenylamine	ND		0.42	10
N-Nitrosomethylethylamine	ND		1.7	10
N-Nitrosopiperidine	ND		1.9	10
N-Nitrosopyrrolidine	ND		0.76	10
o,o',o''-Triethylphosphorothioate	ND		1.9	50
o-Toluidine	ND		1.3	10
Pentachlorobenzene	ND		1.9	10
Pentachloronitrobenzene	ND		1.9	50
Pentachlorophenol	ND		19	50

Client Sample ID: **MW-4B**

Lab Sample ID: 280-101170-2 Date Sampled: 09/13/2017 1300
Client Matrix: Water Date Received: 09/14/2017 0850

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-389003	Instrument ID:	SMS_G6
Prep Method:	3520C	Prep Batch:	280-387938	Lab File ID:	G6_30890.D
Dilution:	1.0			Initial Weight/Volume:	1053.1 mL
Analysis Date:	09/27/2017 0335			Final Weight/Volume:	1 mL
Prep Date:	09/18/2017 0940			Injection Volume:	0.5 uL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Phenacetin	ND		1.0	20
Phenanthrene	ND		0.25	10
Phenol	ND		1.9	10
Pronamide	ND		1.9	20
Pyrene	ND		0.35	10
Safrole	ND		1.1	50

Surrogate	%Rec	Qualifier	Acceptance Limits
2,4,6-Tribromophenol	75		48 - 135
2-Fluorobiphenyl	67		48 - 135
2-Fluorophenol	65		41 - 135
Nitrobenzene-d5	66		42 - 135
Phenol-d5	64		46 - 135
Terphenyl-d14	43		20 - 135

Client Sample ID: **MW-4A**

Lab Sample ID: 280-101170-1 Date Sampled: 09/13/2017 1155
Client Matrix: Water Date Received: 09/14/2017 0850

8011 EDB, DBCP, and 1,2,3-TCP (GC)

Analysis Method:	8011	Analysis Batch:	280-389172	Instrument ID:	SGC_E
Prep Method:	8011	Prep Batch:	280-389141	Initial Weight/Volume:	34.4 mL
Dilution:	1.0			Final Weight/Volume:	35 mL
Analysis Date:	09/28/2017 0746			Injection Volume:	3 uL
Prep Date:	09/27/2017 1159			Result Type:	PRIMARY

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,2-Dibromo-3-Chloropropane	ND		0.0069	0.020
1,2-Dibromoethane	ND		0.0038	0.020

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dibromopropane	102		70 - 130

Client: Waste Management

Job Number: 280-101170-1

Client Sample ID: **MW-4B**

Lab Sample ID: 280-101170-2
Client Matrix: Water

Date Sampled: 09/13/2017 1300
Date Received: 09/14/2017 0850

8011 EDB, DBCP, and 1,2,3-TCP (GC)

Analysis Method:	8011	Analysis Batch:	280-389172	Instrument ID:	SGC_E
Prep Method:	8011	Prep Batch:	280-389141	Initial Weight/Volume:	34.2 mL
Dilution:	1.0			Final Weight/Volume:	35 mL
Analysis Date:	09/28/2017 0804			Injection Volume:	3 uL
Prep Date:	09/27/2017 1159			Result Type:	PRIMARY

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,2-Dibromo-3-Chloropropane	ND		0.0070	0.020
1,2-Dibromoethane	ND		0.0038	0.020

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dibromopropane	102		70 - 130

Client: Waste Management

Job Number: 280-101170-1

Client Sample ID: **MW-4A**

Lab Sample ID: 280-101170-1
Client Matrix: Water

Date Sampled: 09/13/2017 1155
Date Received: 09/14/2017 0850

8081A Organochlorine Pesticides (GC)

Analysis Method:	8081A	Analysis Batch:	280-388301	Instrument ID:	SGC_P2
Prep Method:	3510C	Prep Batch:	280-388127	Initial Weight/Volume:	957.2 mL
Dilution:	1.0			Final Weight/Volume:	10 mL
Analysis Date:	09/20/2017 2203			Injection Volume:	1 uL
Prep Date:	09/19/2017 1010			Result Type:	PRIMARY

Analyte	Result (ug/L)	Qualifier	MDL	RL
4,4'-DDD	ND		0.0080	0.050
4,4'-DDE	ND		0.0078	0.050
4,4'-DDT	ND		0.015	0.050
Aldrin	ND		0.0062	0.050
alpha-BHC	ND		0.0055	0.050
beta-BHC	ND		0.0091	0.050
delta-BHC	ND		0.0061	0.050
gamma-BHC (Lindane)	ND		0.0072	0.050
Technical Chlordane	ND		0.15	0.50
Dieldrin	ND		0.0066	0.050
Endrin	ND		0.0083	0.050
Endosulfan I	ND		0.0061	0.050
Endosulfan II	ND		0.0073	0.050
Endosulfan sulfate	ND		0.0060	0.050
Endrin aldehyde	ND		0.0092	0.050
Heptachlor	ND		0.0080	0.050
Heptachlor epoxide	ND		0.0078	0.050
Kepone	ND		0.36	1.0
Methoxychlor	ND		0.014	0.10
Toxaphene	ND		0.38	2.0

Surrogate	%Rec	Qualifier	Acceptance Limits
Tetrachloro-m-xylene	79		28 - 115
DCB Decachlorobiphenyl	92		34 - 122

Client: Waste Management

Job Number: 280-101170-1

Client Sample ID: **MW-4B**

Lab Sample ID: 280-101170-2
Client Matrix: Water

Date Sampled: 09/13/2017 1300
Date Received: 09/14/2017 0850

8081A Organochlorine Pesticides (GC)

Analysis Method:	8081A	Analysis Batch:	280-388301	Instrument ID:	SGC_P2
Prep Method:	3510C	Prep Batch:	280-388127	Initial Weight/Volume:	1044.5 mL
Dilution:	1.0			Final Weight/Volume:	10 mL
Analysis Date:	09/20/2017 2221			Injection Volume:	1 uL
Prep Date:	09/19/2017 1010			Result Type:	PRIMARY

Analyte	Result (ug/L)	Qualifier	MDL	RL
4,4'-DDD	ND		0.0074	0.050
4,4'-DDE	ND		0.0072	0.050
4,4'-DDT	ND		0.014	0.050
Aldrin	ND		0.0056	0.050
alpha-BHC	ND		0.0051	0.050
beta-BHC	ND		0.0083	0.050
delta-BHC	ND		0.0056	0.050
gamma-BHC (Lindane)	ND		0.0066	0.050
Technical Chlordane	ND		0.13	0.50
Dieldrin	ND		0.0060	0.050
Endrin	ND		0.0076	0.050
Endosulfan I	ND		0.0056	0.050
Endosulfan II	ND		0.0067	0.050
Endosulfan sulfate	ND		0.0055	0.050
Endrin aldehyde	ND		0.0084	0.050
Heptachlor	ND		0.0074	0.050
Heptachlor epoxide	ND		0.0072	0.050
Kepone	ND		0.33	1.0
Methoxychlor	ND		0.012	0.10
Toxaphene	ND		0.35	2.0

Surrogate	%Rec	Qualifier	Acceptance Limits
Tetrachloro-m-xylene	74		28 - 115
DCB Decachlorobiphenyl	61		34 - 122

Client: Waste Management

Job Number: 280-101170-1

Client Sample ID: **MW-4A**

Lab Sample ID: 280-101170-1
Client Matrix: Water

Date Sampled: 09/13/2017 1155
Date Received: 09/14/2017 0850

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-388439	Instrument ID:	SGC_P3
Prep Method:	3510C	Prep Batch:	280-388127	Initial Weight/Volume:	957.2 mL
Dilution:	1.0			Final Weight/Volume:	10 mL
Analysis Date:	09/21/2017 1914			Injection Volume:	1 uL
Prep Date:	09/19/2017 1010			Result Type:	PRIMARY

Analyte	Result (ug/L)	Qualifier	MDL	RL
PCB-1016	ND		0.13	1.0
PCB-1221	ND		0.22	1.0
PCB-1232	ND		0.17	1.0
PCB-1242	ND		0.11	1.0
PCB-1248	ND		0.096	1.0
PCB-1254	ND		0.12	1.0
PCB-1260	ND		0.17	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
DCB Decachlorobiphenyl	103		30 - 136
Tetrachloro-m-xylene	93		25 - 120

Client: Waste Management

Job Number: 280-101170-1

Client Sample ID: MW-4B

Lab Sample ID: 280-101170-2
Client Matrix: Water

Date Sampled: 09/13/2017 1300
Date Received: 09/14/2017 0850

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-388439	Instrument ID:	SGC_P3
Prep Method:	3510C	Prep Batch:	280-388127	Initial Weight/Volume:	1044.5 mL
Dilution:	1.0			Final Weight/Volume:	10 mL
Analysis Date:	09/21/2017 1936			Injection Volume:	1 uL
Prep Date:	09/19/2017 1010			Result Type:	PRIMARY

Analyte	Result (ug/L)	Qualifier	MDL	RL
PCB-1016	ND		0.12	1.0
PCB-1221	ND		0.20	1.0
PCB-1232	ND		0.16	1.0
PCB-1242	ND		0.10	1.0
PCB-1248	ND		0.088	1.0
PCB-1254	ND		0.11	1.0
PCB-1260	ND		0.15	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
DCB Decachlorobiphenyl	65		30 - 136
Tetrachloro-m-xylene	90		25 - 120

Client: Waste Management

Job Number: 280-101170-1

Client Sample ID: **MW-4A**

Lab Sample ID: 280-101170-1
Client Matrix: Water

Date Sampled: 09/13/2017 1155
Date Received: 09/14/2017 0850

8141A Organophosphorous Pesticides (GC)

Analysis Method:	8141A	Analysis Batch:	280-388133	Instrument ID:	SGC_D
Prep Method:	3510C	Prep Batch:	280-387771	Initial Weight/Volume:	968.7 mL
Dilution:	1.0			Final Weight/Volume:	2 mL
Analysis Date:	09/20/2017 0116			Injection Volume:	1 uL
Prep Date:	09/15/2017 0722			Result Type:	PRIMARY

Analyte	Result (ug/L)	Qualifier	MDL	RL
Atrazine	ND		0.30	10
Dimethoate	ND		0.46	0.50
Disulfoton	ND		0.33	0.50
Chlorpyrifos	ND		0.37	0.50
Methyl parathion	ND		0.15	4.0
Parathion	ND		0.15	0.50
Phorate	ND		0.16	1.2
Diazinon	ND		0.15	0.50
Simazine	ND		0.23	10
Thionazin	ND		0.32	0.50

Surrogate	%Rec	Qualifier	Acceptance Limits
Triphenylphosphate	65		60 - 154
Chlormefos	73		49 - 171

Client: Waste Management

Job Number: 280-101170-1

Client Sample ID: **MW-4B**

Lab Sample ID: 280-101170-2
Client Matrix: Water

Date Sampled: 09/13/2017 1300
Date Received: 09/14/2017 0850

8141A Organophosphorous Pesticides (GC)

Analysis Method:	8141A	Analysis Batch:	280-388457	Instrument ID:	SGC_D
Prep Method:	3510C	Prep Batch:	280-388296	Initial Weight/Volume:	1049.8 mL
Dilution:	1.0			Final Weight/Volume:	2 mL
Analysis Date:	09/21/2017 1835			Injection Volume:	1 uL
Prep Date:	09/20/2017 1315			Result Type:	PRIMARY

Analyte	Result (ug/L)	Qualifier	MDL	RL
Atrazine	ND		0.28	10
Dimethoate	ND		0.43	0.50
Disulfoton	ND		0.31	0.50
Chlorpyrifos	ND		0.34	0.50
Methyl parathion	ND		0.13	4.0
Parathion	ND		0.14	0.50
Phorate	ND		0.15	1.2
Diazinon	ND		0.14	0.50
Simazine	ND		0.21	10
Thionazin	ND		0.30	0.50

Surrogate	%Rec	Qualifier	Acceptance Limits
Triphenylphosphate	71		60 - 154
Chlormefos	83		49 - 171

Client: Waste Management

Job Number: 280-101170-1

Client Sample ID: **MW-4A**

Lab Sample ID: 280-101170-1
Client Matrix: Water

Date Sampled: 09/13/2017 1155
Date Received: 09/14/2017 0850

8151A Herbicides (GC)

Analysis Method:	8151A	Analysis Batch:	280-389329	Instrument ID:	SGC_M
Prep Method:	8151A	Prep Batch:	280-387854	Initial Weight/Volume:	962.8 mL
Dilution:	1.0			Final Weight/Volume:	10 mL
Analysis Date:	09/28/2017 2109			Injection Volume:	1 uL
Prep Date:	09/15/2017 1615			Result Type:	PRIMARY

Analyte	Result (ug/L)	Qualifier	MDL	RL
2,4-D	ND		0.22	4.0
Dinoseb	ND		0.47	0.60
2,4,5-T	ND		0.20	1.0
2,4,5-TP (Silvex)	ND		0.18	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
2,4-Dichlorophenylacetic acid	79		39 - 135

Client: Waste Management

Job Number: 280-101170-1

Client Sample ID: **MW-4B**

Lab Sample ID: 280-101170-2
Client Matrix: Water

Date Sampled: 09/13/2017 1300
Date Received: 09/14/2017 0850

8151A Herbicides (GC)

Analysis Method:	8151A	Analysis Batch:	280-389329	Instrument ID:	SGC_M
Prep Method:	8151A	Prep Batch:	280-387854	Initial Weight/Volume:	1012.3 mL
Dilution:	1.0			Final Weight/Volume:	10 mL
Analysis Date:	09/28/2017 2137			Injection Volume:	1 uL
Prep Date:	09/15/2017 1615			Result Type:	PRIMARY

Analyte	Result (ug/L)	Qualifier	MDL	RL
2,4-D	ND		0.21	4.0
Dinoseb	ND		0.44	0.60
2,4,5-T	ND		0.19	1.0
2,4,5-TP (Silvex)	ND		0.17	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
2,4-Dichlorophenylacetic acid	74		39 - 135

Client Sample ID: **MW-4A**

Lab Sample ID: 280-101170-1 Date Sampled: 09/13/2017 1155
Client Matrix: Water Date Received: 09/14/2017 0850

6010B Metals (ICP)-Dissolved

Analysis Method:	6010B	Analysis Batch:	280-387897	Instrument ID:	MT_051
Prep Method:	3005A	Prep Batch:	280-387738	Lab File ID:	51c091517.csv
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	09/16/2017 0712			Final Weight/Volume:	50 mL
Prep Date:	09/15/2017 0738				

Analyte	Result (mg/L)	Qualifier	MDL	RL
Calcium	55	B	0.035	0.20
Magnesium	60		0.011	0.20
Manganese	0.087		0.00026	0.010

Analyte	Result (ug/L)	Qualifier	MDL	RL
Aluminum	ND		18	100
Barium	26		0.82	10
Chromium	5.0	J	0.66	10
Cobalt	ND		1.2	10
Copper	ND		4.2	10
Iron	28	J	22	100
Silver	1.2	J	0.93	10
Tin	ND		5.8	100
Vanadium	ND		1.1	10
Zinc	ND		4.5	20

Analysis Method:	6010B	Analysis Batch:	280-388189	Instrument ID:	MT_051
Prep Method:	3005A	Prep Batch:	280-387738	Lab File ID:	51c091817.csv
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	09/19/2017 0449			Final Weight/Volume:	50 mL
Prep Date:	09/15/2017 0738				

Analyte	Result (mg/L)	Qualifier	MDL	RL
Potassium	6.6		0.24	3.0
Sodium	300		0.12	5.0

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-388081	Instrument ID:	MT_078
Prep Method:	3005A	Prep Batch:	280-387743	Lab File ID:	064SMPL.d
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	09/18/2017 1513			Final Weight/Volume:	50 mL
Prep Date:	09/15/2017 0738				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	ND		0.40	2.0
Arsenic	0.92	J	0.33	5.0
Beryllium	ND		0.080	5.0
Cadmium	ND		0.27	1.0
Lead	ND		0 18	1 0
Nickel	0.82	J	0.30	2.0
Selenium	ND		0.70	5.0
Thallium	ND		0.050	1.0

Client: Waste Management

Job Number: 280-101170-1

Client Sample ID: **MW-4A**

Lab Sample ID: 280-101170-1
Client Matrix: Water

Date Sampled: 09/13/2017 1155
Date Received: 09/14/2017 0850

6020 Metals (ICP/MS)-Dissolved

7470A Mercury (CVAA)-Dissolved

Analysis Method:	7470A	Analysis Batch:	280-387946	Instrument ID:	MT_033
Prep Method:	7470A	Prep Batch:	280-387817	Lab File ID:	170915aa.txt
Dilution:	1.0			Initial Weight/Volume:	30 mL
Analysis Date:	09/15/2017 1650			Final Weight/Volume:	50 mL
Prep Date:	09/15/2017 1136				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Mercury	ND		0.027	0.20

Client Sample ID: MW-4B

Lab Sample ID: 280-101170-2 Date Sampled: 09/13/2017 1300
Client Matrix: Water Date Received: 09/14/2017 0850

6010B Metals (ICP)-Dissolved

Analysis Method:	6010B	Analysis Batch:	280-387897	Instrument ID:	MT_051
Prep Method:	3005A	Prep Batch:	280-387738	Lab File ID:	51c091517.csv
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	09/16/2017 0715			Final Weight/Volume:	50 mL
Prep Date:	09/15/2017 0738				

Analyte	Result (mg/L)	Qualifier	MDL	RL
Calcium	5.5	B	0.035	0.20
Magnesium	1.9		0.011	0.20
Manganese	0.024		0.00026	0.010

Analyte	Result (ug/L)	Qualifier	MDL	RL
Aluminum	2000		18	100
Barium	14		0.82	10
Chromium	5.7	J	0.66	10
Cobalt	ND		1.2	10
Copper	ND		4.2	10
Iron	1000		22	100
Silver	ND		0.93	10
Tin	ND		5.8	100
Vanadium	ND		1.1	10
Zinc	24		4.5	20

Analysis Method:	6010B	Analysis Batch:	280-388189	Instrument ID:	MT_051
Prep Method:	3005A	Prep Batch:	280-387738	Lab File ID:	51c091817.csv
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	09/19/2017 0452			Final Weight/Volume:	50 mL
Prep Date:	09/15/2017 0738				

Analyte	Result (mg/L)	Qualifier	MDL	RL
Potassium	5.1		0.24	3.0
Sodium	580		0.12	5.0

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-388081	Instrument ID:	MT_078
Prep Method:	3005A	Prep Batch:	280-387743	Lab File ID:	065SMPL.d
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	09/18/2017 1516			Final Weight/Volume:	50 mL
Prep Date:	09/15/2017 0738				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	ND		0.40	2.0
Arsenic	9.2		0.33	5.0
Beryllium	0.28	J	0.080	5.0
Cadmium	ND		0.27	1.0
Lead	1.6		0.18	1.0
Nickel	0.50	J	0.30	2.0
Selenium	ND		0.70	5.0
Thallium	ND		0.050	1.0

Client: Waste Management

Job Number: 280-101170-1

Client Sample ID: **MW-4B**

Lab Sample ID: 280-101170-2
Client Matrix: Water

Date Sampled: 09/13/2017 1300
Date Received: 09/14/2017 0850

6020 Metals (ICP/MS)-Dissolved

7470A Mercury (CVAA)-Dissolved

Analysis Method:	7470A	Analysis Batch:	280-387946	Instrument ID:	MT_033
Prep Method:	7470A	Prep Batch:	280-387817	Lab File ID:	170915aa.txt
Dilution:	1.0			Initial Weight/Volume:	30 mL
Analysis Date:	09/15/2017 1657			Final Weight/Volume:	50 mL
Prep Date:	09/15/2017 1136				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Mercury	ND		0.027	0.20

General Chemistry

Client Sample ID: **MW-4A**

Lab Sample ID: 280-101170-1 Date Sampled: 09/13/2017 1155
Client Matrix: Water Date Received: 09/14/2017 0850

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Chloride	170	B	mg/L	0.25	1.5	1.0	300.0
Analysis Batch: 280-387631	Analysis Date: 09/14/2017 1654						
Nitrate as N	0.13		mg/L	0.042	0.10	1.0	300.0
Analysis Batch: 280-387630	Analysis Date: 09/14/2017 1654						
Sulfate	190	B	mg/L	2.3	5.0	10	300.0
Analysis Batch: 280-387631	Analysis Date: 09/14/2017 1712						
Nitrogen, Kjeldahl	0.49	J	mg/L	0.18	0.50	1.0	351.2
Analysis Batch: 280-389195	Analysis Date: 09/27/2017 1715						
Prep Batch: 280-388889	Prep Date: 09/25/2017 2130						
Chemical Oxygen Demand	ND		mg/L	4.1	10	1.0	410.4
Analysis Batch: 280-388571	Analysis Date: 09/22/2017 0928						
Cyanide, Total	ND		ug/L	2.0	10	1.0	9012A
Analysis Batch: 280-388988	Analysis Date: 09/26/2017 1340						
Prep Batch: 280-388929	Prep Date: 09/26/2017 0840						
Sulfide	ND	F1	ug/L	790	4000	1.0	9034
Analysis Batch: 280-388202	Analysis Date: 09/19/2017 2239						
Prep Batch: 280-388196	Prep Date: 09/19/2017 1951						
Bicarbonate Alkalinity as CaCO3	500		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-387954	Analysis Date: 09/15/2017 1558						
Carbonate Alkalinity as CaCO3	ND		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-387954	Analysis Date: 09/15/2017 1558						
Total Dissolved Solids	1100		mg/L	4.7	10	1.0	SM 2540C
Analysis Batch: 280-387944	Analysis Date: 09/18/2017 0750						
Total Organic Carbon - Average	1.1		mg/L	0.16	1.0	1.0	SM 5310B
Analysis Batch: 280-388539	Analysis Date: 09/21/2017 1509						

Analyte	Result	Qual	Units	Dil	Method
Total Anions	19		meq/L	1.0	SM 1030E
Analysis Batch: 280-389198	Analysis Date: 09/27/2017 1930				
Total Cations	21		meq/L	1.0	SM 1030E
Analysis Batch: 280-389198	Analysis Date: 09/27/2017 1930				
Percent Difference	5.4		%	1.0	SM 1030E
Analysis Batch: 280-389198	Analysis Date: 09/27/2017 1930				

General Chemistry

Client Sample ID: **MW-4B**

Lab Sample ID: 280-101170-2 Date Sampled: 09/13/2017 1300
Client Matrix: Water Date Received: 09/14/2017 0850

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Chloride	210	B	mg/L	2.5	2.5	10	300.0
Analysis Batch: 280-387631	Analysis Date: 09/14/2017 1747						
Nitrate as N	ND		mg/L	0.042	0.10	1.0	300.0
Analysis Batch: 280-387630	Analysis Date: 09/14/2017 1729						
Sulfate	380	B	mg/L	2.3	5.0	10	300.0
Analysis Batch: 280-387631	Analysis Date: 09/14/2017 1747						
Nitrogen, Kjeldahl	1.4		mg/L	0.18	0.50	1.0	351.2
Analysis Batch: 280-389195	Analysis Date: 09/27/2017 1716						
Prep Batch: 280-388889	Prep Date: 09/25/2017 2130						
Chemical Oxygen Demand	ND		mg/L	4.1	10	1.0	410.4
Analysis Batch: 280-388571	Analysis Date: 09/22/2017 0928						
Cyanide, Total	ND		ug/L	2.0	10	1.0	9012A
Analysis Batch: 280-388988	Analysis Date: 09/26/2017 1341						
Prep Batch: 280-388929	Prep Date: 09/26/2017 0840						
Sulfide	ND		ug/L	790	4000	1.0	9034
Analysis Batch: 280-388202	Analysis Date: 09/19/2017 2239						
Prep Batch: 280-388196	Prep Date: 09/19/2017 1951						
Bicarbonate Alkalinity as CaCO3	550		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-387954	Analysis Date: 09/15/2017 1551						
Carbonate Alkalinity as CaCO3	29	B	mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-387954	Analysis Date: 09/15/2017 1551						
Total Dissolved Solids	1400		mg/L	9.4	10	1.0	SM 2540C
Analysis Batch: 280-387944	Analysis Date: 09/18/2017 0750						
Total Organic Carbon - Average	1.7		mg/L	0.16	1.0	1.0	SM 5310B
Analysis Batch: 280-388539	Analysis Date: 09/21/2017 1526						

Analyte	Result	Qual	Units	Dil	Method
Total Anions	25		meq/L	1.0	SM 1030E
Analysis Batch: 280-389198	Analysis Date: 09/27/2017 1930				
Total Cations	26		meq/L	1.0	SM 1030E
Analysis Batch: 280-389198	Analysis Date: 09/27/2017 1930				
Percent Difference	0.75		%	1.0	SM 1030E
Analysis Batch: 280-389198	Analysis Date: 09/27/2017 1930				

Field Service / Mobile Lab

Client Sample ID: **MW-4A**

Lab Sample ID: 280-101170-1 Date Sampled: 09/13/2017 1155
Client Matrix: Water Date Received: 09/14/2017 0850

Analyte	Result	Qual	Units	Dil	Method	Analysis Batch	Date Analyzed Date Prepared
Depth to water	71.33		ft	1.0	Field Sampling	280-387725	09/13/2017 1255
Field pH	7.54		SU	1.0	Field Sampling	280-387725	09/13/2017 1255
Field Conductivity	1060		umhos/cm	1.0	Field Sampling	280-387725	09/13/2017 1255
Field Temperature	21.0		Degrees C	1.0	Field Sampling	280-387725	09/13/2017 1255
Field Turbidity	0.0		NTU	1.0	Field Sampling	280-387725	09/13/2017 1255
Field Dissolved Oxygen	2.0		mg/L	1.0	Field Sampling	280-387725	09/13/2017 1255
Field EH/ORP	107		millivolts	1.0	Field Sampling	280-387725	09/13/2017 1255

Field Service / Mobile Lab

Client Sample ID: **MW-4B**

Lab Sample ID: 280-101170-2 Date Sampled: 09/13/2017 1300
Client Matrix: Water Date Received: 09/14/2017 0850

Analyte	Result	Qual	Units	Dil	Method	Analysis Batch	Date Analyzed Date Prepared
Depth to water	66.54		ft	1.0	Field Sampling	280-387725	09/13/2017 1400
Field pH	8.11		SU	1.0	Field Sampling	280-387725	09/13/2017 1400
Field Conductivity	2140		umhos/cm	1.0	Field Sampling	280-387725	09/13/2017 1400
Field Temperature	22.1		Degrees C	1.0	Field Sampling	280-387725	09/13/2017 1400
Field Turbidity	0.0		NTU	1.0	Field Sampling	280-387725	09/13/2017 1400
Field Dissolved Oxygen	1.6		mg/L	1.0	Field Sampling	280-387725	09/13/2017 1400
Field EH/ORP	-233		millivolts	1.0	Field Sampling	280-387725	09/13/2017 1400

DATA REPORTING QUALIFIERS

Client: Waste Management Job Number: 280-101170-1

Lab Section	Qualifier	Description
GC/MS VOA		
	J	Indicates an Estimated Value for TICs
	*	Recovery or RPD exceeds control limits
	T	Result is a tentatively identified compound (TIC) and an estimated value.
	J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
	N	This flag indicates the presumptive evidence of a compound.
GC/MS Semi VOA		
	F1	MS and/or MSD Recovery is outside acceptance limits.
	F4	MS/MSD RPD exceeds control limits due to sample size difference.
	*	Recovery or RPD exceeds control limits
	E	Result exceeded calibration range.
	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		
	J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
	X	Surrogate is outside control limits
Metals		
	B	Compound was found in the blank and sample.
	F1	MS and/or MSD Recovery is outside acceptance limits.
	4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
	J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

DATA REPORTING QUALIFIERS

Client: Waste Management Job Number: 280-101170-1

Lab Section	Qualifier	Description
General Chemistry		
	B	Compound was found in the blank and sample.
	F1	MS and/or MSD Recovery is outside acceptance limits.
	J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

QUALITY CONTROL RESULTS

Client: Waste Management Job Number: 280-101170-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC/MS VOA					
Analysis Batch:280-389018					
LCS 280-389018/10	Lab Control Sample	T	Water	8260B	
LCS 280-389018/4	Lab Control Sample	T	Water	8260B	
LCSD 280-389018/11	Lab Control Sample Duplicate	T	Water	8260B	
MB 280-389018/6	Method Blank	T	Water	8260B	
280-101170-1	MW-4A	T	Water	8260B	
280-101170-2	MW-4B	T	Water	8260B	
280-101245-A-20 MS	Matrix Spike	T	Water	8260B	
280-101245-A-20 MSD	Matrix Spike Duplicate	T	Water	8260B	

Report Basis
T = Total

GC/MS Semi VOA					
Prep Batch: 280-387938					
LCS 280-387938/2-A	Lab Control Sample	T	Water	3520C	
LCS 280-387938/3-A	Lab Control Sample	T	Water	3520C	
LCSD 280-387938/4-A	Lab Control Sample Duplicate	T	Water	3520C	
MB 280-387938/1-A	Method Blank	T	Water	3520C	
280-101169-E-2-A MS	Matrix Spike	T	Water	3520C	
280-101169-F-2-A MSD	Matrix Spike Duplicate	T	Water	3520C	
280-101170-1	MW-4A	T	Water	3520C	
280-101170-2	MW-4B	T	Water	3520C	
Analysis Batch:280-389003					
LCS 280-387938/2-A	Lab Control Sample	T	Water	8270C	280-387938
LCS 280-387938/3-A	Lab Control Sample	T	Water	8270C	280-387938
LCSD 280-387938/4-A	Lab Control Sample Duplicate	T	Water	8270C	280-387938
MB 280-387938/1-A	Method Blank	T	Water	8270C	280-387938
280-101169-E-2-A MS	Matrix Spike	T	Water	8270C	280-387938
280-101169-F-2-A MSD	Matrix Spike Duplicate	T	Water	8270C	280-387938
280-101170-1	MW-4A	T	Water	8270C	280-387938
280-101170-2	MW-4B	T	Water	8270C	280-387938

Report Basis
T = Total

Client: Waste Management Job Number: 280-101170-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC Semi VOA					
Prep Batch: 280-387771					
LCS 280-387771/2-A	Lab Control Sample	T	Water	3510C	
LCSD 280-387771/3-A	Lab Control Sample Duplicate	T	Water	3510C	
MB 280-387771/1-A	Method Blank	T	Water	3510C	
280-101170-1	MW-4A	T	Water	3510C	
Prep Batch: 280-387854					
280-101170-1	MW-4A	T	Water	8151A	
280-101170-2	MW-4B	T	Water	8151A	
Prep Batch: 280-388127					
LCS 280-388127/2-A	Lab Control Sample	T	Water	3510C	
LCS 280-388127/4-A	Lab Control Sample	T	Water	3510C	
LCSD 280-388127/3-A	Lab Control Sample Duplicate	T	Water	3510C	
LCSD 280-388127/5-A	Lab Control Sample Duplicate	T	Water	3510C	
MB 280-388127/1-A	Method Blank	T	Water	3510C	
280-101170-1	MW-4A	T	Water	3510C	
280-101170-2	MW-4B	T	Water	3510C	
Analysis Batch:280-388133					
LCS 280-387771/2-A	Lab Control Sample	T	Water	8141A	280-387771
LCSD 280-387771/3-A	Lab Control Sample Duplicate	T	Water	8141A	280-387771
MB 280-387771/1-A	Method Blank	T	Water	8141A	280-387771
280-101170-1	MW-4A	T	Water	8141A	280-387771
Prep Batch: 280-388296					
LCS 280-388296/2-A	Lab Control Sample	T	Water	3510C	
LCSD 280-388296/3-A	Lab Control Sample Duplicate	T	Water	3510C	
MB 280-388296/1-A	Method Blank	T	Water	3510C	
280-101170-2	MW-4B	T	Water	3510C	
Analysis Batch:280-388301					
LCS 280-388127/2-A	Lab Control Sample	T	Water	8081A	280-388127
LCSD 280-388127/3-A	Lab Control Sample Duplicate	T	Water	8081A	280-388127
MB 280-388127/1-A	Method Blank	T	Water	8081A	280-388127
280-101170-1	MW-4A	T	Water	8081A	280-388127
280-101170-2	MW-4B	T	Water	8081A	280-388127
Analysis Batch:280-388439					
LCS 280-388127/4-A	Lab Control Sample	T	Water	8082	280-388127
LCSD 280-388127/5-A	Lab Control Sample Duplicate	T	Water	8082	280-388127
MB 280-388127/1-A	Method Blank	T	Water	8082	280-388127
280-101170-1	MW-4A	T	Water	8082	280-388127
280-101170-2	MW-4B	T	Water	8082	280-388127

Client: Waste Management Job Number: 280-101170-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC Semi VOA					
Analysis Batch:280-388457					
LCS 280-388296/2-A	Lab Control Sample	T	Water	8141A	280-388296
LCSD 280-388296/3-A	Lab Control Sample Duplicate	T	Water	8141A	280-388296
MB 280-388296/1-A	Method Blank	T	Water	8141A	280-388296
280-101170-2	MW-4B	T	Water	8141A	280-388296
Prep Batch: 280-389141					
LCS 280-389141/3-A	Lab Control Sample	T	Water	8011	
LCSD 280-389141/4-A	Lab Control Sample Duplicate	T	Water	8011	
MB 280-389141/2-A	Method Blank	T	Water	8011	
280-101170-1	MW-4A	T	Water	8011	
280-101170-2	MW-4B	T	Water	8011	
Analysis Batch:280-389172					
LCS 280-389141/3-A	Lab Control Sample	T	Water	8011	280-389141
LCSD 280-389141/4-A	Lab Control Sample Duplicate	T	Water	8011	280-389141
MB 280-389141/2-A	Method Blank	T	Water	8011	280-389141
280-101170-1	MW-4A	T	Water	8011	280-389141
280-101170-2	MW-4B	T	Water	8011	280-389141
Analysis Batch:280-389329					
280-101170-1	MW-4A	T	Water	8151A	280-387854
280-101170-2	MW-4B	T	Water	8151A	280-387854

Report Basis
T = Total

Client: Waste Management Job Number: 280-101170-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
Metals					
Prep Batch: 280-387738					
LCS 280-387738/2-A	Lab Control Sample	R	Water	3005A	
MB 280-387738/1-A	Method Blank	R	Water	3005A	
280-101166-E-1-B MS	Matrix Spike	D	Water	3005A	
280-101166-E-1-C MSD	Matrix Spike Duplicate	D	Water	3005A	
280-101170-1	MW-4A	D	Water	3005A	
280-101170-2	MW-4B	D	Water	3005A	
Prep Batch: 280-387743					
LCS 280-387743/2-A	Lab Control Sample	R	Water	3005A	
MB 280-387743/1-A	Method Blank	R	Water	3005A	
280-101170-1	MW-4A	D	Water	3005A	
280-101170-2	MW-4B	D	Water	3005A	
280-101175-D-2-C MS	Matrix Spike	D	Water	3005A	
280-101175-D-2-D MSD	Matrix Spike Duplicate	D	Water	3005A	
Prep Batch: 280-387817					
LCS 280-387817/2-A	Lab Control Sample	T	Water	7470A	
MB 280-387817/1-A	Method Blank	T	Water	7470A	
280-101170-1	MW-4A	D	Water	7470A	
280-101170-1MS	Matrix Spike	D	Water	7470A	
280-101170-1MSD	Matrix Spike Duplicate	D	Water	7470A	
280-101170-2	MW-4B	D	Water	7470A	
Analysis Batch:280-387897					
LCS 280-387738/2-A	Lab Control Sample	R	Water	6010B	280-387738
MB 280-387738/1-A	Method Blank	R	Water	6010B	280-387738
280-101166-E-1-B MS	Matrix Spike	D	Water	6010B	280-387738
280-101166-E-1-C MSD	Matrix Spike Duplicate	D	Water	6010B	280-387738
280-101170-1	MW-4A	D	Water	6010B	280-387738
280-101170-2	MW-4B	D	Water	6010B	280-387738
Analysis Batch:280-387946					
LCS 280-387817/2-A	Lab Control Sample	T	Water	7470A	280-387817
MB 280-387817/1-A	Method Blank	T	Water	7470A	280-387817
280-101170-1	MW-4A	D	Water	7470A	280-387817
280-101170-1MS	Matrix Spike	D	Water	7470A	280-387817
280-101170-1MSD	Matrix Spike Duplicate	D	Water	7470A	280-387817
280-101170-2	MW-4B	D	Water	7470A	280-387817

