MEMORANDUM

DATE: December 6, 2012

TO: File

FROM: Molly Collins, R.G.
Project Coordinator
Environmental Services

SUBJECT: **A-Mountain, Congress and Nearmont Landfills, 2012 Annual Monitoring Report**

The City of Tucson (COT) – Environmental Services (ES) has prepared this report to document landfill gas and groundwater monitoring, and dewatering activities conducted at the A-Mountain, Congress and Nearmont Landfills for 2012.

If you have any questions concerning this report, please contact me at (520) 791-3175.

cc:

Wally Wilson, COT, Tucson Water (email Link)
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Congress and Nearmont Landfill File
A-Mountain Landfill File

A-MOUNTAIN, CONGRESS, AND NEARMONT LANDFILLS 2012 ANNUAL MONITORING REPORT

December 4, 2012

Prepared By:
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CITY OF TUCSON

ENVIRONMENTAL
SERVICES

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EXECUTIVE SUMMARY

This report provides an analysis of data collected between June 2011 and September 2012 at the A-Mountain, Congress, and Nearmont Landfills. During this period, COT-ES monitored the landfill perimeters for landfill gases, sampled the perched and regional groundwater monitor wells for water quality, and dewatered three perched groundwater wells.

COT-ES monitors methane at the boundaries of landfills to be protective of nearby residences and other developments. No changes are proposed to the methane monitoring schedule.

Groundwater monitoring at the A-Mountain Landfill is part of the Comprehensive Landfill program, which COT-ES developed in 2000 to assess the level of environmental risk, if any, posed by landfills within the City.

Until 2010, groundwater monitoring at the Congress and Nearmont Landfills was done in accordance with the 2003 Work Plan approved by the Arizona Department of Environmental Quality (ADEQ) Voluntary Remediation Program (VRP) to assess the impact to regional groundwater, if any, posed by the Landfill Stabilization Project (LSP). The LSP ended in 2008, and COT-ES submitted the final report on the project to ADEQ in 2010. In the final report, COT-ES proposed a groundwater monitoring and dewatering schedule and stated that the data would be evaluated and the schedule adjusted as needed to be protective of the regional aquifer. ADEQ issued a letter dated January 4, 2011 which approved withdrawal of the LSP from the VRP. Currently, all three landfills are regulated by 40CFR Part 257.1 through 257.3, Arizona Revised Statutes §49-701 to §49-881 and the COT Landfill Ordinance 10037.

Methane was not detected in any perimeter landfill gas monitoring probe. Groundwater flows towards the northwest beneath the landfills. The regional groundwater water quality results remain stable and below associated aquifer water quality standards (AWQS). Nitrate is above the AWQS in one perched well (CM-9), located north of the Congress Landfill.

COT-ES has collected groundwater samples at the A-Mountain Landfill since 2000. The sampling results indicate that groundwater quality concentrations are stable and below the AWQS for all parameters. Therefore, COT ES will discontinue monitoring of the regional groundwater wells associated with the A-Mountain Landfill.

During the LSP, COT-ES dewatered perched wells at the Congress and Nearmont landfills to prevent perched water from developing a hydraulic head sufficient to cause the downward migration of the water through the clay layer that underlies the waste. Measured perched water elevations did not exceed levels sufficient to cause downward migration either during or after the LSP. After the end of the LSP, COT-ES continued dewatering in an effort to reduce the nitrate in CM-9 to below the AWQS. Most of the perched water wells are now dry, and a 2003 geologic cross section indicates that the perched water beneath the landfills exists primarily in isolated pockets created by the clay mining that occurred prior to landfilling activities. Since three years of dewatering efforts have not been effective at reducing the nitrate concentration in CM-9, the perched water is not used for human consumption, perched water elevations have not increased to the level sufficient to cause the downward migration of the perched water, and

monitoring data show that the groundwater quality of the regional aquifer has not been affected by the LSP activities, COT-ES will discontinue the dewatering.

In 2013, COT-ES will perform the following:

- monitor water levels in the perched layer beneath the Congress and Nearmont Landfills monthly (to determine if water level elevations increase to levels that may cause downward migration);
- monitor the perched water quality in CM-9 for nitrate in January and July 2013;
- monitor the three regional downgradient wells in July 2013 to verify that the regional aquifer remains unimpacted;
- Collect water level data from the A-Mountain wells in July 2013 for use in a regional groundwater flow map.
- Evaluate the data and adjust the monitoring schedule as needed.

1.0 INTRODUCTION

The City of Tucson (COT) Environmental Services (ES) prepared this report to document landfill gas, groundwater monitoring, and dewatering data collected between June 2011 and September 2012 at the A-Mountain, Congress and Nearmont Landfills (Figure 1). This report also contains data from a water level monitoring event conducted for a wider range of wells in January 2012 in order to better understand the perched and regional groundwater flow in the area. The data from the three landfills are being combined into a single report because they are within close proximity and their monitoring networks can be combined. Previous monitoring reports for the A-Mountain Landfill can be found at the COT-ES central files under the A-Mountain Project File. Previous data from the Congress and Nearmont Landfills can be found under the Congress Landfill, Nearmont Landfill and Rio Nuevo Project Files.

2.0 BACKGROUND

The A-Mountain, Congress, and Nearmont Landfills are located along the west bank of the Santa Cruz River (Figure 1). The landfills were owned and operated by the City of Tucson for the disposal of municipal solid waste. Operation dates and the current waste foot print are shown below.

Landfill	Operated	Size (acres)
A-Mountain	1953 - 1962	31.5
Congress	1953 - 1960	7.8
Nearmont	1960 - 1967	3

The landfills meet the definition of closed solid waste facilities under A.R.S. 49-701 through A.R.S. 49.881 and are exempt from the state rules covering solid waste facilities. However, methane monitoring for City landfills was directed by Mayor and Council in August 1995 as part of a directive to the Solid Waste Management Department to manage and control methane gas from landfills within the City. Mayor and Council placed evaluation of methane hazards as the highest priority but also directed staff to evaluate and establish protocols for other environmental concerns, specifically the impacts to groundwater from City-owned landfills[1, 2].

To be protective of nearby residences and other developments, COT ES monitors methane quarterly at the boundary of each City-owned landfill. Groundwater monitoring at the A-Mountain Landfill is part of the Comprehensive Landfill program, a discretionary program which COT-ES developed in 2000 to assess the level of environmental risk, if any, posed by landfills within the City. Table 1 provides the 2011-2012 monitoring schedules for the three landfills covered by this report, and Table 2 lists the probes and wells associated with each landfill.

The Congress and Nearmont landfills were the site of the Rio Nuevo Landfill Stabilization Project (LSP), which ended in 2008. COT-ES submitted the final report to the Arizona

[1] Solid Waste Management Department: Memorandum to Mayor and Council. Closed Landfill Investigation Summary, February 18, 1998

[2] Mayor and Council: Memorandum: Update on Landfill Methane Monitoring and Compliance, March 15, 1999

Department of Environmental Quality (ADEQ) Voluntary Remediation Program in February 2010[3]. In the final report, COT-ES proposed monitoring schedules for groundwater, perched water and dewatering at the site, and stated that the data would be evaluated and the schedule adjusted as needed. Data from January 2010 through July 2011 were reported in an internal memorandum dated November 4, 2011[4]. In 2011 and 2012, semiannual monitoring and continuous dewatering of perched water wells was continued because the LSP impacted isolated perched water pockets beneath the two landfills. Annual regional groundwater monitoring was continued to evaluate if the LSP had impacted regional groundwater quality.

The area north of the Congress and Nearmont landfills is being redeveloped with a new bridge and housing units. This development does not impact the footprint of the waste, however these activities have destroyed several LSP process wells. If a well is not listed on Table 2, it was either removed in 2009 when the LSP was dismantled or it has been destroyed by vehicles associated with the current development activities to the north of the site.

3.0 SHALLOW LANDFILL GAS MONITORING

A total of thirty shallow landfill gas probes in nineteen locations were monitored quarterly in October 2011, and January, April, and July 2012. Methane was not detected (Appendix A). The probes will continue to be monitored quarterly.

4.0 GROUNDWATER ELEVATIONS

COT-ES conducted a water level monitoring event on January 30 and 31, 2012 for wells on both the east and west sides of the Santa Cruz River to gain a better understanding of the regional and perched groundwater flow in the area. In addition, COT-ES collected water levels at wells located at the Congress and Nearmont landfills in July 2012 prior to the semiannual sampling event. The water level data field forms are provided in Appendix B.

4.1 Perched Water Conditions

Perched water was not present at the A-Mountain Landfill in January 2012 (Table 3, and Figure 3). A-Mountain regional monitor wells WR-364A and WR-366A are equipped with 1" piezometers screened to include a suspected perched zone but these piezometers have never contained detectable levels of water. One-tenth of an inch of water was measured in the bottom cap of WR-365A, and the well is considered dry. Perched water was detected in several wells at the Congress and Nearmont Landfills and at sites east of the Santa Cruz River. In January 2012 measured perched water table elevations (WTEs) ranged between 2,304.58 and 2,318.50 feet above mean sea level (ft amsl). When WTEs measured in perched wells to the east and west sides of the river are plotted on a map, they do not clearly show a direction of flow; thus COT-ES considers the perched water to be unconnected in this area, and data from January 2012 is not contoured on Figure 3.

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[3] COT-ES: *Rio Nuevo Full Scale Stabilization Project 17-Acre Site Annual Report (April 2008-October 2009) and Final Report: VRP Site Code: 504075-00*, February 2010

[4] COT-ES, Memorandum: *Congress and Nearmont Landfills, Tucson, AZ January 2010 to July 2011 Groundwater Monitoring and Landfill Gas Monitoring Results,* November 4, 2011

In the vicinity of the Congress and Nearmont Landfills, the perched groundwater is discontinuous and occurs in isolated perched aquifer monitor wells. As noted in the geologic cross section presented in the LSP Work Plan[5], and shown in Appendix C, the clay which serves as the base of the perched aquifer beneath the Congress and Nearmont Landfills is laterally continuous but contains depressions created by the clay mining which occurred prior to landfilling activities. Well WR-287A is located in such a depression.

Water levels were monitored in July 2012 prior to semiannual sampling at the Congress and Nearmont Landfills. Of the ten perched wells remaining, half were dry (Table 3). As proposed in the 2011 annual report[4] , well CM-11 was abandoned in November 2011 by backfilling it with concrete because it was broken at approximately 10 feet below ground surface (ft bgs) and could not be repaired.

4.2 Regional Groundwater Elevations

For the full list of wells measured and their locations, see Table 3 and Figure 3. Regional water table elevations are contoured in Figure 3. The regional water table elevations ranged between 2190.81 and 2256.09 ft amsl. Flow is generally north with a variable horizontal gradient. The average gradient east of I-10 is approximately 0.021 feet per foot (ft/ft) with a northwest flow direction (Figure 3). A groundwater divide that locally shifts flow to the northwest (west of I-10) or northeast (east of I-10) is evident from the contours on Figure 3, and is consistent with previous water level data[4]. The divide appears to be roughly parallel to I-10 and lies to the east of the Santa Cruz River. As noted in the 2011 annual report, WTE data from well RNM-542 indicate it is not located downgradient of the Congress and Nearmont landfills.