Client: Waste Management Job Number: 280-101170-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
Metals					
Analysis Batch:280-388081					
LCS 280-387743/2-A	Lab Control Sample	R	Water	6020	280-387743
MB 280-387743/1-A	Method Blank	R	Water	6020	280-387743
280-101170-1	MW-4A	D	Water	6020	280-387743
280-101170-2	MW-4B	D	Water	6020	280-387743
280-101175-D-2-C MS	Matrix Spike	D	Water	6020	280-387743
280-101175-D-2-D MSD	Matrix Spike Duplicate	D	Water	6020	280-387743
Analysis Batch:280-388189					
LCS 280-387738/2-A	Lab Control Sample	R	Water	6010B	280-387738
MB 280-387738/1-A	Method Blank	R	Water	6010B	280-387738
280-101166-E-1-B MS	Matrix Spike	D	Water	6010B	280-387738
280-101166-E-1-C MSD	Matrix Spike Duplicate	D	Water	6010B	280-387738
280-101170-1	MW-4A	D	Water	6010B	280-387738
280-101170-2	MW-4B	D	Water	6010B	280-387738

Report Basis
D = Dissolved
R = Total Recoverable
T = Total

Field Service / Mobile Lab					
Analysis Batch:280-387725					
280-101170-1	MW-4A	T	Water	Field Sampling	
280-101170-2	MW-4B	T	Water	Field Sampling	

Report Basis
T = Total

Client: Waste Management Job Number: 280-101170-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
General Chemistry					
Analysis Batch:280-387630					
LCS 280-387630/4	Lab Control Sample	T	Water	300.0	
LCSD 280-387630/5	Lab Control Sample Duplicate	T	Water	300.0	
MB 280-387630/6	Method Blank	T	Water	300.0	
280-100934-B-37 DU	Duplicate		Water	300.0	
280-100934-B-37 MS	Matrix Spike		Water	300.0	
280-100934-B-37 MSD	Matrix Spike Duplicate		Water	300.0	
280-101048-F-3 DU	Duplicate		Water	300.0	
280-101048-F-3 MS	Matrix Spike		Water	300.0	
280-101048-F-3 MSD	Matrix Spike Duplicate		Water	300.0	
280-101170-1	MW-4A	T	Water	300.0	
280-101170-2	MW-4B	T	Water	300.0	
Analysis Batch:280-387631					
LCS 280-387631/4	Lab Control Sample	T	Water	300.0	
LCSD 280-387631/5	Lab Control Sample Duplicate	T	Water	300.0	
MB 280-387631/6	Method Blank	T	Water	300.0	
280-100934-B-37 DU	Duplicate	T	Water	300.0	
280-100934-B-37 MS	Matrix Spike	T	Water	300.0	
280-100934-B-37 MSD	Matrix Spike Duplicate	T	Water	300.0	
280-101048-F-3 DU	Duplicate	T	Water	300.0	
280-101048-F-3 MS	Matrix Spike	T	Water	300.0	
280-101048-F-3 MSD	Matrix Spike Duplicate	T	Water	300.0	
280-101170-1	MW-4A	T	Water	300.0	
280-101170-2	MW-4B	T	Water	300.0	
Analysis Batch:280-387944					
LCS 280-387944/2	Lab Control Sample	T	Water	SM 2540C	
MB 280-387944/1	Method Blank	T	Water	SM 2540C	
280-101170-1	MW-4A	T	Water	SM 2540C	
280-101170-1DU	Duplicate	T	Water	SM 2540C	
280-101170-2	MW-4B	T	Water	SM 2540C	
Analysis Batch:280-387954					
LCS 280-387954/4	Lab Control Sample	T	Water	SM 2320B	
MB 280-387954/5	Method Blank	T	Water	SM 2320B	
280-101166-A-1 DU	Duplicate	T	Water	SM 2320B	
280-101170-1	MW-4A	T	Water	SM 2320B	
280-101170-2	MW-4B	T	Water	SM 2320B	

Client: Waste Management Job Number: 280-101170-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
General Chemistry					
Prep Batch: 280-388196					
LCS 280-388196/2-A	Lab Control Sample	T	Water	9030B	
MB 280-388196/1-A	Method Blank	T	Water	9030B	
280-101170-1	MW-4A	T	Water	9030B	
280-101170-1MS	Matrix Spike	T	Water	9030B	
280-101170-1MSD	Matrix Spike Duplicate	T	Water	9030B	
280-101170-2	MW-4B	T	Water	9030B	
Analysis Batch:280-388202					
LCS 280-388196/2-A	Lab Control Sample	T	Water	9034	280-388196
MB 280-388196/1-A	Method Blank	T	Water	9034	280-388196
280-101170-1	MW-4A	T	Water	9034	280-388196
280-101170-1MS	Matrix Spike	T	Water	9034	280-388196
280-101170-1MSD	Matrix Spike Duplicate	T	Water	9034	280-388196
280-101170-2	MW-4B	T	Water	9034	280-388196
Analysis Batch:280-388539					
LCS 280-388539/3	Lab Control Sample	T	Water	SM 5310B	
MB 280-388539/4	Method Blank	T	Water	SM 5310B	
280-101148-B-2 MS	Matrix Spike	T	Water	SM 5310B	
280-101148-B-2 MSD	Matrix Spike Duplicate	T	Water	SM 5310B	
280-101170-1	MW-4A	T	Water	SM 5310B	
280-101170-2	MW-4B	T	Water	SM 5310B	
Analysis Batch:280-388540					
LCS 280-388540/3	Lab Control Sample	T	Water	SM 5310B	
MB 280-388540/4	Method Blank	T	Water	SM 5310B	
280-101148-B-2 MS	Matrix Spike	T	Water	SM 5310B	
280-101148-B-2 MSD	Matrix Spike Duplicate	T	Water	SM 5310B	
280-101170-1	MW-4A	T	Water	SM 5310B	
280-101170-2	MW-4B	T	Water	SM 5310B	
Analysis Batch:280-388571					
LCS 280-388571/3	Lab Control Sample	T	Water	410.4	
LCSD 280-388571/4	Lab Control Sample Duplicate	T	Water	410.4	
MB 280-388571/5	Method Blank	T	Water	410.4	
280-101170-1	MW-4A	T	Water	410.4	
280-101170-2	MW-4B	T	Water	410.4	
280-101300-K-1 MS	Matrix Spike	T	Water	410.4	
280-101300-K-1 MSD	Matrix Spike Duplicate	T	Water	410.4	

Client: Waste Management Job Number: 280-101170-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
General Chemistry					
Prep Batch: 280-388889					
LCS 280-388889/1-A	Lab Control Sample	T	Water	351.2	
MB 280-388889/2-A	Method Blank	T	Water	351.2	
280-101170-1	MW-4A	T	Water	351.2	
280-101170-2	MW-4B	T	Water	351.2	
280-101170-2MS	Matrix Spike	T	Water	351.2	
280-101170-2MSD	Matrix Spike Duplicate	T	Water	351.2	
Prep Batch: 280-388929					
HLCS 280-388929/1-A	High Level Control Sample	T	Water	9012A	
LCS 280-388929/3-A	Lab Control Sample	T	Water	9012A	
LLCS 280-388929/2-A	Low Level Control Sample	T	Water	9012A	
MB 280-388929/4-A	Method Blank	T	Water	9012A	
280-101162-F-57-A MS	Matrix Spike	T	Water	9012A	
280-101162-E-57-A MSD	Matrix Spike Duplicate	T	Water	9012A	
280-101170-1	MW-4A	T	Water	9012A	
280-101170-2	MW-4B	T	Water	9012A	
Analysis Batch:280-388988					
HLCS 280-388929/1-A	High Level Control Sample	T	Water	9012A	280-388929
LCS 280-388929/3-A	Lab Control Sample	T	Water	9012A	280-388929
LLCS 280-388929/2-A	Low Level Control Sample	T	Water	9012A	280-388929
MB 280-388929/4-A	Method Blank	T	Water	9012A	280-388929
280-101162-F-57-A MS	Matrix Spike	T	Water	9012A	280-388929
280-101162-E-57-A MSD	Matrix Spike Duplicate	T	Water	9012A	280-388929
280-101170-1	MW-4A	T	Water	9012A	280-388929
280-101170-2	MW-4B	T	Water	9012A	280-388929
Analysis Batch:280-389195					
LCS 280-388889/1-A	Lab Control Sample	T	Water	351.2	280-388889
MB 280-388889/2-A	Method Blank	T	Water	351.2	280-388889
280-101170-1	MW-4A	T	Water	351.2	280-388889
280-101170-2	MW-4B	T	Water	351.2	280-388889
280-101170-2MS	Matrix Spike	T	Water	351.2	280-388889
280-101170-2MSD	Matrix Spike Duplicate	T	Water	351.2	280-388889
Analysis Batch:280-389198					
MB 280-389198/1	Method Blank	T	Water	SM 1030E	
280-101170-1	MW-4A	T	Water	SM 1030E	
280-101170-2	MW-4B	T	Water	SM 1030E	

Report Basis
T = Total

Client: Waste Management Job Number: 280-101170-1

Surrogate Recovery Report

8260B Volatile Organic Compounds (GC/MS)

Client Matrix: Water

Lab Sample ID	Client Sample ID	DCA %Rec	BFB %Rec	DBFM %Rec	TOL %Rec
280-101170-1	MW-4A	95	103	101	105
280-101170-2	MW-4B	103	101	103	101
MB 280-389018/6		108	103	108	101
LCS 280-389018/4		106	102	109	103
LCS 280-389018/10		110	105	114	107
LCSD 280-389018/11		107	102	108	102
280-101245-A-20 MS		112	99	108	101
280-101245-A-20 MSD		111	102	110	102

Surrogate	Acceptance Limits
DCA = 1,2-Dichloroethane-d4 (Surr)	70-127
BFB = 4-Bromofluorobenzene (Surr)	78-120
DBFM = Dibromofluoromethane (Surr)	77-120
TOL = Toluene-d8 (Surr)	80-125

Surrogate Recovery Report

8270C Semivolatile Organic Compounds (GC/MS)

Client Matrix: Water

Lab Sample ID	Client Sample ID	TBP %Rec	FBP %Rec	2FP %Rec	NBZ %Rec	PHL %Rec	TPHL %Rec
280-101170-1	MW-4A	80	64	66	64	67	92
280-101170-2	MW-4B	75	67	65	66	64	43
MB 280-387938/1-A		63	58	56	58	55	80
LCS 280-387938/2-A		84	79	81	82	81	86
LCS 280-387938/3-A		80	79	74	80	70	82
LCSD 280-387938/4-A		87	80	70	72	72	88
280-101169-E-2-A MS		89	81	85	85	88	54
280-101169-F-2-A MSD		84	78	66	74	78	52

Surrogate	Acceptance Limits
TBP = 2,4,6-Tribromophenol	48-135
FBP = 2-Fluorobiphenyl	48-135
2FP = 2-Fluorophenol	41-135
NBZ = Nitrobenzene-d5	42-135
PHL = Phenol-d5	46-135
TPHL = Terphenyl-d14	20-135

Client: Waste Management

Job Number: 280-101170-1

Surrogate Recovery Report

8011 EDB, DBCP, and 1,2,3-TCP (GC)

Client Matrix: Water

Lab Sample ID	Client Sample ID	12DBP1 %Rec
280-101170-1	MW-4A	102
280-101170-2	MW-4B	102
MB 280-389141/2-A		146X
LCS 280-389141/3-A		118
LCSD 280-389141/4-A		116

Surrogate	Acceptance Limits
12DBP = 1,2-Dibromopropane	70-130

Surrogate Recovery Report

8081A Organochlorine Pesticides (GC)

Client Matrix: Water

Lab Sample ID	Client Sample ID	TCX1 %Rec	DCBP1 %Rec
280-101170-1	MW-4A	79	92
280-101170-2	MW-4B	74	61
MB 280-388127/1-A		80	99
LCS 280-388127/2-A		81	99
LCSD 280-388127/3-A		81	101

Surrogate	Acceptance Limits
TCX = Tetrachloro-m-xylene	28-115
DCBP = DCB Decachlorobiphenyl	34-122

Surrogate Recovery Report

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Client Matrix: Water

Lab Sample ID	Client Sample ID	DCBP1 %Rec	TCX1 %Rec
280-101170-1	MW-4A	103	93
280-101170-2	MW-4B	65	90
MB 280-388127/1-A		108	100
LCS 280-388127/4-A		98	88
LCSD 280-388127/5-A		103	92

Surrogate	Acceptance Limits
DCBP = DCB Decachlorobiphenyl	30-136
TCX = Tetrachloro-m-xylene	25-120

Surrogate Recovery Report

8141A Organophosphorous Pesticides (GC)

Client Matrix: Water

Lab Sample ID	Client Sample ID	TPP1 %Rec	CMF1 %Rec
280-101170-1	MW-4A	65	73
280-101170-2	MW-4B	71	83
MB 280-387771/1-A		75	54
MB 280-388296/1-A		84	81
LCS 280-387771/2-A		91	49
LCS 280-388296/2-A		86	70
LCSD 280-387771/3-A		75	51
LCSD 280-388296/3-A		80	67

Surrogate	Acceptance Limits
TPP = Triphenylphosphate	60-154
CMF = Chlormefos	49-171

Client: Waste Management

Job Number: 280-101170-1

Surrogate Recovery Report

8151A Herbicides (GC)

Client Matrix: Water

Lab Sample ID	Client Sample ID	DCPAA1 %Rec
280-101170-1	MW-4A	79
280-101170-2	MW-4B	74

Surrogate	Acceptance Limits
DCPAA = 2,4-Dichlorophenylacetic acid	39-135

Method Blank - Batch: 280-389018

Method: 8260B
Preparation: 5030B

Lab Sample ID:	MB 280-389018/6	Analysis Batch:	280-389018	Instrument ID:	VMS_MS9
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	MS9_1331.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	20 mL
Analysis Date:	09/26/2017 1958	Units:	ug/L	Final Weight/Volume:	20 mL
Prep Date:	09/26/2017 1958				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
1,1,1,2-Tetrachloroethane	ND		0.21	1.0
1,1,1-Trichloroethane	ND		0.16	1.0
1,1,2,2-Tetrachloroethane	ND		0.21	1.0
1,1,2-Trichloroethane	ND		0.27	1.0
1,1-Dichloroethane	ND		0.22	1.0
1,1-Dichloroethene	ND		0.23	1.0
1,1-Dichloropropene	ND		0.19	1.0
1,2,3-Trichloropropane	ND		0.33	2.5
1,2,4-Trichlorobenzene	ND		0.21	1.0
1,2-Dichlorobenzene	ND		0.15	1.0
1,2-Dichloroethane	ND		0.13	0.50
1,2-Dichloropropane	ND		0.18	1.0
1,3-Dichlorobenzene	ND		0.13	1.0
1,3-Dichloropropane	ND		0.22	1.0
1,4-Dichlorobenzene	ND		0.16	1.0
2,2-Dichloropropane	ND		0.18	1.0
2-Butanone (MEK)	ND		2.0	6.0
2-Hexanone	ND		1.7	5.0
4-Methyl-2-pentanone (MIBK)	ND		0.98	5.0
Acetone	ND		1.9	10
Acetonitrile	ND		9.6	30
Acrolein	ND		2.8	20
Acrylonitrile	ND		1.4	20
Allyl chloride	ND		0.17	2.0
Benzene	ND		0.16	1.0
Bromochloromethane	ND		0.10	1.0
Bromodichloromethane	ND		0.17	1.0
Bromoform	ND		0.19	1.0
Bromomethane	ND		0.21	2.0
Carbon disulfide	ND		0.45	2.0
Carbon tetrachloride	ND		0.19	0.50
Chlorobenzene	ND		0.17	1.0
Chloroethane	ND		0.41	2.0
Chloroform	ND		0.16	1.0
Chloromethane	ND		0.30	2.0
Chloroprene	ND		0.21	1.0
cis-1,2-Dichloroethene	ND		0.15	1.0
cis-1,3-Dichloropropene	ND		0.16	1.0
Dibromochloromethane	ND		0.17	1.0
Dibromomethane	ND		0.17	1.0
Dichlorodifluoromethane	ND		0.31	2.0
Dichlorofluoromethane	ND		0.22	2.0
Diethyl ether	ND		0.26	2.0
Ethanol	ND		94	300
Ethyl methacrylate	ND		0.86	3.0

Client: Waste Management

Job Number: 280-101170-1

Method Blank - Batch: 280-389018

Method: 8260B
Preparation: 5030B

Lab Sample ID:	MB 280-389018/6	Analysis Batch:	280-389018	Instrument ID:	VMS_MS9
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	MS9_1331.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	20 mL
Analysis Date:	09/26/2017 1958	Units:	ug/L	Final Weight/Volume:	20 mL
Prep Date:	09/26/2017 1958				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Ethylbenzene	ND		0.16	1.0
Hexachlorobutadiene	ND		0.36	1.0
Iodomethane	ND		0.23	1.0
Isobutyl alcohol	ND		37	110
Isopropyl ether	ND		0.74	10
Methacrylonitrile	ND		1.6	10
Methyl methacrylate	ND		1.1	4.0
Methyl tert-butyl ether	ND		0.25	5.0
Methylene Chloride	ND		0.32	2.0
Naphthalene	ND		0.22	1.0
Propionitrile	ND		3.7	20
Styrene	ND		0.17	1.0
Tert-amyl methyl ether	ND		1.4	5.0
tert-Butyl alcohol	ND		11	50
Tert-butyl ethyl ether	ND		1.2	5.0
Tetrachloroethene	ND		0.20	1.0
Tetrahydrofuran	ND		2.0	7.0
Toluene	ND		0.17	1.0
trans-1,2-Dichloroethene	ND		0.15	1.0
trans-1,3-Dichloropropene	ND		0.19	3.0
trans-1,4-Dichloro-2-butene	ND		0.80	3.0
Trichloroethene	ND		0.16	1.0
Trichlorofluoromethane	ND		0.29	2.0
Vinyl acetate	ND		0.94	3.0
Vinyl chloride	ND		0.10	0.50
Xylenes, Total	ND		0.19	2.0

Surrogate	% Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	108	70 - 127
4-Bromofluorobenzene (Surr)	103	78 - 120
Dibromofluoromethane (Surr)	108	77 - 120
Toluene-d8 (Surr)	101	80 - 125

Method Blank TICs- Batch: 280-389018

Cas Number	Analyte	RT	Est. Result (ug/	Qual
556-67-2	Cyclotetrasiloxane, octamethyl-	10.39	18.2	T J N
	Unknown	6.48	1.36	T J
	Unknown	14.28	3.24	T J
	Unknown	12.95	3.82	T J
	Unknown	12.14	8.86	T J

Lab Control Sample - Batch: 280-389018

Method: 8260B
Preparation: 5030B

Lab Sample ID:	LCS 280-389018/4	Analysis Batch:	280-389018	Instrument ID:	VMS_MS9
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	MS9_1330.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	20 mL
Analysis Date:	09/26/2017 1937	Units:	ug/L	Final Weight/Volume:	20 mL
Prep Date:	09/26/2017 1937				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
1,1,1,2-Tetrachloroethane	5.00	5.13	103	65 - 135	
1,1,1-Trichloroethane	5.00	5.82	116	65 - 135	
1,1,2,2-Tetrachloroethane	5.00	4.97	99	58 - 135	
1,1,2-Trichloroethane	5.00	5.47	109	64 - 135	
1,1-Dichloroethane	5.00	5.41	108	65 - 135	
1,1-Dichloroethene	5.00	5.06	101	65 - 136	
1,1-Dichloropropene	5.00	6.16	123	65 - 135	
1,2,3-Trichloropropane	5.00	5.10	102	65 - 135	
1,2,4-Trichlorobenzene	5.00	4.97	99	58 - 135	
1,2-Dichlorobenzene	5.00	5.00	100	65 - 135	
1,2-Dichloroethane	5.00	5.02	100	65 - 135	
1,2-Dichloropropane	5.00	5.31	106	64 - 135	
1,3-Dichlorobenzene	5.00	5.06	101	65 - 135	
1,3-Dichloropropane	5.00	4.67	93	64 - 135	
1,4-Dichlorobenzene	5.00	5.09	102	65 - 135	
2,2-Dichloropropane	5.00	5.78	116	65 - 135	
2-Butanone (MEK)	20.0	21.0	105	44 - 177	
2-Hexanone	20.0	18.0	90	57 - 139	
4-Methyl-2-pentanone (MIBK)	20.0	19.9	100	60 - 150	
Acetone	20.0	15.9	80	39 - 156	
Acrolein	50.0	44.6	89	36 - 147	
Acrylonitrile	50.0	49.4	99	56 - 135	
Allyl chloride	5.00	5.42	108	50 - 135	
Benzene	5.00	5.68	114	65 - 135	
Bromochloromethane	5.00	5.49	110	65 - 135	
Bromodichloromethane	5.00	5.38	108	65 - 135	
Bromoform	5.00	4.73	95	62 - 135	
Bromomethane	5.00	3.67	73	45 - 135	
Carbon disulfide	5.00	5.59	112	55 - 143	
Carbon tetrachloride	5.00	5.95	119	65 - 135	
Chlorobenzene	5.00	5.11	102	65 - 135	
Chloroethane	5.00	3.85	77	46 - 136	
Chloroform	5.00	5.32	106	65 - 135	
Chloromethane	5.00	3.75	75	34 - 145	
cis-1,2-Dichloroethene	5.00	5.44	109	65 - 135	
cis-1,3-Dichloropropene	5.00	4.91	98	65 - 135	
Dibromochloromethane	5.00	4.64	93	65 - 135	
Dibromomethane	5.00	5.13	103	65 - 135	
Dichlorodifluoromethane	5.00	5.15	103	43 - 142	
Dichlorofluoromethane	5.00	4.50	90	61 - 135	
Diethyl ether	5.00	4.07	81	51 - 143	

Client: Waste Management

Job Number: 280-101170-1

Lab Control Sample - Batch: 280-389018

Method: 8260B
Preparation: 5030B

Lab Sample ID:	LCS 280-389018/4	Analysis Batch:	280-389018	Instrument ID:	VMS_MS9
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	MS9_1330.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	20 mL
Analysis Date:	09/26/2017 1937	Units:	ug/L	Final Weight/Volume:	20 mL
Prep Date:	09/26/2017 1937				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Ethyl methacrylate	5.00	4.72	94	50 - 135	
Ethylbenzene	5.00	5.34	107	65 - 135	
Hexachlorobutadiene	5.00	5.35	107	65 - 135	
Iodomethane	5.00	5.39	108	65 - 142	
Isobutyl alcohol	125	127	102	55 - 135	
Methyl tert-butyl ether	5.00	5.06	101	54 - 135	
Methylene Chloride	5.00	4.93	99	54 - 141	
Naphthalene	5.00	4.69	94	42 - 135	
Styrene	5.00	5.00	100	65 - 135	
tert-Butyl alcohol	50.0	48.7	97	50 - 143	J
Tetrachloroethene	5.00	5.69	114	65 - 135	
Tetrahydrofuran	10.0	9.90	99	42 - 136	
Toluene	5.00	5.85	117	65 - 135	
trans-1,2-Dichloroethene	5.00	5.90	118	65 - 135	
trans-1,3-Dichloropropene	5.00	5.42	108	65 - 135	
trans-1,4-Dichloro-2-butene	5.00	5.05	101	53 - 135	
Trichloroethene	5.00	5.96	119	65 - 135	
Trichlorofluoromethane	5.00	4.51	90	53 - 137	
Vinyl acetate	10.0	9.15	91	11 - 187	
Vinyl chloride	5.00	4.31	86	40 - 137	
Xylenes, Total	10.0	10.5	105	65 - 135	

Surrogate	% Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	106	70 - 127
4-Bromofluorobenzene (Surr)	102	78 - 120
Dibromofluoromethane (Surr)	109	77 - 120
Toluene-d8 (Surr)	103	80 - 125

Client: Waste Management Job Number: 280-101170-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-389018

Method: 8260B
Preparation: 5030B

LCS Lab Sample ID:	LCS 280-389018/10	Analysis Batch:	280-389018	Instrument ID:	VMS_MS9
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	MS9_1332.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	20 mL
Analysis Date:	09/26/2017 2019	Units:	ug/L	Final Weight/Volume:	20 mL
Prep Date:	09/26/2017 2019				1 uL
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-389018/11	Analysis Batch:	280-389018	Instrument ID:	VMS_MS9
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	MS9_1333.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	20 mL
Analysis Date:	09/26/2017 2040	Units:	ug/L	Final Weight/Volume:	20 mL
Prep Date:	09/26/2017 2040				1 uL
Leach Date:	N/A				

Analyte	% Rec. LCS	% Rec. LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Acetonitrile	129	105	50 - 150	21	30		
Chloroprene	100	90	50 - 150	10	30		
Ethanol	69	81	50 - 150	15	30	J	J
Isopropyl ether	125	118	50 - 150	5	30	J	J
Methacrylonitrile	147	143	50 - 150	3	30		
Methyl methacrylate	143	134	50 - 150	7	30		
Propionitrile	151	149	50 - 150	2	30	*	
Tert-amyl methyl ether	138	136	50 - 150	2	30		
Tert-butyl ethyl ether	127	124	50 - 150	2	30		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	110	107	70 - 127
4-Bromofluorobenzene (Surr)	105	102	78 - 120
Dibromofluoromethane (Surr)	114	108	77 - 120
Toluene-d8 (Surr)	107	102	80 - 125

Client: Waste Management

Job Number: 280-101170-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-389018

Method: 8260B
Preparation: 5030B

MS Lab Sample ID:	280-101245-A-20 MS	Analysis Batch:	280-389018	Instrument ID:	VMS_MS9
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	MS9_1342.D
Dilution:	10	Leach Batch:	N/A	Initial Weight/Volume:	20 mL
Analysis Date:	09/26/2017 2348			Final Weight/Volume:	20 mL
Prep Date:	09/26/2017 2348				1 uL
Leach Date:	N/A				

MSD Lab Sample ID:	280-101245-A-20 MSD	Analysis Batch:	280-389018	Instrument ID:	VMS_MS9
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	MS9_1343.D
Dilution:	10	Leach Batch:	N/A	Initial Weight/Volume:	20 mL
Analysis Date:	09/27/2017 0009			Final Weight/Volume:	20 mL
Prep Date:	09/27/2017 0009				1 uL
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
1,1,1,2-Tetrachloroethane	105	102	65 - 135	3	20		
1,1,1-Trichloroethane	118	117	65 - 135	1	20		
1,1,2,2-Tetrachloroethane	101	99	58 - 135	3	20		
1,1,2-Trichloroethane	114	112	64 - 135	2	27		
1,1-Dichloroethane	117	114	65 - 135	3	21		
1,1-Dichloroethene	97	93	65 - 136	4	20		
1,1-Dichloropropene	122	121	65 - 135	1	21		
1,2,3-Trichloropropane	101	98	65 - 135	3	23		
1,2,4-Trichlorobenzene	102	101	58 - 135	1	25		
1,2-Dichlorobenzene	103	99	65 - 135	4	20		
1,2-Dichloroethane	111	109	65 - 135	2	20		
1,2-Dichloropropane	116	113	64 - 135	3	20		
1,3-Dichlorobenzene	103	101	65 - 135	1	20		
1,3-Dichloropropane	100	97	64 - 135	3	20		
1,4-Dichlorobenzene	105	101	65 - 135	3	23		
2,2-Dichloropropane	115	110	65 - 135	5	20		
2-Butanone (MEK)	117	112	44 - 177	5	32		
2-Hexanone	101	96	57 - 139	5	25		
4-Methyl-2-pentanone (MIBK)	113	109	60 - 150	3	22		
Acetone	95	87	39 - 156	8	23		
Acrolein	86	86	36 - 147	1	30		
Acrylonitrile	109	93	56 - 135	16	30		
Allyl chloride	104	94	50 - 135	11	30		
Benzene	117	116	65 - 135	2	20		
Bromochloromethane	109	108	65 - 135	1	29		
Bromodichloromethane	117	112	65 - 135	4	20		
Bromoform	95	93	62 - 135	3	27		
Bromomethane	78	77	45 - 135	2	33		
Carbon disulfide	99	91	55 - 143	9	20		
Carbon tetrachloride	121	118	65 - 135	2	21		
Chlorobenzene	105	103	65 - 135	1	20		
Chloroethane	81	78	46 - 136	3	25		

Client: Waste Management

Job Number: 280-101170-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-389018

Method: 8260B
Preparation: 5030B

MS Lab Sample ID:	280-101245-A-20 MS	Analysis Batch:	280-389018	Instrument ID:	VMS_MS9
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	MS9_1342.D
Dilution:	10	Leach Batch:	N/A	Initial Weight/Volume:	20 mL
Analysis Date:	09/26/2017 2348			Final Weight/Volume:	20 mL
Prep Date:	09/26/2017 2348				1 uL
Leach Date:	N/A				

MSD Lab Sample ID:	280-101245-A-20 MSD	Analysis Batch:	280-389018	Instrument ID:	VMS_MS9
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	MS9_1343.D
Dilution:	10	Leach Batch:	N/A	Initial Weight/Volume:	20 mL
Analysis Date:	09/27/2017 0009			Final Weight/Volume:	20 mL
Prep Date:	09/27/2017 0009				1 uL
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Chloroform	116	113	65 - 135	2	20		
Chloromethane	84	79	34 - 145	7	24		
cis-1,2-Dichloroethene	113	112	65 - 135	1	20		
cis-1,3-Dichloropropene	99	98	65 - 135	1	26		
Dibromochloromethane	94	92	65 - 135	3	20		
Dibromomethane	106	104	65 - 135	2	26		
Dichlorodifluoromethane	105	95	43 - 142	10	30		
Dichlorofluoromethane	96	92	61 - 135	3	24		
Diethyl ether	89	86	51 - 143	3	30		
Ethyl methacrylate	96	93	50 - 135	4	30		
Ethylbenzene	108	106	65 - 135	2	20		
Hexachlorobutadiene	109	105	65 - 135	3	25		
Iodomethane	95	91	65 - 142	4	25		
Isobutyl alcohol	127	129	55 - 135	1	30		
Methyl tert-butyl ether	110	94	54 - 135	16	21		
Methylene Chloride	102	85	54 - 141	18	26		
Naphthalene	98	97	42 - 135	1	23		
Styrene	103	101	65 - 135	2	26		
tert-Butyl alcohol	103	84	50 - 143	20	30		
Tetrachloroethene	107	111	65 - 135	3	20		
Tetrahydrofuran	120	110	42 - 136	9	30		
Toluene	119	118	65 - 135	1	20		
trans-1,2-Dichloroethene	119	107	65 - 135	11	24		
trans-1,3-Dichloropropene	114	112	65 - 135	1	26		
trans-1,4-Dichloro-2-butene	101	99	53 - 135	2	25		
Trichloroethene	117	115	65 - 135	2	20		
Trichlorofluoromethane	95	88	53 - 137	7	27		
Vinyl acetate	94	95	11 - 187	1	24		
Vinyl chloride	90	83	40 - 137	8	24		
Xylenes, Total	107	106	65 - 135	1	20		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits

Client: Waste Management

Job Number: 280-101170-1

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	112	111	70 - 127
4-Bromofluorobenzene (Surr)	99	102	78 - 120
Dibromofluoromethane (Surr)	108	110	77 - 120
Toluene-d8 (Surr)	101	102	80 - 125

Method Blank - Batch: 280-387938

Method: 8270C
Preparation: 3520C

Lab Sample ID:	MB 280-387938/1-A	Analysis Batch:	280-389003	Instrument ID:	SMS_G6
Client Matrix:	Water	Prep Batch:	280-387938	Lab File ID:	G6_30870.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1000 mL
Analysis Date:	09/26/2017 1849	Units:	ug/L	Final Weight/Volume:	1 mL
Prep Date:	09/18/2017 0940			Injection Volume:	0.5 uL
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
1,2,4,5-Tetrachlorobenzene	ND		1.7	10
1,2,4-Trichlorobenzene	ND		0.28	10
1,3,5-Trinitrobenzene	ND		4.0	50
1,3-Dinitrobenzene	ND		2.0	10
1,4-Dichlorobenzene	ND		0.32	4.0
1,4-Naphthoquinone	ND		14	50
1-Naphthylamine	ND		3.1	10
2,3,4,6-Tetrachlorophenol	ND		2.0	50
2,4,5-Trichlorophenol	ND		0.45	10
2,4,6-Trichlorophenol	ND		0.29	10
2,4-Dichlorophenol	ND		0.64	10
2,4-Dimethylphenol	ND		0.58	10
2,4-Dinitrophenol	ND		10	50
2,4-Dinitrotoluene	ND		1.7	10
2,6-Dichlorophenol	ND		1.4	10
2,6-Dinitrotoluene	ND		1.9	10
2-Acetylaminofluorene	ND		7.0	100
2-Chloronaphthalene	ND		0.26	10
2-Chlorophenol	ND		2.0	10
2-Methylnaphthalene	ND		0.29	10
2-Methylphenol	ND		0.98	10
2-Naphthylamine	ND		3.1	10
2-Nitroaniline	ND		1.7	50
2-Nitrophenol	ND		0.39	10
3,3'-Dichlorobenzidine	ND		2.0	50
3,3'-Dimethylbenzidine	ND		4.0	20
3-Methylcholanthrene	ND		1.7	20
3-Methylphenol	ND		0.25	10
3-Nitroaniline	ND		2.0	50
4,6-Dinitro-2-methylphenol	ND		4.0	50
4-Aminobiphenyl	ND		4.5	50
4-Bromophenyl phenyl ether	ND		0.43	10
4-Chloro-3-methylphenol	ND		2.4	10
4-Chloroaniline	ND		2.1	10
4-Chlorophenyl phenyl ether	ND		1.7	10
4-Dimethylaminoazobenzene	ND		2.0	20
4-Methylphenol	ND		0.25	10
4-Nitroaniline	ND		2.0	50
4-Nitrophenol	ND		1.2	50
4-Phenylenediamine	ND		5.0	100
5-Nitro-o-toluidine	ND		1.4	20
7,12-Dimethylbenz(a)anthracene	ND		1.6	20
Acenaphthene	ND		0.28	10
Acenaphthylene	ND		0.49	10
Acetophenone	ND		0.24	10

Client: Waste Management

Job Number: 280-101170-1

Method Blank - Batch: 280-387938

Method: 8270C
Preparation: 3520C

Lab Sample ID:	MB 280-387938/1-A	Analysis Batch:	280-389003	Instrument ID:	SMS_G6
Client Matrix:	Water	Prep Batch:	280-387938	Lab File ID:	G6_30870.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1000 mL
Analysis Date:	09/26/2017 1849	Units:	ug/L	Final Weight/Volume:	1 mL
Prep Date:	09/18/2017 0940			Injection Volume:	0.5 uL
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Anthracene	ND		0.42	10
Benzo[a]anthracene	ND		0.35	10
Benzo[a]pyrene	ND		0.31	10
Benzo[b]fluoranthene	ND		0.53	10
Benzo[g,h,i]perylene	ND		0.50	10
Benzo[k]fluoranthene	ND		0.46	10
Benzyl alcohol	ND		0.23	10
bis(2 chloro-1-methylethyl) ether	ND		0.28	10
Bis(2-chloroethoxy)methane	ND		0.97	10
Bis(2-chloroethyl)ether	ND		0.41	10
Bis(2-ethylhexyl) phthalate	ND		0.56	10
Butyl benzyl phthalate	ND		1.0	10
Carbazole	ND		0.43	4.0
Chlorobenzilate	ND		0.66	10
Chrysene	ND		0.54	10
Diallate	ND		0.56	20
Dibenz(a,h)anthracene	ND		0.51	10
Dibenzofuran	ND		0.29	10
Dibutylphthalate	ND		1.2	10
Diethyl phthalate	ND		0.38	10
Dimethyl phthalate	ND		0.21	10
Di-n-octyl phthalate	ND		0.35	10
Diphenylamine	ND		1.1	10
Ethyl methanesulfonate	ND		0.94	10
Famphur	ND		1.5	200
Fluoranthene	ND		0.20	10
Fluorene	ND		0.31	10
Hexachlorobenzene	ND		0.66	10
Hexachlorocyclopentadiene	ND		10	50
Hexachloroethane	ND		2.1	10
Hexachloropropene	ND		2.0	100
Indeno[1,2,3-cd]pyrene	ND		0.65	10
Isodrin	ND		1.8	10
Isophorone	ND		0.21	10
Isosafrole	ND		1.0	20
Methapyrilene	ND		20	50
Methyl methanesulfonate	ND		1.0	10
Nitrobenzene	ND		0.81	10
N-Nitrosodiethylamine	ND		1.7	10
N-Nitrosodimethylamine	ND		0.29	10
N-Nitrosodi-n-butylamine	ND		1.2	10
N-Nitrosodi-n-propylamine	ND		0.35	10
N-Nitrosodiphenylamine	ND		0.44	10
N-Nitrosomethylethylamine	ND		1.8	10
N-Nitrosopiperidine	ND		2.0	10