5.0 GROUNDWATER MONITORING RESULTS

The regional wells are sampled annually for the COT-ES standard list of parameters for landfills considered "closed solid waste facilities" where discretionary monitoring is conducted to determine if the landfill poses an environmental risk to groundwater. The standard list includes VOCs, total organic carbon and 17 inorganic parameters (Table 4). The perched wells are sampled for VOCs, nitrate and nitrite as outlined in the 17-Acre final report[3.] The 2012 monitoring schedule is included in Table 1.

5.1 Perched Water Quality

No VOC compound exceeded its AWQS in the two perched groundwater wells sampled at the Congress and Nearmont Landfills during this reporting period (CM-9 and WR-287A). The CM wells are set outside of waste around both the Nearmont and Congress landfills. WR-287A is set in waste (Table 2). Table 5 provides the results for selected compounds, and Appendix D contains field sampling forms and laboratory data analytical reports for the perched wells.

Nitrate exceeded the AWQS of 10 mg/L in CM-9 in both January and July 2012. Figure 4 shows the nitrate concentrations for the perched wells at the site. Nitrate has exceeded the AWQS in CM-9 since 2008; it reached a concentration high of 262 mg/L in July 2009, but was on a

[5] HGC, INC*, Rio Nuevo Site Full Scale Stabilization Project Work Plan Tucson, Arizona,* November 24, 2003

decreasing trend from February 2010 to January 2012 at a rate of approximately 110 mg/L/year. In July 2012, nitrate concentrations rebounded to 76 mg/L from 27 mg/L in January 2012. Nitrate trends in the regional wells have not increased, and the nitrate detected at perched well CM-9 does not appear to pose a threat to regional groundwater quality. All remaining parameters at CM-9 were below AWQSs.

During the previous monitoring period, fluoride exceeded the AWQS of 4 mg/L in WR-287A in July, 2011 (Figure 4). This was the only time that the parameter has exceeded the AWQS in any well sampled at the site. Fluoride concentrations decreased to 2.4 mg/L in January 2012 and 1.2 mg/L in July 2012. Fluoride concentrations are not increasing in the regional aquifer wells (Appendix E), indicating that the regional aquifer has not been impacted.

Bromide appears to be increasing in WR-287A, however there is no AWQS for this parameter, and the parameter results are stable in the regional wells (Appendix E).

5.2 Regional Water Quality

5.2.1 Video Log of LM-007A and Sampling Comparison

Well LM-007A, located directly to the north of A-Mountain Landfill, is a former San Xaxier Rock & Sand production well drilled in 1958. COT-ES had the well video logged in September 2011 because there was no information available on its screened interval or the condition of the perforations. The video log showed corrosion and scaling beginning at 30 ft bgs to the total depth of the steel casing at 125 ft bgs. Static water level was at 123 ft bgs but water was observed seeping into the well casing at 33 ft bgs and the casing showed moderate biological growth to the top of ground waters. From 125 ft bgs to 225 ft bgs, the well is not cased. No perforations were evident on the cased portion in the video, but, as suggested by the seeping water, the well appears to be in communication with surrounding soils along its cased length.

The water seeping into LM-007A well casing is likely from perched groundwater intercepting the well at 33 ft bgs. To evaluate the impact of the perched water on the regional water quality, a sample was collected by bailer (with no prior purging) from the top of the groundwater table on April 4, 2012. Another sample was collected on April 5, 2012 following normal sampling protocol (after purging three well volumes). If the chemistry of the perched water is significantly different from the regional, the results of the sample from the top of the water table should differ from that collected below the top of the water table. Both samples were analyzed for the same compounds by Tucson Water Quality Laboratory (TWQL). No VOCs were detected in either sample, and all compounds detected were below their respective AWQS.

COT-ES calculated the relative percent difference (RPD) between the inorganic compound results of each sample to determine the magnitude of difference between the water chemistries. The results are considered similar when samples are within 30% RPD. Of the 18 compounds analyzed (other than VOCs), the following four compounds were above 30% RPD and may indicate different sources for the sampled groundwater:

Compound	Result from Top of Water Table (mg/L)	Result After Purging (mg/L)	RPD%
Ammonia	<0.05	0.35	150%
Barium	0.16	0.23	36%
Lead	<0.001	0.0024	82%
Total Organic Carbon	1.58	2.58	48%

These results indicate that the perched water does not differ markedly from the regional chemistry, except that ammonia is higher in the purged sample. Overall, sampling the well by either grab or purge methods provides similar results.

5.2.2 Regional Water Quality Results

No VOC or inorganic compounds exceeded their respective AWQS in the six regional groundwater wells sampled by COT ES near the landfills (LM-007A, WR-350B, WR-351A, WR-364A, WR-366A, and WR-429A). Appendix F contains field forms and laboratory data analytical reports. Table 6 provides the results for selected compounds. As stated in the 2011 annual report[4] , RNM-542 does not lay downgradient of the Congress and Nearmont Landfills and is no longer sampled.

Tetrachloroethene (PCE) was detected in one well during this sample event (Table 6). PCE was reported at 0.8 ug/L in well A-Mountain downgradient well WR-366A (Figure 5). PCE levels in WR-366A appear to be stable and below 1 ug/L for the past 12 years of monitoring. Other regional monitor wells (WR-351A, WR-364A, and WR-429A) have detected PCE in the past (Figure 5) but since monitoring of these wells began in 2000, PCE concentrations have never been detected above the AWQS of 5 ug/L, and the levels appear stable (Figure 5 and Table 6). Other VOCs detected during this sample event were chloroform and total trihalomethanes in WR-364A at 1.1 ug/L each, and in WR-351A at 1.4 ug/L each. Chloroform is a trihalomethane and is typically a by-product of potable water chlorination, thus the landfill is not likely to cause these detections.

All detected compounds, including general chemistry, anions, metals, and VOCs show decreasing or stable trends (see Figure 5 for PCE and Appendix E for concentration trends of other inorganic compounds).

COT ES will discontinue sampling of the groundwater wells in the vicinity of A-Mountain Landfill (WR-364A, WR-365A, WR-366A, and LM-007A) as long as the site remains undisturbed (i.e. the soil cover remains intact and there are no plans for redevelopment). The A-Mountain landfill is inspected annually to correct problems such as wildcat dumping, erosion of soil cover, and vandalism of the wells[6]. COT-ES will evaluate conditions at the landfill annually

[6] *City of Tucson Closed Landfills Inspection and Maintenance Reporting and Procedures*, City of Tucson Environmental Services, March 2011

to determine if groundwater monitoring is necessary. All groundwater monitoring wells will be inspected and repaired as needed to ensure they are secure and remain in proper working order.

The regional aquifer downgradient of the Congress and Nearmont landfills does not appear to have been impacted by LSP activities. However, because of the elevated levels of nitrate at CM-9, wells WR-351A, WR-350B and WR-429A will be monitored in July 2013, and the data evaluated before the next annual report in November 2013.

5.3 Quality Assurance/Quality Control

Quality assurance/quality control (QA/QC) analyses for the period between June 2011 and July 2012 sampling events included 3 duplicate sample analyses, 1 equipment blank, and 4 trip blanks. Duplicate comparisons are summarized in the tables in Appendix G, and analytical results for QA/QC samples are presented in the laboratory reports in Appendices D and F.

Trip blanks are taken one per day per cooler of sampling and analyzed for VOCs. No compounds were detected in any of the 4 trip blanks.

Equipment blanks are taken one per day when non-dedicated submersible pump and equipment are used. No compounds were detected in the equipment blank.

The laboratory percent recoveries were within laboratory quality assurance objectives for accuracy, except for the data qualifiers listed in the case narratives presented in Appendices D and F. All were within acceptable quality, except a nonconformance noted in the Xenco Laboratory report dated February 16, 2012. Vinyl acetate was recovered above acceptance criteria equating to a potential high bias. However since this compound is not a contaminant of concern at these landfills, and was non-detect in the field samples, COT-ES does not consider this to be a quality control issue.

The separate laboratory duplicate analysis is part of a pilot program, which was initiated in July 2011 by COT-ES, to evaluate the TWQL by comparing results to an outside laboratory (Xenco). The SAP quality control evaluation criteria target is at a 30% RPD between duplicate sample results. If the RPD between original and duplicate samples is greater than 30%, laboratory precision and sampling protocols or sample crew field methodology may be evaluated.

The RPD between detected compounds for each duplicate sample collected during this reporting period is provided in a table in Appendix G. RPDs greater than 30% for analytes that were not detected at either laboratory are not considered a quality control issue. All results from this reporting period are below 30% RPD except for the following:

Well: Compound	Date	RPD%	Concentration (mg/L) [lab/method]	Concentration (mg/L) [lab/method]
WR-366A: Nitrate	4/5/12	79%	1.7 [TWQL/EPA300.0]	3.9 [Xenco/E353.2]
WR-429A: Bromide	1/30/12	108%	0.6 [TWQL/EPA 300.0]	2 [Xenco/EPA 300.0]

COT-ES has reviewed the field sampling sheets and laboratory reports for the above wells for issues that may have caused these RPD exceedances. Both wells were sampled using routine procedures (3-5 well volume purge), and there were no field comments which would indicate a quality control issue. Laboratory reports do not indicate a quality control issue during analysis of these compounds. However, the sample results from TWQL are consistent with historic concentrations, while the Xenco results appear to be anomalously high.

COT-ES has evaluated the separate duplicate sample pilot program at these and other sites to determine if it will be continued. Over the past year, duplicate samples have been below the 30% RPD standard for the primary constituents of concerns at these sites, indicating an adequate sample analytical program at the TWQL. Therefore, the pilot duplicate program will not be continued and future duplicate samples collected at the site will be sent to the same laboratory for analysis.

6.0 DEWATERING

During the LSP, the maximum allowed water level elevation in perched wells at the site was 2332 feet above mean sea level (ft amsl) in order to prevent buildup of a hydraulic head sufficient to cause the downward migration of the water through the clay layer that underlies the waste at the site[5]. COT-ES used a network of dewatering wells (denoted CLW) which pumped continuously during the LSP project to remove water that accumulated on the clay. No water level elevation reached 2332 ft amsl during or after the LSP. After the LSP ended, COT-ES continued to remove accumulated water from both CM and CLW wells with sufficient water to purge because perched water quality for nitrate was impacted by LSP operations. Currently, one well is on a continuous dewatering schedule (CLW-12), the other wells with water quality issues (WR-287A, and CM-09) are dewatered one time per week because there is insufficient water to continuously pump. The remaining perched wells are dry, have been destroyed or do not have water quality issues.

Appendix H contains dewatering logs showing the amount of water removed from each well from October 2011 through September 2012. A summary table is also included. CLW-12 was pumped continuously at approximately 1 gallon per minute (gpm) and yielded approximately 400,000 gallons in 2011-2012. The well is likely receiving recharge from the Santa Cruz River as no other well at the site has yielded a similar volume of water. Well CLW-1 has been dry since early 2011[4]. CM-9 and WR-287A have been hand bailed weekly because they recharge slowly. Between October 2011 and September 2012, CM-09 yielded approximately 125 gallons and WR-287A yielded approximately 90 gallons (Appendix H).

As discussed in Section 5.2, fluoride at WR-287A exceeded the AWQS in 2011, but the parameter result improved to meet AWQS in 2012. Although nitrate concentrations continue to be above AWQS in perched well CM-9, COT-ES will discontinue dewatering at this well because it yields only a small quantity of water (125 gallons in one year), which is not enough to effectively remediate the perched water quality around it. In addition, the geologic cross section (Appendix C) indicates that the perched water beneath the landfills exists in isolated pockets created by the clay mining that occurred prior to landfilling activities. The perched water is not used for human consumption and the regional aquifer is not impacted by nitrate or other

compounds above their respective AWQS. If perched water elevations are measured above 2,332 in 2013, dewatering will be resumed.

7.0 Summary of Monitoring Schedules

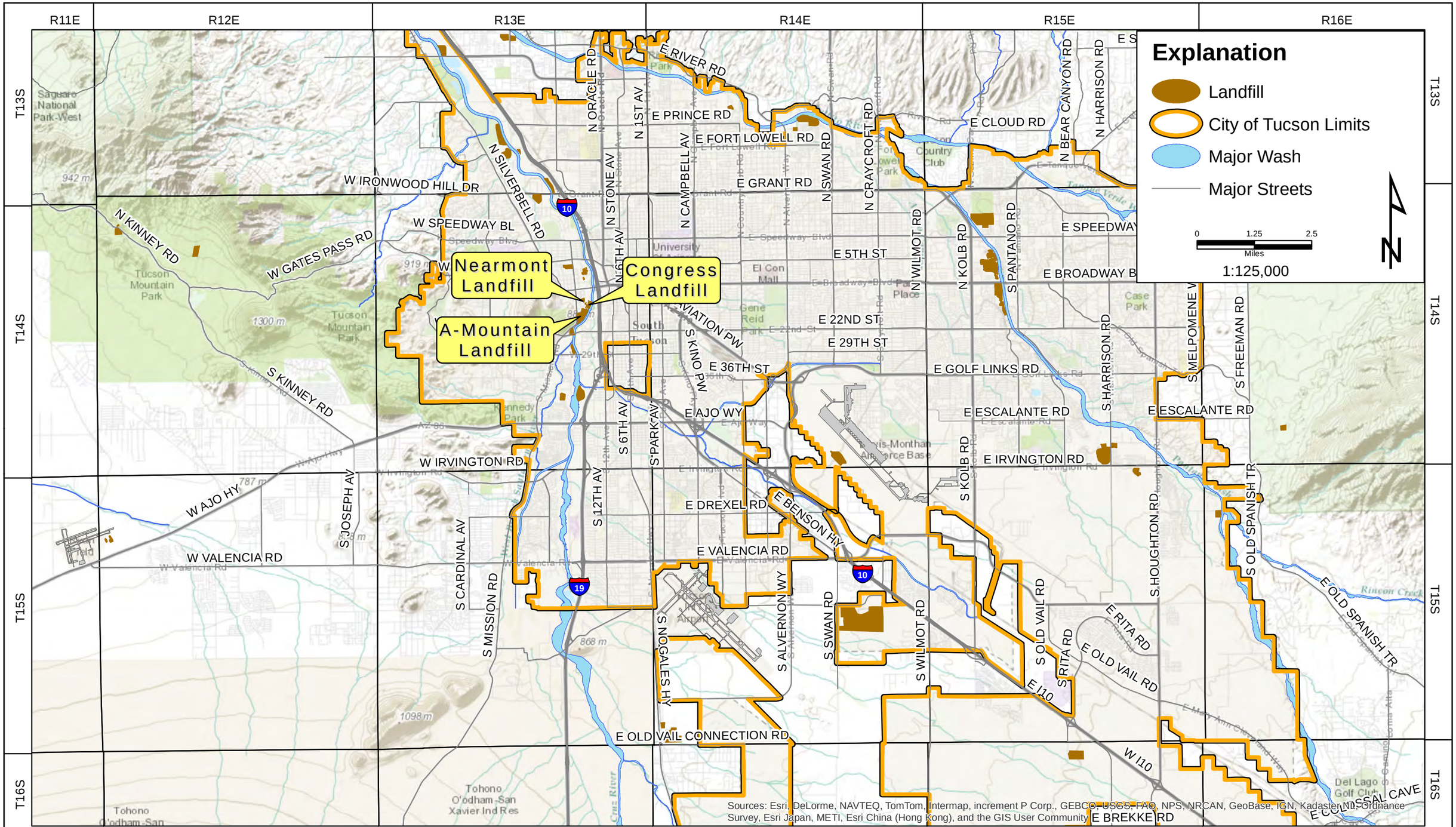
Quarterly methane monitoring will continue at the perimeter of the three landfills. Effective December 2012, COT-ES will no longer monitor water quality from wells associated with the A-Mountain Landfill, and will no longer dewater perched wells at the Congress and Nearmont Landfills.

From December 2012 through October 2013, COT-ES will monitor water levels in the perched wells at Congress and Nearmont landfills monthly (to determine if water level elevations increase to levels that may cause downward migration). If water levels increase above 2,332 ft. amsl during this time period, dewatering activities will resume.

CM-9 will be sampled in January and July 2013 for analysis of nitrate. In July 2013, groundwater samples will also be collected from the regional wells associated with the two landfills (WR-350B, WR-351A, WR-249A) and analyzed for COT-ES standard list of parameters. In July 2013, COT-ES will collect water level data from regional wells in the area and use the data to generate a groundwater flow map.

All data will be evaluated and the schedules adjusted as needed. Table 7 summarizes the monitoring schedule for 2013 at the A-Mountain, Congress and Nearmont Landfills.

FIGURES



Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

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Figure 1
Location Map
A-Mountain, Congress, and Nearmont Landfill

Drawn By:	LE
Checked:	MC
Approved:	JD
Date:	9/12/2011
File:	See Below

J://GIS/AMountain/2011/LocationMap.mxd

Explanation

Well Type

- 0.5" PVC Vapor
- 2" and 4" SVE/AI
- 4" Steel Dewatering
- Multipurpose
- Perched Monitor
- Regional Monitor
- Abandoned Regional Monitor
- Methane Monitoring Probe
- Major Wash
- Landfill Boundary

N W E S

0 125 250 500 Feet

RNM-542
W CONGRESS ST
WR-428A
WR-350B
WR-429A
CM-16
IC-A4
IC-A5
CM-15
IC-A6
EC-01
CLW-1
NEARMONT LANDFILL
CM-17
WR-287A
WR-351A
WR-291A
EC-05
EC-14
CM-1
IC-11
CM-9
CM-8
WR-426A
NM-12
NM 9
IC-17
EC-23
IC-24
IC-16
CLW-12
CM-2
IC-29
WR-427A
IC-37
NM 10
EC-A11
EC-A5
CM-3
EC-A12
EC-A6
NM 13
CM-4
CM-5
NM 11
IC-51
CONGRESS LANDFILL
CM-6
EC-68
IC-58
IC-A29
EC-69
S GRANDE AV
CP-4
NE-2
CP-3
NE-7
AM-2
AM-3
CP-2
CP-5
LM-007A
WR-366A
WR-366A-1"
SANTA CRUZ RIVER
A-MOUNTAIN LANDFILL
WR-364A
WR-364A-1"
WR-365A
AMT-4

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Figure 2
Site Map
A-Mountain, Congress and Nearmont Landfills

Drawn By:	LE
Checked:	MC
Approved:	JD
Date:	9/27/2012
File:	See Below

J:GIS\RioNuevo South\2011\WELLSLEFTv2.mxd

Name	WTE
Perched	
CEP-528A	2311.97
CM-9	2313.60
HQUST-525A	2318.50
PPM-529A	2304.58
WR-287A	2314.81
WR-364A-1"	dry
WR-365A	dry
WR-366A-1"	dry
Regional	
LM-007A	2236.46
RNM-542	2192.76
SS-016A	2252.63
SS-019A	2256.09
WR-248A	2220.73
WR-249A	2217.64
WR-271B	2226.19
WR-345B	2208.50
WR-349A	2190.81
WR-350B	2198.65
WR-351A	2216.50
WR-364A	2247.82
WR-366A	2238.83
WR-429A	2198.81

WR-349A 2190.81
WR-350B 2198.65
RNM-542 2192.76
WR-429A 2198.81
WR-249A 2217.64
WR-248A 2220.73
PPM-529A
CEP-528A
CEP-527A
WR-271B 2226.19
WR-351A 2216.50
HQUST-525A
WR-345B 2208.50
WR-347B not monitored
WR-287A
CM-9
NEARMONT LANDFILL
CONGRESS LANDFILL
WR-366A 2238.83
WR-366A-1"
LM-007A 2236.46
WR-364A-1"
A MOUNTAIN LANDFILL
WR-364A 2247.82
WR-365A
SS-016A 2252.63
SS-019A 2256.09
2200
2210
2220
2230
2240
2250
CALLE PLATINO
EMERY
SILVERBELL
WEST
FRESNO
GRANDE
MELWOOD
FRANKLIN
ALAMEDA
DAVILA
BONITA
WESTMORELAND
MELROSE
LAZY
PANORAMA
CEDAR
BELLA VISTA
CLAUSEN
CONGRESS
I10
MAIN
GRANADA
COURT
CHURCH
ASH
ECHOLS
FERRO
ARIZONA
9TH
7TH
5TH
4TH
2ND
6TH
8TH
HOFF
3RD
1ST
10TH
PENNINGTON
OCHOA
CUSHING
SCOTT
HERBERT
12TH
13TH
14TH
15TH
16TH
17TH
18TH
19TH
20TH
21ST
23RD
24TH
25TH
26TH
27TH
EUCLID
TYNDALL
PARK
FLORITA
FREMONT
SANTA RITA
MOUNTAIN
HIGHLAND
BROADWAY
MILES
MANLOVE
VINE
CHERRY
WARREN
MARTIN
CAMPBELL
TOOLE
AVIATION
STAR
MILL
ANATOLE
CURTIS
KINO
WAREHOUSE
EL PASO
ELIAS
CONVENT
STONE
RAILROAD
BEAN
JACOBUS
OSBORNE
HERNDON
MEYER
RUSSELL
RUBIO
SACATON
FARMINGTON
SHORT
SENTINEL PEAK
CALLE CARASOL
SANTA CRUZ
WOODSVILLE
MISSION
JOSE
FELIPE

Note:
Regional groundwater wells and respective elevations collected in January 2012 are provided in boxes. Regional groundwater contours drawn by COT-ES staff based on regional values. Perched wells are labeled by name, but were not contoured due to discontinuity and heterogenity of the perched zones.