Client: Waste Management

Job Number: 280-101170-1

Method Blank - Batch: 280-387938

Method: 8270C
Preparation: 3520C

Lab Sample ID:	MB 280-387938/1-A	Analysis Batch:	280-389003	Instrument ID:	SMS_G6
Client Matrix:	Water	Prep Batch:	280-387938	Lab File ID:	G6_30870.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1000 mL
Analysis Date:	09/26/2017 1849	Units:	ug/L	Final Weight/Volume:	1 mL
Prep Date:	09/18/2017 0940			Injection Volume:	0.5 uL
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
N-Nitrosopyrrolidine	ND		0.80	10
o,o',o''-Triethylphosphorothioate	ND		2.0	50
o-Toluidine	ND		1.4	10
Pentachlorobenzene	ND		2.0	10
Pentachloronitrobenzene	ND		2.0	50
Pentachlorophenol	ND		20	50
Phenacetin	ND		1.1	20
Phenanthrene	ND		0.26	10
Phenol	ND		2.0	10
Pronamide	ND		2.0	20
Pyrene	ND		0.37	10
Safrole	ND		1.1	50

Surrogate	% Rec	Acceptance Limits
2,4,6-Tribromophenol	63	48 - 135
2-Fluorobiphenyl	58	48 - 135
2-Fluorophenol	56	41 - 135
Nitrobenzene-d5	58	42 - 135
Phenol-d5	55	46 - 135
Terphenyl-d14	80	20 - 135

Lab Control Sample - Batch: 280-387938

Method: 8270C
Preparation: 3520C

Lab Sample ID:	LCS 280-387938/2-A	Analysis Batch:	280-389003	Instrument ID:	SMS_G6
Client Matrix:	Water	Prep Batch:	280-387938	Lab File ID:	G6_30871.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1000 mL
Analysis Date:	09/26/2017 1915	Units:	ug/L	Final Weight/Volume:	1 mL
Prep Date:	09/18/2017 0940			Injection Volume:	0.5 uL
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
1,2,4,5-Tetrachlorobenzene	80.0	65.0	81	52 - 135	
1,2,4-Trichlorobenzene	80.0	60.4	76	44 - 135	
1,3-Dinitrobenzene	80.0	73.4	92	65 - 135	
1,4-Dichlorobenzene	80.0	54.3	68	40 - 135	
2,3,4,6-Tetrachlorophenol	80.0	71.6	90	64 - 135	
2,4,5-Trichlorophenol	80.0	68.4	86	64 - 135	
2,4,6-Trichlorophenol	80.0	73.0	91	62 - 135	
2,4-Dichlorophenol	80.0	67.8	85	62 - 135	
2,4-Dimethylphenol	80.0	58.6	73	44 - 135	
2,4-Dinitrophenol	160	133	83	50 - 135	
2,4-Dinitrotoluene	80.0	71.9	90	65 - 135	
2,6-Dichlorophenol	80.0	68.1	85	50 - 150	
2,6-Dinitrotoluene	80.0	70.4	88	65 - 135	
2-Chloronaphthalene	80.0	64.7	81	59 - 135	
2-Chlorophenol	80.0	66.9	84	58 - 135	
2-Methylnaphthalene	80.0	65.5	82	56 - 135	
2-Methylphenol	80.0	66.7	83	62 - 135	
2-Nitroaniline	80.0	70.9	89	65 - 135	
2-Nitrophenol	80.0	68.8	86	65 - 135	
3,3'-Dichlorobenzidine	160	119	74	18 - 135	
3-Methylphenol	80.0	61.9	77	65 - 135	
3-Nitroaniline	80.0	57.4	72	38 - 135	
4,6-Dinitro-2-methylphenol	160	143	89	63 - 135	
4-Bromophenyl phenyl ether	80.0	68.6	86	65 - 135	
4-Chloro-3-methylphenol	80.0	68.7	86	65 - 135	
4-Chloroaniline	80.0	54.5	68	30 - 135	
4-Chlorophenyl phenyl ether	80.0	66.0	83	65 - 135	
4-Methylphenol	80.0	61.9	77	65 - 135	
4-Nitroaniline	80.0	65.4	82	65 - 135	
4-Nitrophenol	160	143	89	56 - 135	
Acenaphthene	80.0	66.6	83	61 - 135	
Acenaphthylene	80.0	65.2	82	63 - 135	
Acetophenone	80.0	64.0	80	65 - 135	
Anthracene	80.0	67.3	84	65 - 135	
Benzo[a]anthracene	80.0	68.4	86	65 - 135	
Benzo[a]pyrene	80.0	67.8	85	65 - 135	
Benzo[b]fluoranthene	80.0	67.7	85	65 - 135	
Benzo[g,h,i]perylene	80.0	67.1	84	65 - 135	
Benzo[k]fluoranthene	80.0	74.6	93	65 - 135	
Benzyl alcohol	80.0	65.6	82	65 - 135	
bis(2 chloro-1-methylethyl) ether	80.0	64.0	80	55 - 135	

Client: Waste Management

Job Number: 280-101170-1

Lab Control Sample - Batch: 280-387938

Method: 8270C
Preparation: 3520C

Lab Sample ID:	LCS 280-387938/2-A	Analysis Batch:	280-389003	Instrument ID:	SMS_G6
Client Matrix:	Water	Prep Batch:	280-387938	Lab File ID:	G6_30871.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1000 mL
Analysis Date:	09/26/2017 1915	Units:	ug/L	Final Weight/Volume:	1 mL
Prep Date:	09/18/2017 0940			Injection Volume:	0.5 uL
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Bis(2-chloroethoxy)methane	80.0	67.8	85	65 - 135	
Bis(2-chloroethyl)ether	80.0	69.0	86	65 - 135	
Bis(2-ethylhexyl) phthalate	80.0	67.6	85	65 - 135	
Butyl benzyl phthalate	80.0	69.8	87	65 - 135	
Carbazole	80.0	67.6	84	65 - 135	
Chrysene	80.0	71.4	89	65 - 135	
Dibenz(a,h)anthracene	80.0	66.5	83	63 - 135	
Dibenzofuran	80.0	66.7	83	64 - 135	
Dibutylphthalate	80.0	68.3	85	65 - 135	
Diethyl phthalate	80.0	68.5	86	65 - 135	
Dimethyl phthalate	80.0	68.9	86	65 - 135	
Di-n-octyl phthalate	80.0	62.3	78	65 - 135	
Diphenylamine	68.0	57.4	84	50 - 150	
Fluoranthene	80.0	67.4	84	65 - 135	
Fluorene	80.0	65.3	82	65 - 135	
Hexachlorobenzene	80.0	68.1	85	65 - 135	
Hexachlorocyclopentadiene	158	68.5	43	10 - 135	
Hexachloroethane	80.0	52.4	65	32 - 135	
Indeno[1,2,3-cd]pyrene	80.0	56.3	70	65 - 135	
Isophorone	80.0	63.8	80	65 - 135	
Nitrobenzene	80.0	68.5	86	65 - 135	
N-Nitrosodimethylamine	80.0	65.4	82	62 - 150	
N-Nitrosodi-n-propylamine	80.0	64.0	80	65 - 135	
N-Nitrosodiphenylamine	80.0	68.1	85	65 - 135	
Pentachlorophenol	160	132	83	52 - 135	
Phenanthrene	80.0	68.1	85	65 - 135	
Phenol	80.0	66.6	83	61 - 135	
Pyrene	80.0	70.1	88	65 - 135	

Surrogate	% Rec	Acceptance Limits
2,4,6-Tribromophenol	84	48 - 135
2-Fluorobiphenyl	79	48 - 135
2-Fluorophenol	81	41 - 135
Nitrobenzene-d5	82	42 - 135
Phenol-d5	81	46 - 135
Terphenyl-d14	86	20 - 135

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-387938

Method: 8270C
Preparation: 3520C

LCS Lab Sample ID:	LCS 280-387938/3-A	Analysis Batch:	280-389003	Instrument ID:	SMS_G6
Client Matrix:	Water	Prep Batch:	280-387938	Lab File ID:	G6_30872.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1000 mL
Analysis Date:	09/26/2017 1942	Units:	ug/L	Final Weight/Volume:	1 mL
Prep Date:	09/18/2017 0940			Injection Volume:	0.5 uL
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-387938/4-A	Analysis Batch:	280-389003	Instrument ID:	SMS_G6
Client Matrix:	Water	Prep Batch:	280-387938	Lab File ID:	G6_30873.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1000 mL
Analysis Date:	09/26/2017 2008	Units:	ug/L	Final Weight/Volume:	1 mL
Prep Date:	09/18/2017 0940			Injection Volume:	0.5 uL
Leach Date:	N/A				

Analyte	% Rec. LCS	% Rec. LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
1,3,5-Trinitrobenzene	84	89	50 - 150	6	50		
1,4-Naphthoquinone	89	95	50 - 150	7	50		
1-Naphthylamine	62	70	50 - 150	13	50		
2-Acetylaminofluorene	85	94	50 - 150	10	50	J	J
2-Naphthylamine	62	71	50 - 150	13	50		
3,3'-Dimethylbenzidine	44	50	50 - 150	13	50	*	
3-Methylcholanthrene	73	79	50 - 150	9	50		
4-Aminobiphenyl	64	71	50 - 150	11	50		
4-Dimethylaminoazobenzene	88	95	50 - 150	7	50		
4-Phenylenediamine	37	34	50 - 150	8	50	J *	J *
5-Nitro-o-toluidine	73	80	50 - 150	10	50		
7,12-Dimethylbenz(a)anthracene	73	78	50 - 150	7	50		
Chlorobenzilate	87	94	50 - 150	7	50		
Diallate	89	94	50 - 150	6	50		
Ethyl methanesulfonate	81	74	50 - 150	9	50		
Hexachloropropene	72	58	50 - 150	21	50	J	J
Isodrin	89	94	50 - 150	6	50		
Isosafrole	76	77	50 - 150	1	50		
Methapyrilene	59	64	50 - 150	8	50	J	
Methyl methanesulfonate	75	68	50 - 150	8	50		
N-Nitrosodiethylamine	86	76	50 - 150	11	50		
N-Nitrosodi-n-butylamine	86	88	50 - 150	2	50		
N-Nitrosomethylethylamine	85	75	50 - 150	12	50		
N-Nitrosopiperidine	84	81	50 - 150	4	50		
N-Nitrosopyrrolidine	84	82	50 - 150	2	50		
o,o',o''-Triethylphosphorothioate	84	75	50 - 150	11	50		
o-Toluidine	68	63	50 - 150	8	50		
Pentachlorobenzene	84	89	50 - 150	6	50		
Pentachloronitrobenzene	92	97	50 - 150	5	50		
Phenacetin	88	92	50 - 150	4	50		
Pronamide	91	95	50 - 150	5	50		
Safrole	82	78	50 - 150	6	50		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
2,4,6-Tribromophenol	80	87	48 - 135
2-Fluorobiphenyl	79	80	48 - 135

Client: Waste Management

Job Number: 280-101170-1

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
2-Fluorophenol	74	70	41 - 135
Nitrobenzene-d5	80	72	42 - 135
Phenol-d5	70	72	46 - 135
Terphenyl-d14	82	88	20 - 135

Client: Waste Management

Job Number: 280-101170-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-387938

Method: 8270C
Preparation: 3520C

MS Lab Sample ID:	280-101169-E-2-A MS	Analysis Batch:	280-389003	Instrument ID:	SMS_G6
Client Matrix:	Water	Prep Batch:	280-387938	Lab File ID:	G6_30881.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1022.7 mL
Analysis Date:	09/26/2017 2337			Final Weight/Volume:	1 mL
Prep Date:	09/18/2017 0940			Injection Volume:	0.5 uL
Leach Date:	N/A				

MSD Lab Sample ID:	280-101169-F-2-A MSD	Analysis Batch:	280-389003	Instrument ID:	SMS_G6
Client Matrix:	Water	Prep Batch:	280-387938	Lab File ID:	G6_30882.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	872.4 mL
Analysis Date:	09/27/2017 0004			Final Weight/Volume:	1 mL
Prep Date:	09/18/2017 0940			Injection Volume:	0.5 uL
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
1,2,4,5-Tetrachlorobenzene	80	77	52 - 135	12	30		
1,2,4-Trichlorobenzene	79	71	44 - 135	5	42		
1,3-Dinitrobenzene	101	98	65 - 135	12	30		
1,4-Dichlorobenzene	78	61	40 - 135	8	50		
2,3,4,6-Tetrachlorophenol	91	87	64 - 135	11	30		
2,4,5-Trichlorophenol	83	79	64 - 135	11	30		
2,4,6-Trichlorophenol	91	88	62 - 135	12	30		
2,4-Dichlorophenol	91	86	62 - 135	11	30		
2,4-Dimethylphenol	298	248	44 - 135	2	30	E F1	F1
2,4-Dinitrophenol	67	61	50 - 135	5	30		
2,4-Dinitrotoluene	90	90	65 - 135	15	32		
2,6-Dichlorophenol	87	82	50 - 150	10	50		
2,6-Dinitrotoluene	92	93	65 - 135	17	30		
2-Chloronaphthalene	81	78	59 - 135	12	30		
2-Chlorophenol	89	77	58 - 135	1	46		
2-Methylnaphthalene	87	83	56 - 135	11	32		
2-Methylphenol	90	85	62 - 135	10	40		
2-Nitroaniline	100	99	65 - 135	15	30		
2-Nitrophenol	59	62	65 - 135	20	38	F1	F1
3,3'-Dichlorobenzidine	0	1	18 - 135	NC	50	F1	J F1
3-Methylphenol	83	80	65 - 135	12	36		
3-Nitroaniline	36	48	38 - 135	45	30	J F1	J F4
4,6-Dinitro-2-methylphenol	72	67	63 - 135	9	30		
4-Bromophenyl phenyl ether	89	87	65 - 135	14	30		
4-Chloro-3-methylphenol	163	152	65 - 135	9	30	F1	F1
4-Chloroaniline	48	53	30 - 135	26	38		
4-Chlorophenyl phenyl ether	82	83	65 - 135	17	30		
4-Methylphenol	83	80	65 - 135	12	36		
4-Nitroaniline	63	68	65 - 135	23	34	J F1	
4-Nitrophenol	82	77	56 - 135	9	50		
Acenaphthene	88	86	61 - 135	14	30		
Acenaphthylene	83	79	63 - 135	10	30		

Client: Waste Management

Job Number: 280-101170-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-387938

Method: 8270C
Preparation: 3520C

MS Lab Sample ID:	280-101169-E-2-A MS	Analysis Batch:	280-389003	Instrument ID:	SMS_G6
Client Matrix:	Water	Prep Batch:	280-387938	Lab File ID:	G6_30881.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1022.7 mL
Analysis Date:	09/26/2017 2337			Final Weight/Volume:	1 mL
Prep Date:	09/18/2017 0940			Injection Volume:	0.5 uL
Leach Date:	N/A				

MSD Lab Sample ID:	280-101169-F-2-A MSD	Analysis Batch:	280-389003	Instrument ID:	SMS_G6
Client Matrix:	Water	Prep Batch:	280-387938	Lab File ID:	G6_30882.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	872.4 mL
Analysis Date:	09/27/2017 0004			Final Weight/Volume:	1 mL
Prep Date:	09/18/2017 0940			Injection Volume:	0.5 uL
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Acetophenone	82	71	65 - 135	1	35		
Anthracene	87	85	65 - 135	13	30		
Benzo[a]anthracene	83	82	65 - 135	15	30		
Benzo[a]pyrene	80	80	65 - 135	16	30		
Benzo[b]fluoranthene	84	83	65 - 135	14	30		
Benzo[g,h,i]perylene	82	80	65 - 135	14	30		
Benzo[k]fluoranthene	83	84	65 - 135	16	30		
Benzyl alcohol	90	84	65 - 135	9	37		
bis(2 chloro-1-methylethyl) ether	86	73	55 - 135	1	37		
Bis(2-chloroethoxy)methane	88	83	65 - 135	10	30		
Bis(2-chloroethyl)ether	90	74	65 - 135	4	41		
Bis(2-ethylhexyl) phthalate	87	88	65 - 135	16	30		
Butyl benzyl phthalate	87	86	65 - 135	15	30		
Carbazole	92	88	65 - 135	12	30		
Chrysene	86	85	65 - 135	14	30		
Dibenz(a,h)anthracene	83	80	63 - 135	13	30		
Dibenzofuran	86	84	64 - 135	14	30		
Dibutylphthalate	84	83	65 - 135	14	30		
Diethyl phthalate	88	86	65 - 135	14	30		
Dimethyl phthalate	94	91	65 - 135	12	30		
Di-n-octyl phthalate	86	86	65 - 135	16	30		
Diphenylamine	87	83	50 - 150	11	50		
Fluoranthene	83	82	65 - 135	15	30		
Fluorene	83	82	65 - 135	14	30		
Hexachlorobenzene	86	83	65 - 135	13	30		
Hexachlorocyclopentadiene	37	37	10 - 135	16	66		
Hexachloroethane	96	74	32 - 135	11	53		
Indeno[1,2,3-cd]pyrene	79	78	65 - 135	15	30		
Isophorone	77	78	65 - 135	17	30		
Nitrobenzene	88	79	65 - 135	6	39		
N-Nitrosodimethylamine	88	67	62 - 150	11	36		
N-Nitrosodi-n-propylamine	84	81	65 - 135	11	30		

Client: Waste Management

Job Number: 280-101170-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-387938

Method: 8270C
Preparation: 3520C

MS Lab Sample ID:	280-101169-E-2-A MS	Analysis Batch:	280-389003	Instrument ID:	SMS_G6
Client Matrix:	Water	Prep Batch:	280-387938	Lab File ID:	G6_30881.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1022.7 mL
Analysis Date:	09/26/2017 2337			Final Weight/Volume:	1 mL
Prep Date:	09/18/2017 0940			Injection Volume:	0.5 uL
Leach Date:	N/A				

MSD Lab Sample ID:	280-101169-F-2-A MSD	Analysis Batch:	280-389003	Instrument ID:	SMS_G6
Client Matrix:	Water	Prep Batch:	280-387938	Lab File ID:	G6_30882.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	872.4 mL
Analysis Date:	09/27/2017 0004			Final Weight/Volume:	1 mL
Prep Date:	09/18/2017 0940			Injection Volume:	0.5 uL
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
N-Nitrosodiphenylamine	93	87	65 - 135	9	30		
Pentachlorophenol	91	86	52 - 135	10	30		
Phenanthrene	87	86	65 - 135	14	30		
Phenol	90	83	61 - 135	7	37		
Pyrene	86	85	65 - 135	15	30		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
2,4,6-Tribromophenol	89	84	48 - 135
2-Fluorobiphenyl	81	78	48 - 135
2-Fluorophenol	85	66	41 - 135
Nitrobenzene-d5	85	74	42 - 135
Phenol-d5	88	78	46 - 135
Terphenyl-d14	54	52	20 - 135

Method Blank - Batch: 280-389141 **Method: 8011**
Preparation: 8011

Lab Sample ID:	MB 280-389141/2-A	Analysis Batch:	280-389172	Instrument ID:	SGC_E
Client Matrix:	Water	Prep Batch:	280-389141	Lab File ID:	09270045.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	35 mL
Analysis Date:	09/28/2017 0650	Units:	ug/L	Final Weight/Volume:	35 mL
Prep Date:	09/27/2017 1159			Injection Volume:	3 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Result	Qual	MDL	RL
1,2-Dibromo-3-Chloropropane	ND		0.0068	0.020
1,2-Dibromoethane	ND		0.0037	0.020

Surrogate	% Rec		Acceptance Limits
1,2-Dibromopropane	146	X	70 - 130

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-389141 **Method: 8011**
Preparation: 8011

LCS Lab Sample ID:	LCS 280-389141/3-A	Analysis Batch:	280-389172	Instrument ID:	SGC_E
Client Matrix:	Water	Prep Batch:	280-389141	Lab File ID:	09270046.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	35 mL
Analysis Date:	09/28/2017 0709	Units:	ug/L	Final Weight/Volume:	35 mL
Prep Date:	09/27/2017 1159			Injection Volume:	3 uL
Leach Date:	N/A			Column ID:	PRIMARY

LCSD Lab Sample ID:	LCSD 280-389141/4-A	Analysis Batch:	280-389172	Instrument ID:	SGC_E
Client Matrix:	Water	Prep Batch:	280-389141	Lab File ID:	09270047.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	35 mL
Analysis Date:	09/28/2017 0727	Units:	ug/L	Final Weight/Volume:	35 mL
Prep Date:	09/27/2017 1159			Injection Volume:	3 uL
Leach Date:	N/A			Column ID:	PRIMARY

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
1,2-Dibromo-3-Chloropropane	112	109	70 - 130	2	10		
1,2-Dibromoethane	104	101	70 - 130	3	10		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
1,2-Dibromopropane	118	116	70 - 130

Client: Waste Management

Job Number: 280-101170-1

Method Blank - Batch: 280-388127

Method: 8081A
Preparation: 3510C

Lab Sample ID:	MB 280-388127/1-A	Analysis Batch:	280-388301	Instrument ID:	SGC_P2
Client Matrix:	Water	Prep Batch:	280-388127	Lab File ID:	09200026.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1000 mL
Analysis Date:	09/20/2017 2110	Units:	ug/L	Final Weight/Volume:	10 mL
Prep Date:	09/19/2017 1010			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Result	Qual	MDL	RL
4,4'-DDD	ND		0.0077	0.050
4,4'-DDE	ND		0.0075	0.050
4,4'-DDT	ND		0.015	0.050
Aldrin	ND		0.0059	0.050
alpha-BHC	ND		0.0053	0.050
beta-BHC	ND		0.0087	0.050
delta-BHC	ND		0.0058	0.050
gamma-BHC (Lindane)	ND		0.0069	0.050
Technical Chlordane	ND		0.14	0.50
Dieldrin	ND		0.0063	0.050
Endrin	ND		0.0079	0.050
Endosulfan I	ND		0.0058	0.050
Endosulfan II	ND		0.0070	0.050
Endosulfan sulfate	ND		0.0057	0.050
Endrin aldehyde	ND		0.0088	0.050
Heptachlor	ND		0.0077	0.050
Heptachlor epoxide	ND		0.0075	0.050
Kepone	ND		0.35	1.0
Methoxychlor	ND		0.013	0.10
Toxaphene	ND		0.37	2.0

Surrogate	% Rec	Acceptance Limits
Tetrachloro-m-xylene	80	28 - 115
DCB Decachlorobiphenyl	99	34 - 122

Client: Waste Management Job Number: 280-101170-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-388127

Method: 8081A
Preparation: 3510C

LCS Lab Sample ID:	LCS 280-388127/2-A	Analysis Batch:	280-388301	Instrument ID:	SGC_P2
Client Matrix:	Water	Prep Batch:	280-388127	Lab File ID:	09200027.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1000 mL
Analysis Date:	09/20/2017 2127	Units:	ug/L	Final Weight/Volume:	10 mL
Prep Date:	09/19/2017 1010			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

LCSD Lab Sample ID:	LCSD 280-388127/3-A	Analysis Batch:	280-388301	Instrument ID:	SGC_P2
Client Matrix:	Water	Prep Batch:	280-388127	Lab File ID:	09200028.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1000 mL
Analysis Date:	09/20/2017 2145	Units:	ug/L	Final Weight/Volume:	10 mL
Prep Date:	09/19/2017 1010			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	% Rec. LCS	% Rec. LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
4,4'-DDD	101	101	78 - 138	0	50		
4,4'-DDE	96	97	74 - 124	0	50		
4,4'-DDT	102	101	72 - 139	1	25		
Aldrin	91	88	44 - 127	4	33		
alpha-BHC	97	94	73 - 133	3	50		
beta-BHC	92	90	67 - 133	3	50		
delta-BHC	97	96	72 - 135	2	50		
gamma-BHC (Lindane)	98	95	71 - 132	3	26		
Dieldrin	101	100	78 - 132	1	22		
Endrin	101	100	74 - 171	1	39		
Endosulfan I	93	93	73 - 128	1	50		
Endosulfan II	94	94	75 - 132	0	50		
Endosulfan sulfate	102	105	77 - 135	2	50		
Endrin aldehyde	94	94	59 - 136	0	50		
Heptachlor	101	95	52 - 129	6	27		
Heptachlor epoxide	98	97	77 - 132	2	50		
Methoxychlor	99	99	67 - 150	0	50		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
Tetrachloro-m-xylene	81	81	28 - 115
DCB Decachlorobiphenyl	99	101	34 - 122

Method Blank - Batch: 280-388127 **Method: 8082**
Preparation: 3510C

Lab Sample ID:	MB 280-388127/1-A	Analysis Batch:	280-388439	Instrument ID:	SGC_P3
Client Matrix:	Water	Prep Batch:	280-388127	Lab File ID:	09211717.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1000 mL
Analysis Date:	09/21/2017 1809	Units:	ug/L	Final Weight/Volume:	10 mL
Prep Date:	09/19/2017 1010			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Result	Qual	MDL	RL
PCB-1016	ND		0.12	1.0
PCB-1221	ND		0.21	1.0
PCB-1232	ND		0.17	1.0
PCB-1242	ND		0.10	1.0
PCB-1248	ND		0.092	1.0
PCB-1254	ND		0.11	1.0
PCB-1260	ND		0.16	1.0

Surrogate	% Rec	Acceptance Limits
DCB Decachlorobiphenyl	108	30 - 136
Tetrachloro-m-xylene	100	25 - 120

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-388127 **Method: 8082**
Preparation: 3510C

LCS Lab Sample ID:	LCS 280-388127/4-A	Analysis Batch:	280-388439	Instrument ID:	SGC_P3
Client Matrix:	Water	Prep Batch:	280-388127	Lab File ID:	09211718.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1000 mL
Analysis Date:	09/21/2017 1831	Units:	ug/L	Final Weight/Volume:	10 mL
Prep Date:	09/19/2017 1010			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY
LCSD Lab Sample ID:	LCSD 280-388127/5-A	Analysis Batch:	280-388439	Instrument ID:	SGC_P3
Client Matrix:	Water	Prep Batch:	280-388127	Lab File ID:	09211719.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1000 mL
Analysis Date:	09/21/2017 1853	Units:	ug/L	Final Weight/Volume:	10 mL
Prep Date:	09/19/2017 1010			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
PCB-1016	96	103	58 - 128	7	30		
PCB-1260	102	109	69 - 140	7	30		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
DCB Decachlorobiphenyl	98	103	30 - 136
Tetrachloro-m-xylene	88	92	25 - 120

Client: Waste Management

Job Number: 280-101170-1

Method Blank - Batch: 280-387771

Method: 8141A
Preparation: 3510C

Lab Sample ID:	MB 280-387771/1-A	Analysis Batch:	280-388133	Instrument ID:	SGC_D
Client Matrix:	Water	Prep Batch:	280-387771	Lab File ID:	09190012.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1000 mL
Analysis Date:	09/19/2017 2122	Units:	ug/L	Final Weight/Volume:	2 mL
Prep Date:	09/15/2017 0722			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Result	Qual	MDL	RL
Atrazine	ND		0.29	10
Dimethoate	ND		0.45	0.50
Disulfoton	ND		0.32	0.50
Chlorpyrifos	ND		0.36	0.50
Methyl parathion	ND		0.14	4.0
Parathion	ND		0.14	0.50
Phorate	ND		0.15	1.2
Diazinon	ND		0.15	0.50
Simazine	ND		0.22	10
Thionazin	ND		0.31	0.50

Surrogate	% Rec	Acceptance Limits
Triphenylphosphate	75	60 - 154
Chlormefos	54	49 - 171

Client: Waste Management Job Number: 280-101170-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-387771

Method: 8141A
Preparation: 3510C

LCS Lab Sample ID:	LCS 280-387771/2-A	Analysis Batch:	280-388133	Instrument ID:	SGC_D
Client Matrix:	Water	Prep Batch:	280-387771	Lab File ID:	09190013.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1000 mL
Analysis Date:	09/19/2017 2201	Units:	ug/L	Final Weight/Volume:	2 mL
Prep Date:	09/15/2017 0722			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

LCSD Lab Sample ID:	LCSD 280-387771/3-A	Analysis Batch:	280-388133	Instrument ID:	SGC_D
Client Matrix:	Water	Prep Batch:	280-387771	Lab File ID:	09190014.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1000 mL
Analysis Date:	09/19/2017 2240	Units:	ug/L	Final Weight/Volume:	2 mL
Prep Date:	09/15/2017 0722			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	% Rec. LCS	% Rec. LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Atrazine	72	69	52 - 115	3	45	J	J
Dimethoate	50	44	42 - 115	13	38		
Disulfoton	63	58	45 - 115	8	31		
Chlorpyrifos	74	63	54 - 115	15	24		
Methyl parathion	79	67	58 - 115	16	20	J	J
Parathion	77	68	55 - 115	13	20		
Phorate	54	50	40 - 115	6	32		
Diazinon	67	61	47 - 115	10	37		
Simazine	68	66	39 - 115	2	53	J	J
Thionazin	59	54	54 - 115	8	27		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
Triphenylphosphate	91	75	60 - 154
Chlormefos	49	51	49 - 171

Client: Waste Management

Job Number: 280-101170-1

Method Blank - Batch: 280-388296

Method: 8141A
Preparation: 3510C

Lab Sample ID:	MB 280-388296/1-A	Analysis Batch:	280-388457	Instrument ID:	SGC_D
Client Matrix:	Water	Prep Batch:	280-388296	Lab File ID:	09210008.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1000 mL
Analysis Date:	09/21/2017 1637	Units:	ug/L	Final Weight/Volume:	2 mL
Prep Date:	09/20/2017 1315			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Result	Qual	MDL	RL
Atrazine	ND		0.29	10
Dimethoate	ND		0.45	0.50
Disulfoton	ND		0.32	0.50
Chlorpyrifos	ND		0.36	0.50
Methyl parathion	ND		0.14	4.0
Parathion	ND		0.14	0.50
Phorate	ND		0.15	1.2
Diazinon	ND		0.15	0.50
Simazine	ND		0.22	10
Thionazin	ND		0.31	0.50

Surrogate	% Rec	Acceptance Limits
Triphenylphosphate	84	60 - 154
Chlormefos	81	49 - 171

Client: Waste Management

Job Number: 280-101170-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-388296

Method: 8141A
Preparation: 3510C

LCS Lab Sample ID:	LCS 280-388296/2-A	Analysis Batch:	280-388457	Instrument ID:	SGC_D
Client Matrix:	Water	Prep Batch:	280-388296	Lab File ID:	09210009.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1000 mL
Analysis Date:	09/21/2017 1716	Units:	ug/L	Final Weight/Volume:	2 mL
Prep Date:	09/20/2017 1315			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

LCSD Lab Sample ID:	LCSD 280-388296/3-A	Analysis Batch:	280-388457	Instrument ID:	SGC_D
Client Matrix:	Water	Prep Batch:	280-388296	Lab File ID:	09210010.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1000 mL
Analysis Date:	09/21/2017 1756	Units:	ug/L	Final Weight/Volume:	2 mL
Prep Date:	09/20/2017 1315			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	% Rec. LCS	% Rec. LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Atrazine	77	70	52 - 115	10	45	J	J
Dimethoate	49	46	42 - 115	6	38		
Disulfoton	71	66	45 - 115	7	31		
Chlorpyrifos	81	72	54 - 115	12	24		
Methyl parathion	84	79	58 - 115	6	20	J	J
Parathion	82	74	55 - 115	10	20		
Phorate	65	60	40 - 115	9	32		
Diazinon	76	70	47 - 115	8	37		
Simazine	71	64	39 - 115	11	53	J	J
Thionazin	75	68	54 - 115	9	27		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
Triphenylphosphate	86	80	60 - 154
Chlormefos	70	67	49 - 171

Method Blank - Batch: 280-387738

Method: 6010B
Preparation: 3005A
Total Recoverable

Lab Sample ID:	MB 280-387738/1-A	Analysis Batch:	280-387897	Instrument ID:	MT_051
Client Matrix:	Water	Prep Batch:	280-387738	Lab File ID:	51c091517.csv
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	09/16/2017 0624	Units:	mg/L	Final Weight/Volume:	50 mL
Prep Date:	09/15/2017 0738				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Aluminum	ND		0.018	0.10
Calcium	0.0360	J	0.035	0.20
Barium	ND		0.00082	0.010
Magnesium	ND		0.011	0.20
Chromium	ND		0.00066	0.010
Cobalt	ND		0.0012	0.010
Copper	ND		0.0042	0.015
Iron	ND		0.022	0.10
Manganese	ND		0.00026	0.010
Silver	ND		0.00093	0.010
Tin	ND		0.0058	0.10
Vanadium	ND		0.0011	0.010
Zinc	ND		0.0045	0.020

Method Blank - Batch: 280-387738

Method: 6010B
Preparation: 3005A
Total Recoverable

Lab Sample ID:	MB 280-387738/1-A	Analysis Batch:	280-388189	Instrument ID:	MT_051
Client Matrix:	Water	Prep Batch:	280-387738	Lab File ID:	51c091817.csv
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	09/19/2017 0358	Units:	mg/L	Final Weight/Volume:	50 mL
Prep Date:	09/15/2017 0738				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Potassium	ND		0.24	3.0
Sodium	ND		0.12	5.0

Client: Waste Management

Job Number: 280-101170-1

Lab Control Sample - Batch: 280-387738

Method: 6010B
Preparation: 3005A
Total Recoverable

Lab Sample ID:	LCS 280-387738/2-A	Analysis Batch:	280-387897	Instrument ID:	MT_051
Client Matrix:	Water	Prep Batch:	280-387738	Lab File ID:	51c091517.csv
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	09/16/2017 0627	Units:	mg/L	Final Weight/Volume:	50 mL
Prep Date:	09/15/2017 0738				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Aluminum	2.00	1.82	91	87 - 111	
Calcium	50.0	48.0	96	90 - 111	
Barium	2.00	1.99	100	90 - 112	
Magnesium	50.0	50.0	100	90 - 113	
Chromium	0.200	0.198	99	90 - 113	
Cobalt	0.500	0.469	94	89 - 111	
Copper	0.250	0.242	97	86 - 112	
Iron	1.00	0.996	100	89 - 115	
Manganese	0.500	0.497	99	90 - 110	
Silver	0.0500	0.0528	106	86 - 115	
Tin	2.00	2.01	100	85 - 113	
Vanadium	0.500	0.497	99	90 - 111	
Zinc	0.500	0.497	99	85 - 111	

Lab Control Sample - Batch: 280-387738

Method: 6010B
Preparation: 3005A
Total Recoverable

Lab Sample ID:	LCS 280-387738/2-A	Analysis Batch:	280-388189	Instrument ID:	MT_051
Client Matrix:	Water	Prep Batch:	280-387738	Lab File ID:	51c091817.csv
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	09/19/2017 0401	Units:	mg/L	Final Weight/Volume:	50 mL
Prep Date:	09/15/2017 0738				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Potassium	50.0	53.2	106	89 - 114	
Sodium	50.0	56.9	114	90 - 115	

Client: Waste Management

Job Number: 280-101170-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-387738

Method: 6010B
Preparation: 3005A
Dissolved

MS Lab Sample ID:	280-101166-E-1-B MS	Analysis Batch:	280-387897	Instrument ID:	MT_051
Client Matrix:	Water	Prep Batch:	280-387738	Lab File ID:	51c091517.csv
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	09/16/2017 0642			Final Weight/Volume:	50 mL
Prep Date:	09/15/2017 0738				
Leach Date:	N/A				

MSD Lab Sample ID:	280-101166-E-1-C MSD	Analysis Batch:	280-387897	Instrument ID:	MT_051
Client Matrix:	Water	Prep Batch:	280-387738	Lab File ID:	51c091517.csv
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	09/16/2017 0645			Final Weight/Volume:	50 mL
Prep Date:	09/15/2017 0738				
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Aluminum	94	97	83 - 119	3	20		
Calcium	91	95	48 - 153	3	20		
Barium	96	101	85 - 120	4	20		
Magnesium	94	99	62 - 146	2	20		
Chromium	97	99	73 - 135	2	20		
Cobalt	92	95	82 - 119	3	20		
Copper	100	102	82 - 129	3	20		
Iron	109	114	52 - 155	3	20		
Manganese	98	100	79 - 121	2	20		
Silver	105	107	75 - 141	1	20		
Tin	97	101	77 - 126	4	20		
Vanadium	96	99	85 - 120	3	20		
Zinc	96	99	60 - 137	3	20		

Client: Waste Management

Job Number: 280-101170-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-387738

Method: 6010B
Preparation: 3005A
Dissolved

MS Lab Sample ID:	280-101166-E-1-B MS	Analysis Batch:	280-388189	Instrument ID:	MT_051
Client Matrix:	Water	Prep Batch:	280-387738	Lab File ID:	51c091817.csv
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	09/19/2017 0428			Final Weight/Volume:	50 mL
Prep Date:	09/15/2017 0738				
Leach Date:	N/A				

MSD Lab Sample ID:	280-101166-E-1-C MSD	Analysis Batch:	280-388189	Instrument ID:	MT_051
Client Matrix:	Water	Prep Batch:	280-387738	Lab File ID:	51c091817.csv
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	09/19/2017 0431			Final Weight/Volume:	50 mL
Prep Date:	09/15/2017 0738				
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Potassium	112	114	76 - 132	1	20		
Sodium	82	95	70 - 203	1	20	4	4

Client: Waste Management

Job Number: 280-101170-1

Method Blank - Batch: 280-387743

Method: 6020
Preparation: 3005A
Total Recoverable

Lab Sample ID:	MB 280-387743/1-A	Analysis Batch:	280-388081	Instrument ID:	MT_078
Client Matrix:	Water	Prep Batch:	280-387743	Lab File ID:	057_BLK.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	09/18/2017 1446	Units:	ug/L	Final Weight/Volume:	50 mL
Prep Date:	09/15/2017 0738				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Antimony	ND		0.40	2.0
Arsenic	ND		0.33	5.0
Beryllium	ND		0.080	5.0
Cadmium	ND		0.27	1.0
Lead	ND		0.18	1.0
Nickel	ND		0.30	2.0
Selenium	ND		0.70	5.0
Thallium	ND		0.050	1.0

Lab Control Sample - Batch: 280-387743

Method: 6020
Preparation: 3005A
Total Recoverable

Lab Sample ID:	LCS 280-387743/2-A	Analysis Batch:	280-388081	Instrument ID:	MT_078
Client Matrix:	Water	Prep Batch:	280-387743	Lab File ID:	058_LCS.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	09/18/2017 1450	Units:	ug/L	Final Weight/Volume:	50 mL
Prep Date:	09/15/2017 0738				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Antimony	40.0	41.0	103	85 - 115	
Arsenic	40.0	41.3	103	85 - 117	
Beryllium	40.0	43.0	108	80 - 125	
Cadmium	40.0	40.1	100	85 - 115	
Lead	40.0	41.5	104	85 - 118	
Nickel	40.0	40.4	101	85 - 119	
Selenium	40.0	40.3	101	77 - 122	
Thallium	40.0	40.2	100	85 - 118	

Client: Waste Management

Job Number: 280-101170-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-387743

Method: 6020
Preparation: 3005A
Dissolved

MS Lab Sample ID:	280-101175-D-2-C MS	Analysis Batch:	280-388081	Instrument ID:	MT_078
Client Matrix:	Water	Prep Batch:	280-387743	Lab File ID:	070SMPL.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	09/18/2017 1535			Final Weight/Volume:	50 mL
Prep Date:	09/15/2017 0738				
Leach Date:	N/A				

MSD Lab Sample ID:	280-101175-D-2-D MSD	Analysis Batch:	280-388081	Instrument ID:	MT_078
Client Matrix:	Water	Prep Batch:	280-387743	Lab File ID:	071SMPL.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	09/18/2017 1539			Final Weight/Volume:	50 mL
Prep Date:	09/15/2017 0738				
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Antimony	108	110	85 - 115	1	20		
Arsenic	105	107	85 - 117	2	20		
Beryllium	123	127	80 - 125	3	20		F1
Cadmium	98	99	85 - 115	1	20		
Lead	99	101	85 - 118	1	20		
Nickel	91	91	85 - 119	0	20		
Selenium	99	97	77 - 122	1	20		
Thallium	98	99	85 - 118	1	20		

Method Blank - Batch: 280-387817

Method: 7470A
Preparation: 7470A

Lab Sample ID:	MB 280-387817/1-A	Analysis Batch:	280-387946	Instrument ID:	MT_033
Client Matrix:	Water	Prep Batch:	280-387817	Lab File ID:	170915aa.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30 mL
Analysis Date:	09/15/2017 1646	Units:	ug/L	Final Weight/Volume:	50 mL
Prep Date:	09/15/2017 1136				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Mercury	ND		0.027	0.20

Lab Control Sample - Batch: 280-387817

Method: 7470A
Preparation: 7470A

Lab Sample ID:	LCS 280-387817/2-A	Analysis Batch:	280-387946	Instrument ID:	MT_033
Client Matrix:	Water	Prep Batch:	280-387817	Lab File ID:	170915aa.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30 mL
Analysis Date:	09/15/2017 1648	Units:	ug/L	Final Weight/Volume:	50 mL
Prep Date:	09/15/2017 1136				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Mercury	5.00	5.02	100	84 - 120	

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-387817

Method: 7470A
Preparation: 7470A
Dissolved

MS Lab Sample ID:	280-101170-1	Analysis Batch:	280-387946	Instrument ID:	MT_033
Client Matrix:	Water	Prep Batch:	280-387817	Lab File ID:	170915aa.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30 mL
Analysis Date:	09/15/2017 1652			Final Weight/Volume:	50 mL
Prep Date:	09/15/2017 1136				
Leach Date:	N/A				

MSD Lab Sample ID:	280-101170-1	Analysis Batch:	280-387946	Instrument ID:	MT_033
Client Matrix:	Water	Prep Batch:	280-387817	Lab File ID:	170915aa.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30 mL
Analysis Date:	09/15/2017 1654			Final Weight/Volume:	50 mL
Prep Date:	09/15/2017 1136				
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Mercury	100	99	75 - 125	1	20		

Method Blank - Batch: 280-387630

Method: 300.0
Preparation: N/A

Lab Sample ID:	MB 280-387630/6	Analysis Batch:	280-387630	Instrument ID:	WC_IonChrom10
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	Info 2_DENPC179_Anic
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	09/14/2017 1034	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Nitrate as N	ND		0.042	0.10

Method Reporting Limit Check - Batch: 280-387630

Method: 300.0
Preparation: N/A

Lab Sample ID:	MRL 280-387630/3	Analysis Batch:	280-387630	Instrument ID:	WC_IonChrom10
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	Info 2_DENPC179_Anic
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	09/14/2017 0942	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate as N	0.200	0.247	124	50 - 150	J

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-387630

Method: 300.0
Preparation: N/A

LCS Lab Sample ID:	LCS 280-387630/4	Analysis Batch:	280-387630	Instrument ID:	WC_IonChrom10
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	Info 2_DENPC179_Anic
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	09/14/2017 1000	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				5 uL
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-387630/5	Analysis Batch:	280-387630	Instrument ID:	WC_IonChrom10
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	Info 2_DENPC179_Anic
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	09/14/2017 1017	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				5 uL
Leach Date:	N/A				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Nitrate as N	96	96	90 - 110	1	10		

Client: Waste Management Job Number: 280-101170-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-387630

Method: 300.0

MS Lab Sample ID:	280-100934-B-37 MS	Analysis Batch:	280-387630	Instrument ID:	WC_IonChrom10
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	Info 2_DENPC179_Anio
Dilution:	10	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	09/14/2017 1127			Final Weight/Volume:	5 mL
Prep Date:	N/A				5 uL
Leach Date:	N/A				

MSD Lab Sample ID:	280-100934-B-37 MSD	Analysis Batch:	280-387630	Instrument ID:	WC_IonChrom10
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	Info 2_DENPC179_Anio
Dilution:	10	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	09/14/2017 1144			Final Weight/Volume:	5 mL
Prep Date:	N/A				5 uL
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Nitrate as N	94	94	80 - 120	0	20		

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-387630

Method: 300.0

MS Lab Sample ID:	280-101048-F-3 MS	Analysis Batch:	280-387630	Instrument ID:	WC_IonChrom10
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	Info 2_DENPC179_Anio
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	09/14/2017 1619			Final Weight/Volume:	5 mL
Prep Date:	N/A				5 uL
Leach Date:	N/A				

MSD Lab Sample ID:	280-101048-F-3 MSD	Analysis Batch:	280-387630	Instrument ID:	WC_IonChrom10
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	Info 2_DENPC179_Anio
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	09/14/2017 1637			Final Weight/Volume:	5 mL
Prep Date:	N/A				5 uL
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Nitrate as N	91	91	80 - 120	1	20		

Client: Waste Management

Job Number: 280-101170-1

Duplicate - Batch: 280-387630 **Method: 300.0**

Lab Sample ID:	280-100934-B-37 DU	Analysis Batch:	280-387630	Instrument ID:	WC_IonChrom10
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	Info 2_DENPC179_Anic
Dilution:	10	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	09/14/2017 1109	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				5 uL
Leach Date:	N/A				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Nitrate as N	1.0	1.04	0.5	15	

Duplicate - Batch: 280-387630 **Method: 300.0**

Lab Sample ID:	280-101048-F-3 DU	Analysis Batch:	280-387630	Instrument ID:	WC_IonChrom10
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	Info 2_DENPC179_Anic
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	09/14/2017 1602	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				5 uL
Leach Date:	N/A				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Nitrate as N	0.11	0.108	0.06	15	

Method Blank - Batch: 280-387631

Method: 300.0
Preparation: N/A

Lab Sample ID:	MB 280-387631/6	Analysis Batch:	280-387631	Instrument ID:	WC_IonChrom10
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	Info 2_DENPC179_Anic
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	09/14/2017 1034	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Chloride	0.474	J	0.25	1.5
Sulfate	0.578	J	0.23	5.0

Method Reporting Limit Check - Batch: 280-387631

Method: 300.0
Preparation: N/A

Lab Sample ID:	MRL 280-387631/3	Analysis Batch:	280-387631	Instrument ID:	WC_IonChrom10
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	Info 2_DENPC179_Anic
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	09/14/2017 0942	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Chloride	2.50	2.38	95	50 - 150	J
Sulfate	2.50	2.35	94	50 - 150	J

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-387631

Method: 300.0
Preparation: N/A

LCS Lab Sample ID:	LCS 280-387631/4	Analysis Batch:	280-387631	Instrument ID:	WC_IonChrom10
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	Info 2_DENPC179_Anic
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	09/14/2017 1000	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				5 uL
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-387631/5	Analysis Batch:	280-387631	Instrument ID:	WC_IonChrom10
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	Info 2_DENPC179_Anic
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	09/14/2017 1017	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				5 uL
Leach Date:	N/A				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Chloride	98	98	90 - 110	0	10		
Sulfate	98	98	90 - 110	0	10		

Client: Waste Management

Job Number: 280-101170-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-387631

Method: 300.0
Preparation: N/A

MS Lab Sample ID:	280-100934-B-37 MS	Analysis Batch:	280-387631	Instrument ID:	WC_IonChrom10
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	Info 2_DENPC179_Anic
Dilution:	10	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	09/14/2017 1127			Final Weight/Volume:	5 mL
Prep Date:	N/A				5 uL
Leach Date:	N/A				

MSD Lab Sample ID:	280-100934-B-37 MSD	Analysis Batch:	280-387631	Instrument ID:	WC_IonChrom10
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	Info 2_DENPC179_Anic
Dilution:	10	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	09/14/2017 1144			Final Weight/Volume:	5 mL
Prep Date:	N/A				5 uL
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Chloride	94	92	80 - 120	0	20		
Sulfate	98	98	80 - 120	0	20		

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-387631

Method: 300.0
Preparation: N/A

MS Lab Sample ID:	280-101048-F-3 MS	Analysis Batch:	280-387631	Instrument ID:	WC_IonChrom10
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	Info 2_DENPC179_Anic
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	09/14/2017 1619			Final Weight/Volume:	5 mL
Prep Date:	N/A				5 uL
Leach Date:	N/A				

MSD Lab Sample ID:	280-101048-F-3 MSD	Analysis Batch:	280-387631	Instrument ID:	WC_IonChrom10
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	Info 2_DENPC179_Anic
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	09/14/2017 1637			Final Weight/Volume:	5 mL
Prep Date:	N/A				5 uL
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Chloride	98	99	80 - 120	0	20		
Sulfate	99	100	80 - 120	0	20		

Duplicate - Batch: 280-387631

Method: 300.0
Preparation: N/A

Lab Sample ID:	280-100934-B-37 DU	Analysis Batch:	280-387631	Instrument ID:	WC_IonChrom10
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	Info 2_DENPC179_Anio
Dilution:	10	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	09/14/2017 1109	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				5 uL
Leach Date:	N/A				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Chloride	990	987	0	15	
Sulfate	61	61.3	0	15	

Duplicate - Batch: 280-387631

Method: 300.0
Preparation: N/A

Lab Sample ID:	280-101048-F-3 DU	Analysis Batch:	280-387631	Instrument ID:	WC_IonChrom10
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	Info 2_DENPC179_Anio
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	09/14/2017 1602	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				5 uL
Leach Date:	N/A				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Chloride	43	42.7	0.4	15	
Sulfate	27	27.2	0.3	15	

Method Blank - Batch: 280-388889

Method: 351.2
Preparation: 351.2

Lab Sample ID:	MB 280-388889/2-A	Analysis Batch:	280-389195	Instrument ID:	WC_Astoria
Client Matrix:	Water	Prep Batch:	280-388889	Lab File ID:	092717.tab
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	25 mL
Analysis Date:	09/27/2017 1646	Units:	mg/L	Final Weight/Volume:	25 mL
Prep Date:	09/25/2017 2130				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Nitrogen, Kjeldahl	ND		0.18	0.50

Lab Control Sample - Batch: 280-388889

Method: 351.2
Preparation: 351.2

Lab Sample ID:	LCS 280-388889/1-A	Analysis Batch:	280-389195	Instrument ID:	WC_Astoria
Client Matrix:	Water	Prep Batch:	280-388889	Lab File ID:	092717.tab
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	25 mL
Analysis Date:	09/27/2017 1645	Units:	mg/L	Final Weight/Volume:	25 mL
Prep Date:	09/25/2017 2130				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Nitrogen, Kjeldahl	6.00	5.44	91	90 - 110	

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-388889

Method: 351.2
Preparation: 351.2

MS Lab Sample ID:	280-101170-2	Analysis Batch:	280-389195	Instrument ID:	WC_Astoria
Client Matrix:	Water	Prep Batch:	280-388889	Lab File ID:	092717.tab
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	25 mL
Analysis Date:	09/27/2017 1717			Final Weight/Volume:	25 mL
Prep Date:	09/25/2017 2130				
Leach Date:	N/A				

MSD Lab Sample ID:	280-101170-2	Analysis Batch:	280-389195	Instrument ID:	WC_Astoria
Client Matrix:	Water	Prep Batch:	280-388889	Lab File ID:	092717.tab
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	25 mL
Analysis Date:	09/27/2017 1718			Final Weight/Volume:	25 mL
Prep Date:	09/25/2017 2130				
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Nitrogen, Kjeldahl	109	100	90 - 110	6	25		

Client: Waste Management

Job Number: 280-101170-1

Method Blank - Batch: 280-388571

Method: 410.4
Preparation: N/A

Lab Sample ID:	MB 280-388571/5	Analysis Batch:	280-388571	Instrument ID:	WC_Genesys20
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	2 mL
Analysis Date:	09/22/2017 0928	Units:	mg/L	Final Weight/Volume:	2 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Chemical Oxygen Demand	ND		4.1	10

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-388571

Method: 410.4
Preparation: N/A

LCS Lab Sample ID:	LCS 280-388571/3	Analysis Batch:	280-388571	Instrument ID:	WC_Genesys20
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	100 mL
Analysis Date:	09/22/2017 0928	Units:	mg/L	Final Weight/Volume:	100 mL
Prep Date:	N/A				
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-388571/4	Analysis Batch:	280-388571	Instrument ID:	WC_Genesys20
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	100 mL
Analysis Date:	09/22/2017 0928	Units:	mg/L	Final Weight/Volume:	100 mL
Prep Date:	N/A				
Leach Date:	N/A				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Chemical Oxygen Demand	97	95	90 - 110	3	11		

Client: Waste Management

Job Number: 280-101170-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-388571

Method: 410.4
Preparation: N/A

MS Lab Sample ID:	280-101300-K-1 MS	Analysis Batch:	280-388571	Instrument ID:	WC_Genesys20
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	N/A
Dilution:	5.0	Leach Batch:	N/A	Initial Weight/Volume:	100 mL
Analysis Date:	09/22/2017 0928			Final Weight/Volume:	100 mL
Prep Date:	N/A				
Leach Date:	N/A				

MSD Lab Sample ID:	280-101300-K-1 MSD	Analysis Batch:	280-388571	Instrument ID:	WC_Genesys20
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	N/A
Dilution:	5.0	Leach Batch:	N/A	Initial Weight/Volume:	100 mL
Analysis Date:	09/22/2017 0928			Final Weight/Volume:	100 mL
Prep Date:	N/A				
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Chemical Oxygen Demand	77	87	90 - 110	8	11	F1	F1

Client: Waste Management

Job Number: 280-101170-1

Method Blank - Batch: 280-388929

Method: 9012A
Preparation: 9012A

Lab Sample ID:	MB 280-388929/4-A	Analysis Batch:	280-388988	Instrument ID:	WC_Alp 1
Client Matrix:	Water	Prep Batch:	280-388929	Lab File ID:	C:\FLOW_4\C092617.R
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	09/26/2017 1250	Units:	ug/L	Final Weight/Volume:	50 mL
Prep Date:	09/26/2017 0840				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Cyanide, Total	ND		2.0	10

Client: Waste Management

Job Number: 280-101170-1

High Level Control Sample - Batch: 280-388929

Method: 9012A
Preparation: 9012A

Lab Sample ID:	HLCS 280-388929/1-A	Analysis Batch:	280-388988	Instrument ID:	WC_Alp 1
Client Matrix:	Water	Prep Batch:	280-388929	Lab File ID:	C:\FLOW_4\C092617.R
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	09/26/2017 1246	Units:	ug/L	Final Weight/Volume:	50 mL
Prep Date:	09/26/2017 0840				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Cyanide, Total	350	349	100	90 - 110	

Low Level Control Sample - Batch: 280-388929

Method: 9012A
Preparation: 9012A

Lab Sample ID:	LLCS 280-388929/2-A	Analysis Batch:	280-388988	Instrument ID:	WC_Alp 1
Client Matrix:	Water	Prep Batch:	280-388929	Lab File ID:	C:\FLOW_4\C092617.R
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	09/26/2017 1247	Units:	ug/L	Final Weight/Volume:	50 mL
Prep Date:	09/26/2017 0840				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Cyanide, Total	100	102	102	44 - 167	

Lab Control Sample - Batch: 280-388929

Method: 9012A
Preparation: 9012A

Lab Sample ID:	LCS 280-388929/3-A	Analysis Batch:	280-388988	Instrument ID:	WC_Alp 1
Client Matrix:	Water	Prep Batch:	280-388929	Lab File ID:	C:\FLOW_4\C092617.R
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	09/26/2017 1249	Units:	ug/L	Final Weight/Volume:	50 mL
Prep Date:	09/26/2017 0840				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Cyanide, Total	105	105	101	90 - 110	

Client: Waste Management

Job Number: 280-101170-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-388929

Method: 9012A
Preparation: 9012A

MS Lab Sample ID:	280-101162-F-57-A MS	Analysis Batch:	280-388988	Instrument ID:	WC_Alp 1
Client Matrix:	Water	Prep Batch:	280-388929	Lab File ID:	C:\FLOW_4\C092617.R
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	09/26/2017 1320			Final Weight/Volume:	50 mL
Prep Date:	09/26/2017 0840				
Leach Date:	N/A				

MSD Lab Sample ID:	280-101162-E-57-A MSD	Analysis Batch:	280-388988	Instrument ID:	WC_Alp 1
Client Matrix:	Water	Prep Batch:	280-388929	Lab File ID:	C:\FLOW_4\C092617.R
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	09/26/2017 1322			Final Weight/Volume:	50 mL
Prep Date:	09/26/2017 0840				
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Cyanide, Total	84	92	90 - 110	9	20	F1	

Client: Waste Management

Job Number: 280-101170-1

Method Blank - Batch: 280-388196

Method: 9034
Preparation: 9030B

Lab Sample ID:	MB 280-388196/1-A	Analysis Batch:	280-388202	Instrument ID:	No Equipment Assigned
Client Matrix:	Water	Prep Batch:	280-388196	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	09/19/2017 2239	Units:	ug/L	Final Weight/Volume:	50 mL
Prep Date:	09/19/2017 1951				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Sulfide	ND		790	4000

Lab Control Sample - Batch: 280-388196

Method: 9034
Preparation: 9030B

Lab Sample ID:	LCS 280-388196/2-A	Analysis Batch:	280-388202	Instrument ID:	No Equipment Assigned
Client Matrix:	Water	Prep Batch:	280-388196	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	09/19/2017 2239	Units:	ug/L	Final Weight/Volume:	50 mL
Prep Date:	09/19/2017 1951				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Sulfide	17800	9600	54	50 - 106	

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-388196

Method: 9034
Preparation: 9030B

MS Lab Sample ID:	280-101170-1	Analysis Batch:	280-388202	Instrument ID:	No Equipment Assigned
Client Matrix:	Water	Prep Batch:	280-388196	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	09/19/2017 2239			Final Weight/Volume:	50 mL
Prep Date:	09/19/2017 1951				
Leach Date:	N/A				

MSD Lab Sample ID:	280-101170-1	Analysis Batch:	280-388202	Instrument ID:	No Equipment Assigned
Client Matrix:	Water	Prep Batch:	280-388196	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	09/19/2017 2239			Final Weight/Volume:	50 mL
Prep Date:	09/19/2017 1951				
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Sulfide	43	38	50 - 106	11	20	F1	F1

Method Blank - Batch: 280-389198 **Method: SM 1030E**
Preparation: N/A

Lab Sample ID:	MB 280-389198/1	Analysis Batch:	280-389198	Instrument ID:	No Equipment Assigned
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	09/27/2017 1930	Units:	%	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Result	Qual	NONE	NONE
Percent Difference	NC			

Method Blank - Batch: 280-389198 **Method: SM 1030E**
Preparation: N/A

Lab Sample ID:	MB 280-389198/1	Analysis Batch:	280-389198	Instrument ID:	No Equipment Assigned
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	09/27/2017 1930	Units:	meq/L	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Result	Qual	NONE	NONE
Total Anions	0.000			
Total Cations	0.000			

Client: Waste Management

Job Number: 280-101170-1

Method Blank - Batch: 280-387954

Method: SM 2320B
Preparation: N/A

Lab Sample ID:	MB 280-387954/5	Analysis Batch:	280-387954	Instrument ID:	WC_AT2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	alk 091517.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	09/15/2017 1507	Units:	mg/L	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Bicarbonate Alkalinity as CaCO3	ND		1.1	5.0
Carbonate Alkalinity as CaCO3	2.96	J	1.1	5.0

Client: Waste Management

Job Number: 280-101170-1

Method Blank - Batch: 280-387944

Method: SM 2540C
Preparation: N/A

Lab Sample ID:	MB 280-387944/1	Analysis Batch:	280-387944	Instrument ID:	No Equipment Assigned
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	100 mL
Analysis Date:	09/18/2017 0750	Units:	mg/L	Final Weight/Volume:	100 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Total Dissolved Solids	ND		4.7	10

Lab Control Sample - Batch: 280-387944

Method: SM 2540C
Preparation: N/A

Lab Sample ID:	LCS 280-387944/2	Analysis Batch:	280-387944	Instrument ID:	No Equipment Assigned
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	100 mL
Analysis Date:	09/18/2017 0750	Units:	mg/L	Final Weight/Volume:	100 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Total Dissolved Solids	500	501	100	86 - 110	

Duplicate - Batch: 280-387944

Method: SM 2540C
Preparation: N/A

Lab Sample ID:	280-101170-1	Analysis Batch:	280-387944	Instrument ID:	No Equipment Assigned
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	100 mL
Analysis Date:	09/18/2017 0750	Units:	mg/L	Final Weight/Volume:	100 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Total Dissolved Solids	1100	1080	1	10	

Method Blank - Batch: 280-388539

Method: SM 5310B
Preparation: N/A

Lab Sample ID:	MB 280-388539/4	Analysis Batch:	280-388539	Instrument ID:	WC_SHI3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	092117.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	09/21/2017 1305	Units:	mg/L	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Total Organic Carbon - Average	ND		0.16	1.0

Lab Control Sample - Batch: 280-388539

Method: SM 5310B
Preparation: N/A

Lab Sample ID:	LCS 280-388539/3	Analysis Batch:	280-388539	Instrument ID:	WC_SHI3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	092117.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	09/21/2017 1250	Units:	mg/L	Final Weight/Volume:	100 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Total Organic Carbon - Average	25.0	24.2	97	88 - 112	

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-388539

Method: SM 5310B
Preparation: N/A

MS Lab Sample ID:	280-101148-B-2 MS	Analysis Batch:	280-388539	Instrument ID:	WC_SHI3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	092117.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	09/21/2017 1421			Final Weight/Volume:	50 mL
Prep Date:	N/A				
Leach Date:	N/A				

MSD Lab Sample ID:	280-101148-B-2 MSD	Analysis Batch:	280-388539	Instrument ID:	WC_SHI3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	092117.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	09/21/2017 1435			Final Weight/Volume:	50 mL
Prep Date:	N/A				
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Total Organic Carbon - Average	95	96	88 - 112	1	15		

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: A. Wilcox	Lab PM: Sara, Betsy A	Carrier Tracking No(s):	COC No: 280-33068-13609.1
Client Contact: Tianna Nourot	Phone: 209-402-2678	E-Mail: betsy.sara@testamericainc.com		Page:
Company: Waste Management				Job #:
Address: 10840 Altamont Pass Road	Due Date Requested:			
City: Livermore	TAT Requested (days):			
State, Zip: CA, 94550				
Phone: 925-455-7325	PO #: Purchase Order Requested			
Email:	WO #:			
Project Name: 236/Altamont Landfill	Project #: 28002302- 5y Constituents of Concern - 4Q15			
Site: California	SSOW#:			

Analysis Requested

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	Alk/TDS/Cl/ SO4/ NO3 (IC)	Total Metals	Dissolved Metals	TKN/COD/TOC	Pest/PCBs - 8081A/8082	PO Pest-8141A	Herbicides -8151A	SVOA -8270C	9034 - Sulfide	9012A - Cyanide, Total	8011	Total Number of containers
			Preservation Code:				A	N	D	D	S	N	N	N	N	C	B	R	
MW-4A	9-13-17	11:55					X	X		X	X	X	X	X	X	X	2X	X	
MW-4B	9-13-17	13:00					X	X		X	X	X	X	X	X	X	X	X	

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:

Special Instructions/Note:

Short Holds: NO3 (IC)

Bottles Marked "F" are Field Filtered

280-101170 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:	
Relinquished by:	Date/Time: 9-13-17 1700	Company: ESE	Received by: Rcvd for	Date/Time: 9-14-17 0850	Company: TAD	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company	
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: 5.4, 8.6 IR# 7+0.1 Transfer RP 9-14-17

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: Altamont

Site No.: 236 Sample Point: MW-4A (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
09/13/17	11:45	:08		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: A — 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): 71.37 (ft)

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

Total Well Depth (from TOC): 85.00 (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 L/min	pH (std)	Conductance (SC/EC) (µmhos/cm@25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
11:47	2.0 1st	7.56 1st	1.04 1st	21.0	0.0	2.1	106	
11:49	4.0 2nd	7.53 2nd	1.06 2nd	21.1	0.0	2.1	107	
11:51	6.0 3rd	7.54 3rd	1.06 3rd	21.1	0.0	2.0	107	
11:53	8.0 4th	7.54 4th	1.06 4th	21.0	0.0	2.0	107	
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
09/13/17	7.54	1.06	21.0	0.0	2.0	107	

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:** Clear **Other:**

Weather Conditions (required daily, or as conditions change): **Direction/Speed:** NW 13 **Outlook:** Clear **Precipitation:** Y or (N)

Specific Comments (including purge/well volume calculations if required): Sample Time @ 11:55, DTW after Purge 72.05

Purge Rate 2 L/min, Sample Rate @ 500 mL/min

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
9/13/17	Andrew Wilcox		SES-ES

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

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: Altamont

Site No.: 236 Sample Point: MW-43 (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
09/13/17	1250	:08		2.1	

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: A — 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) 66.54 (ft)

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

Total Well Depth (from TOC) ____ (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	pH (std)	Conductance (SC/EC) (µmhos/cm@25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
1252	2.0 1st	8.10 1st	2.14	22.3	0.0	1.7	-232	
1254	4.0 2nd	8.10 2nd	2.15	22.1	0.0	1.7	-233	
1256	6.0 3rd	8.11 3rd	2.15	22.1	0.0	1.6	-233	
1258	8.0 4th	8.11 4th	2.14	22.1	0.0	1.6	-233	
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 ____
09/13/17 12:58	8.11	2.14	22.1	0.0	1.6	-233	

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: O.K Odor: None Color: Clear Other: ____

Weather Conditions (required daily, or as conditions change): Direction/Speed: NW 15 Outlook: Clear Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required): Purge Rate 1L a.m.n, Sample Rate@ 500 m.l a.m.n. Sample Time @ 13:06. D.T.W after purge 67.27

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
9/13/17	Andrew J Wilcox		SGS-AS
/ /			

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

Login Sample Receipt Checklist

Client: Waste Management

Job Number: 280-101170-1

Login Number: 101170
List Number: 1
Creator: Pottruff, Reed W

List Source: 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.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	False	No: Water present in cooler; indicates evidence of melted ice
Cooler Temperature is acceptable.	False	
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	

ANALYTICAL REPORT

Job Number: 280-104461-2

Job Description: 236|Altamont Landfill Groundwater

For:
Waste Management
10840 Altamont Pass Road
Livermore, CA 94550

Attention: Ms. Tianna Nourot

Approved for release.
Betsy A Sara
Project Manager II
12/19/2017 11:57 AM

Betsy A Sara, Project Manager II
4955 Yarrow Street, Arvada, CO, 80002
(303)736-0189
betsy.sara@testamericainc.com
12/19/2017

cc: Mr. Will Neal
Ms. Tina Schmiesing

The Lab Certification ID# is 4025.
The Lab California Certification is # 2513.

Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.

Table of Contents

CASE NARRATIVE

Client: Waste Management

Project: 236|Altamont Landfill Groundwater

Report Number: 280-104461-2

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 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 12/08/2017; the samples arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 2.2 C.

This submission contains Alkalinity results for the sample MW-4A and Method 8260B results for the samples MW-4A and MW-4B per the client's request. All other results will be reported under a separate submission, 280-104461-1.

Holding Times

Al holding times were within established control limits.

Method Blanks

Carbonate Alkalinity Method 2320B was detected in the Method Blank at a concentration below the reporting limit but above the method detection limit. No corrective action is taken for results in Method Blank that are below the reporting limits.

All other Method Blank recoveries were within established control limits.

Laboratory Control Samples

All Laboratory Control Samples were within established control limits.

Matrix Spike and Matrix Spike Duplicate (MS/MSD)

The Method 8260B MS/MSD performed on a sample from another client exhibited RPD results outside the RPD limits for 1,1,1-Trichloroethane, 1,1-Dichloroethene and Carbon tetrachloride. Because the corresponding Matrix Spike and Matrix Spike Duplicate recoveries, Laboratory Control Sample, and Method Blank sample were within control limits, this anomaly is considered to be due to matrix interference and no corrective action was taken.

All other MS and MSD samples were within established control limits.

General Comments

For samples requiring analysis at a dilution, the dilution factor has been multiplied by the Method Detection Limit (MDL) for each analyte and evaluated versus the project-specific reporting limit (PSRL). If the obtained value is below the PSRL, then the PSRL is preserved as the reporting limit for the diluted result, otherwise, the obtained value becomes the reporting limit. This is done in order to maintain the PSRL to meet permit requirements at the request of the client and to report the lowest possible RL for each analyte.

EXECUTIVE SUMMARY - Detections

Client: Waste Management Job Number: 280-104461-2

Lab Sample ID / Analyte	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
280-104461-1	**MW-4A**					
1,1-Dichloroethane		0.73	J	1.0	ug/L	8260B
Acetone		2.5	J	10	ug/L	8260B
cis-1,2-Dichloroethene		0.73	J	1.0	ug/L	8260B
Dichlorofluoromethane		0.31	J	2.0	ug/L	8260B
Methyl tert-butyl ether		0.41	J	5.0	ug/L	8260B
Trichloroethene		0.25	J	1.0	ug/L	8260B
Depth to water		69.92			ft	Field Sampling
Field pH		7.10			SU	Field Sampling
Field Conductivity		1700			umhos/cm	Field Sampling
Field Temperature		16.7			Degrees C	Field Sampling
Field Turbidity		0.0			NTU	Field Sampling
Field Dissolved Oxygen		9.6			mg/L	Field Sampling
Field EH/ORP		100			millivolts	Field Sampling
Bicarbonate Alkalinity as CaCO3		550		5.0	mg/L	SM 2320B
280-104461-4	**MW-4B**					
Acetone		5.6	J	10	ug/L	8260B
Depth to water		65.02			ft	Field Sampling
Field pH		7.02			SU	Field Sampling
Field Conductivity		2400			umhos/cm	Field Sampling
Field Temperature		17.1			Degrees C	Field Sampling
Field Turbidity		0.0			NTU	Field Sampling
Field Dissolved Oxygen		9.7			mg/L	Field Sampling
Field EH/ORP		-37.0			millivolts	Field Sampling

METHOD SUMMARY

Client: Waste Management Job Number: 280-104461-2

Description	Lab Location	Method	Preparation Method
Matrix: Water			
Volatile Organic Compounds (GC/MS)	TAL DEN	SW846 8260B	
Purge and Trap	TAL DEN		SW846 5030B
Alkalinity	TAL DEN	SM SM 2320B	
Field Sampling	TAL DEN	EPA Field Sampling	

Lab References:

TAL DEN = TestAmerica Denver

Method 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.