Explanation

- Perched Monitor Well
- Regional Monitor Well
- Regional Groundwater Flow Direction
- Regional WTE Contour
- Approx. Regional WTE Contour
- Landfill Boundary

N W E S

0 0.125 0.25 0.5 Miles

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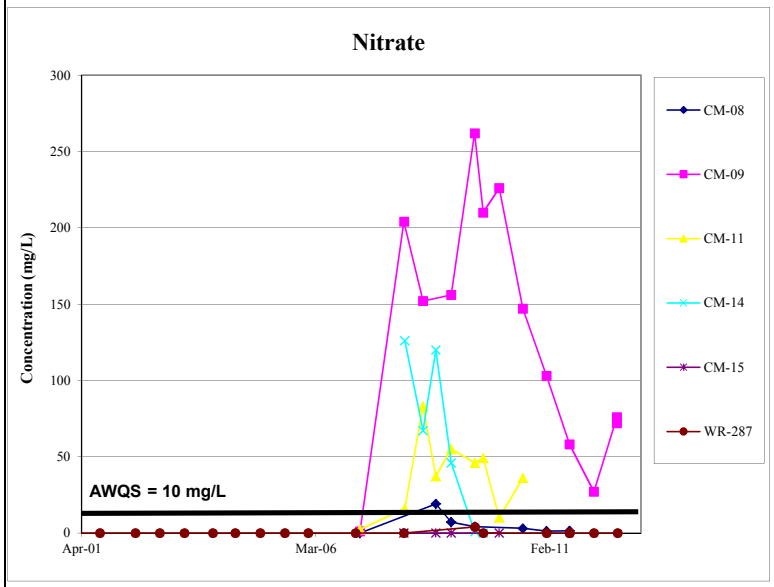
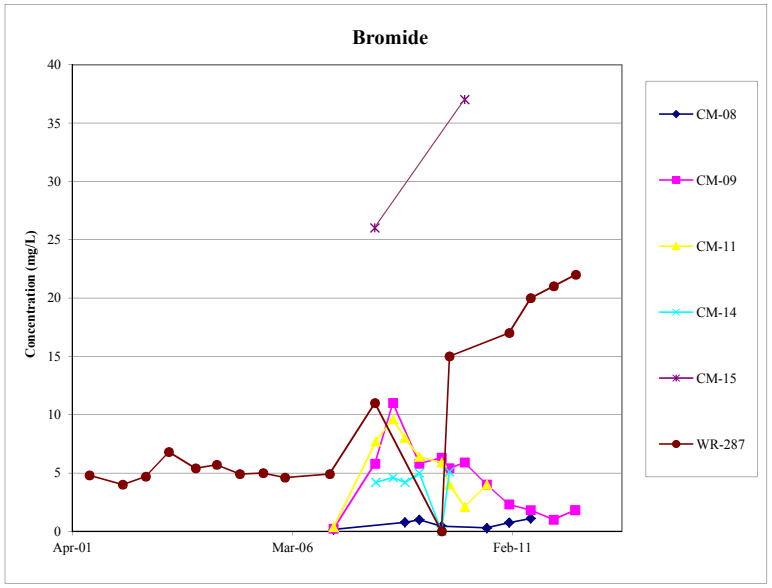
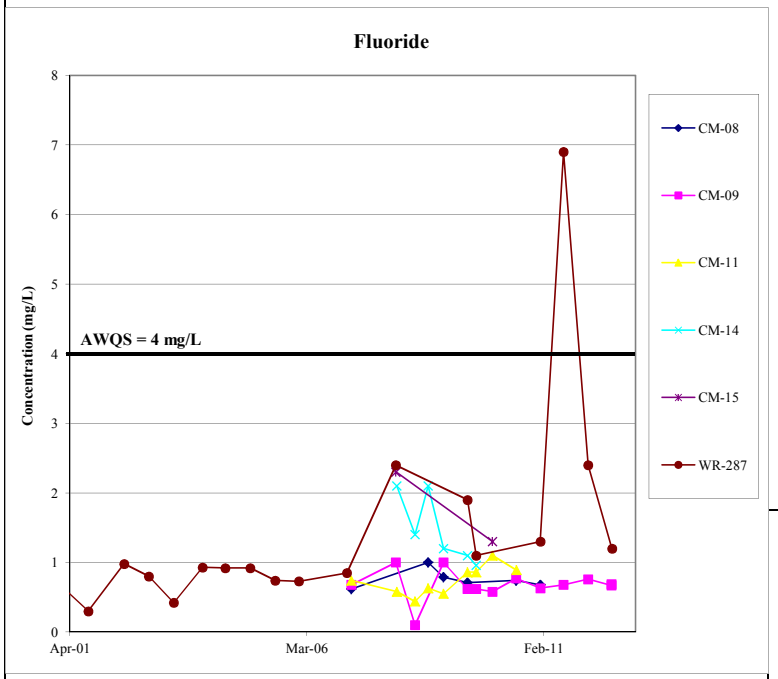
Figure 3
January 2012 Regional Water Table Elevation Contour Map
A-Mountain, Congress, and Nearmont Landfills

Drawn By:	LE
Checked:	MC
Approved:	JD
Date:	9/6/2012
File:	See Below

J:\GIS\AMountain\2011\WL_2011.mxd







Note: CM-15 is dry. CM-11 and CM-14 have been destroyed.

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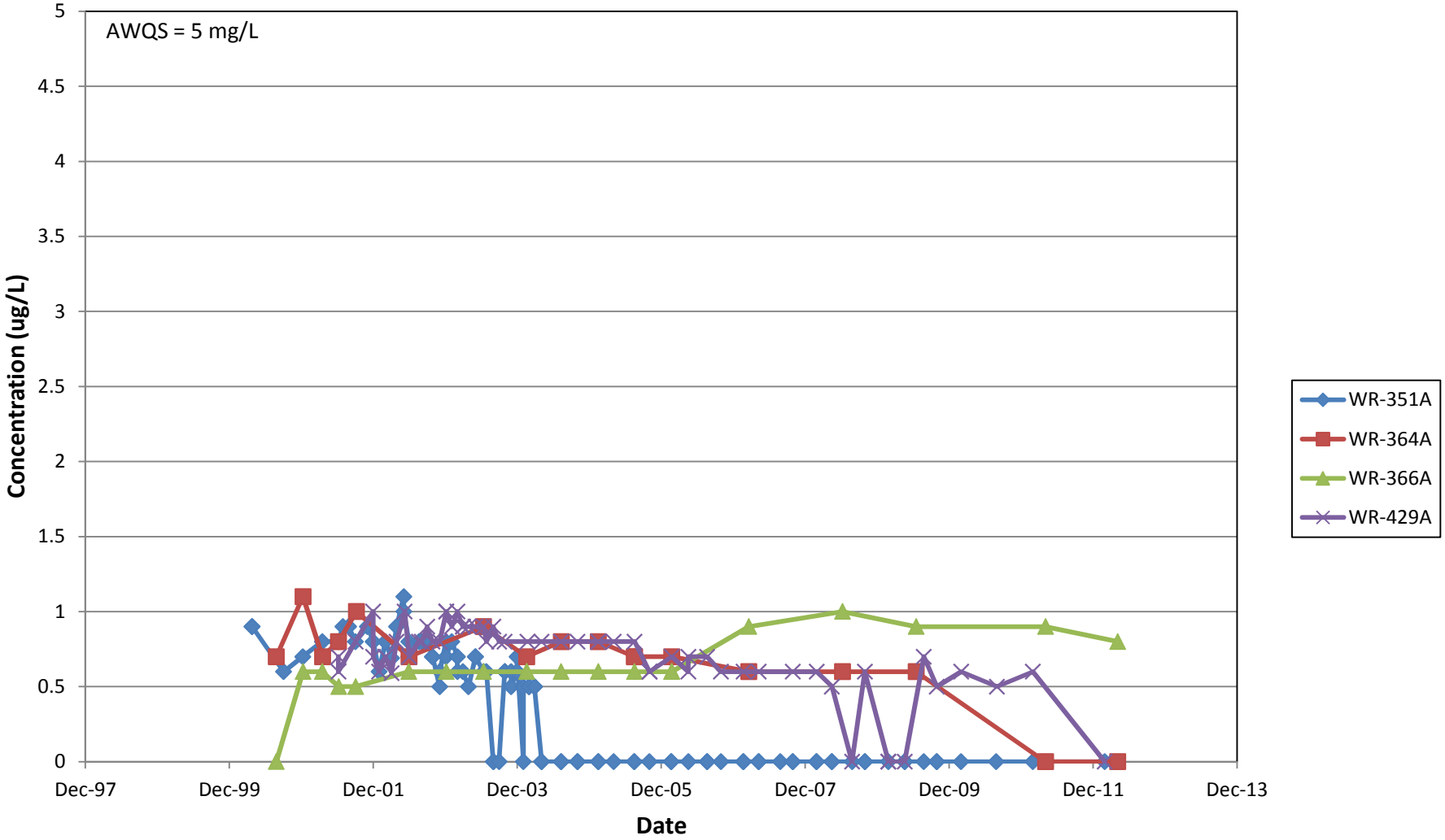
FIGURE 4
Perched Water Monitoring Wells
Selected Parameter Trend Charts

Figure 5
Regional Monitor Well PCE Trend Chart
A-Mountain, Congress, and Nearmont Landfills



Note: Regional wells LM-007A, WR-350A, and WR-350B have been non-detect for PCE.