METHOD / ANALYST SUMMARY

Client: Waste Management

Job Number: 280-104461-2

Method	Analyst	Analyst ID
SW846 8260B	Dobransky, Michael E	MD
EPA Field Sampling	Srisaard, Thitima X	TXS
SM SM 2320B	Duplin, Alysha 1	A1D

SAMPLE SUMMARY

Client: Waste Management

Job Number: 280-104461-2

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
280-104461-1	MW-4A	Water	12/07/2017 1126	12/08/2017 1250
280-104461-4	MW-4B	Water	12/07/2017 1218	12/08/2017 1250

SAMPLE RESULTS

Client Sample ID: **MW-4A**

Lab Sample ID: 280-104461-1 Date Sampled: 12/07/2017 1126
Client Matrix: Water Date Received: 12/08/2017 1250

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	280-398655	Instrument ID:	VMS_R1
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	R4183.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	12/14/2017 0820			Final Weight/Volume:	20 mL
Prep Date:	12/14/2017 0820				

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane	ND		0.21	1.0
1,1,1-Trichloroethane	ND		0.16	1.0
1,1,2,2-Tetrachloroethane	ND		0.21	1.0
1,1,2-Trichloroethane	ND		0.27	1.0
1,1-Dichloroethane	0.73	J	0.22	1.0
1,1-Dichloroethene	ND		0.23	1.0
1,2,3-Trichloropropane	ND		0.33	2.5
1,2,4-Trichlorobenzene	ND		0.21	1.0
1,2-Dichlorobenzene	ND		0.15	1.0
1,2-Dichloroethane	ND		0.13	0.50
1,2-Dichloropropane	ND		0.18	1.0
1,3-Dichlorobenzene	ND		0.13	1.0
1,4-Dichlorobenzene	ND		0.16	1.0
2-Butanone (MEK)	ND		2.0	6.0
2-Hexanone	ND		1.7	5.0
4-Methyl-2-pentanone (MIBK)	ND		0.98	5.0
Acetone	2.5	J	1.9	10
Acrylonitrile	ND		1.4	20
Benzene	ND		0.16	1.0
Bromochloromethane	ND		0.10	1.0
Bromodichloromethane	ND		0.17	1.0
Bromoform	ND		0.19	1.0
Bromomethane	ND		0.21	2.0
Carbon disulfide	ND		0.45	2.0
Carbon tetrachloride	ND		0.19	0.50
Chlorobenzene	ND		0.17	1.0
Chloroethane	ND		0.41	2.0
Chloroform	ND		0.16	1.0
Chloromethane	ND		0.30	2.0
cis-1,2-Dichloroethene	0.73	J	0.15	1.0
cis-1,3-Dichloropropene	ND		0.16	1.0
Dibromochloromethane	ND		0.17	1.0
Dibromomethane	ND		0.17	1.0
Dichlorodifluoromethane	ND		0.31	2.0
Dichlorofluoromethane	0.31	J	0.22	2.0
Diethyl ether	ND		0.26	2.0
Ethanol	ND		94	300
Ethylbenzene	ND		0.16	1.0
Hexachlorobutadiene	ND		0.36	1.0
Iodomethane	ND		0.23	1.0
Isopropyl ether	ND		0.74	10
Methyl tert-butyl ether	0.41	J	0.25	5.0
Methylene Chloride	ND		0.32	2.0
Naphthalene	ND		0.22	1.0
Styrene	ND		0.17	1.0
Tert-amyl methyl ether	ND		1.4	5.0

Client: Waste Management Job Number: 280-104461-2

Client Sample ID: MW-4A

Lab Sample ID: 280-104461-1 Date Sampled: 12/07/2017 1126
Client Matrix: Water Date Received: 12/08/2017 1250

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	280-398655	Instrument ID:	VMS_R1
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	R4183.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	12/14/2017 0820			Final Weight/Volume:	20 mL
Prep Date:	12/14/2017 0820				

Analyte	Result (ug/L)	Qualifier	MDL	RL
tert-Butyl alcohol	ND		11	50
Tert-butyl ethyl ether	ND		1.2	5.0
Tetrachloroethene	ND		0.20	1.0
Tetrahydrofuran	ND		2.0	7.0
Toluene	ND		0.17	1.0
trans-1,2-Dichloroethene	ND		0.15	1.0
trans-1,3-Dichloropropene	ND		0.19	3.0
trans-1,4-Dichloro-2-butene	ND		0.80	3.0
Trichloroethene	0.25	J	0.16	1.0
Trichlorofluoromethane	ND		0.29	2.0
Vinyl acetate	ND		0.94	3.0
Vinyl chloride	ND		0.10	0.50
Xylenes, Total	ND		0.19	2.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	93		70 - 127
4-Bromofluorobenzene (Surr)	97		78 - 120
Dibromofluoromethane (Surr)	96		77 - 120
Toluene-d8 (Surr)	103		80 - 125

Client Sample ID: MW-4B

Lab Sample ID: 280-104461-4 Date Sampled: 12/07/2017 1218
Client Matrix: Water Date Received: 12/08/2017 1250

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	280-398655	Instrument ID:	VMS_R1
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	R4205.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	12/14/2017 1522			Final Weight/Volume:	20 mL
Prep Date:	12/14/2017 1522				

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane	ND		0.21	1.0
1,1,1-Trichloroethane	ND		0.16	1.0
1,1,2,2-Tetrachloroethane	ND		0.21	1.0
1,1,2-Trichloroethane	ND		0.27	1.0
1,1-Dichloroethane	ND		0.22	1.0
1,1-Dichloroethene	ND		0.23	1.0
1,2,3-Trichloropropane	ND		0.33	2.5
1,2,4-Trichlorobenzene	ND		0.21	1.0
1,2-Dichlorobenzene	ND		0.15	1.0
1,2-Dichloroethane	ND		0.13	0.50
1,2-Dichloropropane	ND		0.18	1.0
1,3-Dichlorobenzene	ND		0.13	1.0
1,4-Dichlorobenzene	ND		0.16	1.0
2-Butanone (MEK)	ND		2.0	6.0
2-Hexanone	ND		1.7	5.0
4-Methyl-2-pentanone (MIBK)	ND		0.98	5.0
Acetone	5.6	J	1.9	10
Acrylonitrile	ND		1.4	20
Benzene	ND		0.16	1.0
Bromochloromethane	ND		0.10	1.0
Bromodichloromethane	ND		0.17	1.0
Bromoform	ND		0.19	1.0
Bromomethane	ND		0.21	2.0
Carbon disulfide	ND		0.45	2.0
Carbon tetrachloride	ND		0.19	0.50
Chlorobenzene	ND		0.17	1.0
Chloroethane	ND		0.41	2.0
Chloroform	ND		0.16	1.0
Chloromethane	ND		0.30	2.0
cis-1,2-Dichloroethene	ND		0.15	1.0
cis-1,3-Dichloropropene	ND		0.16	1.0
Dibromochloromethane	ND		0.17	1.0
Dibromomethane	ND		0.17	1.0
Dichlorodifluoromethane	ND		0.31	2.0
Dichlorofluoromethane	ND		0.22	2.0
Diethyl ether	ND		0.26	2.0
Ethanol	ND		94	300
Ethylbenzene	ND		0.16	1.0
Hexachlorobutadiene	ND		0.36	1.0
Iodomethane	ND		0.23	1.0
Isopropyl ether	ND		0.74	10
Methyl tert-butyl ether	ND		0.25	5.0
Methylene Chloride	ND		0.32	2.0
Naphthalene	ND		0.22	1.0
Styrene	ND		0.17	1.0
Tert-amyl methyl ether	ND		1.4	5.0

Client: Waste Management Job Number: 280-104461-2

Client Sample ID: MW-4B

Lab Sample ID: 280-104461-4 Date Sampled: 12/07/2017 1218
Client Matrix: Water Date Received: 12/08/2017 1250

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	280-398655	Instrument ID:	VMS_R1
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	R4205.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	12/14/2017 1522			Final Weight/Volume:	20 mL
Prep Date:	12/14/2017 1522				

Analyte	Result (ug/L)	Qualifier	MDL	RL
tert-Butyl alcohol	ND		11	50
Tert-butyl ethyl ether	ND		1.2	5.0
Tetrachloroethene	ND		0.20	1.0
Tetrahydrofuran	ND		2.0	7.0
Toluene	ND		0.17	1.0
trans-1,2-Dichloroethene	ND		0.15	1.0
trans-1,3-Dichloropropene	ND		0.19	3.0
trans-1,4-Dichloro-2-butene	ND		0.80	3.0
Trichloroethene	ND		0.16	1.0
Trichlorofluoromethane	ND		0.29	2.0
Vinyl acetate	ND		0.94	3.0
Vinyl chloride	ND		0.10	0.50
Xylenes, Total	ND		0.19	2.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	95		70 - 127
4-Bromofluorobenzene (Surr)	92		78 - 120
Dibromofluoromethane (Surr)	94		77 - 120
Toluene-d8 (Surr)	98		80 - 125

General Chemistry

Client Sample ID: MW-4A

Lab Sample ID: 280-104461-1 Date Sampled: 12/07/2017 1126
Client Matrix: Water Date Received: 12/08/2017 1250

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Bicarbonate Alkalinity as CaCO3	550		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-398567	Analysis Date: 12/12/2017 1522						
Carbonate Alkalinity as CaCO3	ND		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-398567	Analysis Date: 12/12/2017 1522						

Field Service / Mobile Lab

Client Sample ID: **MW-4A**

Lab Sample ID: 280-104461-1 Date Sampled: 12/07/2017 1126
Client Matrix: Water Date Received: 12/08/2017 1250

Analyte	Result	Qual	Units	Dil	Method	Analysis Batch	Date Analyzed Date Prepared
Depth to water	69.92		ft	1.0	Field Sampling	280-398227	12/07/2017 1226
Field pH	7.10		SU	1.0	Field Sampling	280-398227	12/07/2017 1226
Field Conductivity	1700		umhos/cm	1.0	Field Sampling	280-398227	12/07/2017 1226
Field Temperature	16.7		Degrees C	1.0	Field Sampling	280-398227	12/07/2017 1226
Field Turbidity	0.0		NTU	1.0	Field Sampling	280-398227	12/07/2017 1226
Field Dissolved Oxygen	9.6		mg/L	1.0	Field Sampling	280-398227	12/07/2017 1226
Field EH/ORP	100		millivolts	1.0	Field Sampling	280-398227	12/07/2017 1226

Field Service / Mobile Lab

Client Sample ID: **MW-4B**

Lab Sample ID: 280-104461-4 Date Sampled: 12/07/2017 1218
Client Matrix: Water Date Received: 12/08/2017 1250

Analyte	Result	Qual	Units	Dil	Method	Analysis Batch	Date Analyzed Date Prepared
Depth to water	65.02		ft	1.0	Field Sampling	280-398227	12/07/2017 1318
Field pH	7.02		SU	1.0	Field Sampling	280-398227	12/07/2017 1318
Field Conductivity	2400		umhos/cm	1.0	Field Sampling	280-398227	12/07/2017 1318
Field Temperature	17.1		Degrees C	1.0	Field Sampling	280-398227	12/07/2017 1318
Field Turbidity	0.0		NTU	1.0	Field Sampling	280-398227	12/07/2017 1318
Field Dissolved Oxygen	9.7		mg/L	1.0	Field Sampling	280-398227	12/07/2017 1318
Field EH/ORP	-37.0		millivolts	1.0	Field Sampling	280-398227	12/07/2017 1318

DATA REPORTING QUALIFIERS

Client: Waste Management Job Number: 280-104461-2

Lab Section	Qualifier	Description
GC/MS VOA		
	F2	MS/MSD RPD exceeds control limits
	J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
General Chemistry		
	J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

QUALITY CONTROL RESULTS

Client: Waste Management Job Number: 280-104461-2

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC/MS VOA					
Analysis Batch:280-398655					
LCS 280-398655/4	Lab Control Sample	T	Water	8260B	
LCSD 280-398655/5	Lab Control Sample Duplicate	T	Water	8260B	
MB 280-398655/6	Method Blank	T	Water	8260B	
280-104267-B-9 MS	Matrix Spike	T	Water	8260B	
280-104267-B-9 MSD	Matrix Spike Duplicate	T	Water	8260B	
280-104461-1	MW-4A	T	Water	8260B	
280-104461-4	MW-4B	T	Water	8260B	

Report Basis
T = Total

Field Service / Mobile Lab					
Analysis Batch:280-398227					
280-104461-1	MW-4A	T	Water	Field Sampling	
280-104461-4	MW-4B	T	Water	Field Sampling	

Report Basis
T = Total

General Chemistry					
Analysis Batch:280-398567					
LCS 280-398567/4	Lab Control Sample	T	Water	SM 2320B	
MB 280-398567/5	Method Blank	T	Water	SM 2320B	
280-104461-1	MW-4A	T	Water	SM 2320B	
280-104461-1DU	Duplicate	T	Water	SM 2320B	

Report Basis
T = Total

Client: Waste Management

Job Number: 280-104461-2

Surrogate Recovery Report

8260B Volatile Organic Compounds (GC/MS)

Client Matrix: Water

Lab Sample ID	Client Sample ID	DCA %Rec	BFB %Rec	DBFM %Rec	TOL %Rec
280-104461-1	MW-4A	93	97	96	103
280-104461-4	MW-4B	95	92	94	98
MB 280-398655/6		95	98	97	104
LCS 280-398655/4		95	97	98	103
LCSD 280-398655/5		95	96	97	102
280-104267-B-9 MS		89	98	97	103
280-104267-B-9 MSD		90	96	99	100

Surrogate	Acceptance Limits
DCA = 1,2-Dichloroethane-d4 (Surr)	70-127
BFB = 4-Bromofluorobenzene (Surr)	78-120
DBFM = Dibromofluoromethane (Surr)	77-120
TOL = Toluene-d8 (Surr)	80-125

Method Blank - Batch: 280-398655

Method: 8260B
Preparation: 5030B

Lab Sample ID:	MB 280-398655/6	Analysis Batch:	280-398655	Instrument ID:	VMS_R1
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	R4180.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	20 mL
Analysis Date:	12/14/2017 0722	Units:	ug/L	Final Weight/Volume:	20 mL
Prep Date:	12/14/2017 0722				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
1,1,1,2-Tetrachloroethane	ND		0.21	1.0
1,1,1-Trichloroethane	ND		0.16	1.0
1,1,2,2-Tetrachloroethane	ND		0.21	1.0
1,1,2-Trichloroethane	ND		0.27	1.0
1,1-Dichloroethane	ND		0.22	1.0
1,1-Dichloroethene	ND		0.23	1.0
1,2,3-Trichloropropane	ND		0.33	2.5
1,2,4-Trichlorobenzene	ND		0.21	1.0
1,2-Dichlorobenzene	ND		0.15	1.0
1,2-Dichloroethane	ND		0.13	0.50
1,2-Dichloropropane	ND		0.18	1.0
1,3-Dichlorobenzene	ND		0.13	1.0
1,4-Dichlorobenzene	ND		0.16	1.0
2-Butanone (MEK)	ND		2.0	6.0
2-Hexanone	ND		1.7	5.0
4-Methyl-2-pentanone (MIBK)	ND		0.98	5.0
Acetone	ND		1.9	10
Acrylonitrile	ND		1.4	20
Benzene	ND		0.16	1.0
Bromochloromethane	ND		0.10	1.0
Bromodichloromethane	ND		0.17	1.0
Bromoform	ND		0.19	1.0
Bromomethane	ND		0.21	2.0
Carbon disulfide	ND		0.45	2.0
Carbon tetrachloride	ND		0.19	0.50
Chlorobenzene	ND		0.17	1.0
Chloroethane	ND		0.41	2.0
Chloroform	ND		0.16	1.0
Chloromethane	ND		0.30	2.0
cis-1,2-Dichloroethene	ND		0.15	1.0
cis-1,3-Dichloropropene	ND		0.16	1.0
Dibromochloromethane	ND		0.17	1.0
Dibromomethane	ND		0.17	1.0
Dichlorodifluoromethane	ND		0.31	2.0
Dichlorofluoromethane	ND		0.22	2.0
Diethyl ether	ND		0.26	2.0
Ethanol	ND		94	300
Ethylbenzene	ND		0.16	1.0
Hexachlorobutadiene	ND		0.36	1.0
Iodomethane	ND		0.23	1.0
Isopropyl ether	ND		0.74	10
Methyl tert-butyl ether	ND		0.25	5.0
Methylene Chloride	ND		0.32	2.0
Naphthalene	ND		0.22	1.0
Styrene	ND		0.17	1.0

Client: Waste Management

Job Number: 280-104461-2

Method Blank - Batch: 280-398655

Method: 8260B
Preparation: 5030B

Lab Sample ID:	MB 280-398655/6	Analysis Batch:	280-398655	Instrument ID:	VMS_R1
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	R4180.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	20 mL
Analysis Date:	12/14/2017 0722	Units:	ug/L	Final Weight/Volume:	20 mL
Prep Date:	12/14/2017 0722				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Tert-amyl methyl ether	ND		1.4	5.0
tert-Butyl alcohol	ND		11	50
Tert-butyl ethyl ether	ND		1.2	5.0
Tetrachloroethene	ND		0.20	1.0
Tetrahydrofuran	ND		2.0	7.0
Toluene	ND		0.17	1.0
trans-1,2-Dichloroethene	ND		0.15	1.0
trans-1,3-Dichloropropene	ND		0.19	3.0
trans-1,4-Dichloro-2-butene	ND		0.80	3.0
Trichloroethene	ND		0.16	1.0
Trichlorofluoromethane	ND		0.29	2.0
Vinyl acetate	ND		0.94	3.0
Vinyl chloride	ND		0.10	0.50
Xylenes, Total	ND		0.19	2.0

Surrogate	% Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	95	70 - 127
4-Bromofluorobenzene (Surr)	98	78 - 120
Dibromofluoromethane (Surr)	97	77 - 120
Toluene-d8 (Surr)	104	80 - 125

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-398655

Method: 8260B
Preparation: 5030B

LCS Lab Sample ID:	LCS 280-398655/4	Analysis Batch:	280-398655	Instrument ID:	VMS_R1
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	R4179.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	20 mL
Analysis Date:	12/14/2017 0644	Units:	ug/L	Final Weight/Volume:	20 mL
Prep Date:	12/14/2017 0644				20 mL
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-398655/5	Analysis Batch:	280-398655	Instrument ID:	VMS_R1
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	R4181.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	20 mL
Analysis Date:	12/14/2017 0742	Units:	ug/L	Final Weight/Volume:	20 mL
Prep Date:	12/14/2017 0742				20 mL
Leach Date:	N/A				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
1,1,1,2-Tetrachloroethane	90	92	65 - 135	2	20		
1,1,1-Trichloroethane	94	99	65 - 135	5	20		
1,1,2,2-Tetrachloroethane	85	85	58 - 135	0	20		
1,1,2-Trichloroethane	87	90	64 - 135	3	27		
1,1-Dichloroethane	95	98	65 - 135	3	21		
1,1-Dichloroethene	90	96	65 - 136	6	20		
1,2,3-Trichloropropane	85	87	65 - 135	3	23		
1,2,4-Trichlorobenzene	84	88	58 - 135	4	25		
1,2-Dichlorobenzene	90	92	65 - 135	3	20		
1,2-Dichloroethane	89	90	65 - 135	1	20		
1,2-Dichloropropane	92	95	64 - 135	4	20		
1,3-Dichlorobenzene	93	95	65 - 135	3	20		
1,4-Dichlorobenzene	92	95	65 - 135	4	23		
2-Butanone (MEK)	80	81	44 - 177	2	32		
2-Hexanone	78	76	57 - 139	2	25		
4-Methyl-2-pentanone (MIBK)	80	79	60 - 150	1	22		
Acetone	92	91	39 - 156	1	23		
Acrylonitrile	86	89	56 - 135	3	30		
Benzene	95	98	65 - 135	3	20		
Bromochloromethane	88	91	65 - 135	3	29		
Bromodichloromethane	91	93	65 - 135	2	20		
Bromoform	67	70	62 - 135	4	27		
Bromomethane	111	117	45 - 135	5	33		
Carbon disulfide	90	96	55 - 143	7	20		
Carbon tetrachloride	91	98	65 - 135	7	21		
Chlorobenzene	91	96	65 - 135	5	20		
Chloroethane	98	107	46 - 136	9	25		
Chloroform	94	97	65 - 135	3	20		
Chloromethane	84	90	34 - 145	7	24		
cis-1,2-Dichloroethene	92	95	65 - 135	4	20		
cis-1,3-Dichloropropene	87	89	65 - 135	2	26		
Dibromochloromethane	75	75	65 - 135	1	20		
Dibromomethane	87	89	65 - 135	3	26		
Dichlorodifluoromethane	96	101	43 - 142	5	30		
Dichlorofluoromethane	109	116	61 - 135	7	24		

Client: Waste Management Job Number: 280-104461-2

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-398655

Method: 8260B
Preparation: 5030B

LCS Lab Sample ID:	LCS 280-398655/4	Analysis Batch:	280-398655	Instrument ID:	VMS_R1
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	R4179.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	20 mL
Analysis Date:	12/14/2017 0644	Units:	ug/L	Final Weight/Volume:	20 mL
Prep Date:	12/14/2017 0644				20 mL
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-398655/5	Analysis Batch:	280-398655	Instrument ID:	VMS_R1
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	R4181.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	20 mL
Analysis Date:	12/14/2017 0742	Units:	ug/L	Final Weight/Volume:	20 mL
Prep Date:	12/14/2017 0742				20 mL
Leach Date:	N/A				

Analyte	% Rec. LCS	% Rec. LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Diethyl ether	88	87	51 - 143	0	30		
Ethylbenzene	94	98	65 - 135	5	20		
Hexachlorobutadiene	89	97	65 - 135	9	25		
Iodomethane	91	95	65 - 142	5	25		
Methyl tert-butyl ether	80	81	54 - 135	1	21	J	J
Methylene Chloride	86	88	54 - 141	3	26		
Naphthalene	74	76	42 - 135	3	23		
Styrene	92	95	65 - 135	3	26		
Tetrachloroethene	94	98	65 - 135	5	20		
Tetrahydrofuran	73	73	42 - 136	1	30		
Toluene	95	98	65 - 135	3	20		
trans-1,2-Dichloroethene	96	101	65 - 135	5	24		
trans-1,3-Dichloropropene	83	85	65 - 135	3	26		
trans-1,4-Dichloro-2-butene	80	82	53 - 135	2	25		
Trichloroethene	93	96	65 - 135	3	20		
Trichlorofluoromethane	84	90	53 - 137	8	27		
Vinyl acetate	78	76	11 - 187	3	24		
Vinyl chloride	94	103	40 - 137	9	24		
Xylenes, Total	94	98	65 - 135	4	20		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	95	95	70 - 127
4-Bromofluorobenzene (Surr)	97	96	78 - 120
Dibromofluoromethane (Surr)	98	97	77 - 120
Toluene-d8 (Surr)	103	102	80 - 125

Client: Waste Management

Job Number: 280-104461-2

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-398655

Method: 8260B
Preparation: 5030B

MS Lab Sample ID:	280-104267-B-9 MS	Analysis Batch:	280-398655	Instrument ID:	VMS_R1
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	R4188.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	20 mL
Analysis Date:	12/14/2017 0957			Final Weight/Volume:	20 mL
Prep Date:	12/14/2017 0957				20 mL
Leach Date:	N/A				

MSD Lab Sample ID:	280-104267-B-9 MSD	Analysis Batch:	280-398655	Instrument ID:	VMS_R1
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	R4189.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	20 mL
Analysis Date:	12/14/2017 1016			Final Weight/Volume:	20 mL
Prep Date:	12/14/2017 1016				20 mL
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
1,1,1,2-Tetrachloroethane	83	96	65 - 135	14	20		
1,1,1-Trichloroethane	82	102	65 - 135	22	20		F2
1,1,2,2-Tetrachloroethane	83	94	58 - 135	13	20		
1,1,2-Trichloroethane	90	102	64 - 135	12	27		
1,1-Dichloroethane	85	98	65 - 135	14	21		
1,1-Dichloroethene	80	100	65 - 136	22	20		F2
1,2,3-Trichloropropane	81	91	65 - 135	11	23		
1,2,4-Trichlorobenzene	84	97	58 - 135	14	25		
1,2-Dichlorobenzene	87	98	65 - 135	12	20		
1,2-Dichloroethane	79	90	65 - 135	13	20		
1,2-Dichloropropane	84	96	64 - 135	13	20		
1,3-Dichlorobenzene	89	99	65 - 135	11	20		
1,4-Dichlorobenzene	89	99	65 - 135	11	23		
2-Butanone (MEK)	104	113	44 - 177	8	32		
2-Hexanone	70	83	57 - 139	17	25		
4-Methyl-2-pentanone (MIBK)	72	80	60 - 150	11	22		
Acetone	86	96	39 - 156	11	23		
Acrylonitrile	77	90	56 - 135	16	30		
Benzene	88	101	65 - 135	12	20		
Bromochloromethane	83	96	65 - 135	15	29		
Bromodichloromethane	86	100	65 - 135	15	20		
Bromoform	64	74	62 - 135	15	27		
Bromomethane	105	115	45 - 135	10	33		
Carbon disulfide	81	98	55 - 143	19	20		
Carbon tetrachloride	79	100	65 - 135	24	21		F2
Chlorobenzene	87	98	65 - 135	12	20		
Chloroethane	96	107	46 - 136	11	25		
Chloroform	84	99	65 - 135	15	20		
Chloromethane	89	97	34 - 145	8	24		
cis-1,2-Dichloroethene	87	99	65 - 135	13	20		
cis-1,3-Dichloropropene	79	92	65 - 135	15	26		
Dibromochloromethane	69	82	65 - 135	17	20		

Client: Waste Management

Job Number: 280-104461-2

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-398655

Method: 8260B
Preparation: 5030B

MS Lab Sample ID:	280-104267-B-9 MS	Analysis Batch:	280-398655	Instrument ID:	VMS_R1
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	R4188.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	20 mL
Analysis Date:	12/14/2017 0957			Final Weight/Volume:	20 mL
Prep Date:	12/14/2017 0957				20 mL
Leach Date:	N/A				

MSD Lab Sample ID:	280-104267-B-9 MSD	Analysis Batch:	280-398655	Instrument ID:	VMS_R1
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	R4189.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	20 mL
Analysis Date:	12/14/2017 1016			Final Weight/Volume:	20 mL
Prep Date:	12/14/2017 1016				20 mL
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Dibromomethane	78	91	65 - 135	16	26		
Dichlorodifluoromethane	99	111	43 - 142	11	30		
Dichlorofluoromethane	106	116	61 - 135	9	24		
Diethyl ether	74	89	51 - 143	18	30		
Ethylbenzene	89	102	65 - 135	13	20		
Hexachlorobutadiene	90	105	65 - 135	15	25		
Iodomethane	90	104	65 - 142	14	25		
Methyl tert-butyl ether	71	86	54 - 135	13	21		
Methylene Chloride	79	90	54 - 141	13	26		
Naphthalene	77	92	42 - 135	17	23		
Styrene	88	100	65 - 135	12	26		
Tetrachloroethene	87	104	65 - 135	18	20		
Tetrahydrofuran	63	77	42 - 136	19	30	J	
Toluene	88	102	65 - 135	15	20		
trans-1,2-Dichloroethene	90	104	65 - 135	14	24		
trans-1,3-Dichloropropene	73	86	65 - 135	17	26		
trans-1,4-Dichloro-2-butene	88	87	53 - 135	1	25		
Trichloroethene	88	103	65 - 135	16	20		
Trichlorofluoromethane	106	106	53 - 137	1	27		
Vinyl acetate	69	76	11 - 187	9	24		
Vinyl chloride	99	107	40 - 137	8	24		
Xylenes, Total	90	102	65 - 135	13	20		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	89	90	70 - 127
4-Bromofluorobenzene (Surr)	98	96	78 - 120
Dibromofluoromethane (Surr)	97	99	77 - 120
Toluene-d8 (Surr)	103	100	80 - 125

Client: Waste Management

Job Number: 280-104461-2

Method Blank - Batch: 280-398567

Method: SM 2320B
Preparation: N/A

Lab Sample ID:	MB 280-398567/5	Analysis Batch:	280-398567	Instrument ID:	WC_AT2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	alk 121217.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	12/12/2017 1513	Units:	mg/L	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Bicarbonate Alkalinity as CaCO3	ND		1.1	5.0
Carbonate Alkalinity as CaCO3	1.90	J	1.1	5.0

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Andrew J Wilcox	Lab PM: Sara, Betsy A	Carrier Tracking No(s):	COC No: 280-49492-18178.1
Client Contact: Ms. Tianna Nourot	Phone: 209-402-2677	E-Mail: betsy.sara@testamericainc.com		Page: Page 1 of 1
Company: Waste Management				Job #:
Address: 10840 Altamont Pass Road	Due Date Requested:			
City: Livermore	TAT Requested (days):			
State, Zip: CA, 94550				
Phone: 925-455-7325(Tel)	PO #: Purchase Order Requested			
Email: TNourot@wm.com	WO #:			
Project Name: 236|Altamont Landfill	Project #: 28002302-Qtrly Backgrd Collection-Jan Feb Mar Ap			
Site: California	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)	Nitrate (IC)/Cl/SO4/Alks/TDS	TKN/COD/TOC	Dissolved Metals	8011 - EDB/DBCP	8260B - VOA	Dissolved Cyanide (field filtered) Method 9012A	Dissolved Sulfide (field filtered)	Mathur RSK SOP 175 Pesticide Dinosol					Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	S	D	R	A	B	B/C							
T.B	12-7-17	A.M									X									short holds - Nitrate (IC)
MW-20	12-7-17	10:21					X	X	X	X	X	X	X							Bottles Marked "F" are Field Filtered
MW-4A	12-7-17	11:26					X	X	X	X	X	X	X	X	X					
MW-4B	12-7-17	12:12									X									
MW-1A	12-7-17	12:54					X	X	X	X	X	X	X		X					

280-104461 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:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	12-7-17 17:00	SUS-ES	Alyssa Gomez	12-8-17 0945	TAD
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
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: 2.1, +0.1, IR8 Transferred by AG 12-8-17

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: Altamont

Site No.: 236 Sample Point: MW20 (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~~) Liters	WELL VOLs PURGED
12/07/17	1615	04		20	

Note: For Possive 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: A — 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)	35.03 (ft)	(ft/msl)

Total Well Depth (from TOC)	Stick Up (from ground elevation)	Casing ID	Casing Material
45.00 (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 500mL/min (std)	pH	Conductance (SC/EC) (µmhos/cm@25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
1016	500mL 1st	7.13 1st	1.917	18.1	0.0	9.3	221	
1017	1000mL 2nd	7.14 2nd	1.917	18.3	0.0	9.2	220	
1018	1500mL 3rd	7.14 3rd	1.918	18.3	0.0	9.2	220	
1019	2000mL 4th	7.14 4th	1.918	18.3	0.0	9.2	221	
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
12/07/17 10:19	7.14	1.918	18.3	0.0	9.2	221	

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: O.K Odor: None Color: Clear Other:

Weather Conditions (required daily, or as conditions change): Direction/Speed: NW@7 Outlook: Clear Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required): Sample Time @ 10:21

Purge Rate @ 500mL/min, Sample Rate 500mL/min

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
12/7/17	Andrew Wilcox		SES-ES

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

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: Altamont

Site No.: 236 Sample Point: MW4A (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~~ Liters)	WELL VOLs PURGED
12/7/17	1120	:04		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: 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: A — 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)
	69.92	

Total Well Depth (from TOC) (ft)	Stick Up (from ground elevation) (ft)	Casing ID (in)	Casing Material
85.00		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 500mL/min		pH (std)		Conductance (SC/EC) (µmhos/cm @25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
1121	500mL	1st	7.08	1st	1.71	16.7	0.0	9.7	101	
1122	500mL	2nd	7.08	2nd	1.70	16.7	0.0	9.6	100	
1123	500mL	3rd	7.09	3rd	1.70	16.6	0.0	9.6	100	
1124	500mL	4th	7.10	4th	1.70	16.7	0.0	9.6	100	
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)	Time 1124	pH (std)	CONDUCTANCE (umhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L-ppm)	eH/ORP (mV)	Other: Units
12/7/17		7.10	1.70	16.7	0.0	9.6	100	

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: O.K Odor: None Color: Clear Other:

Weather Conditions (required daily, or as conditions change): Direction/Speed: NW@7 Outlook: Clear Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required): Sample Time @ 11:24, DTW after purge 70.63

Purge Rate & the sample Rate @ 500mL a min.

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
12/7/17	Andrew Wilcox		SCS

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

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: Altamont

Site No.: 236 Sample Point: MW-413 (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)~~ Liters	WELL VOLs PURGED
12/07/17	1210	:07		35	

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: A — 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): 65.02 (ft)

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

Total Well Depth (from TOC): (ft)

Stick Up (from ground elevation): (ft)

Casing ID: 2.0 (in)

Casing Material: P.VC

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 500 mL/min (std)	pH (std)		Conductance (µmhos/cm@25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
1214	200mL 1st	7.01	1st	2.40	17.0	0.0	9.8	-37	
1215	250mL 2nd	7.01	2nd	2.39	17.0	0.0	9.7	-36	
1216	300mL 3rd	7.02	3rd	2.40	17.1	0.0	9.7	-37	
1217	350mL 4th	7.02	4th	2.40	17.1	0.0	9.7	-37	
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) 12:17	pH (std)	CONDUCTANCE (umhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L-ppm)	eH/ORP (mV)	Other: Units
12/07/17	7.02	2.40	17.1	0.0	9.7	-37	

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: O.K Odor: None Color: Clear Other:

Weather Conditions (required daily, or as conditions change): Direction/Speed: WSW Outlook: Clear Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required): Sample Time @ 12:17

Purge Rate Sample Rate @ 500 mL/min

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
12/7/17	Andrew Wilcox		SES

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

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: Altamont

Site No.: 236 Sample Point: MW-1A (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~~) Liters	WELL VOLs PURGED
12 07 17	12 50	:04		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: 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: C — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other

Sample Tube Type: C — 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)
	46.5	

Total Well Depth (from TOC) (ft)	Stick Up (from ground elevation) (ft)	Casing ID (in)	Casing Material
270.5		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 500 mL/min	pH (std)		Conductance (SC/EC) (µmhos/cm@25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
1251	500mL/min	7.38	1st	0.964	18.3	0.0	8.9	134.0	
1252	1000mL/min	7.40	2nd	0.963	18.3	0.0	9.0	134.0	
1253	1500mL/min	7.40	3rd	0.963	18.2	0.0	9.0	134.1	
1254	2000mL/min	7.39	4th	0.963	18.2	0.0	9.0	134.1	
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 (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L-ppm)	eH/ORP (mV)	Other: _____ Units _____
12:54 12 07 17	7.39	0.963	18.3	0.0	9.0	134.1	

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.*

FIELD COMMENTS

Sample Appearance: O.K Odor: None Color: Clear Other:

Weather Conditions (required daily, or as conditions change): Direction/Speed: NW@7 Outlook: Clear Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required): Sample Time@ 12:55

Purge Rate and Sample Rate@ 500mL/min

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
12/7/17	Andrew Wilcox		ESES
___/___/___			

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

Login Sample Receipt Checklist

Client: Waste Management

Job Number: 280-104461-2

Login Number: 104461
List Number: 1
Creator: Sara, Betsy A

List Source: 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.	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	

ANALYTICAL REPORT

Job Number: 280-104765-1

Job Description: 236|Altamont Landfill - Groundwater

For:
Waste Management
10840 Altamont Pass Road
Livermore, CA 94550

Attention: Ms. Tianna Nourot

Approved for release.
Betsy A Sara
Project Manager II
12/18/2017 12:45 PM

Betsy A Sara, Project Manager II
4955 Yarrow Street, Arvada, CO, 80002
(303)736-0189
betsy.sara@testamericainc.com
12/18/2017

cc: Mr. Will Neal
Ms. Tina Schmiesing

The test results in this report relate only to the samples in this report and meet all requirements of NELAC, with any exceptions noted. Pursuant to NELAP, this report shall not be reproduced except in full, without the written approval of the laboratory. All questions regarding this report should be directed to the TestAmerica Denver Project Manager.

The Lab Certification ID# is 4025.
The Lab California Certification is # 2513.

Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.

Table of Contents

CASE NARRATIVE

Client: Waste Management

Project: 236|Altamont Landfill - Groundwater

Report Number: 280-104765-1

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 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 12/15/2017; the samples arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 3.0 C.

Holding Times

All holding times were within established control limits.

Method Blanks

Methylene Chloride Method 8260B was detected in the Method Blank at a concentration below the reporting limit but above the method detection limit. No corrective action is taken for results in Method Blank that are below the reporting limits.

All other Method Blank recoveries were within established control limits.

Laboratory Control Samples

All Laboratory Control Samples were within established control limits.

Matrix Spike and Matrix Spike Duplicate (MS/MSD)

The Method 8260B MS/MSD performed on a sample from another client exhibited a RPD result outside the RPD limit for Acetone. Because the corresponding Matrix Spike and Matrix Spike Duplicate recoveries, Laboratory Control Sample, and Method Blank sample were within control limits, this anomaly is considered to be due to matrix interference and no corrective action was taken.

All other MS and MSD samples were within established control limits.