TABLES

TABLE 1
2012 Monitoring and Sampling Schedule
A-Mountain, Congress and Nearmont Landfills

Methane Monitoring

Well ID	Type of Well	Schedule
CM-1, CM-2, CM-3, CM-5, CM-6, CM-8, CM-9, CM-11, CM-15, CM-16, CM-17, NM-9, NM-10, NM-11, NM-12, NM-13	Boundary Perched Water and Methane Monitoring Wells	Quarterly
AM-2, AM-3, AM-4	Boundary Methane Monitoring Wells	Quarterly

Dewatering

Well ID	Type of Well	Schedule
CLW-12, CM-9, WR-287A	Boundary Perched Water and Methane Monitoring Wells	Weekly

Water Quality Sampling

Well ID	Type of Well	Schedule
CM-9, WR-287A	Boundary Perched Water and Methane Monitoring Wells	Semiannually
LM-007A, WR-350B, WR-351A, WR-364A, WR-366A, WR-429A	Regional Groundwater Wells	Annually

TABLE 2
A-Mountain, Congress and Nearmont Landfills
Well Information

WELL_ID	ADWR Well ID#	WELL TYPE	LAND OWNER	CONCRETE SLAB OR GROUND SURFACE Northing	CONCRETE SLAB OR GROUND SURFACE Easting	Top of Casing Elevation (ft amsl)	Diameter (in)	Casing material	Total Well Depth (ft)	Total Boring Depth (ft)	Slot Screen Size (in)	Screened Section (ft)	Comments
Regional Monitor Wells													
LM-007A	55-700356	Regional Water Monitor	COT	442744.59	988357.55	2358.51	12	steel	226.5*	302			
RNM-542	55-219413	Regional Water Monitor	PC	445237.14	988211.70	2350.47	5	PVC	210	210	0.02	130-210	Replaced WR-428A
WR-350B	55-208703	Regional Water Monitor	COT	444445.88	988114.82	2353.40	5	PVC	210	210	0.02	110-200	Replaced WR-350A
WR-351A	55-575267	Regional Water Monitor	COT	443899.09	988774.19	2355.83	5	PVC	200	200	0.02	120-200	
WR-364A	55-581137	Regional Water Monitor	COT	441700.76	988435.24	2359.80	5	PVC	185	186	0.02	95-185	
WR-366A	55-581135	Regional Water Monitor	COT	442521.14	987697.09	2360.88	5	PVC	168	168	0.02	78-168	Well casing was lowered by 2' in February 2010. All casing depths reflect this change.
WR-429A	55-586096	Regional Water Monitor	COT	444161.69	987620.35	2350.88	5	PVC	200	205	0.02	130-200	
Perched Water Monitor Wells													
WR-287A	55-523297	Perched Water Monitor, Set In Waste	COT	443976.83	988043.39	2349.12	2	PVC	47.5	47.5	0.02	42.1-47.4	AKA MW-1
WR-291A	55-557563	Perched Water Monitor	COT	443926.74	987502.98	2353.20	2	PVC	60	60	0.20	45-60	AKA MW-T1
WR-364A - 1"	55-581137	Piezometer	COT	441700.82	988434.60	2359.66	1	PVC	57.9*		0.02	35-55	1" PVC piezometer in same borehole as WR-364A.
WR-365A	55-581136	Perched Water Monitor	COT	441296.22	987590.38	2368.43	4	PVC	77	77	0.02	42-77	Well completed to bedrock.
WR-366A- 1"	55-581135	Piezometer	COT	442521.16	987697.39	2360.85	1	PVC	49.56*		0.02	28-53	1" PVC piezometer in same borehole as WR-366A.
WR-426A	55-585611	Perched Water Monitor, Set In Waste	COT	443696.47	987715.85	2351.80	4	PVC	47	47	0.06	37-47	
WR-427A	55-585612	Perched Water Monitor, Set In Waste	COT	443614.86	988017.58	2349.68	4	PVC	41	42	0.06	31-41	x,y orthophoto estimated

*Depth tagged in the field

TABLE 2
Well Information
A-Mountain, Congress and Nearmont Landfills
September 2012

WELL ID	WELL DEPTH (FT)	SCREENED INTERVAL (FT)	EASTING (NAD 83)	NORTHING (NAD 83)	LAND SURFACE ELEVATION (FT MSL)	TOP OF CASING ELEVATION (FT MSL)
2" PVC Perched Water Monitor with 0.5" Vapor Monitor Probes						
CM-1	40	(12-15) (30-40)	987641.845	443822.942	2353.706	2355.97
CM-2	37	(12-15) (27-37)	987671.722	443682.081	2354.831	2357.33
CM-3	40	(12-15), (30-40)	987698.603	443569.815	2355.857	2359.182
CM-4	34	(12-15) (24-34)	987910.429	443523.334	2354.407	2356.48
CM-5	44	(12-15) (34-44)	988027.405	443483.835	2355.291	2357.64
CM-6	35	(12-15) (25-35)	988119.428	443301.489	2357.078	2357.71
CM-8	43*	(12-15) (29-39)	988776.39	443678.458	2355.349	2355.64
CM-9	45.5*	(12-15) (29-39)	988735.844	443773.361	2352.141	2353.41
CM-15	43*	(12-15) (30-40)	988001.964	444058.202	2355.717	2358.82
CM-16	52.5*	(12-15) (40-50)	987891.157	444038.142	2354.742	2357.69
CM-17	45	(12-15) (35-45)	987739.075	443946.785	2354.57	2357.99

Note: All CM wells are set outside of waste.
*Total depths field tagged in 2012.

WELL ID	DEPTH TO TOP OF WASTE (FT)	DEPTH TO BASE OF WASTE (FT)	WELL DEPTH (FT)	SCREENED INTERVAL (FT)	EASTING (NAD 83)	NORTHING (NAD 83)	LAND SURFACE ELEVATION (FT MSL)
4" Steel Dewatering Wells							
CLW-1	10	35	40	30-40	987873.449	443932.32	2351.468
CLW-12	8	24	50	40-50	988763.166	443565.994	2356.324

WELL ID	DEPTH TO TOP OF WASTE (FT)	DEPTH TO BASE OF WASTE (FT)	WELL DEPTH (FT)	SCREENED INTERVAL (FT)	EASTING (NAD 83)	NORTHING (NAD 83)	LAND SURFACE ELEVATION (FT MSL)
0.5" PVC Vapor Monitoring Probes							
CP-2	NA	NA	20	(7-10) (15-20)	988214.15	442956.922	NS
CP-3	12	19	20	(7-10) (15-20)	988247.519	443089.733	NS
CP-4	13	20	20	(7-10) (15-20)	988334.518	443089.431	NS
CP-5	7	23	22	(9-12) (18-23)	988497.567	442952.022	NS

WELL ID	2" WELL DEPTH (FT)	SCREENED INTERVAL (FT)	DEPTH TO TOP OF WASTE (FT)	DEPTH TO BASE OF WASTE (FT)	EASTING (NAD 83)	NORTHING (NAD 83)	TOP OF CASING ELEVATION (FT MSL)
2" PVC Wells with 0.5" Probes Set in Waste							
CGM-1	30	(7-10) (17-20) (27- 30)	9	25	443197.883	988642.442	2359.516
CGM-3	18	(7-10) (15-18)	8	17	443211.909	988445.951	2359.745

NS = Land Surface not surveyed.

WELL ID	DEPTH TO TOP OF WASTE (FT)	DEPTH TO BASE OF WASTE (FT)	WELL DEPTH (FT)	SCREENED INTERVAL (FT)	EASTING (NAD 83)	NORTHING (NAD 83)	LAND SURFACE ELEVATION (FT MSL)
2" Steel Wells, Set in Waste							
NE-2	5	25	26	5-25	988637.3309	443110.8019	2352.745
NE-7	5	25	26	5-25	988589.7214	442986.2136	2354.18
IC-11	6	8	20	5-20	988101.266	443802.361	2352.117
IC-16	12	18	30	5-30	987834.913	443708.451	2352.218
IC-17	16	27	30	5-30	987935.035	443710.854	2351.117
IC-24	10	30	30	5-30	988660.369	443626.446	2355.297
IC-29	10	16	25	5-25	988029.531	443612.882	2351.186
IC-37	10	28	30	5-30	988623.376	443526.129	2355.306
IC-51	12	25	30	5-30	988548.038	443322.969	2358.396
IC-58	14	26	30	5-30	988514.655	443226.89	2357.538
IC-A4	7	34	35	5-35	987904.986	443992.5	2351.455
IC-A5	12	34	35	5-35	987955.039	443989.369	2351.003
IC-A6	12	33	34	4-34	988012.667	443986.204	2350.771
IC-A29	7	NA	20	5-20	988212.7637	443336.5484	NS
EC-01	7	28	30	5-30	987781.625	443952.45	2351.607
EC-05	13	35.5	35	5-35	988042.766	443957.819	2350.614
EC-14	6	17	20	5-20	988095.376	443863.743	2351.472
EC-23	13	25	30	5-30	988082.829	443756.814	2350.949
EC-68	12	32	30	5-30	988387.687	443269.953	2357.14
EC-69	12	29	30	5-30	988287.128	443268.378	2357.067
EC-A5	7	NA	20	5-20	988790.0	443554.3	2355.109
EC-A6	7	NA	20	5-20	988786.2	443504.9	NS
EC-A11	10	NA	20	5-20	988208.9	443456.2	2355.726
EC-A12	7	NA	20	5-20	988237.159	443417.214	NS

NS = Land Surface not surveyed.

Only wells found during a well inventory in September 2012 are shown.

TABLE 3

A-Mountain, Congress and Nearmont Landfills

Water Level Data

2012

A-Mountain, Congress and Nearmont Landfills - January 2012

Well ID	Date	Time	DTW (ft)	Corr Factor (ft)	Corr DTW (ft)	Benchmark Elv. (ft. a.m.s.l.)	WTE (ft)	Sounder	Collected by	Comments
Regional Wells										
A-Mountain Landfill										
LM-007A	1/30/2012	1410	122.05	0	122.05	2358.51	2236.46	SOL 1	JB/GB/KM	
WR-364A	1/30/2012	1344	111.98	0	111.98	2359.80	2247.82	SOL 1	JB/GB/KM	
WR-366A	1/30/2012	1425	122.05	0	122.05	2360.88	2238.83	SOL 1	JB/GB/KM	
Congress and Nearmont Landfills										
WR-350B	1/30/2012	959	154.75	0	154.75	2353.40	2198.65	SOL 4	JB/GB/KM	
WR-351A	1/30/2012	845	139.33	0	139.33	2355.83	2216.50	SOL 4	JB/GB/KM	
WR-429A	1/30/2012	1058	152.07	0	152.07	2350.88	2198.81	SOL 4	JB/GB/KM	
RNM-542	1/30/2012	1202	157.71	0	157.71	2350.47	2192.76	SOL 4	JB/GB/KM	
WR-349A	1/30/2012	1455	151.15	0	151.15	2341.96	2190.81	SOL 1	JB/GB/KM	
Wells East of Santa Cruz River										
SS-016A	1/30/2012	1215	118.65	0	118.65	2371.28	2252.63	SOL 1	JB/GB/KM	
SS-019A	1/30/2012	1359	117.40	0	117.40	2373.49	2256.09	SOL 1	JB/GB/KM	
WR-248A	1/31/2012	1035	128.57	0.80	129.37	2350.10	2220.73	SOL 1	JB/GB/KM	
WR-249A	1/31/2012	1032	132.89	0.27	133.16	2350.80	2217.64	SOL 1	JB/GB/KM	
WR-271B	1/31/2012	815	127.97	0	127.97	2354.16	2226.19	SOL 1	JB/GB/KM	
WR-345B	1/30/2012	1535	204.30	0	204.30	2412.80	2208.50	SOL 1	JB/GB/KM	
WR-347B		*Well was inaccessiable.*				2420.24				
Perched Wells										
A-Mountain Landfill										
WR-364A-1"	1/30/2012	1340	***Dry***	0	***Dry***	2359.66	***Dry***	SOL 1	JB/GB/KM	TD=57.9'
WR-365A	1/30/2012	1445	***Dry***	0	***Dry***	2368.43	***Dry***	SOL 1	JB/GB/KM	TD=77'
WR-366A-1"	1/30/2012	1427	***Dry***	0	***Dry***	2360.85	***Dry***	SOL 1	JB/GB/KM	TD=49.6'
Congress and Nearmont Landfills										
CLW-1	1/27/2012	1000	***Dry***	0	***Dry***	2351.47	***Dry***		Verdad	TD=40'
CLW-12	1/27/2012	1030	36.66	0	36.66	2356.32	***Dry***		Verdad	TD=48.2'
CM-08	1/27/2012	1035	38.98	0	38.98	2355.64	2316.66		Verdad	TD=42.6'
CM-09	1/30/2012	935	39.81	0	39.81	2353.41	2313.60	SOL 4	JB/GB/KM	TD=44.3'
WR-287A	1/30/2012	950	34.31	0	34.31	2349.12	2314.81	SOL 4	JB/GB/KM	TD=47.5'
Wells East of Santa Cruz River										
HQUST-525A	1/30/2012	1155	73.00	0	73.00	2391.50	2318.50	SOL 4	JB/GB/KM	
PPM-529A	1/31/2012	850	46.47	0.55	47.02	2351.60	2304.58	SOL 1	JB/GB/KM	
CEP-527A		*roots in well, could not measure.*				2357.48				
CEP-528A	1/30/2012	1125	47.81	0	47.81	2359.78	2311.97	SOL 1	JB/GB/KM	

Congress and Nearmont Landfills - July 2012

Well ID	Date	Time	DTW (ft)	Corr Factor (ft)	Corr DTW (ft)	Benchmark Elv. (ft. a.m.s.l.)	WTE (ft)	Sounder	Collected by	Comments
Regional Wells										
WR-350B	7/26/2012	1355	155.38	0	155.38	2353.40	2198.02	SOL 1	HV/JB	
WR-351A	7/26/2012	1055	140.06	0	140.06	2355.83	2215.77	SOL 1	HV/JB	
WR-429A	7/26/2012	1345	152.28	0	152.28	2350.88	2198.60	SOL 1	HV/JB	
RNM-542	7/26/2012	1405	158.61	0	158.61	2350.47	2191.86	SOL 1	HV/JB	
Perched Wells										
CLW-1	7/27/2012	1000	***Dry***	0	***Dry***	2351.47	***Dry***		Verdad	TD=40'
CLW-12	7/27/2012	1030	35.80	0	35.80	2356.32	2320.52		Verdad	TD=48.2'
CM-08	7/26/2012	1105	38.20	0	38.20	2355.64	2317.44	SOL 1	HV/JB	TD=42.6'
CM-09	7/26/2012	1029	39.37	0	39.37	2353.41	2314.04	SOL 1	HV/JB	TD=44.3'
CM-15	7/26/2012	1336	42.46	0	42.46	2358.82	2316.36	SOL 1	HV/JB	TD=43'
CM-16	7/26/2012	1331	***Dry***	0	***Dry***	2357.69	***Dry***	SOL 1	HV/JB	TD=52.5'
CM-17	7/26/2012	1128	***Dry***	0	***Dry***	2357.99	***Dry***	SOL 1	HV/JB	TD=45'
WR-287A	7/26/2012	1001	32.99	0	32.99	2353.32	2320.33	SOL 1	HV/JB	TD=47.5'
WR-426A	7/26/2012	1123	***Dry***	0	***Dry***	2355.69	***Dry***	SOL 1	HV/JB	TD=47'
WR-427A	7/26/2012	1115	***Dry***	0	***Dry***	2349.68	***Dry***	SOL 1	HV/JB	TD=41'

DTW = Depth to Water
Corr. Factor = Correction Factor
WTE = Water Table Elevation in feet above mean sea level
NM = Not Measured, blockage in casing
TD = Total Depth in feet below top of casing

TABLE 4

Analyte List

A-Mountain, Congress and Nearmont Landfills

Regional Wells

Parameter	EPA Method
VOCs	8260
Bicarbonate Alkalinity	SM2320B
Total Alkalinity	SM2320B
Total Dissolved Solids	SM2540C
Total Organic Carbon	SM5310
Nitrate	300
Nitrite	300
Calcium	200.7
Iron	200.7
Magnesium	200.7
Manganese	200.7
Potassium	200.7
Sodium	200.7
Bromide	300
Chloride	300
Fluoride	300
Phosphate	300
Sulfate	300
Ammonia	350.1

Perched Wells

Parameter	EPA Method
VOCs	8260
Nitrate	300
Nitrite	300

TABLE 5
Perched Monitor Well
Selected Laboratory Analytical Results
Congress and Nearmont Landfills

Sample ID	AWQS	CM-08	CM-08	CM-08	CM-08	CM-08	CM-08	CM-08	CM-09	CM-09	CM-09	CM-09	CM-09	CM-09	CM-09	CM-09	CM-09	CM-09	CM-09	CM-09	CM-09	CM-09	CM-16	CLW-12
Date		2/26/07	10/2/08	1/27/09	7/28/09	8/2/10	2/1/11	7/28/11	2/26/07	1/31/08	6/25/08	1/27/09	7/28/09	10/1/09	2/2/10	8/2/10	2/1/11	7/28/11	1/31/12	7/26/12	7/26/12 (Duplicate)	1/27/09	07/28/11
Parameter	(ug/L)																							
Volatile Organic Compounds (ug/L)																								
1,2,4-Trimethylbenzene		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	3.3	< 0.5	< 0.5	< 2	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 50	< 0.5
1,4-Dichlorobenzene	600	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 38	< 0.5
Benzene	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	2.8	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 13	< 0.5
Chloroform		< 0.5	0.8	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 13	< 0.5
Ethylbenzene	700	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	3.2	< 0.5	< 0.5	< 2	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 50	< 0.5
Isopropylbenzene		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 63	< 0.5
Naphthalene		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	1	< 0.5	< 0.5	< 5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 130	< 0.5
Sec-Butylbenzene		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5
Total Xylenes	10	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	**16.3**	< 0.5	< 0.5	< 3	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 75	< 0.5
m/p-Xylenes		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	10.9	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5
ortho-Xylene		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	5.4	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5
Toluene	1000	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	14	< 0.5	< 0.5	< 2	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 50	< 0.5
Anions (mg/L)	AWQS (mg/L)																							
Ammonia As N		< 0.05	NA	NA	NA	NA	NA	NA	< 0.05	< 0.05	NA	NA	NA	< 0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride		10	194	145	39	27	61	77	19	636	1230	571	688	603	532	425	261	176	100	178	170	NA	178
Nitrate as N	10	< 0.25	**19**	7.1	4.2	3	1.3	1.4	1.1	**204**	**152**	**156**	**262**	**210**	**226**	**147**	**103**	**58**	**27**	**76**	**72**	< 5	< 0.25
Nitrite as N	1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 1	< 0.1	0.22	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	**25**	< 0.1
Ortho Phosphate as P		< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	NA	< 0.2
Sulfate		40	573	280	65	66	108	147	70	972	1990	918	1060	922	814	642	415	282	186	270	259	NA	112
Metals (mg/L)																								
Arsenic, Total	0.05	0.037	NA	NA	NA	NA	NA	NA	0.013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium, Total	2	1.2	NA	NA	NA	NA	NA	NA	0.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromide		0.15	0.77	0.99	0.43	0.29	0.74	1.1	0.21	5.8	11	5.8	6.3	5.4	5.9	4	2.3	1.8	1	1.8	1.8	NA	2.9
Chromium, Total	0.1	0.068	NA	NA	NA	NA	NA	NA	0.031	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoride	4	0.62	1	0.79	0.71	0.74	0.68	0.66	0.68	< 1	< 0.1	< 1	0.62	0.62	0.58	0.77	0.63	0.68	0.76	0.67	0.69	NA	0.74
Lead, Total	0.05	0.034	NA	NA	NA	NA	NA	NA	0.018	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 5
Perched Monitor Well
Selected Laboratory Analytical Results
Congress and Nearmont Landfills

Sample ID	AWQS	CM-11	CM-11	CM-11	CM-11	CM-11	CM-11	CM-11	CM-11	CM-11	CM-14	CM-14	CM-14	CM-14	CM-14	CM-14	CM-15	CM-15	CM-15	CM-15
Date		2/26/07	2/6/08	6/25/08	10/2/08	1/27/09	7/28/09	10/1/09	2/2/10	8/3/10	2/6/08	6/25/08	10/2/08	1/27/09	7/28/09	10/1/09	1/30/08	10/2/08	1/27/09	2/2/10
Parameter	(ug/L)																			
1,2,4-Trimethylbenzene		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 0.5	2.6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 200	< 50	< 20
1,4-Dichlorobenzene	600	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.5	< 0.5	5.6	0.6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 150	< 38	< 15
Benzene	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	1.6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	4.2	< 65	< 13	< 5
Chloroform		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 50	< 13	< 5
Ethylbenzene	700	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 200	< 50	< 20
Isopropylbenzene		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.5	< 0.5	1.3	0.6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 250	< 63	< 25
Naphthalene		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 500	< 130	< 50
Sec-Butylbenzene		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.5	< 0.5	1	0.6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	NA	NA	15
Total Xylenes	10	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 3	< 0.5	1.6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 300	< 75	< 30
cis-1,2-Dichloroethene	70	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.5	< 50	< 13	< 5
m/p-Xylenes		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	1.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	NA	NA	NA
ortho-Xylene		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	NA	NA	NA
Toluene	1000	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 0.5	0.8	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 200	< 50	< 20
Anions (mg/L)	AWQS (mg/L)																			
Ammonia As N		< 0.05	< 0.05	NA	NA	NA	NA	< 0.05	NA	NA	117	NA	NA	NA	NA	1.1	9.5	NA	NA	NA
Chloride		18	372	679	529	496	446	367	141	299	655	717	462	320	243	239	1890	NA	NA	1660
Nitrate as N	10	2.2	**16**	**83**	**37**	**55**	**46**	**49**	**10**	**36**	**126**	**67**	**120**	**46**	0.82	< 0.1	< 0.25	< 1	< 0.5	< 0.25
Nitrite as N	1	< 0.1	< 0.16	0.2	0.6	< 0.1	< 0.1	< 1	< 0.1	< 0.1	< 0.1	**1.8**	< 0.1	0.36	< 0.1	< 0.25	< 1	NA	1.1	0.1
Ortho Phosphate as P		< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 2	< 0.2	< 0.2	0.56	0.28	0.36	< 0.2	< 0.2	< 0.2	< 0.2	NA	NA	0.63
Sulfate		64	410	980	481	624	548	553	304	447	716	497	461	219	53	50	285	NA	NA	152
Metals (mg/L)																				
Arsenic, Total	0.05	0.026	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium, Total	2	0.48	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromide		0.35	7.7	9.6	8	6.4	5.9	4	2.1	4	4.2	4.6	4.2	5	< 0.1	5.1	26	NA	NA	37
Chromium, Total	0.1	0.033	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoride	4	0.74	0.58	0.44	0.63	0.55	0.86	0.86	1.1	0.89	2.1	1.4	2.1	1.2	1.1	0.96	2.3	NA	NA	1.3
Lead, Total	0.05	0.02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 5
Perched Monitor Well
Selected Laboratory Analytical Results
Congress and Nearmont Landfills