General Comments

For samples requiring analysis at a dilution, the dilution factor has been multiplied by the Method Detection Limit (MDL) for each analyte and evaluated versus the project-specific reporting limit (PSRL). If the obtained value is below the PSRL, then the PSRL is preserved as the reporting limit for the diluted result, otherwise, the obtained value becomes the reporting limit. This is done in order to maintain the PSRL to meet permit requirements at the request of the client and to report the lowest possible RL for each analyte.

EXECUTIVE SUMMARY - Detections

Client: Waste Management Job Number: 280-104765-1

Lab Sample ID / Analyte	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
280-104765-1	**MW-4A**					
Depth to water		69.92			ft	Field Sampling
Field pH		6.69			SU	Field Sampling
Field Conductivity		1630			umhos/cm	Field Sampling
Field Temperature		16.1			Degrees C	Field Sampling
Field Turbidity		0.0			NTU	Field Sampling
Field Dissolved Oxygen		8.5			mg/L	Field Sampling
Field EH/ORP		146.0			millivolts	Field Sampling
Bicarbonate Alkalinity as CaCO3		520		5.0	mg/L	SM 2320B

METHOD SUMMARY

Client: Waste Management Job Number: 280-104765-1

Description	Lab Location	Method	Preparation Method
Matrix: Water			
Volatile Organic Compounds (GC/MS)	TAL DEN	SW846 8260B	
Purge and Trap	TAL DEN		SW846 5030B
Alkalinity	TAL DEN	SM SM 2320B	
Field Sampling	TAL DEN	EPA Field Sampling	

Lab References:

TAL DEN = TestAmerica Denver

Method 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.

METHOD / ANALYST SUMMARY

Client: Waste Management

Job Number: 280-104765-1

Method	Analyst	Analyst ID
SW846 8260B	Lines, Jeremy N	JNL
EPA Field Sampling	Srisaard, Thitima X	TXS
SM SM 2320B	Duplin, Alysha 1	A1D

SAMPLE SUMMARY

Client: Waste Management

Job Number: 280-104765-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
280-104765-1	MW-4A	Water	12/14/2017 0900	12/15/2017 1000
280-104765-2TB	QCTB	Water	12/14/2017 0000	12/15/2017 1000

SAMPLE RESULTS

Client: Waste Management Job Number: 280-104765-1

Client Sample ID: MW-4A

Lab Sample ID: 280-104765-1 Date Sampled: 12/14/2017 0900
Client Matrix: Water Date Received: 12/15/2017 1000

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	280-398938	Instrument ID:	VMS_MS9
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	MS9_4852.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	12/15/2017 2040			Final Weight/Volume:	20 mL
Prep Date:	12/15/2017 2040				

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane	ND		0.21	1.0
1,1,1-Trichloroethane	ND		0.16	1.0
1,1,2,2-Tetrachloroethane	ND		0.21	1.0
1,1,2-Trichloroethane	ND		0.27	1.0
1,1-Dichloroethane	ND		0.22	1.0
1,1-Dichloroethene	ND		0.23	1.0
1,2,3-Trichloropropane	ND		0.33	2.5
1,2,4-Trichlorobenzene	ND		0.21	1.0
1,2-Dichlorobenzene	ND		0.15	1.0
1,2-Dichloroethane	ND		0.13	0.50
1,2-Dichloropropane	ND		0.18	1.0
1,3-Dichlorobenzene	ND		0.13	1.0
1,4-Dichlorobenzene	ND		0.16	1.0
2-Butanone (MEK)	ND		2.0	6.0
2-Hexanone	ND		1.7	5.0
4-Methyl-2-pentanone (MIBK)	ND		0.98	5.0
Acetone	ND		1.9	10
Acrylonitrile	ND		1.4	20
Benzene	ND		0.16	1.0
Bromochloromethane	ND		0.10	1.0
Bromodichloromethane	ND		0.17	1.0
Bromoform	ND		0.19	1.0
Bromomethane	ND		0.21	2.0
Carbon disulfide	ND		0.45	2.0
Carbon tetrachloride	ND		0.19	0.50
Chlorobenzene	ND		0.17	1.0
Chloroethane	ND		0.41	2.0
Chloroform	ND		0.16	1.0
Chloromethane	ND		0.30	2.0
cis-1,2-Dichloroethene	ND		0.15	1.0
cis-1,3-Dichloropropene	ND		0.16	1.0
Dibromochloromethane	ND		0.17	1.0
Dibromomethane	ND		0.17	1.0
Dichlorodifluoromethane	ND		0.31	2.0
Dichlorofluoromethane	ND		0.22	2.0
Diethyl ether	ND		0.26	2.0
Ethanol	ND		94	300
Ethylbenzene	ND		0.16	1.0
Hexachlorobutadiene	ND		0.36	1.0
Iodomethane	ND		0.23	1.0
Isopropyl ether	ND		0.74	10
Methyl tert-butyl ether	ND		0.25	5.0
Methylene Chloride	ND		0.32	2.0
Naphthalene	ND		0.22	1.0
Styrene	ND		0.17	1.0
Tert-amyl methyl ether	ND		1.4	5.0

Client: Waste Management Job Number: 280-104765-1

Client Sample ID: MW-4A

Lab Sample ID: 280-104765-1 Date Sampled: 12/14/2017 0900
Client Matrix: Water Date Received: 12/15/2017 1000

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	280-398938	Instrument ID:	VMS_MS9
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	MS9_4852.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	12/15/2017 2040			Final Weight/Volume:	20 mL
Prep Date:	12/15/2017 2040				

Analyte	Result (ug/L)	Qualifier	MDL	RL
tert-Butyl alcohol	ND		11	50
Tert-butyl ethyl ether	ND		1.2	5.0
Tetrachloroethene	ND		0.20	1.0
Tetrahydrofuran	ND		2.0	7.0
Toluene	ND		0.17	1.0
trans-1,2-Dichloroethene	ND		0.15	1.0
trans-1,3-Dichloropropene	ND		0.19	3.0
trans-1,4-Dichloro-2-butene	ND		0.80	3.0
Trichloroethene	ND		0.16	1.0
Trichlorofluoromethane	ND		0.29	2.0
Vinyl acetate	ND		0.94	3.0
Vinyl chloride	ND		0.10	0.50
Xylenes, Total	ND		0.19	2.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	90		70 - 127
4-Bromofluorobenzene (Surr)	101		78 - 120
Dibromofluoromethane (Surr)	93		77 - 120
Toluene-d8 (Surr)	101		80 - 125

Client: Waste Management Job Number: 280-104765-1

Client Sample ID: **QCTB**

Lab Sample ID: 280-104765-2TB Date Sampled: 12/14/2017 0000
Client Matrix: Water Date Received: 12/15/2017 1000

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	280-398938	Instrument ID:	VMS_MS9
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	MS9_4853.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	12/15/2017 2101			Final Weight/Volume:	20 mL
Prep Date:	12/15/2017 2101				

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane	ND		0.21	1.0
1,1,1-Trichloroethane	ND		0.16	1.0
1,1,2,2-Tetrachloroethane	ND		0.21	1.0
1,1,2-Trichloroethane	ND		0.27	1.0
1,1-Dichloroethane	ND		0.22	1.0
1,1-Dichloroethene	ND		0.23	1.0
1,2,3-Trichloropropane	ND		0.33	2.5
1,2,4-Trichlorobenzene	ND		0.21	1.0
1,2-Dichlorobenzene	ND		0.15	1.0
1,2-Dichloroethane	ND		0.13	0.50
1,2-Dichloropropane	ND		0.18	1.0
1,3-Dichlorobenzene	ND		0.13	1.0
1,4-Dichlorobenzene	ND		0.16	1.0
2-Butanone (MEK)	ND		2.0	6.0
2-Hexanone	ND		1.7	5.0
4-Methyl-2-pentanone (MIBK)	ND		0.98	5.0
Acetone	ND		1.9	10
Acrylonitrile	ND		1.4	20
Benzene	ND		0.16	1.0
Bromochloromethane	ND		0.10	1.0
Bromodichloromethane	ND		0.17	1.0
Bromoform	ND		0.19	1.0
Bromomethane	ND		0.21	2.0
Carbon disulfide	ND		0.45	2.0
Carbon tetrachloride	ND		0.19	0.50
Chlorobenzene	ND		0.17	1.0
Chloroethane	ND		0.41	2.0
Chloroform	ND		0.16	1.0
Chloromethane	ND		0.30	2.0
cis-1,2-Dichloroethene	ND		0.15	1.0
cis-1,3-Dichloropropene	ND		0.16	1.0
Dibromochloromethane	ND		0.17	1.0
Dibromomethane	ND		0.17	1.0
Dichlorodifluoromethane	ND		0.31	2.0
Dichlorofluoromethane	ND		0.22	2.0
Diethyl ether	ND		0.26	2.0
Ethanol	ND		94	300
Ethylbenzene	ND		0.16	1.0
Hexachlorobutadiene	ND		0.36	1.0
Iodomethane	ND		0.23	1.0
Isopropyl ether	ND		0.74	10
Methyl tert-butyl ether	ND		0.25	5.0
Methylene Chloride	ND		0.32	2.0
Naphthalene	ND		0.22	1.0
Styrene	ND		0.17	1.0
Tert-amyl methyl ether	ND		1.4	5.0

Client: Waste Management Job Number: 280-104765-1

Client Sample ID: QCTB

Lab Sample ID: 280-104765-2TB Date Sampled: 12/14/2017 0000
Client Matrix: Water Date Received: 12/15/2017 1000

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	280-398938	Instrument ID:	VMS_MS9
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	MS9_4853.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	12/15/2017 2101			Final Weight/Volume:	20 mL
Prep Date:	12/15/2017 2101				

Analyte	Result (ug/L)	Qualifier	MDL	RL
tert-Butyl alcohol	ND		11	50
Tert-butyl ethyl ether	ND		1.2	5.0
Tetrachloroethene	ND		0.20	1.0
Tetrahydrofuran	ND		2.0	7.0
Toluene	ND		0.17	1.0
trans-1,2-Dichloroethene	ND		0.15	1.0
trans-1,3-Dichloropropene	ND		0.19	3.0
trans-1,4-Dichloro-2-butene	ND		0.80	3.0
Trichloroethene	ND		0.16	1.0
Trichlorofluoromethane	ND		0.29	2.0
Vinyl acetate	ND		0.94	3.0
Vinyl chloride	ND		0.10	0.50
Xylenes, Total	ND		0.19	2.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	102		70 - 127
4-Bromofluorobenzene (Surr)	102		78 - 120
Dibromofluoromethane (Surr)	103		77 - 120
Toluene-d8 (Surr)	100		80 - 125

General Chemistry

Client Sample ID: MW-4A

Lab Sample ID: 280-104765-1 Date Sampled: 12/14/2017 0900
Client Matrix: Water Date Received: 12/15/2017 1000

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Bicarbonate Alkalinity as CaCO3	520		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-398934	Analysis Date: 12/15/2017 1600						
Carbonate Alkalinity as CaCO3	ND		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-398934	Analysis Date: 12/15/2017 1600						

Field Service / Mobile Lab

Client Sample ID: **MW-4A**

Lab Sample ID: 280-104765-1 Date Sampled: 12/14/2017 0900
Client Matrix: Water Date Received: 12/15/2017 1000

Analyte	Result	Qual	Units	Dil	Method	Analysis Batch	Date Analyzed Date Prepared
Depth to water	69.92		ft	1.0	Field Sampling	280-399038	12/14/2017 1000
Field pH	6.69		SU	1.0	Field Sampling	280-399038	12/14/2017 1000
Field Conductivity	1630		umhos/cm	1.0	Field Sampling	280-399038	12/14/2017 1000
Field Temperature	16.1		Degrees C	1.0	Field Sampling	280-399038	12/14/2017 1000
Field Turbidity	0.0		NTU	1.0	Field Sampling	280-399038	12/14/2017 1000
Field Dissolved Oxygen	8.5		mg/L	1.0	Field Sampling	280-399038	12/14/2017 1000
Field EH/ORP	146.0		millivolts	1.0	Field Sampling	280-399038	12/14/2017 1000

DATA REPORTING QUALIFIERS

Client: Waste Management Job Number: 280-104765-1

Lab Section	Qualifier	Description
GC/MS VOA		
	F2	MS/MSD RPD exceeds control limits
	J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

QUALITY CONTROL RESULTS

Client: Waste Management Job Number: 280-104765-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC/MS VOA					
Analysis Batch:280-398938					
LCS 280-398938/4	Lab Control Sample	T	Water	8260B	
LCSD 280-398938/5	Lab Control Sample Duplicate	T	Water	8260B	
MB 280-398938/6	Method Blank	T	Water	8260B	
280-104371-B-1 MS	Matrix Spike	T	Water	8260B	
280-104371-B-1 MSD	Matrix Spike Duplicate	T	Water	8260B	
280-104765-1	MW-4A	T	Water	8260B	
280-104765-2TB	QCTB	T	Water	8260B	

Report Basis
T = Total

Field Service / Mobile Lab					
Analysis Batch:280-399038					
280-104765-1	MW-4A	T	Water	Field Sampling	

Report Basis
T = Total

General Chemistry					
Analysis Batch:280-398934					
LCS 280-398934/4	Lab Control Sample	T	Water	SM 2320B	
MB 280-398934/5	Method Blank	T	Water	SM 2320B	
280-104765-1	MW-4A	T	Water	SM 2320B	
280-104765-1DU	Duplicate	T	Water	SM 2320B	

Report Basis
T = Total

Client: Waste Management

Job Number: 280-104765-1

Surrogate Recovery Report

8260B Volatile Organic Compounds (GC/MS)

Client Matrix: Water

Lab Sample ID	Client Sample ID	DCA %Rec	BFB %Rec	DBFM %Rec	TOL %Rec
280-104765-1	MW-4A	90	101	93	101
280-104765-2	QCTB	102	102	103	100
MB 280-398938/6		100	100	103	98
LCS 280-398938/4		99	99	103	100
LCSD 280-398938/5		103	97	103	96
280-104371-B-1 MS		100	101	98	102
280-104371-B-1 MSD		104	103	105	103

Surrogate	Acceptance Limits
DCA = 1,2-Dichloroethane-d4 (Surr)	70-127
BFB = 4-Bromofluorobenzene (Surr)	78-120
DBFM = Dibromofluoromethane (Surr)	77-120
TOL = Toluene-d8 (Surr)	80-125

Method Blank - Batch: 280-398938

Method: 8260B
Preparation: 5030B

Lab Sample ID:	MB 280-398938/6	Analysis Batch:	280-398938	Instrument ID:	VMS_MS9
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	MS9_4851.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	20 mL
Analysis Date:	12/15/2017 2018	Units:	ug/L	Final Weight/Volume:	20 mL
Prep Date:	12/15/2017 2018				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
1,1,1,2-Tetrachloroethane	ND		0.21	1.0
1,1,1-Trichloroethane	ND		0.16	1.0
1,1,2,2-Tetrachloroethane	ND		0.21	1.0
1,1,2-Trichloroethane	ND		0.27	1.0
1,1-Dichloroethane	ND		0.22	1.0
1,1-Dichloroethene	ND		0.23	1.0
1,2,3-Trichloropropane	ND		0.33	2.5
1,2,4-Trichlorobenzene	ND		0.21	1.0
1,2-Dichlorobenzene	ND		0.15	1.0
1,2-Dichloroethane	ND		0.13	0.50
1,2-Dichloropropane	ND		0.18	1.0
1,3-Dichlorobenzene	ND		0.13	1.0
1,4-Dichlorobenzene	ND		0.16	1.0
2-Butanone (MEK)	ND		2.0	6.0
2-Hexanone	ND		1.7	5.0
4-Methyl-2-pentanone (MIBK)	ND		0.98	5.0
Acetone	ND		1.9	10
Acrylonitrile	ND		1.4	20
Benzene	ND		0.16	1.0
Bromochloromethane	ND		0.10	1.0
Bromodichloromethane	ND		0.17	1.0
Bromoform	ND		0.19	1.0
Bromomethane	ND		0.21	2.0
Carbon disulfide	ND		0.45	2.0
Carbon tetrachloride	ND		0.19	0.50
Chlorobenzene	ND		0.17	1.0
Chloroethane	ND		0.41	2.0
Chloroform	ND		0.16	1.0
Chloromethane	ND		0.30	2.0
cis-1,2-Dichloroethene	ND		0.15	1.0
cis-1,3-Dichloropropene	ND		0.16	1.0
Dibromochloromethane	ND		0.17	1.0
Dibromomethane	ND		0.17	1.0
Dichlorodifluoromethane	ND		0.31	2.0
Dichlorofluoromethane	ND		0.22	2.0
Diethyl ether	ND		0.26	2.0
Ethanol	ND		94	300
Ethylbenzene	ND		0.16	1.0
Hexachlorobutadiene	ND		0.36	1.0
Iodomethane	ND		0.23	1.0
Isopropyl ether	ND		0.74	10
Methyl tert-butyl ether	ND		0.25	5.0
Methylene Chloride	1.25	J	0.32	2.0
Naphthalene	ND		0.22	1.0
Styrene	ND		0.17	1.0

Client: Waste Management

Job Number: 280-104765-1

Method Blank - Batch: 280-398938

Method: 8260B
Preparation: 5030B

Lab Sample ID:	MB 280-398938/6	Analysis Batch:	280-398938	Instrument ID:	VMS_MS9
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	MS9_4851.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	20 mL
Analysis Date:	12/15/2017 2018	Units:	ug/L	Final Weight/Volume:	20 mL
Prep Date:	12/15/2017 2018				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Tert-amyl methyl ether	ND		1.4	5.0
tert-Butyl alcohol	ND		11	50
Tert-butyl ethyl ether	ND		1.2	5.0
Tetrachloroethene	ND		0.20	1.0
Tetrahydrofuran	ND		2.0	7.0
Toluene	ND		0.17	1.0
trans-1,2-Dichloroethene	ND		0.15	1.0
trans-1,3-Dichloropropene	ND		0.19	3.0
trans-1,4-Dichloro-2-butene	ND		0.80	3.0
Trichloroethene	ND		0.16	1.0
Trichlorofluoromethane	ND		0.29	2.0
Vinyl acetate	ND		0.94	3.0
Vinyl chloride	ND		0.10	0.50
Xylenes, Total	ND		0.19	2.0

Surrogate	% Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	100	70 - 127
4-Bromofluorobenzene (Surr)	100	78 - 120
Dibromofluoromethane (Surr)	103	77 - 120
Toluene-d8 (Surr)	98	80 - 125

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-398938

Method: 8260B
Preparation: 5030B

LCS Lab Sample ID:	LCS 280-398938/4	Analysis Batch:	280-398938	Instrument ID:	VMS_MS9
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	MS9_4858.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	20 mL
Analysis Date:	12/15/2017 2246	Units:	ug/L	Final Weight/Volume:	20 mL
Prep Date:	12/15/2017 2246				5 mL
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-398938/5	Analysis Batch:	280-398938	Instrument ID:	VMS_MS9
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	MS9_4854.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	20 mL
Analysis Date:	12/15/2017 2122	Units:	ug/L	Final Weight/Volume:	20 mL
Prep Date:	12/15/2017 2122				5 mL
Leach Date:	N/A				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
1,1,1,2-Tetrachloroethane	103	96	65 - 135	8	20		
1,1,1-Trichloroethane	107	105	65 - 135	2	20		
1,1,2,2-Tetrachloroethane	92	90	58 - 135	1	20		
1,1,2-Trichloroethane	103	104	64 - 135	1	27		
1,1-Dichloroethane	105	101	65 - 135	4	21		
1,1-Dichloroethene	100	95	65 - 136	6	20		
1,2,3-Trichloropropane	94	96	65 - 135	2	23		
1,2,4-Trichlorobenzene	107	98	58 - 135	9	25		
1,2-Dichlorobenzene	102	94	65 - 135	7	20		
1,2-Dichloroethane	107	106	65 - 135	1	20		
1,2-Dichloropropane	102	99	64 - 135	3	20		
1,3-Dichlorobenzene	100	92	65 - 135	8	20		
1,4-Dichlorobenzene	101	93	65 - 135	9	23		
2-Butanone (MEK)	102	109	44 - 177	7	32		
2-Hexanone	96	99	57 - 139	4	25		
4-Methyl-2-pentanone (MIBK)	106	106	60 - 150	0	22		
Acetone	100	113	39 - 156	13	23		
Acrylonitrile	101	99	56 - 135	3	30		
Benzene	105	99	65 - 135	5	20		
Bromochloromethane	107	100	65 - 135	6	29		
Bromodichloromethane	105	102	65 - 135	2	20		
Bromoform	94	94	62 - 135	0	27		
Bromomethane	92	88	45 - 135	4	33		
Carbon disulfide	99	94	55 - 143	5	20		
Carbon tetrachloride	107	107	65 - 135	0	21		
Chlorobenzene	100	94	65 - 135	6	20		
Chloroethane	94	93	46 - 136	1	25		
Chloroform	104	103	65 - 135	1	20		
Chloromethane	92	95	34 - 145	3	24		
cis-1,2-Dichloroethene	106	99	65 - 135	7	20		
cis-1,3-Dichloropropene	98	94	65 - 135	4	26		
Dibromochloromethane	95	93	65 - 135	2	20		
Dibromomethane	102	100	65 - 135	1	26		
Dichlorodifluoromethane	93	86	43 - 142	8	30		
Dichlorofluoromethane	112	110	61 - 135	2	24		

Client: Waste Management Job Number: 280-104765-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-398938

Method: 8260B
Preparation: 5030B

LCS Lab Sample ID:	LCS 280-398938/4	Analysis Batch:	280-398938	Instrument ID:	VMS_MS9
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	MS9_4858.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	20 mL
Analysis Date:	12/15/2017 2246	Units:	ug/L	Final Weight/Volume:	20 mL
Prep Date:	12/15/2017 2246				5 mL
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-398938/5	Analysis Batch:	280-398938	Instrument ID:	VMS_MS9
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	MS9_4854.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	20 mL
Analysis Date:	12/15/2017 2122	Units:	ug/L	Final Weight/Volume:	20 mL
Prep Date:	12/15/2017 2122				5 mL
Leach Date:	N/A				

	% Rec.					
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Diethyl ether	110	109	51 - 143	1	30		
Ethylbenzene	98	92	65 - 135	7	20		
Hexachlorobutadiene	107	99	65 - 135	8	25		
Iodomethane	106	100	65 - 142	6	25		
Methyl tert-butyl ether	105	105	54 - 135	0	21		
Methylene Chloride	123	116	54 - 141	6	26		
Naphthalene	98	93	42 - 135	5	23		
Styrene	95	89	65 - 135	6	26		
Tetrachloroethene	103	94	65 - 135	9	20		
Tetrahydrofuran	108	107	42 - 136	1	30		
Toluene	106	99	65 - 135	6	20		
trans-1,2-Dichloroethene	108	101	65 - 135	7	24		
trans-1,3-Dichloropropene	100	103	65 - 135	3	26		
trans-1,4-Dichloro-2-butene	99	97	53 - 135	2	25		
Trichloroethene	107	101	65 - 135	6	20		
Trichlorofluoromethane	101	103	53 - 137	2	27		
Vinyl acetate	91	91	11 - 187	1	24		
Vinyl chloride	96	95	40 - 137	1	24		
Xylenes, Total	98	93	65 - 135	6	20		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	99	103	70 - 127
4-Bromofluorobenzene (Surr)	99	97	78 - 120
Dibromofluoromethane (Surr)	103	103	77 - 120
Toluene-d8 (Surr)	100	96	80 - 125

Client: Waste Management

Job Number: 280-104765-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-398938

Method: 8260B
Preparation: 5030B

MS Lab Sample ID:	280-104371-B-1 MS	Analysis Batch:	280-398938	Instrument ID:	VMS_MS9
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	MS9_4856.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	20 mL
Analysis Date:	12/15/2017 2204			Final Weight/Volume:	20 mL
Prep Date:	12/15/2017 2204				5 mL
Leach Date:	N/A				

MSD Lab Sample ID:	280-104371-B-1 MSD	Analysis Batch:	280-398938	Instrument ID:	VMS_MS9
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	MS9_4857.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	20 mL
Analysis Date:	12/15/2017 2225			Final Weight/Volume:	20 mL
Prep Date:	12/15/2017 2225				5 mL
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
1,1,1,2-Tetrachloroethane	101	107	65 - 135	6	20		
1,1,1-Trichloroethane	111	119	65 - 135	7	20		
1,1,2,2-Tetrachloroethane	88	98	58 - 135	11	20		
1,1,2-Trichloroethane	97	113	64 - 135	15	27		
1,1-Dichloroethane	104	113	65 - 135	8	21		
1,1-Dichloroethene	104	114	65 - 136	10	20		
1,2,3-Trichloropropane	90	100	65 - 135	10	23		
1,2,4-Trichlorobenzene	99	109	58 - 135	10	25		
1,2-Dichlorobenzene	99	107	65 - 135	8	20		
1,2-Dichloroethane	103	113	65 - 135	9	20		
1,2-Dichloropropane	98	109	64 - 135	10	20		
1,3-Dichlorobenzene	98	106	65 - 135	7	20		
1,4-Dichlorobenzene	100	105	65 - 135	6	23		
2-Butanone (MEK)	93	106	44 - 177	13	32		
2-Hexanone	90	114	57 - 139	24	25		
4-Methyl-2-pentanone (MIBK)	92	114	60 - 150	21	22		
Acetone	87	113	39 - 156	26	23		F2
Acrylonitrile	92	111	56 - 135	18	30		
Benzene	104	111	65 - 135	7	20		
Bromochloromethane	97	113	65 - 135	15	29		
Bromodichloromethane	102	111	65 - 135	8	20		
Bromoform	85	102	62 - 135	18	27		
Bromomethane	93	104	45 - 135	11	33		
Carbon disulfide	102	110	55 - 143	8	20		
Carbon tetrachloride	113	120	65 - 135	6	21		
Chlorobenzene	97	105	65 - 135	8	20		
Chloroethane	98	108	46 - 136	9	25		
Chloroform	104	113	65 - 135	8	20		
Chloromethane	112	118	34 - 145	5	24		
cis-1,2-Dichloroethene	107	115	65 - 135	8	20		
cis-1,3-Dichloropropene	97	103	65 - 135	6	26		
Dibromochloromethane	91	101	65 - 135	11	20		

Client: Waste Management

Job Number: 280-104765-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-398938

Method: 8260B
Preparation: 5030B

MS Lab Sample ID:	280-104371-B-1 MS	Analysis Batch:	280-398938	Instrument ID:	VMS_MS9
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	MS9_4856.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	20 mL
Analysis Date:	12/15/2017 2204			Final Weight/Volume:	20 mL
Prep Date:	12/15/2017 2204				5 mL
Leach Date:	N/A				

MSD Lab Sample ID:	280-104371-B-1 MSD	Analysis Batch:	280-398938	Instrument ID:	VMS_MS9
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	MS9_4857.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	20 mL
Analysis Date:	12/15/2017 2225			Final Weight/Volume:	20 mL
Prep Date:	12/15/2017 2225				5 mL
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Dibromomethane	93	105	65 - 135	13	26		
Dichlorodifluoromethane	106	113	43 - 142	7	30		
Dichlorofluoromethane	117	126	61 - 135	8	24		
Diethyl ether	98	120	51 - 143	19	30		
Ethylbenzene	99	104	65 - 135	6	20		
Hexachlorobutadiene	108	114	65 - 135	6	25		
Iodomethane	104	117	65 - 142	12	25		
Methyl tert-butyl ether	95	117	54 - 135	21	21	J	
Methylene Chloride	83	98	54 - 141	17	26		
Naphthalene	93	107	42 - 135	14	23		
Styrene	92	98	65 - 135	7	26		
Tetrachloroethene	105	109	65 - 135	3	20		
Tetrahydrofuran	92	112	42 - 136	19	30		
Toluene	105	114	65 - 135	8	20		
trans-1,2-Dichloroethene	104	116	65 - 135	11	24		
trans-1,3-Dichloropropene	97	110	65 - 135	13	26		
trans-1,4-Dichloro-2-butene	98	106	53 - 135	9	25		
Trichloroethene	109	113	65 - 135	4	20		
Trichlorofluoromethane	110	118	53 - 137	7	27		
Vinyl acetate	82	95	11 - 187	14	24		
Vinyl chloride	110	114	40 - 137	4	24		
Xylenes, Total	99	105	65 - 135	6	20		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	100	104	70 - 127
4-Bromofluorobenzene (Surr)	101	103	78 - 120
Dibromofluoromethane (Surr)	98	105	77 - 120
Toluene-d8 (Surr)	102	103	80 - 125

Client: Waste Management

Job Number: 280-104765-1

Method Blank - Batch: 280-398934

Method: SM 2320B
Preparation: N/A

Lab Sample ID:	MB 280-398934/5	Analysis Batch:	280-398934	Instrument ID:	WC-AT3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	alk 121517c.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	12/15/2017 1555	Units:	mg/L	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Bicarbonate Alkalinity as CaCO3	ND		1.1	5.0
Carbonate Alkalinity as CaCO3	ND		1.1	5.0

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: A.Wilcox	Lab PM: Sara, Betsy A	Carrier Tracking No(s):	COC No: 280-21109-9546.1
Client Contact: Ms. Tina Schmiesing	Phone: 209-402-2678	E-Mail: betsy.sara@testamericainc.com		Page: Page 1 of 2
Company: SCS Engineers				Job #:
Address: 3900 Kilroy Airport Way Suite 100	Due Date Requested:			
City: Long Beach	TAT Requested (days):			
State, Zip: CA, 90806				
Phone: 925-455-7325(Tel)	PO #:			
Email: tschmiesing@scsengineers.com	WO #:			
Project Name 236/Altamont Landfill: Event Desc: Semi-annual GW - Nov	Project #: 28002302			
Site: California	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)	6FBS/Alk only 12/15/17 TQS	Dissolved Metals	TKN/COD	8260B	8011	Sulfide	8151A Dinoseb	8270C	Cation/Anion Balance	TOC	Dissolved Cyanide	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	X	B	S	A	20	BC	K	A		S	P	X	
MW-4A	12-14-17	9:00					X			X									Short Hold: NO3(IC)
TB	12-14-17	AM								X									24 Hr TAT

280-104765 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:

Relinquished by	Date/Time:	Company	Received by	Date/Time:	Company
[redacted]	12-14-17, 17:00	ES-LS	[redacted]	12/15/17 1000	TAL
Relinquished by	Date/Time	Company	Received by	Date/Time:	Company
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: 2.9°C+0.1 IR #8 Transferred by BB 12/15/17

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: Allement

Site No.: 236 Sample Point: MW-44 (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
12/14/17	855	04		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

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: A — 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): 69.92 (ft)

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

Total Well Depth (from TOC): 85.00 (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	pH (std)		Conductance (SC/EC) (µmhos/cm@25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
856	500mL/min	6.68	1st	1.64	16.0	0.0	8.6	147	
857	1000mL	6.68	2nd	1.64	16.1	0.0	8.5	147	
858	1500mL	6.69	3rd	1.64	16.0	0.0	8.5	146	
859	2000mL	6.69	4th	1.63	16.1	0.0	8.5	146	
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 _____
12/14/17 (8:59)	6.69	1.63	16.1	0.0	8.5	146	

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: O.K Odor: None Color: Clear Other:

Weather Conditions (required daily, or as conditions change): Direction/Speed: Wes Outlook: Clear Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required): Sample Time @ 9:00

Purge Rate and Sample Rate @ 500mL a min.

Resample

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
12/14/17	Andrew Wilcox		SCS-ES

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

Login Sample Receipt Checklist

Client: Waste Management

Job Number: 280-104765-1

Login Number: 104765
List Number: 1
Creator: Pottruff, Reed W

List Source: 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.	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.	N/A	

Exhibit C

SOMACH SIMMONS & DUNN
A Professional Corporation
THERESA A. DUNHAM, ESQ. (SBN 187644)
BRENDA C. BASS, ESQ. (SBN 306793)
500 Capitol Mall, Suite 1000
Sacramento, CA 95814
Telephone: (916) 446-7979
Facsimile: (916) 446-8199
Email: tdunham@somachlaw.com
Email: bbass@somachlaw.com

Attorneys for Petitioner Waste Management of Alameda County, Inc.

BEFORE THE

CALIFORNIA STATE WATER RESOURCES CONTROL BOARD

In the Matter of the Petition of Waste Management of Alameda County, Inc. for Review of Action by the Central Valley Regional Water Quality Control Board Assistant Executive Officer.	SWRCB/OCC File _____ **DECLARATION OF JOHN D. GALLINATTI IN SUPPORT OF WASTE MANAGEMENT OF ALAMEDA COUNTY, INC.'S PETITION FOR REVIEW AND REQUEST FOR STAY**

I, John D. Gallinatti, declare as follows:

1. I am a Senior Principal Hydrogeologist with Geosyntec Consultants, Inc. (Geosyntec). I have over 25 years' experience in the field of hydrogeology, specifically in groundwater modeling, aquifer testing, well field design, and environmental fate of dissolved organic compounds. I have extensive expertise in evaluating groundwater beneath landfill facilities in California, Arizona, and Washington. In my career, I have worked on hydrogeologic matters for numerous California landfills, including facilities in the San Francisco Bay Area, Central Valley, and Southern California. I also have experience developing modeling to design groundwater remedies for volatile organic compounds (VOCs).

2. I am a Certified Hydrogeologist (C.Hg) licensed in California, a Professional Geologist (P.G.) licensed in both California and Arizona, and a Certified Engineering Geologist licensed in California. I have worked with Geosyntec for 18 years.

3. I am familiar with Waste Management of Alameda County, Inc.'s (WMAC, Inc.) Altamont Landfill and Resource Recovery Facility (ALRRF), including its groundwater quality monitoring wells and its gas collection and control system (GCCS).

4. I am familiar with Order No. R5-2016-0042-01, *Waste Discharge Requirements for Waste Management of Alameda County, Inc. Altamont Landfill and Resource Recovery Facility Class II And Class III Landfill Construction, Operation, Closure, Post-Closure Maintenance, And Corrective Action Alameda County* (WDR), and its associated *Monitoring and Reporting Program For Waste Management of Alameda County, Inc. Altamont Landfill and Resource Recovery Facility Class II and Class III Landfill* (MRP). I am also familiar with the May 23, 2017 sampling analysis results from monitoring well MW-4A, which detected concentrations of bicarbonate alkalinity, calcium, and five VOCs above their respective concentration limits in Order No. R5-2016-0042-01. MW-4A is located northeast of Fill Area 1, in an area that is hydrogeologically upgradient from Fill Area 1.

5. I am familiar with the Notice of Violation and Work Request issued by the Acting Supervisor of the Compliance and Enforcement Section of the Central Valley Regional Water Quality Control Water Board (Central Valley Water Board), Howard Hold, on October 19, 2017, to WMAC, Inc.

6. I am familiar with the sampling and analysis work conducted in June, July, September, and December 2017 related to the detections of VOCs and increased concentrations of bicarbonate alkalinity in MW-4A.

7. I am familiar with the work Geosyntec prepared for WMAC, Inc. related to additional sampling and analysis of groundwater quality near MW-4A. I am also familiar with the Amended Report of Waste Discharge and Proposed Evaluation Monitoring Plan (December ARWD/EMP) WMAC, Inc. submitted to the Central Valley Water Board on December 21, 2017.

8. I am familiar with the sample analysis results from MW-4A taken in January 2017 and February 2017, pursuant to the December ARWD/EMP submitted on December 21, 2017.

9. I am familiar with the Water Code section 13267 Order for Technical Reports (13267 Order) issued by the Central Valley Water Board's Assistant Executive Officer, Andrew Altevogt, on February 8, 2018.

10. I understand that the 13267 Order requires WMAC, Inc. to prepare a work plan and implement an evaluation monitoring plan (EMP) that assesses the nature and extent of the release identified in groundwater monitoring well MW-4A, and that addresses all potential pathways and zones affected by the release along the unmonitored northern limit of Fill Area 1. Further, I understand that the Central Valley Water Board's Assistant Executive Officer expects that the EMP will include installing additional monitoring wells along a 3,500-foot stretch of the northern boundary of Fill Area 1. The work plan for implementation of the EMP as prescribed has a specified due date of March 23, 2018.

11. After reviewing all of the relevant facts, sampling data, actions taken by WMAC, Inc., historical characterizations of the site, location of MW-4A, location of lined and unlined portions of Fill Area 1, and other relevant data and information, I prepared the Technical Memorandum attached hereto as Exhibit 1.