Sample ID	AWQS	WR-287	WR-287	WR-287	WR-287	WR-287	WR-287	WR-287	WR-287	WR-287	WR-287	WR-287	WR-287	WR-287	WR-287	WR-287	WR-287	WR-287	WR-287	WR-287	WR-287
Date		3/20/01	9/5/01	6/5/02	12/10/02	6/17/03	1/22/04	7/13/04	1/19/05	7/28/05	1/23/06	1/24/07	1/30/08	7/28/09	10/1/09	2/1/11	7/28/11	7/28/11 (Duplicate)	1/31/12	7/30/12
Parameter	(ug/L)																			
Volatile Organic Compounds (ug/L)																				
1,2,4-Trimethylbenzene		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.5	1.4	< 0.5	< 50	< 5	< 50
1,4-Dichlorobenzene	600	1.8	1.9	1.3	1.6	1.4	1.5	1.1	1.2	1.2	1	0.9	1	1	< 2.5	1.2	< 0.5	< 37.5	< 5	< 15
Benzene	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	1.2	< 0.5	0.9	< 0.5	< 0.5	< 0.5	< 0.5	4.5	3.7	2.8	< 0.5	< 12.5	< 5	< 5
Chloroform		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.5	< 0.5	< 0.5	< 12.5	< 5	< 5
Ethylbenzene	700	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.5	0.5	< 0.5	< 50	< 5	< 20
Isopropylbenzene		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.5	< 0.5	< 0.5	< 62.5	< 5	< 25
Naphthalene		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.5	1	< 0.5	< 125	< 5	< 50
Sec-Butylbenzene		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.5	< 0.5	< 0.5	< 37.5	< 5	< 15
Total Xylenes	10	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.5	0.8	< 0.5	< 25	< 5	< 10
cis-1,2-Dichloroethene	70	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.5	< 0.5	< 0.5	< 12.5	< 5	< 5
m/p-Xylenes		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.5	0.8	< 0.5	< 50	< 5	< 20
ortho-Xylene		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.5	< 0.5	< 0.5	< 25	< 5	< 10
Toluene	1000	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.5	5.1	15.2	< 50	9.8	< 20
Anions (mg/L)	AWQS (mg/L)																			
Ammonia As N		41.45	43.48	49	38	21	16.6	13.1	12	17	13	11.8	37	NA	110	NA	NA	NA	NA	NA
Chloride		428	321	269	326	479	415	433	381	392	366	403	650	814	846	890	1050	NA	1070	1140
Nitrate as N	10	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	4	< 0.1	< 0.25	< 0.25	< 0.1	< 0.25	< 0.25
Nitrite as N	1	< 0.1	< 0.1	< 0.1	< 0.1	0.85	< 0.1	0.28	0.53	0.15	< 0.1	< 0.1	< 0.5	< 0.1	< 0.25	< 0.1	< 0.1	0.0411	< 0.1	< 1
Ortho Phosphate as P		< 0.3	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	0.31	0.3	< 0.2	< 0.2	NA	< 0.2	< 0.2
Sulfate		71	72	291	130	112	120	124	136	158	172	170	204	81	61	22	5.2	NA	26	33
Total Kjeldahl Nitrogen as N		44.8	47.8	49	47	25	24	18	15	19	15	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals (mg/L)																				
Arsenic, Total	0.05	0.1	0.09	0.11	0.039	0.024	0.045	0.021	0.021	0.061	0.075	0.041	0.22	NA	NA	NA	NA	NA	NA	NA
Barium, Total	2	0.75	0.67	0.36	0.37	0.37	0.24	0.42	0.57	0.6	2.3	0.32	0.39	NA	NA	NA	NA	NA	NA	NA
Bromide		NA	4.8	4	4.7	6.8	5.4	5.7	4.9	5	4.6	4.9	11	< 0.1	15	17	20	NA	21	22
Cadmium, Total		< 0.0005	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	NA	NA	NA	NA	NA	NA	NA
Chromium, Total	0.1	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.03	< 0.02	< 0.02	NA	NA	NA	NA	NA	NA	NA
Fluoride	4	0.6	0.3	0.98	0.8	0.42	0.93	0.92	0.92	0.74	0.73	0.85	2.4	1.9	1.1	1.3	**6.9**	NA	2.4	1.2
Lead, Total	0.05	0.019	0.0042	0.0059	0.0047	0.011	0.0021	0.007	0.012	0.012	0.079	0.068	0.0058	NA	NA	NA	NA	NA	NA	NA

Note:
<0.5 = Not Detected above limit shown.
Samples were analyzed by Tucson Water Quality Lab or Columbia Analytical
NA = Not Analyzed
Only detected compounds are shown.
AWQS = Aquifer Water Quality Standard
Bold Numbers exceed the AWQS

TABLE 6
Nitrate and Select Volatile Organic Compounds
Regional Monitor Wells
A-Mountain, Congress and Nearmont Landfill

Date	NITRATE AS N (mg/L)	PCE	BZ	DCFM	cis 1,2 DCE	Toluene
LM-007A						
05/10/07	3.6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
06/10/08	1.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
06/10/09	0.75	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
04/05/11	0.81	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
04/05/11	0.82	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
04/04/12	0.58	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
04/05/12	0.61	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
WR-350A						
03/30/00	2.9	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
09/06/00	3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
12/12/00	2.9	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
03/21/01	3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
06/12/01	3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
07/03/01	3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
08/01/01	3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
09/06/01	3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
09/06/01	3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
10/02/01	3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
12/04/01	3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
01/03/02	3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
02/04/02	3	< 0.5	0.6	< 0.5	< 0.5	0.6
03/07/02	3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
04/02/02	3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
05/13/02	3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
06/03/02	3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
07/03/02	3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
08/15/02	3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
09/04/02	3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
10/03/02	3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
11/06/02	3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
12/09/02	3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
01/07/03	3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
02/04/03	3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
03/04/03	3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
04/01/03	2.9	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
05/07/03	3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
06/16/03	3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
07/01/03	2.9	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
08/05/03	3.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
09/03/03	3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
10/02/03	3.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
01/21/04	3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
04/06/04	3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
07/14/04	3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
10/05/04	3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
01/20/05	3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
04/06/05	3.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5

WR-350A was abandoned and replaced by WR-350B in 2006

WR-350B						
09/27/05	3.3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
10/04/05	3.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
01/24/06	3.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
04/20/06	3.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
07/24/06	3.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
10/02/06	3.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
01/25/07	3.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
04/12/07	3.3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
07/30/07	3.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
10/02/07	3.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
06/04/08	3.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
07/28/08	3.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
10/01/08	3.3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
01/28/09	3.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
04/21/09	3.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
07/27/09	3.3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5

TABLE 6
Nitrate and Select Volatile Organic Compounds
Regional Monitor Wells
A-Mountain, Congress and Nearmont Landfill

Date	NITRATE AS N (mg/L)	PCE	BZ	DCFM	cis 1,2 DCE	Toluene
WR-350B (con't)						
10/01/09	3.3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
02/01/10	3.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
07/29/10	3.3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
01/31/11	3.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
01/30/12	3.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
WR-351A						
03/30/00	3.2	0.9	< 0.5	< 0.5	< 0.5	< 0.5
09/06/00	3.3	0.6	< 0.5	< 0.5	< 0.5	< 0.5
12/12/00	3.2	0.7	< 0.5	< 0.5	< 0.5	< 0.5
03/21/01	3.1	0.8	< 0.5	< 0.5	< 0.5	< 0.5
06/12/01	3	0.8	< 0.5	< 0.5	< 0.5	< 0.5
07/03/01	3.1	0.9	< 0.5	< 0.5	< 0.5	< 0.5
08/01/01	3	0.9	< 0.5	< 0.5	< 0.5	< 0.5
09/05/01	3	0.8	< 0.5	< 0.5	< 0.5	< 0.5
10/02/01	3.1	NS	NS	NS	NS	< 0.5
11/05/01	3	0.9	< 0.5	< 0.5	< 0.5	< 0.5
12/04/01	3	0.8	< 0.5	< 0.5	< 0.5	< 0.5
01/03/02	3	0.6	< 0.5	< 0.5	< 0.5	< 0.5
02/04/02	3	0.8	< 0.5	< 0.5	< 0.5	< 0.5
03/07/02	3	0.69	< 0.5	< 0.5	< 0.5	< 0.5
04/02/02	3	0.9	< 0.5	< 0.5	< 0.5	< 0.5
05/08/02	3	1	< 0.5	< 0.5	< 0.5	< 0.5
06/03/02	3	0.7	< 0.5	< 0.5	< 0.5	< 0.5
07/03/02	2.9	0.8	< 0.5	< 0.5	< 0.5	< 0.5
08/07/02	2.9	0.8	< 0.5	< 0.5	< 0.5	< 0.5
09/04/02	2.9	0.8	< 0.5	< 0.5	< 0.5	< 0.5
10/01/02	2.9	0.7	< 0.5	< 0.5	< 0.5	< 0.5
11/06/02	2.9	0.6	< 0.5	< 0.5	< 0.5	< 0.5
12/09/02	3	0.7	< 0.5	< 0.5	< 0.5	< 0.5
01/07/03	3	0.8	< 0.5	< 0.5	< 0.5	< 0.5
02/04/03	3	0.6	< 0.5	< 0.5	< 0.5	< 0.5
03/04/03	3	0.6	< 0.5	< 0.5	< 0.5	< 0.5
04/01/03	2.9	0.5	< 0.5	< 0.5	< 0.5	< 0.5
05/07/03	3	0.7	< 0.5	< 0.5	< 0.5	< 0.5
06/16/03	3	0.6	< 0.5	< 0.5	< 0.5	< 0.5
07/01/03	2.9	0.6	< 0.5	< 0.5	< 0.5	< 0.5
08/05/03	3.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
09/03/03	3.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
10/02/03	3.1	0.6	< 0.5	< 0.5	< 0.5	< 0.5
11/04/03	3.2	0.6	< 0.5	< 0.5	< 0.5	< 0.5
12/03/03	3.1	0.6	< 0.5	< 0.5	< 0.5	< 0.5
01/05/04	3.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
02/02/04	3.1	0.5	< 0.5	< 0.5	< 0.5	< 0.5
03/01/04	3.1	0.5	< 0.5	< 0.5	< 0.5	< 0.5
04/06/04	3.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
07/14/04	3.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
10/05/04	3.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
01/18/05	3.3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
04/06/05	3.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
07/20/05	3.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
10/04/05	3.6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
01/23/06	3.7	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
04/20/06	3.6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
07/24/06	3.8	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
10/02/06	3.7	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
01/24/07	3.8	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
04/12/07	3.6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
07/30/07	3.8	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
10/02/07	3.8	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
01/30/08	3.8	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
04/17/08	3.7	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
07/28/08	3.7	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
10/01/08	3.6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
01/28/09	3.7	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
04/21/09	3.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
07/27/09	3.6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
10/01/09	3.6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5

TABLE 6
Nitrate and Select Volatile Organic Compounds
Regional Monitor Wells
A-Mountain, Congress and Nearmont Landfill

Date	NITRATE AS N (mg/L)	PCE	BZ	DCFM	cis 1,2 DCE	Toluene
02/01/10	3.7	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
WR-351A (con't)						
02/01/10	3.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
07/29/10	3.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
01/31/11	3.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
01/30/12	3.3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
WR-364A						
7/31/00	3.3	0.7	< 0.5	< 0.5	< 0.5	< 0.5
12/13/00	3	1.1	< 0.5	< 0.5	< 0.5	< 0.5
3/22/01	2.8	0.7	< 0.5	< 0.5	< 0.5	< 0.5
6/11/01	2.8	0.8	< 0.5	< 0.5	< 0.5	< 0.5
9/10/01	2.8	1	< 0.5	< 0.5	< 0.5	< 0.5
6/4/02	2.8	0.7	< 0.5	< 0.5	< 0.5	< 0.5
6/16/03	2.8	0.9	< 0.5	< 0.5	< 0.5	< 0.5
1/21/04	2.7	0.7	< 0.5	< 0.5	< 0.5	< 0.5
7/15/04	2.8	0.8	< 0.5	< 0.5	< 0.5	< 0.5
1/19/05	2.8	0.8	< 0.5	< 0.5	< 0.5	< 0.5
7/21/05	2.8	0.7	< 0.5	< 0.5	< 0.5	< 0.5
7/21/05	2.8	0.7	< 0.5	< 0.5	< 0.5	< 0.5
1/26/06	2.8	0.7	< 0.5	< 0.5	< 0.5	< 0.5
2/20/07	2.6	0.6	< 0.5	< 0.5	< 0.5	< 0.5
6/9/08	2.6	0.6	< 0.5	< 0.5	< 0.5	< 0.5
6/18/09	2.5	0.6	< 0.5	< 0.5	< 0.5	< 0.5
4/5/11	2.6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
4/5/12	2.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
WR-366A						
7/31/00	1.9	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
12/13/00	2	0.6	< 0.5	< 0.5	< 0.5	< 0.5
3/21/01	1.9	0.6	< 0.5	< 0.5	< 0.5	< 0.5
6/12/01	1.9	0.5	< 0.5	< 0.5	< 0.5	< 0.5
9/6/01	1.9	0.5	< 0.5	< 0.5	< 0.5	< 0.5
6/3/02	1.9	0.6	< 0.5	< 0.5	< 0.5	< 0.5
12/10/02	1.9	0.6	< 0.5	< 0.5	< 0.5	< 0.5
6/17/03	1.9	0.6	< 0.5	< 0.5	< 0.5	< 0.5
1/22/04	1.9	0.6	< 0.5	< 0.5	< 0.5	< 0.5
1/22/04	1.9	0.6	< 0.5	< 0.5	< 0.5	< 0.5
7/14/04	1.9	0.6	< 0.5	< 0.5	< 0.5	< 0.5
1/18/05	1.9	0.6	< 0.5	< 0.5	< 0.5	< 0.5
7/21/05	1.9	0.6	< 0.5	< 0.5	< 0.5	< 0.5
1/26/06	2	0.6	< 0.5	< 0.5	< 0.5	< 0.5
1/26/06	2	0.6	< 0.5	< 0.5	< 0.5	< 0.5
2/20/07	1.8	0.9	< 0.5	< 0.5	< 0.5	< 0.5
6/9/08	1.8	1	< 0.5	< 0.5	< 0.5	< 0.5
6/18/09	1.8	0.9	< 0.5	< 0.5	< 0.5	< 0.5
4/5/11	1.8	0.9	< 0.5	< 0.5	< 0.5	< 0.5
4/5/12	1.7	0.8	< 0.5	< 0.5	< 0.5	< 0.5
WR-428A						
06/11/01	0.77	< 0.5	< 0.5	< 0.5	< 0.5	1
09/10/01	0.87	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
06/03/02	0.93	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
12/10/02	0.96	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
06/17/03	1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
06/17/03	1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
01/26/04	1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
07/15/04	1.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
07/15/04	1.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
01/20/05	1.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
07/20/05	1.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
01/24/06	1.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
01/25/07	1.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
01/31/08	1.3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5

WR-428A was abandoned and replaced by RNM-542 in November 2009.

RNM-542						
02/01/10	0.3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
07/29/10	0.32	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
07/29/10	0.31	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
01/31/11	0.33	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
01/31/11	0.32	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5

TABLE 6
Nitrate and Select Volatile Organic Compounds
Regional Monitor Wells
A-Mountain, Congress and Nearmont Landfill

Date	NITRATE AS N (mg/L)	PCE	BZ	DCFM	cis 1,2 DCE	Toluene
WR-429A						
06/11/01	2.7	0.6	< 0.5	< 0.5	< 0.5	1.9
09/06/01	2.9	0.8	< 0.5	< 0.5	< 0.5	0.8
12/04/01	2.9	0.7	0.9	0.5	< 0.5	1.3
01/03/02	2.9	0.6	< 0.5	< 0.5	< 0.5	< 0.5
02/04/02	2.9	0.7	< 0.5	< 0.5	< 0.5	< 0.5
03/07/02	2.9	0.59	< 0.5	< 0.5	< 0.5	< 0.5
04/02/02	2.9	0.8	< 0.5	< 0.5	< 0.5	< 0.5
05/13/02	2.9	1	< 0.5	< 0.5	< 0.5	< 0.5
06/04/02	2.9	0.7	< 0.5	< 0.5	< 0.5	< 0.5
07/03/02	2.9	0.8	< 0.5	< 0.5	< 0.5	< 0.5
08/07/02	2.9	0.8	< 0.5	< 0.5	< 0.5	< 0.5
09/04/02	2.8	0.9	< 0.5	< 0.5	< 0.5	< 0.5
10/01/02	2.8	0.8	< 0.5	< 0.5	< 0.5	< 0.5
11/06/02	2.9	0.8	< 0.5	< 0.5	< 0.5	< 0.5
12/10/02	2.9	1	< 0.5	< 0.5	< 0.5	< 0.5
01/07/03	2.9	0.9	< 0.5	0.5	0.6	< 0.5
02/04/03	2.9	1	< 0.5	< 0.5	< 0.5	< 0.5
03/04/03	2.9	0.9	< 0.5	< 0.5	< 0.5	< 0.5
04/01/03	2.8	0.9	< 0.5	< 0.5	< 0.5	< 0.5
05/07/03	2.9	0.9	< 0.5	< 0.5	0.5	< 0.5
06/17/03	2.9	0.9	< 0.5	< 0.5	< 0.5	< 0.5
07/01/03	2.7	0.8	< 0.5	< 0.5	< 0.5	< 0.5
08/05/03	2.9	0.9	< 0.5	< 0.5	< 0.5	< 0.5
09/03/03	2.8	0.8	< 0.5	< 0.5	< 0.5	< 0.5
10/02/03	2.9	0.8	< 0.5	< 0.5	< 0.5	< 0.5
01/26/04	2.8	0.8	< 0.5	< 0.5	< 0.5	< 0.5
04/06/04	2.8	0.8	< 0.5	< 0.5	< 0.5	< 0.5
07/14/04	2.8	0.8	< 0.5	< 0.5	< 0.5	< 0.5
10/05/04	2.8	0.8	< 0.5	< 0.5	< 0.5	< 0.5
01/19/05	2.8	0.8	< 0.5	< 0.5	< 0.5	< 0.5
04/06/05	2.9	0.8	< 0.5	< 0.5	< 0.5	< 0.5
07/21/05	2.8	0.8	< 0.5	< 0.5	< 0.5	< 0.5
10/05/05	2.5	0.6	< 0.5	< 0.5	< 0.5	< 0.5
01/26/06	2.9	0.7	< 0.5	< 0.5	< 0.5	< 0.5
04/20/06	2.8	0.6	< 0.5	< 0.5	< 0.5	< 0.5
07/24/06	2.9	0.7	< 0.5	< 0.5	< 0.5	< 0.5
10/02/06	2.6	0.6	< 0.5	< 0.5	< 0.5	< 0.5
01/25/07	2.8	0.6	< 0.5	< 0.5	< 0.5	< 0.5
04/12/07	2.8	0.6	< 0.5	< 0.5	< 0.5	< 0.5
10/02/07	3.0	0.6	< 0.5	< 0.5	< 0.5	< 0.5
01/31/08	3.0	0.6	< 0.5	< 0.5	< 0.5	< 0.5
04/17/08	2.9	0.5	< 0.5	< 0.5	< 0.5	< 0.5
07/28/08	2.9	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
10/01/08	2.9	0.6	< 0.5	< 0.5	< 0.5	< 0.5
01/28/09	3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
04/21/09	2.8	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
07/27/09	2.9	0.7	< 0.5	< 0.5	< 0.5	< 0.5
10/01/09	3	0.5	< 0.5	< 0.5	< 0.5	< 0.5
02/01/10	3.1	0.6	< 0.5	< 0.5	< 0.5	< 0.5
08/02/10	3	0.5	< 0.5	< 0.5	< 0.5	< 0.5
01/31/11	3	0.6	< 0.5	< 0.5	< 0.5	< 0.5
01/30/12	3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
01/30/12[d]	2.54	< 0.5	< 0.5	< 2	< 0.5	< 2

Notes:
<0.5 = Not Detected above level shown
[d] Duplicate sample analyzed by Xenco
PCE = Tetrachloroethene
BZ = Benzene
DCFM = Dichlorodiflouromethane
cis 1,2-DCE = cis 1,2-dichloroethene

TABLE 7
2013 Monitoring and Sampling Schedule
A-Mountain, Congress and Nearmont Landfills

Methane Monitoring

Well ID	Type of Well	Schedule
AM-2, AM-3, AM-4, CM-1, CM-2, CM-3, CM-5, CM-6, CM-8, CM-9, CM-15, CM-16, CM-17, NM-9, NM-10, NM-11, NM-12, NM-13	Boundary Perched Water and Methane Monitoring Wells	Quarterly

Water Level Data

Well ID	Type of Well	Schedule
CM-1, CM-2, CM-3, CM-5, CM-6, CM-8, CM-9, CM-15, CM-16, CM-17, CLW-1, CLW-12	Boundary Perched Water	Monthly
WR-350B, WR-351A, WR-429A, RNM-542, LM-007, SS-019A, WR-248A, WR-249A, WR-271B, WR-345B, WR-347B, WR-349B, WR-364A, WR-366A	Regional	July 2013

Water Quality Sampling

Well ID	Type of Well	Schedule
CM-9	Boundary Perched Water	January and July 2013
WR-350B, WR-351A, WR-429A	Downgradient Regional Groundwater Monitor	July 2013

Water quality sampling for A-Mountain will be discontinued in 2013.
Dewatering will be discontinued for the Congress and Nearmont Landfills in 2013
See Table 4 for the analyte list for the regional wells
CM-9 will be sampled for nitrate only.