12. Based on facts and circumstances associated with this landfill and currently known data and information, in my professional judgment the cost to prepare and implement the requested EMP is estimated to be $4.8 million. This estimate includes the costs associated with the preparation of the work plan, the implementation of the work outlined in the work plan, and ongoing monitoring for the expected life of the ALRRF through post-closure. Implementation would include: (1) installation of multi-depth landfill gas probes, groundwater monitoring wells in first encountered groundwater, and deeper groundwater monitoring wells in unweathered bedrock, all to be installed at about 500-foot spacing, as shown in Figure 5 to Exhibit 1; (2) semi-annual monitoring during operation of the ALRRF; and (3) semi-annual monitoring during the post-closure period. A summary of these activities and their estimated costs are included in Exhibit 1.

13. The number and spacing of monitoring wells is based on a request from the Central Valley Water Board on May 6, 2016 that gas probes be installed at no more than 500-foot spacing around Phase 1 of Fill Area 2. At each gas probe location, a well in first-encountered groundwater and a well in unweathered bedrock would be installed.

14. Based on my professional judgment, the preparation and implementation of the EMP as requested, which includes installing and sampling from six (6) locations along the 3,500 foot perimeter of the *lined* portion of Fill Area 1, and three (3) locations near the transition from the *lined* to *unlined* portion of Fill Area 1, is not necessary or reasonable to determine the nature and extent of the release of bicarbonate alkalinity and VOCs as detected in MW-4A (located adjacent to *unlined* portion of Fill Area 1). As detailed in Exhibit 1, monitoring wells along the 3,500 foot lined portion of Fill Area 1 are not necessary for numerous reasons, including in part, because the data and information associated with this release shows that the source of the release detected in MW-4A on May 23, 2017, has been identified, the extent of the release is being effectively monitored, and WMAC, Inc. has already taken actions necessary to address this release. The facts and information that support this conclusion are detailed in paragraphs 15 through 23.

15. The source of the release detected at MW-4A is landfill gas (LFG). The detected VOC release in MW-4A was accompanied by increases in bicarbonate alkalinity and calcium, among other cations. Such changes in groundwater quality result from the partitioning of carbon dioxide from LFG vapor into groundwater. As carbonate minerals dissolve in groundwater, increased levels of bicarbonate alkalinity and calcium can result.

16. Leachate releases result in increased concentrations of Total Dissolved Solids (TDS), chloride, and other inorganic constituents associated with leachate. Sampling results from MW-4A do not show any increases in TDS, chloride, or other inorganic leachate indicators.

17. Releases of LFG to groundwater are much more likely to occur in unlined waste disposal areas than in lined areas.

18. The 3,500-foot area north of Fill Area 1 consists primarily of the lined portion of Fill Area 1 (i.e., Unit 2), and is a significant distance from MW-4A, as seen in Figure 2 in Exhibit 1.

19. Due to unrelated operational changes, several gas extraction wells located near MW-4A were decommissioned in 2017 prior to the May 23, 2017 detection of VOCs, or had reduced gas flow. After the May 23, 2017 detection, the ALRRF's GCCS was adjusted to address potential LFG releases. Specifically, flow rates were increased in two existing gas extraction wells located near MW-4A in October 2017, and four new gas extraction wells were installed in the vicinity of MW-4A in November and December 2017.

20. Monitoring data collected from MW-4A after the enhanced gas collection measures were implemented shows that groundwater conditions have improved. Specifically, VOCs were not detected in samples collected at MW-4A in December following the GCCS enhancements.

21. Monitoring data collected from MW-4A in January and February 2018 show that the concentrations of bicarbonate alkalinity and VOCs continue to decrease. See Exhibit 1 and its associated figures for more details. Concentrations of bicarbonate alkalinity were below the applicable concentration limit in Order No. R5-2016-0042-01. Only two VOCs were detected at trace concentrations below the reporting limits in both the January and February 2018 sampling results.

22. Very low concentrations of VOCs currently detected in MW-4A, as well as the decrease of bicarbonate alkalinity concentrations to background levels, show that the lateral extent of the release is effectively being monitored at MW-4A. The lack of VOC detections in the deeper-zone monitoring well MW-4B confirms that the vertical extent of the release is known.

23. The December ARWD/EMP submitted by WMAC, Inc. in December 21, 2017, includes additional monthly monitoring throughout the first quarter of 2018 and includes provisions for conducting additional work in a second phase if VOCs are detected in MW-4A during the first quarter monthly monitoring. Among other activities, these additional provisions included: installing a soil gas monitoring probe near MW-4A to evaluate the potential occurrence

of LFG in the vadose zone; collecting grab-groundwater sampling at accessible locations near MW-4A; and, installing an additional groundwater monitoring well at a location downgradient of MW-4 based on grab-groundwater sampling results.

24. Based on the foregoing, in my professional judgment, recent monitoring data collected from MW-4A after the enhancements to the GCCS were implemented shows that the increased concentrations of bicarbonate alkalinity and VOCs detected in MW-4A are associated with LFG, and such releases are being mitigated through the enhancements to the GCCS.

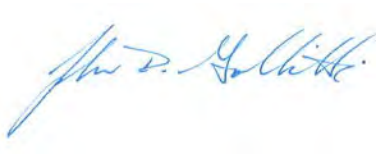
25. Based on the foregoing, in my professional judgment, the EMP as requested in the 13267 Order, is not necessary to determine the nature and extent of the release identified at MW-4A. Further, based on my professional judgment, the current monitoring program using MW-4A is effective in detecting changes in groundwater quality associated with LFG adjacent to this unlined portion of Fill Area 1.

26. Based on the foregoing, in my professional judgment, the ARWD/EMP submitted by WMAC, Inc. in December 21, 2017, is sufficient and protective.

27. Based on the foregoing, in my professional judgment, implementation of an EMP that includes new monitoring wells installed along the 3,500 foot northern perimeter of a lined portion of Fill Area 1 that would cost WMAC, Inc. an estimated $4.8 million over the life of the facility to respond to the release in question sampled in MW-4A, is unnecessary, unreasonable and overly burdensome.

28. Based on the foregoing, in my professional judgment, it is inappropriate and unreasonable to require extensive monitoring in a 3,500-foot long area adjacent to the lined portion of Fill Area 1 as a result of a LFG-related groundwater effect adjacent to an unlined portion of the landfill. Further, in my professional judgment, there is no technical justification for investigating this distant area of the ALRRF in connection with the detections at MW-4A.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct. Executed this 12th day of March 2018 at Oakland, California.



John D. Gallinatti, C.Hg.

Geosyntec consultants

1111 Broadway, 6th Floor
Oakland, California 94607
PH 510.836.3034
FAX 510.836.3036
www.geosyntec.com

Technical Memorandum

Date:	9 March 2018
To:	Theresa A. Dunham, Esq. Somach Simmons & Dunn
From:	John D. Gallinatti, C.Hg.
Subject:	Water Code 13267 Order for Technical Reports Waste Management of Alameda County, Inc. Altamont Landfill and Resource Recovery Facility, Alameda County

INTRODUCTION

On 8 February 2018, the Central Valley Regional Water Quality Control Board (Water Board) sent a letter (February 2018 letter) to Waste Management of Alameda County, Inc. (WMAC, Inc.) in which the Water Board requested technical reports pertaining to the Altamont Landfill and Resource Recovery Facility, Alameda County (ALRRF). One of the technical reports requested by the Water Board is a work plan to implement an Evaluation Monitoring Program (EMP), which is addressed herein. The request was made pursuant to Section 13267 of the California Water Code.

As the basis for the Section 13267 request, the Water Board determined that a 19 December 2017 Amended Report of Waste Discharge and Proposed Evaluation Monitoring Plan (December ARWD/EMP) submitted by WMAC, Inc. for MW-4A was materially deficient because of the following.

- "… the Discharger only proposes to collect three additional groundwater samples."
- "The Work Plan does not contain a proposal to physically install monitoring points to assess the nature and extent of the release identified north of Fill Area 1, as required by the WDRs and Title 27."

The Water Board further states that WMAC, Inc. failed to comply with the request for a work plan and thereby "… prevents staff from assessing the impact to and evaluating the changes in water quality due to the release of waste north of Fill Area 1." In addition to the release in question in

the vicinity of MW-4A, the Water Board further states that WMAC, Inc. shall submit a work plan to implement an EMP along the unmonitored northern limit of Fill Area 1.

As quoted in the February 2018 letter, Section 13267 grants the Water Board authority to require technical reports but equally requires that the "… burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports."

SUMMARY OF OPINIONS

- The December ARWD/EMP is not materially deficient in that it provides sufficient information, presented clearly, for the Water Board staff to understand the cause of the release, provides for evaluation of changes in water quality that resulted from the release, and, if necessary, includes additional follow up to assess any gaps in information related to the release.

- WMAC Inc.'s change in groundwater monitoring program from semi-annual to monthly sampling of well MW-4A is a reasonable and justified response to the observed conditions near the release. Extension of the monthly sampling program beyond 3 months, could have easily been accommodated in the December ARWD/EMP and is not cause for issuance of a 13267 Order.

- The 13267 Order misrepresents the December ARWD/EMP by stating that it "… does not contain a proposal to physically install monitoring points…" The December ARWD/EMP includes provisions for installing an additional soil gas monitoring probe, grab groundwater sampling points, and an additional monitoring well if VOCs are detected at MW-4A during the monitoring program. (Geosyntec 2017, Page 8, Section 5.3)

- The Water Board requirement to extend the ARWD/EMP far beyond the location of the observed release to cover the "… unmonitored northern limit of Fill Area 1 …" (a distance of approximately 3,500 feet between MW-4A and MW-6) is not needed to assess the impact of the release.

- The data and information associated with this release combined with WMAC, Inc.'s actions and resulting data following such actions shows that the release detected in MW-4A on May 23, 2017, is landfill gas (LFG).

- Based on the facts and circumstances associated with this landfill and currently known data and information, the cost to implement the 13267 Order's demand for an EMP that covers

3,500 feet of the northern boundary, is estimated to be $4,800,000. The burden associated with the EMP being demanded in the 13267 Order greatly exceeds the benefits to be obtained and does not bear a reasonable relationship to whatever need is presumed.

BASIS OF OPINIONS

Background

ALRRF is a Class II/III municipal solid waste landfill that is monitored on a regular basis in compliance with Waste Discharge Requirement (WDR) No. R5-2016-0042-01 and its associated Monitoring and Reporting Program (MRP) issued by the Water Board. The ALRRF is located on the northwest side of the Altamont Pass (Figure 1) on steep topography surrounded by ranch land (Figure 2).

The overall conceptual model for groundwater flow beneath the ALRRF is described by the classic recharge/discharge flow system. Groundwater occurs primarily in the valley alluvium (where present) and in the underlying weathered portions of the Panoche Formation bedrock. The direction of groundwater flow is controlled primarily by the Site topography which slopes predominantly from the north to the south in Fill Area 1. In general, groundwater flow beneath the Site is parallel to surface topographic slopes from areas of recharge on hilltops and along hillsides, to areas of local discharge in the valley bottoms (Woodward Clyde Consultants, Inc. 1975; LFR Levine-Fricke, 2001, 2002; Geosyntec 2015). Shallow groundwater flow parallel to topography is enhanced by the pervasively weathered shallow bedrock.

The conceptual model is supported by hydraulic head data which indicate the presence of downward hydraulic gradients (recharge) in wells completed on hilltops and hillsides, and upward hydraulic gradients (discharge) in valley bottoms. The steep grade and high relief at ALRRF are capable of generating large hydraulic gradients within the groundwater, and consequently local variation in geology is of secondary importance to groundwater flow (Geosyntec 2015). Vertical flow is limited by very low vertical hydraulic conductivity of the formations. Based on hydraulic testing conducted at ALRRF, the horizontal hydraulic conductivity is 1 to 5 orders of magnitude greater than the vertical hydraulic conductivity (LFR Levine-Fricke 2002). Results of hydraulic testing indicate that no hydraulic communication exists between the shallow weathered bedrock/alluvium groundwater zones and the deeper unweathered bedrock groundwater zone (LFR Levine-Fricke 2001).

Younger groundwater occurs on ridges and in shallow alluvial zones, while much older groundwater occurs at depth in the bedrock. With increasing depth, ALRRF groundwater has increased concentrations of dissolved solids and decreased tritium content. These data support the conclusion that the majority of groundwater flow through the recharge/discharge system at ALRRF occurs in the shallower depths, where hydraulic gradients are steepest, and hydraulic conductivity is highest. As a result, deeper groundwater is characterized as being relatively old,

with a very long residence time (on the order of 10,000 yrs) through the flow system (LFR Levine-Fricke, 2001).

As shown on Figure 2, ALRRF includes an active fill area (Fill Area 1) with an unlined disposal area that began accepting waste in 1980 and a lined disposal area that began accepting waste in 1994. Adjacent to the east is a future expansion disposal area (Fill Area 2).

The February 2018 letter pertains to monitoring of Fill Area 1. Figure 2 shows the location of monitoring well MW-4A and MW-6 relative to the unlined and lined portions of Fill Area 1.

ALRRF has an active gas collection and control system (GCCS) in place throughout the existing waste disposal units, including the northeast portion of the unlined waste near MW-4A. The GCCS is intended to prevent landfill gas migration and to control air emissions. The GCCS is also utilized to collect gas for energy production on site, and to supply a liquid natural gas conversion facility. The operation of the GCCS is regulated by the Bay Area Air Quality Management District (BAAQMD) under Permit to Operate No. A2066.

Evidence of a Release

Relevant monitoring results from well MW-4A (from May 2017 to the present) are presented in Table 1.

The first evidence of a release was during the May 2017 monitoring event wherein VOCs were detected, and inorganic compounds were detected at concentrations above the MW-4A concentration limits. The Water Board was notified of the results via email on 27 June 2017 and well MW-4A was resampled on 29 June 2017, and again on 11 July 2017. A technical report was submitted to the Water Board on 10 August 2017 (SCS Engineers, 2017) summarizing the analytical data collected, and indicating what follow-up actions were planned.

Additional samples from MW-4A were collected on 8 August, 13 September, 7 December, and 14 December 2017, 4 January and 20 February 2018. Samples were also collected from MW-4B (located adjacent to MW-4A but screened in a deeper zone) on 13 September 2017.

The concentrations of 1,1-dichloroethane (1,1-DCA) and cis-1,2-dichloroethene (cis-1,2-DCE) in groundwater from MW-4A are plotted as a time series graph in Figure 3 (concentrations of other VOCs are lower for all sampling periods, Table 1). The following observations can be made from the VOC concentrations from nine rounds of sampling in nine months at MW-4A, as illustrated on Figure 3.

- No VOCs were detected near applicable maximum contaminant levels (MCL).

- Only one analytical result, 1.5 µg/L of 1,1-DCA in May 2017, was above the reporting limit, all other detections were trace (estimated) values below the level of the quantification (i.e., reporting limit) that the laboratory can reliably achieve.
- The concentrations have decreased during this response period.
- The current concentrations are near the method detection limit. Concentrations below the reporting limit and above the method detection limit are estimated values because they are below the level of the quantification that the laboratory can reliably achieve.

In addition to the VOC detections, bicarbonate alkalinity (as $CaCO_3$) and calcium have been detected above the site-specific concentration limits (Table 1).

The source of the release is documented as landfill gas (LFG)

The chemistry of groundwater from well MW-4A clearly indicates that the source of the release is from landfill gas (LFG) diffusing into groundwater. The contact between LFG and groundwater may have occurred either in the formation near well MW-4A or within the well casing. Geochemical evidence that the release was LFG includes:

- VOCs, including 1,1-DCA and cis-1,2-DCE, can easily partition from LFG to groundwater (Kerfoot 1994).
- When LFG diffuses into groundwater, the result is often an increase in the concentration of bicarbonate alkalinity, calcium, magnesium and other cations. These changes result from the partitioning of carbon dioxide from vapor into the groundwater, the formation of carbonic acid, and subsequent buffering and dissolution of carbonate minerals in the water-bearing zone (Kerfoot 2004).
- Groundwater collected from MW-A does not indicate an increase in total dissolved solids (TDS) or chloride that would be expected from a release of leachate to groundwater. Due to the slow migration rate of VOCs in groundwater, these inorganic indicators of a leachate release would have arrived at the MW-4A before the VOCs.

LFG effects on groundwater are typically limited in vertical extent because of the limiting effects of chemical diffusion. Furthermore, the mass of the chemical transferred from LFG to groundwater is typically quite minor because of the limited mass in the LFG.

The cause of the LFG release has been identified

As shown in Figure 2, MW-4A is located adjacent to the unlined area of Fill Area 1. A LFG collection system is operated in both the lined and unlined area of Fill Area 1, however, several of the gas extraction wells (680, 506, 605) near MW-4A experienced reduced flow and/or were

decommissioned in 2017 prior to the detection of VOCs in groundwater at MW-4A. Figure 4 illustrates the declining flow rate at gas well 506 due to pinching of the well. Wells 506 and 605 were recently decommissioned due to a loss of gas flow. The declining gas collection rate in the northeast corner of the unlined waste area has been identified as the cause of the LFG release that was successfully detected by monitoring of well MW-4A.

A remedy for the release has been put in place

In response to identification of a release (through the successful performance of the monitoring program) WMAC, Inc. proactively made adjustments to the GCCS in the vicinity of MW-4A.

- Several active gas extraction wells (508, 516, 517, 678, 679, 680, 681 and 682) are in the northeast part of the landfill near MW-4A. WMAC, Inc. LFG staff reviewed the wellfield metrics and determined that the flow rates in wells 681 and 682 could be increased. The adjustments to increase gas flow were made in October 2017.

- Four new gas extraction wells were installed in November 2017 in this area of the site. Wells 734 (GW-27) and 735 (GW-31) started operating on 30 November 2017 and wells 736 (GW-33) and 737 (GW-34) started operating on 12 December 2017. These wells are currently flowing at a combined flowrate of 173 standard cubic feet per minute (SCFM).

- The October well field adjustments and addition of the new wells has increased gas flows in this area from 340 SCFM to 600 SCFM.

The proposed EMP provides adequate information to assess the release and monitor the effectiveness of the remedy

As described above, after the initial evidence of release in May 2017, VOC concentrations have been below the reporting limit and declining. Given that the current concentrations are only slightly above the method detection limit and well below the reporting limit, well MW-4A is most likely located at the far margin of the release and therefore the extent of the release is being effectively monitored by the December ARWD/EMP that relies on monthly sampling of MW-4A. The lack of VOC detections in MW-4B confirms that the vertical extent of the release is known.

The increased gas collection due to enhancements in the GCCS may take some time to be fully reflected in the ARWD/EMP monitoring program. The ARWD/EMP monitoring was proposed through March 2018, with provisions in the ARWD/EMP to conduct additional work if VOCs were detected in MW-4A between January and March 2018. The ARWD/EMP states that in such an event WMAC, Inc. will, if necessary, conduct further evaluation of the potential source of the

groundwater quality changes. The ARWD/EMP also indicated that a plan would be proposed to the Water Board for additional investigation of the nature and extent of the release. This second phase of investigation, if necessary based on first quarter monitoring results, may include the following:

- Well headspace sampling at monitoring well MW-4A to further evaluate if LFG is the source of the water quality changes, and to assess the potential for direct transfer of VOCs from gas to groundwater within the monitoring well itself.
- Installation of a soil gas monitoring probe in the vicinity of MW-4A to evaluate the potential occurrence of LFG in the vadose zone.
- Collection of grab-groundwater samples at accessible locations in the vicinity of MW-4A to identify the extent of VOC detections in groundwater.
- Installation of an additional monitoring well at an accessible location downgradient of MW-4A based on the grab-groundwater sampling results.

As shown in Table 1, sampling after the 19 December 2018 ARWD/EMP has shown trace concentrations of VOCs and therefore additional sampling and investigation will be conducted under the ARWD/EMP.

Because the release is associated with LFG from the unlined area of waste, there is no justification for extending the ARWD/EMP to the 3,500-ft long northern boundary of the lined area of waste.

As described above, the release has been evaluated and documented to be associated with release of LFG due to declining gas collection in the unlined portion of Fill Area 1. Continued efforts to monitor near MW-4A, including the potential need for additional monitoring locations (wells or grab groundwater), are reasonable and are anticipated in the ARWD/EMP. However, the February 2018 letter and, by reference the 19 October 2017 Work request letter from the Water Board, extend the area of the ARWD/EMP to include the entirety of the northern boundary of Fill Area 1, as far west as well MW-6. This is a distance of 3,500 feet. Given that the VOC detections at MW-4A are below the reporting limit and barely above the detection limit, there is no technical justification for investigating areas that are such a great distance away from the evidence of release. Furthermore, this entire northern boundary is part of the lined area of waste and therefore much less susceptible to LFG releases.

The cost burden of the requested monitoring exceeds the benefits to be obtained.

An evaluation was made of the estimated cost to fulfill the Water Board 13267 Order for further investigation and monitoring of the northern perimeter. This estimate is based on the information from the Water Board in the 13267 Order, as well as other currently available data and information. The Water Board's 13267 Order requests that monitoring wells be installed in the unsaturated zone, the uppermost aquifer and other aquifers in the vicinity of MW-4A and along the 3,500-foot northern, lined portion of Fill Area 1 between MW-4A and MW-6. To address the Water Board's 13267 Order as presented and interpreted, a cost estimate was prepared that assumes the following would need to occur: multi-depth landfill gas probes, groundwater monitoring wells in first encountered groundwater, and deeper groundwater monitoring wells in unweathered bedrock would need to be installed at approximately 500-foot spacing as shown in Figure 5. The 500-foot spacing is based on a previous spacing request made by Water Board staff in a 3 May 2016 letter for unsaturated zone monitoring points for Phase 1 of Fill Area 2.

Anticipated depths of the landfill gas probes and groundwater monitoring wells were determined based on the ground surface elevation from the most recent aerial flyover topographic map and most recent groundwater potentiometric surface contours (SCS 2017). The deeper unweathered bedrock wells are anticipated to be screened 30 to 40 feet below the first encountered groundwater. The monitoring locations to address this request are shown in Figure 5 and depths are summarized in the following table.

Location	1st Groundwater Well Screen Interval (ft bgs)	Deeper Unweathered Bedrock Well Screen Interval (ft bgs)	Triple Completion Multidepth Gas Probe (ft bgs)		
			Shallow Screen	Middle Screen	Deep Screen
1	50-60	80-90	5.5-10.5	16-26	35-45
2	80-90	110-120	5.5-10.5	22-42	55-75
3	170-180	200-210	5.5-10.5	67-87	145-165
4	200-210	230-240	5.5-10.5	82-102	175-195
5	160-170	190-200	5.5-10.5	62-82	135-155
6	190-200	220-230	5.5-10.5	77-97	165-185
7	50-60	80-90	5.5-10.5	16-26	35-45
8	50-60	80-90	5.5-10.5	16-26	35-45
9	110-120	140-150	5.5-10.5	37-57	85-105
MW-4 Cluster	--	--	5.5-10.5	21-36	47-62

The estimated approximate cost to complete this scope of work (based on currently available data and information) including installation, semi-annual monitoring during operation of the landfill, and semi-annual monitoring during the post closure period are summarized in the following table. The operation of the landfill is currently anticipated to be through 2061.

Task	Description	Labor Cost	Expenses	Subcontractor	SUBTOTAL
1	Well and Gas Probe Installations	$ 184,000	$ 28,000	$ 449,000	$ 661,000
2	Monitoring and Reporting (42 Years)	$ 1,926,000	$ 605,000	--	$ 2,531,000
3	Post Closure Monitoring and Reporting (30 Years)	$ 1,350,000	$ 270,000	--	$ 1,620,000
	TOTAL	**$ 3,460,000**	**$ 903,000**	**$ 449,000**	**$ 4,812,000**

CONCLUSION

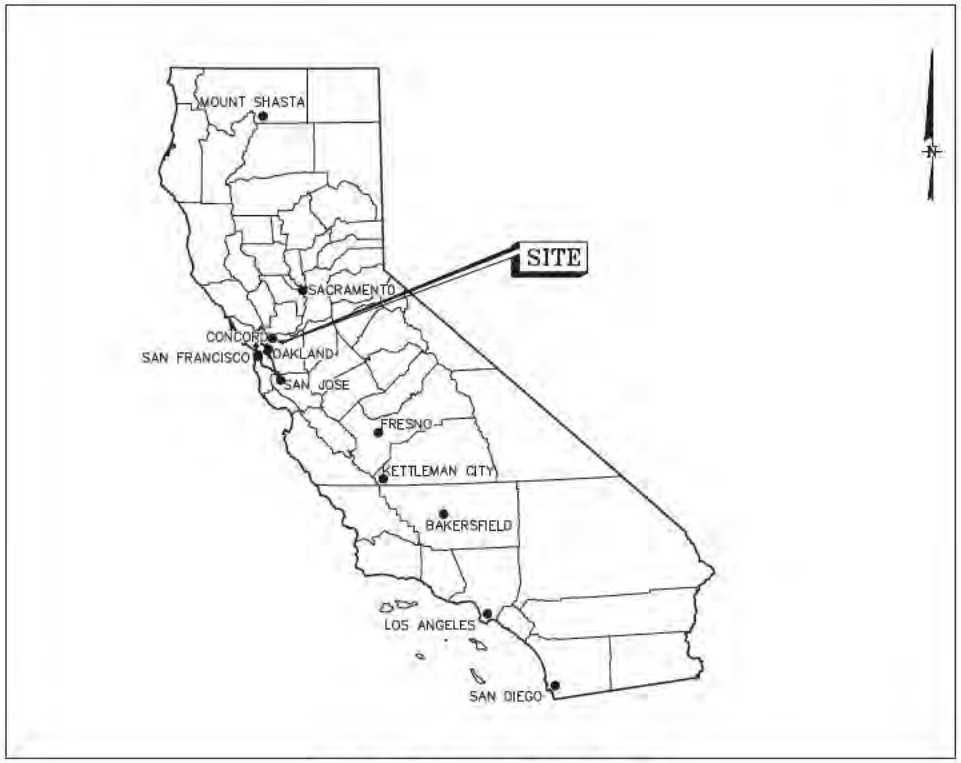
As described above, the monitoring of the northern boundary is not needed for the EMP and the cost burden of such a program does not bear a reasonable relation to the need.

****

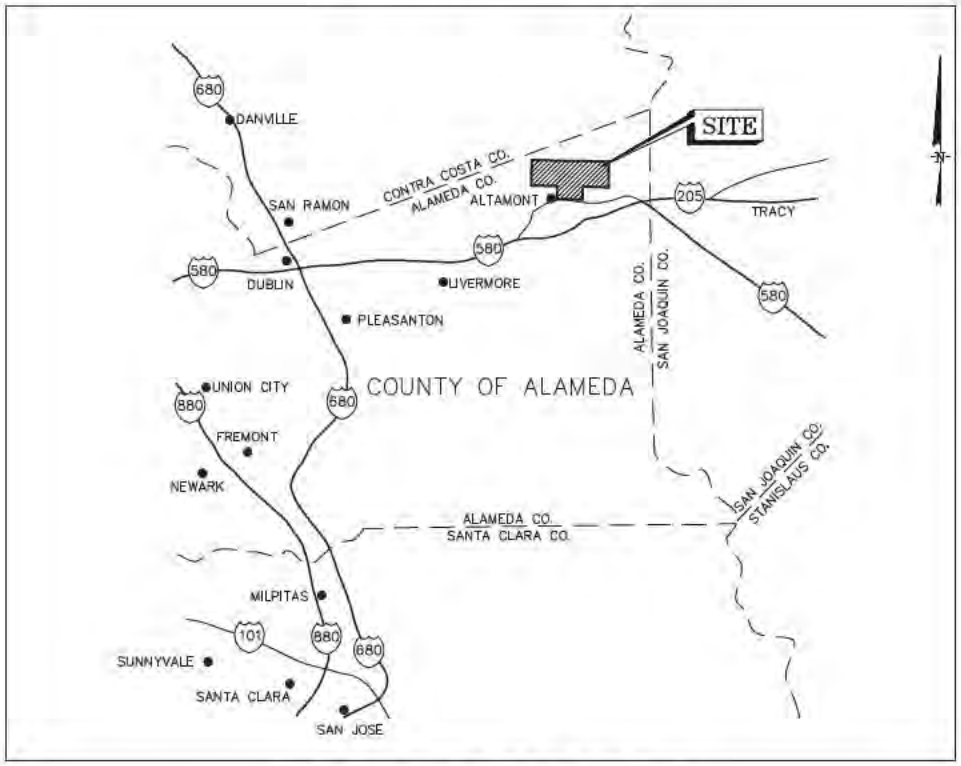
TABLE 1
MW-4A AND MW-4B 2017-2018 ANALYTICAL RESULTS SUMMARY ALTAMONT LANDFILL AND RESOURCE RECOVERY FACILITY

Sample Location	Sample Date	Alkalkinity, Bicarbonate (as CaCO3)	Calcium (dissolved)	Cis-1,2-dichloroethene	1,1-Dichloroethane	Dichlorofluoromethane	Methyl tert-butyl ether (MTBE)	Naphthalene	Trichloroethene	All Other VOCs
		-------- mg/L --------		---------- µg/L ----------						
MW-4A	5/23/2017	600	70 C	0.74A	1.5	0.55 A	0.38 A	<0.22	0.26 A	ND
	6/29/2017	540	57	0.43 A	0.73 A	0.33 A	0.37 A	<0.22	0.23 A	ND
	7/11/2017	490	58	0.33 A	0.56 A	<0.22	0.28 A	<0.22	<0.16	ND
	8/8/2017	--	--	0.38 A	0.57 A	0.28 A	0.25 A	<0.22	<0.16	ND
	9/13/2017	500	55 C	0.34 A	0.51 A	<0.22	<0.25	<0.22	<0.16	ND
	12/7/2017	550	--	0.73 A	0.73 A	0.31 A	0.41 A	<0.22	0.25 A	Acetone 2.5
	12/14/2017	520	--	<0.15	<0.22	<0.22	<0.25	<0.22	<0.16	ND
	1/4/2018	480	--	0.27 A	0.42 A	<0.22	<0.25	<0.22	<0.16	ND
	2/20/2018	460	55	0.23 A	0.33 A	<0.22	<0.25	<0.22	<0.16	ND
MW-4B	9/13/2017	550	5.5 C	<0.15	<0.22	<0.22	<0.25	0.37 A	<0.16	ND

Notes:
< = analyte not detected at or above method detection limit
-- = not analyzed
A = flag denotes concentration reported is estimated because it is below the reporting limit and above its method detection limit.
C = compound was found in blank and sample
mg/L = milligrams per Liter
ND = not detected above laboratory method detection limit
µg/L = micrograms per Liter
VOCs = volatile organic compounds



VICINITY MAP



LOCATION MAP

Geosyntec consultants

SITE VICINITY MAPS ALTAMONT LANDFILL & RESOURCE RECOVERY FACILITY ALAMEDA COUNTY, CALIFORNIA	FIGURE NO. 1 PROJECT NO. SAC243 DATE: FEBRUARY 2018

P:\CADD\CIVIL 3D\WM\ALTAMONT\WR1895\WR1895E\FIG1 SITE MAP.dwg 11-13-17 03:31:16 PM skholomeyzer

GP-16
GP-17
GP-18
GP-15
GP-19
GP-20
GP-14
GP-21
MW-19
GP-13
PC-6B (R)
PC-6B
GP-22
MW-1A
MW-1B
GP-12
MW-4B
MW-4A
WM-2
GP-23
MW-14R
MW-14
MW-21
FILL AREA 2
MW-10
GP-24
MW-13A
ARC-2
MW-13B
MW-18
GP-11
Lined Waste Disposal
P-2
PC-1A
PC-1C
MW-16
MW-17
MW-6
PC-1B
MW-15A
MW-15B
GP-25
MW-3C
MW-8B
MW-8A
GP-10
FILL AREA 1
E-20B
MW-12
PC-2A
PC-2C
UGP-1
MW-3B
MW-20
GP-1
Unlined Waste Disposal
MW-9
GP-26
GP-9
GP-2
MW-2B
MW-2A
E-07
MW-11
MW-2C
E-05
MW-7
GP-3
AL-6
GP-8
MW-5A
E-18
E-23
MW-5B
E-17
E-21
E-22
E-03A
GP-4
GP-7
GP-6
GP-5

Legend

- Landfill Gas Well
- Probe
- Groundwater Monitioring Well

Fill Area 1
- Lined Waste Disposal
- Unlined Waste Disposal

Permitted Facility Boundary

N

0 1,000 Feet

Gas Wells, Groundwater Monitoring Wells, and Gas Probes

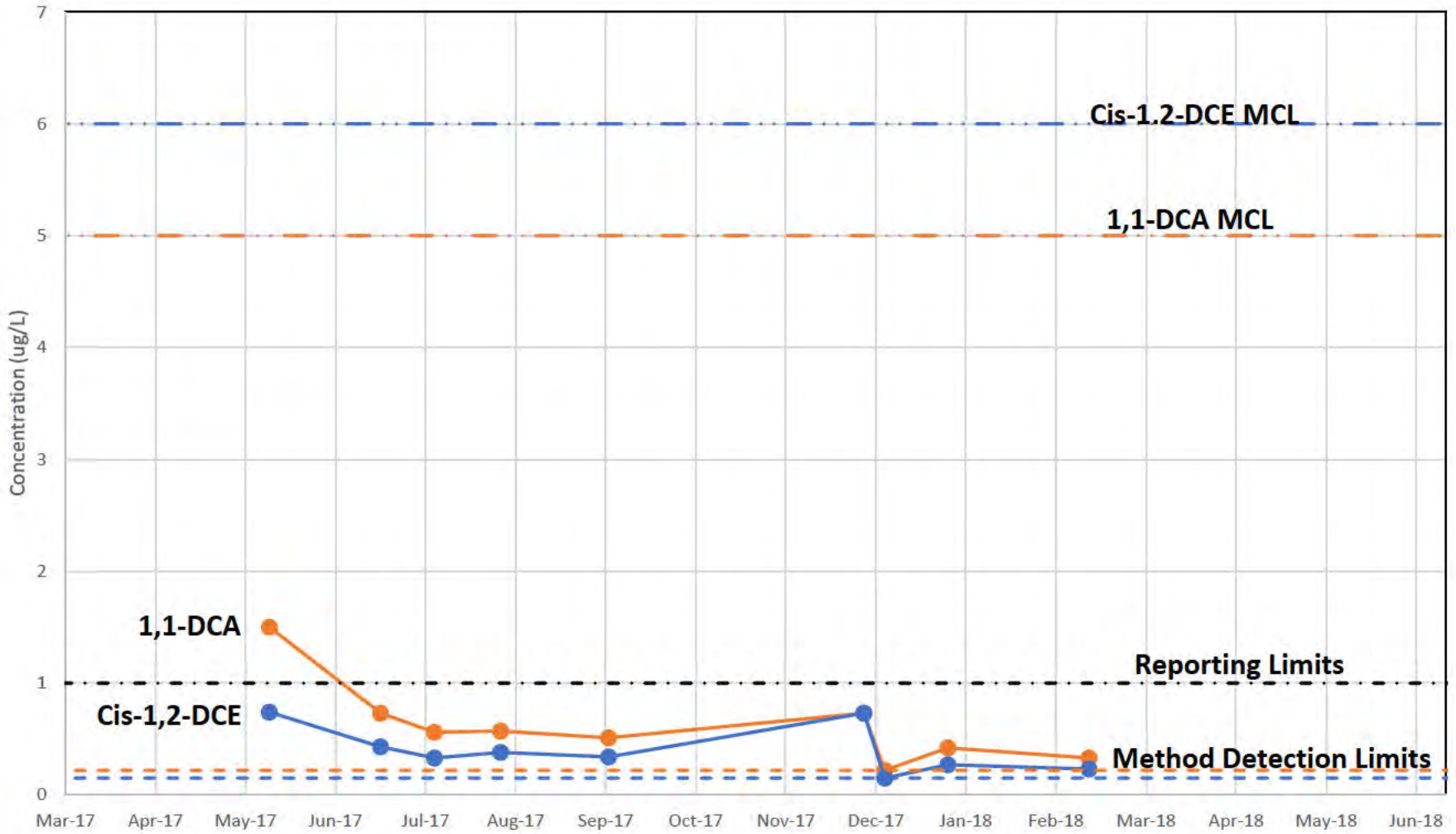
Altamont Landfill & Resource Recovery Facility
Alameda County, California

Geosyntec consultants

Oakland | March 2018

Figure 2

\\Oakland-01\data\GIS\Altamont_Landfill\projects\2018_03_MW-4\Fig-03_GasWells_MonWells_and_Probes.mxd 3/2/2018 1:53:11 PM

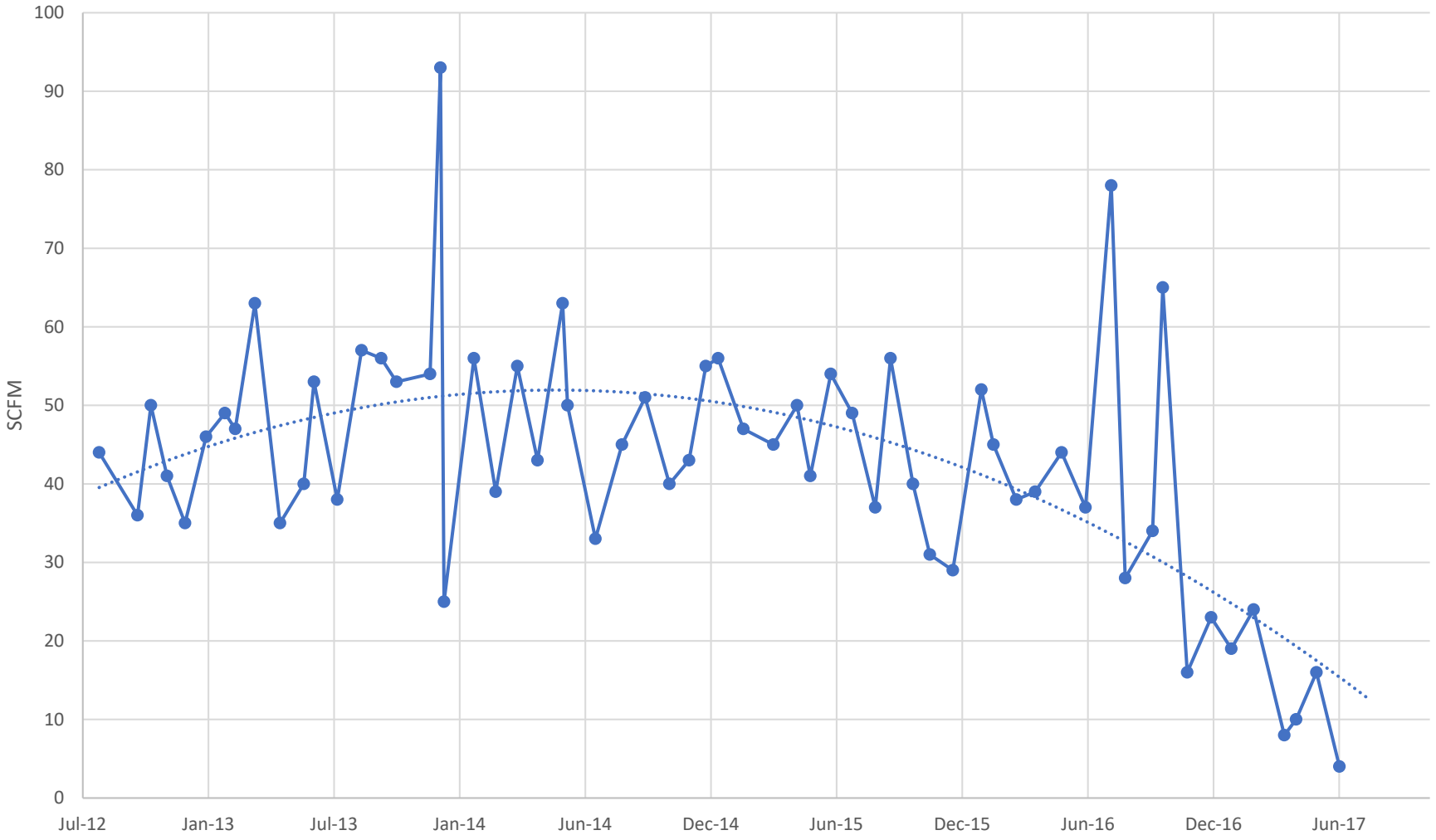


Notes:
1,1-DCA = 1,1-Dichloroethane
cis-1,2-DCE = Cis-1,2-dichloroethene
µg/L = micrograms per liter
MCL = maximum contaminant level

Figure 3
MW-4A 1,1-DCA and Cis-1,2-DCE

Altamont Landfill & Resource Recovery Facility
Alameda County, California

Project: SAC243	March 2018	Geosyntec consultants

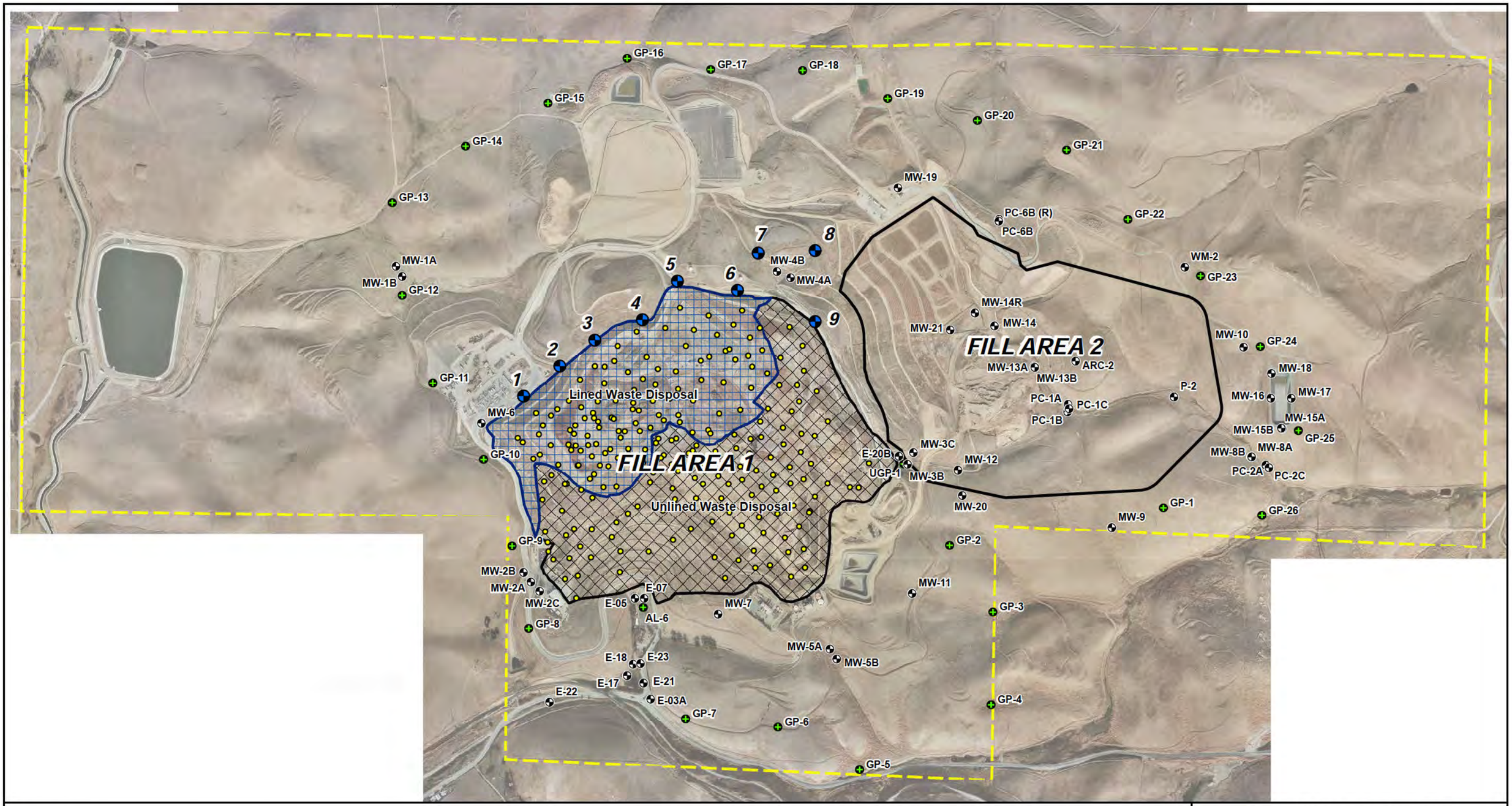


Notes:
SCFM – Standard cubic feet per minute

Figure 4
Gas Extraction Well EW-506 Flowrate

Altamont Landfill & Resource Recovery Facility
Alameda County, California

Project: SAC243	March 2018	Geosyntec consultants



Legend

- Proposed Groundwater Monitoring Well
- Landfill Gas Well
- Probe
- Groundwater Monitioring Well

Fill Area 1
- Lined Waste Disposal
- Unlined Waste Disposal

Permitted Facility Boundary

N

0 1,000 Feet

Proposed Additional Groundwater Monitoring Well Locations

Altamont Landfill & Resource Recovery Facility
Alameda County, California

Geosyntec consultants

Oakland | March 2018

Figure 5

\\Oakland-01\data\GIS\Altamont_Landfill\projects\2018_03_MW-4\Fig-04_Proposed_Loca ions.mxd 3/2/2018 2:14:13 PM

SOMACH SIMMONS & DUNN
A Professional Corporation
THERESA A. DUNHAM, ESQ. (SBN 187644)
BRENDA C. BASS, ESQ. (SBN 306793)
500 Capitol Mall, Suite 1000
Sacramento, CA 95814
Telephone: (916) 446-7979
Facsimile: (916) 446-8199
Email: tdunham@somachlaw.com
Email: bbass@somachlaw.com

Attorneys for Petitioner Waste Management of Alameda County, Inc.

BEFORE THE

CALIFORNIA STATE WATER RESOURCES CONTROL BOARD

In the Matter of the Petition of Waste Management of Alameda County, Inc. for Review of Action by the Central Valley Regional Water Quality Control Board Assistant Executive Officer.	SWRCB/OCC File _____ **WASTE MANAGEMENT OF ALAMEDA COUNTY, INC.'S REQUEST FOR STAY AND MEMORANDUM OF POINTS AND AUTHORITIES IN SUPPORT THEREOF** [Wat. Code, § 13320]

Pursuant to Water Code sections 13320 and 13321, and Title 23, section 2053 of the California Code of Regulations, Waste Management of Alameda County, Inc. (WMACI) hereby requests a stay of *Water Code Section 13267 Order for Technical Reports, Altamont Landfill and Resource Recovery Facility, Alameda County* (13267 Order), issued by the Central Valley Regional Water Quality Control Board (Central Valley Water Board) Assistant Executive Officer on February 8, 2018. The 13267 Order is attached as Exhibit A to WMACI Petition for Review and Statement of Points and Authorities in Support Thereof (Petition), filed concurrently herewith. In the Petition, WMACI challenges the Central Valley Water Board Assistant Executive Officer's issuance of the 13267 Order as not issued in compliance with the provisions of Water Code section 13267(b)(1).

WMACI seeks this stay because the 13267 Order requires the submittal and work plan to implement an evaluation monitoring program (EMP) by March 23, 2018, and immediately commence implementation of the EMP. Given that the deadline to submit the EMP work plan is only 14 days from the date WMACI's Petition is filed, WMAC, Inc. would be required to prepare and begin implementing the work plan before it has had the opportunity for the State Water Resources Control Board (State Water Board) to consider the validity of the 13267 Order and its requirements. This prevents WMACI from utilizing its available administrative remedies with regard to the 13267 Order, and requires WMACI to incur costs related to preparing and implementing a work plan pursuant to the 13267 Order while WMACI's Petition is pending.

A stay of these unreasonable and burdensome requirements is appropriate because WMACI has already produced a sufficiently protective Amended Report of Waste Discharge and Proposed Evaluation Monitoring Plan (December AROWD/EMP) and has resolved the groundwater quality change at issue in the 13267 Order. To comply with the 13267 Order, WMAC, Inc. must hire expert consultants to prepare a work plan for implementing an EMP that requires the installation of various groundwater monitoring and soil gas monitoring wells in a 3,500 foot area comprising the upgradient northern boundary of Fill Area 1 of the Alameda Landfill and Resource Recovery Facility (ALRRF). Then, WMACI must install the planned monitoring wells and conduct analytical sampling at these locations, which requires further significant capital outlay.

Because the EMP is due 14 days from the date the Petition and this Request for Stay were filed (and must be implemented upon submittal), in practice this means that WMACI must comply with the 13267 Order *before* it can take full advantage of the administrative remedies and due process procedures available to it under the Water Code, causing an irreparable harm to WMACI. This, in addition to the costs associated with preparing and implementing the EMP present a substantial harm to WMACI Accordingly, WMACI requests that any such stay take effect as of the date of issuance of the 13267 Order on February 8, 2018 and continue until the State Water Board takes final action on the Petition.

Also concurrent with this Request for Stay and WMACI's Petition, WMACI submits a supporting declaration.[1] The Request for Stay and its supporting declaration show that a stay is appropriate in this case because: (1) the stay will prevent substantial harm to WMACI; (2) the stay will not cause substantial harm to other interested parties or the public interest; and (3) the Petition raises substantial questions of fact or law. (Cal. Code Regs., tit. 23, § 2053(a)(1)-(3).)

The following Memorandum of Points and Authorities describes the requirements of the 13267 Order and demonstrates that the requested stay is justified.

SOMACH SIMMONS & DUNN

DATED: March 12, 2018

By _____
Theresa A. Dunham
Attorneys for Petitioner

[1] See Declaration of John D. Gallinatti in Support of Waste Management of Alameda County, Inc.'s Petition for Review and Request for Stay (Gallinatti Declaration), attached to the Petition as Exhibit C.

MEMORANDUM OF POINTS AND AUTHORITIES

Pursuant to Water Code sections 13320 and 13321, WMACI concurrently files its Petition related to the 13267 Order. This Request for Stay satisfies the requirements of Title 23, section 2053 of the California Code of Regulations.

I. STATEMENT OF FACTS

WMACI owns and operates the ALRRF, a Class II/III municipal solid waste landfill located near Livermore, California. The ALRRF is comprised of two Fill Areas, although only Fill Area 1 currently accepts waste for disposal. Fill Area 1 is comprised of two units, unlined Unit 1 and lined Unit 2. (See Gallinatti Declaration, ¶ 18.) Within Fill Area 1, Unit 2 is located in the northern portion of Fill Area 1, with Unit 1 located in the southern portion of Fill Area 1. (See Gallinatti Declaration, ¶ 18.)

The ALRRF is regulated by the Central Valley Water Board pursuant to Order No. R5-2016-0042-01, *Waste Discharge Requirements for Waste Management of Alameda County, Inc. Altamont Landfill and Resource Recovery Facility Class II And Class III Landfill Construction, Operation, Closure, Post-Closure Maintenance, and Corrective Action, Alameda County*. The Central Valley Water Board issued a Monitoring and Reporting Program (MRP) associated with Order No. R5-2016-0042-01 on October 27, 2016. Among other things, the MRP requires semiannual sampling and analysis of groundwater at monitoring well MW-4A. MW-4A is located northeast of Fill Area 1. (Gallinatti Declaration, ¶ 4.)

On May 23, 2017, a semiannual sample analysis was conducted at MW-4A. (Gallinatti Declaration, ¶ 4.) The results of this analysis showed an exceedance of concentration limits established in the MRP for bicarbonate alkalinity and calcium. (*Ibid.*) Five volatile organic compounds (VOCs) were also detected in the sample, with one VOC detected above reporting limits established in the MRP. (*Ibid.*) These results were reported to the Central Valley Water Board on June 27, 2017 pursuant to requirements in the MRP and in Title 27 of the California Code of Regulations.

WMACI conducted additional sampling analyses on June 29, 2017 and July 11, 2017, to confirm the change in groundwater quality indicated by the May 23, 2017 sampling results.

These resamples confirmed the exceedance of bicarbonate alkalinity and the detection of five VOCs in trace amounts, but did not confirm the exceedance of calcium. These results were reported to the Central Valley Water Board on August 3, 2017, pursuant to regulatory requirements. Based on the confirmation of the bicarbonate alkalinity exceedance and VOC detections, WMACI took additional groundwater samples from MW-4A for analysis of constituents of concern, as listed in Table 6 of the MRP, on September 13, 2017. From these results, all but two VOCs were below the method detection limits for the parameter, and the two detected VOCs were estimated values well below reporting limits. Bicarbonate alkalinity was also detected.

Two landfill gas (LFG) extraction wells in Fill Area 1 had been decommissioned in early 2017, before the May 23, 2017 sampling event, and several more gas extraction wells were experiencing low gas flow. (Gallinatti Declaration, ¶ 19.) This indicates that LFG was not effectively being extracted such that LFG was diffusing into groundwater. (*Id.* at ¶ 15.) WMACI proactively made enhancements to its gas collection and control system (GCCS) to mitigate the groundwater quality impacts. (*Id.* at ¶¶ 19, 24.) Specifically, on October 26, 2017, WMACI increased flow rates in two gas extraction wells. (*Id.* at ¶ 19.) WMACI also installed four new gas extraction wells in November 2017, which became operational on November 30, 2017 and December 12, 2017. (*Ibid.*)

Based on the monitoring results from MW-4A, as well as the facts and circumstances associated with the detected change in water quality in MW-4A, WMACI concluded that the source of the change in groundwater quality was LFG. (*Id.* at ¶ 15.) The specific facts and circumstances relied on by WMACI at this point in time, include but are not limited to, the following: (1) the groundwater quality changes detected in MW-4A responded positively (i.e., concentrations decreased) following enhancements made to the GCCS; (2) VOC detections in MW-4A were accompanied by an increase in concentration of bicarbonate alkalinity rather than total dissolved solids or chloride; (3) MW-04 is located near the unlined portion of Fill Area 1. (*Id.* at ¶¶ 15-21.)

On October 19, 2017, the Central Valley Water Board issued a Notice of Violation and Work Request (NOV) to WMAC, Inc. related to the exceedance of concentration limits for bicarbonate alkalinity and for the detection of VOCs at MW-4A. (Petition, Exh. A, pp. 5-6.) The NOV was based on WMACI's self-reported detections at MW-4A. The NOV requested the preparation of a work plan to implement an EMP to assess the nature and extent of the change in groundwater quality identified at MW-4A, to be submitted by December 22, 2017. (*Id.* at p. 6.) The NOV requested that the EMP address the 3,500-foot area that is the northern boundary of Fill Area 1. (*Ibid.*)

Following the enhancements made to the GCCS in the ALRRF, WMACI took additional samples for analysis at MW-4A on December 7, 2017 and December 14, 2017. (Petition, Exh. B, p. 12.) These samples showed that although concentrations of bicarbonate alkalinity still exceeded the applicable limits, the concentrations were decreasing as compared to the May 23, 2017 sample and were approaching the concentration limit established in the MRP. (*Ibid.*) Trace concentrations of VOCs were detected in the December 7, 2017 sample, although concentrations were trending downward. (*Ibid.*) No VOCs were detected in the December 14, 2017 sample. (Gallinatti Declaration, ¶ 20.)

On December 21, 2017, WMACI submitted a December AROWD/EMP to the Central Valley Water Board. (Gallinatti Declaration, ¶ 7; see generally, Petition, Exh. B.) The December AROWD/EMP explained the history of groundwater quality changes observed at MW-4A since May 23, 2017, the conclusion that LFG was the source of the changes, and the work conducted to address the detections of VOCs. The December AROWD/EMP also included a commitment to more frequent monitoring at MW-4A during the first quarter of 2018 – monthly sampling analysis rather than the semiannual sampling required under the MRP. (Gallinatti Declaration, ¶ 23.) The December AROWD/EMP then contemplated the potential need for a second phase of investigation if sampling analyses from January, February, and March 2018 do not indicate that groundwater quality has improved, and several options for further investigation were outlined. (*Ibid.*)

On February 8, 2018, the Central Valley Water Board Assistant Executive Officer issued the 13267 Order, which rejected the December AROWD/EMP submitted by WMACI as "material [sic] deficient" because it did not propose to install new groundwater and soil gas monitoring wells in the 3,5000 foot area north of Unit 2, Fill Area 1. (Petition, Exh. A, p. 2.) The 13267 Order requires WMACI to "submit a work plan, by March 23, 2018, to implement an EMP to assess the nature and extent of the release identified in groundwater monitoring well MW-4A and along the unmonitored northern limit of Fill Area 1, as required by Section 20415(b)(1)(C)(1-3) and Section 20415(d)(2)(C) of Title 27." (*Id.* at p. 3.) Immediately upon submission, WMACI must implement the EMP. These requirements were placed on WMACI even though the nature and extent of the release identified at MW-4A in May 2017 has been identified and measures are being taken to address the source.

WMACI seeks to stay the entirety of the 13267 Order immediately and until the State Water Board takes final action on the Petition.

II. STANDARD FOR ISSUANCE OF STAY

Water Code section 13321 allows the State Water Board to stay all or part of a regional water quality control board's decision or order, pending State Water Board Review. Water Code section 13321 provides: "In the case of a review by the state board under Section 13320 or review by the state board of a decision or order issued under authority delegated to an officer or employee of the state board where the state board by regulation has authorized a petition for reconsideration, the state board, upon notice and hearing, if a hearing is requested, may stay in whole or in part the effect of the decision or order of a regional board or of the state board."

State Water Board regulations further define the showing necessary to qualify for a stay under Water Code section 13321. "A stay of the effect of an action of a regional board shall be granted only if petitioner alleges facts and produces proof of all of the following: (1) substantial harm to petitioner or to the public interest if a stay is not granted, (2) a lack of substantial harm to other interested persons and to the public interest if a stay is granted, and (3) substantial questions of fact or law regarding the disputed action." (Cal. Code Regs., tit. 23, § 2053(a).) The request

for a stay must be supported by a declaration under penalty of perjury of a person with personal knowledge of the facts alleged in the request. (*Ibid.*)

III. ANALYSIS

WMACI timely submits this Request for Stay of the 13267 Order issued on February 8, 2018. (See *In the Matter of Petitions of Boeing Company* (June 21, 2006), Order WQ 2006-0007 (Boeing Order), p. 8 [noting that the immediate nature of stay is generally inconsistent with waiting long periods of time from permit issuance to request a stay].) A stay is appropriate here because WMACI will suffer substantial harm if the State Water Board does not grant the Request for Stay. WMACI will be forced to comply with the 13267 Order before it can exercise its procedural due process rights and will incur significant costs associated with implementing the EMP. Additionally, no substantial harm will befall other interested persons or the public interest if the request is granted because WMACI has identified the nature and extend of the release at MW-4A as LFG, implemented measures to address the source, and groundwater quality has improved. Further, the December AROWD/EMP is sufficient to protect groundwater. Finally, there are substantial questions of fact or law regarding the challenged 13267 Order, as laid out in full in the Petition.

A. WMACI Will Suffer Substantial Harm if the State Water Board Declines to Grant the Request for Stay

WMACI will suffer substantial harm if the State Water Board does not stay the 13267 Order pending resolution of WMACI's Petition. The need for a stay must be determined considering the harm that would befall the petitioner during the pendency of its petition for review with the State Water Board. (Boeing Order, p. 4.) Time is of the essence with regard to WMACI's request to stay the 13267 Order, since its first technical report – the EMP work plan – is due on March 23, 2018, a mere 14 days after the date the Petition and this Request for Stay were filed. (Gallinatti Declaration, ¶ 10; Exh. A, p. 3.) Furthermore, the EMP must be implemented upon submission, meaning that the installation of monitoring wells as required in the 13267 Order must begin on March 23, 2018. In practicality, the State Water Board cannot

consider WMACI's Petition or reach a final decision before the deadline to prepare the EMP passes and WMACI must begin implementing the additional monitoring.

Without a stay of the 13267 Order, WMACI has only one option in practicality, and this option would cause it substantial harm. WMACI would be required to comply with the 13267 Order it is challenging, and thus incur costs associated with the preparation and implementation of the EMP, and potentially render its Petition moot. This presents an irreparable harm to WMACI and its interests. The crux of WMACI's challenge to the 13267 Order is that the requirements of preparing and implementing the EMP are unduly burdensome, particularly when weighed against the need for the information that would be obtained through the EMP and subsequent implementation. (Gallinatti Declaration, ¶ 27.) Through its Petition, WMACI seeks to have the 13267 Order rescinded due to its unreasonable cost burden. The cost of installing the requested monitoring wells, and conducting semiannual monitoring at each well for the life of the landfill and through post-closure is about $4.8 million. (*Id.* at ¶ 12.) This estimate is based on the current information available. (*Id.* at ¶¶ 11-12.) Complying with the 13267 Order while the Petition is pending would require WMACI to begin shouldering the very cost burden it seeks to avoid.

Refusing to grant a stay of the 13267 Order would also violate WMACI's procedural due process rights. WMACI has rights under Water Code section 13320 to seek State Water Board review of the Central Valley Water Board's, or its executive officers', actions that are inconsistent with the law. However, being required to comply with the 13267 Order and submit the EMP before the State Water Board has had a chance to review WMACI's Petition and the 13267 Order simply prevents WMACI from being able to protect its due process rights. As the United States Supreme Court has noted, "[t]he fundamental requirement of due process is the opportunity to be heard 'at a meaningful time and in a meaningful manner.'" (*Mathews v. Eldridge* (1976) 424 U.S. 319, 333.) If the 13267 Order is not stayed, WMACI will only be able to be heard with respect to the 13267 Order at a time after it has complied with the order, or while it is in the process of complying, and thus not at a meaningful time or in a meaningful manner.

If a stay is not issued by the State Water Board, WMACI will be substantially harmed because it will have to incur significant costs related to preparing and submitting the EMP required in the 13267 Order, then immediately implementing the EMP, and further because it will prevent WMACI from protecting its interests and procedural due process rights.

B. Interested Persons and the Public Interest Will Not Suffer Substantial Harm if a Stay is Granted

A stay of the 13267 Order will not cause substantial harm to interested persons or the public. This is primarily because the source of the detections of VOCs at MW-4A has been addressed by WMACI (Gallinatti Declaration, ¶ 24.) Enhancements to the (GCCS have been implemented and groundwater quality is improving at MW-4A. (*Ibid.*) Thus, the public and the public interest will not suffer substantial harm related to the change in groundwater quality identified at MW-4A. (*Ibid.*) Furthermore, WMACI has been actively following the monitoring plan outlined in the December AROWD/EMP. (See Gallinatti Declaration, ¶ 26.) Thus, a stay will not substantially harm interested persons or the public interest because the source of the change in groundwater quality, LFG, has been addressed. WMACI's efforts of enhancing its LFG extraction system has resulted in improved water quality since the May 23, 2017 sampling event. (*Id.* at ¶¶ 20-21, 24-25.)

Furthermore, the requirements in the 13267 Order are not needed to determine the nature and extent of the change in groundwater quality identified at MW-4A. (Gallinatti Declaration, ¶¶ 14, 25.) This is because the requested EMP focuses primarily on installing monitoring points along the northern boundary of Fill Area 1, which is a lined unit of the landfill that is some distance away from MW-4A. (*Id.* at ¶ 18.) Additionally, recent sampling analysis results show that concentrations of bicarbonate alkalinity and VOCs are decreasing at MW-4A, due to improvements made to the GCCS at the ALRRF. (*Id.* at ¶¶ 20-21.)

Interested persons or the public interest would not be harmed if a stay of the 13267 Order is issued. Since the May 23, 2017 change in groundwater quality was detected at MW-4A, WMACI has monitored the change carefully. (Gallinatti Declaration, ¶¶ 25-26.) In particular, WMACI took resamples in June and July 2017 to confirm the detections of VOCs and the

exceedance of bicarbonate alkalinity concentration limits. (Petition, Exh. B, pp. 10-11; Gallinatti Declaration, ¶ 6.) Other samples were taken to investigate the change in water quality, as well. (*Ibid.*) Based on reviews of the GCCS and chemistry data from these sampling analyses, WMACI concluded that LFG was the source of the change in groundwater quality. (*Id.* at ¶¶ 15, 20-21.) The enhancements WMACI made to the GCCS to ensure that LFG was being adequately extracted and not diffusing to groundwater has had a positive effect on improving groundwater conditions. (*Id.* at ¶¶ 19-21.) Samples taken after the enhancements were made showed a decrease in concentrations of VOCs and bicarbonate alkalinity at MW-4A. (*Id.* at ¶¶ 20-21.) This shows that the source of the change in groundwater quality as detected in the May 2017 sampling event has been addressed. (*Id.* at ¶ 24.)

Because there is no technical justification for monitoring as requested along the 3,500 foot upgradient northern boundary of the predominately lined portion of Fill Area 1, staying deadlines to complete the EMP and begin its implementation will not cause harm to interested persons or the public interest. (See Gallinatti Declaration, ¶ 27.) First, this boundary is along the part of Fill Area 1 that is lined, also known as Unit 2. (*Id.* at ¶ 18.) It is substantially less likely for LFG to diffuse to groundwater in lined disposal areas, as compared to unlined disposal areas, like the southernmost Unit 1. (*Id.* at ¶ 17.) The 3,500 foot boundary is also located quite some distance from the detections at MW-4A, and no evidence suggests that monitoring in that area is necessary to determine the nature and extent of the groundwater quality change detected at MW-4A. (*Id.* at ¶ 18.) Because there is no technical justification for the report, staying the 13267 Order will not compromise groundwater quality and cause harm to the public interest or interested persons. And again, the change in groundwater quality detected in MW-4A has already been addressed through improvements to the GCCS at the ALRRF.

Finally, despite the Central Valley Water Board's criticism of WMACI's December AROWD/EMP in the 13267 Order, WMACI. has continued to conduct sampling and analysis at MW-4A as proposed. (Gallinatti Declaration, ¶¶ 23, 26.) Accordingly, MW-4A will continue to be monitored for changes in groundwater quality. (*Id.* at ¶ 23.) This continued monitoring effort, in conjunction with the fact that the most recent sampling analysis results show that the change in

groundwater quality has been addressed, further demonstrates that a stay will not harm interested persons or the public interest. (See Gallinatti Declaration, ¶ 21.)

Staying the 13267 Order will not harm interested persons or the public interest. Therefore, a stay should be granted as requested.

C. The 13267 Order Raises Substantial Questions of Fact or Law

There are clear questions of law or fact with respect to the 13267 Order, namely related to whether the Central Valley Water Board Assistant Executive Officer satisfied the requirements in Water Code section 13267(b)(1) that would allow the issuance of the 13267 Order.

As fully explained in the Petition, the Central Valley Water Board Assistant Executive Officer issued the 13267 Order without conducting the required analysis of the burden associated with generating the requested information and the need for or benefit of the information to be obtained. Most strikingly, the Central Valley Water Board Assistant Executive Officer appears to have issued the 13267 Order without understanding or acknowledging that the source of the change in groundwater quality – LFG – has been by addressed by WMACI's enhancements to its GCCS. (Gallinatti Declaration, ¶ 24.) Water Code section 13267(b)(1) requires that the burden of generating the requested technical report must be reasonably related to the need for the report or the benefits to be obtained therefrom. The Central Valley Water Board Assistant Executive Officer must also provide sufficient evidence or findings to support this conclusion. He must also establish that the financial burden of developing the technical reports, and implementing them as required, is reasonable relative to the purported need or expected benefits of the reports.

No such explanation of the need for the reports or the benefits to be obtained is included in the 13267 Order. (See Gallinatti Declaration, ¶¶ 25, 27-28.) This is particularly problematic because WMACI had already identified the source of the change in water quality had been identified as LFG and WMACI was addressing the issue proactively. (*Id.* at ¶¶ 15, 19.) Furthermore, the financial burden on WMACI associated with full compliance with the 13267 Order is significant – a figure of about $4.8 million based on currently available information. (*Id.* at ¶ 12.) Specifically, the monitoring as requested in the 13267 Order would require the installation of multiple groundwater monitoring wells at varying depths at nine (9) different

locations, which then must be sampled and analyzed periodically for the life of the landfill (42 years) and for the life of the post closure and monitoring years (30 years). (*Ibid.*) These costs were not evaluated in the 13267 Order and are not reasonable. (*Id.* at ¶¶ 23, 27.) This is because the concentrations of bicarbonate alkalinity and VOCs have been decreasing over time, particularly since WMACI made enhancements to the GCCS. (*Id.* at ¶¶ 20-21.) Further, the groundwater monitoring system currently in place detected the change in groundwater quality and has proven to adequately track water quality improvements since the May 23, 2017 sampling event. (*Id.* at ¶ 25.) Therefore, the 13267 Order's required reports are not necessary to determine the nature and extent of the change in groundwater quality detected at MW-4A, as the Central Valley Water Board Assistant Executive Officer claims they are. (*Id.* at ¶ 14.)

Additionally, the 13267 Order fails to support its requirements with evidence and explanation, and in fact appears to ignore that the change in groundwater quality detected at MW-4A has been addressed. (*Id.* at ¶¶ 20-21.) It also contains no support for its assertions that the detection of bicarbonate alkalinity and VOCs in MW-4A indicate that releases can flow from Fill Area 1 to the northwest, and therefore monitoring is required along the northern boundary of Fill Area 1, Unit 2, which is a distance east of MW-4A. (*Id.* at ¶ 18; see also Exhibit 1 to the Gallinatti Declaration, p. 14, Figure 2.) Additionally, the 13267 Order fails to support its assertions that this monitoring is required under sections 20415(b)(1)(C) and 20415(d)(2)(C) of Title 27 of the California Code of Regulations. (Gallinatti Declaration, ¶ 25.) To the contrary, the current groundwater monitoring system is sufficient under these regulations because the current system includes enough monitoring points to provide data necessary to evaluate changes in groundwater quality related to the VOC detections in question. (See Petition, p. 14, Gallinatti Declaration, ¶ 25.)

Thus, as demonstrated by WMACI's Petition, there exist substantial questions of fact or law with regard to the 13267 Order. In essence, it violates requirements included in Water Code section 13267(b)(1). The State Water Board should issue a stay of the 13267 Order during the pendency of WMACI's Petition.

IV. CONCLUSION

For the foregoing reasons, Petitioner requests that the State Water Board issue a stay of the 13267 Order, effective as of the February 8, 2018 issuance date and continuing until the State Water Board has taken final action on WMACI's Petition.

SOMACH SIMMONS & DUNN

DATED: March 12, 2018

By _____
Theresa A. Dunham
Attorneys for Petitioner

SOMACH SIMMONS & DUNN
A Professional Corporation

PROOF OF SERVICE

I am employed in the County of Sacramento; my business address is 500 Capitol Mall, Suite 1000, Sacramento, California; I am over the age of 18 years and not a party to the foregoing action.

On March 12, 2018, I served a true and correct copy of:

WASTE MANAGEMENT OF ALAMEDA COUNTY, INC.'S REQUEST FOR STAY AND MEMORANDUM OF POINTS AND AUTHORITIES IN SUPPORT THEREOF

X (by mail) on all parties in said action listed below, in accordance with Code of Civil Procedure § 1013a(3), by placing a true copy thereof enclosed in a sealed envelope in a designated area for outgoing mail, addressed as set forth below. At Somach Simmons & Dunn, mail placed in that designated area is given the correct amount of postage and is deposited that same day, in the ordinary course of business, in a United States mailbox in the City of Sacramento, California.

X Via electronic service to the electronic mail addresses set forth below:

Ms. Pamela Creedon Executive Officer Central Valley Regional Water Quality Control Board 11020 Sun Center Drive, Suite 200 Rancho Cordova, CA 95670-6114 Email: pamela.creedon@waterboards.ca.gov	Adrianna M. Crowl Office of Chief Counsel State Water Resources Control Board P.O. Box 100 Sacramento, CA 95812-0100 Email: waterqualitypetitions@waterboards.ca.gov Adriana.crowl@waterboards.ca.gov
Catherine R. Finley Senior Legal Counsel Waste Management 9081 Tujunga Avenue Sun Valley, CA 91352 Phone: (805) 961-7534 Email: CRiegle@wm.com	Phillip Wyels Assistant Chief Counsel State Water Resources Control Board P.O. Box 100 Sacramento, CA 95812-0100 Email: philip.wyels@waterboards.ca.gov

I declare under penalty of perjury that the foregoing is true and correct under the laws of the State of California. Executed on March 12, 2018, at Sacramento, California.

Jennifer Estabrook