

October 14, 2010

Ms. Mindi Cross
Arizona Department of
Environmental Quality
1110 W. Washington Street
Phoenix, AZ 85007

**RE: CAVE CREEK LANDFILL STATUS REPORT
SEPTEMBER 2010**

Dear Ms. Cross:

The following is the status report for the Maricopa County Cave Creek Landfill (Site) summarizing work performed during September 2010. This report documents work performed pursuant to the Consent Order (CO) between Maricopa County and Arizona Department of Environmental Quality (ADEQ), ADEQ Identification Number 30604, Docket No. S-2-10, dated January 19, 2010, and fulfills the reporting requirement stipulated in Part IV of the CO.

Remedial Action Plan (RAP)

A Remedial Action Plan (RAP) was prepared for Maricopa County Risk Management by Bryan A. Stirrat & Associates. The RAP was submitted to ADEQ for review and approval. As a result of ADEQ review of the RAP, it was determined and agreed that remediation is premature and further characterization is required to evaluate both the spread of the contamination plume and the extent of contamination in the calculated direction of groundwater flow. This determination required a modification to the previous CO.

Revised Consent Order

The modified CO has been filed by ADEQ. The modified CO, Docket No. S-2-10, was filed by the ADEQ on January 19, 2010. The modified CO requires Maricopa County to install at least three additional off-site monitoring wells, perform groundwater sampling and evaluate of groundwater quality from the new and existing wells, to assess the nature, source, and extent of groundwater contamination at the site and to provide written evidence that groundwater characterization is complete. Upon completion of the work, Maricopa

County will be required to develop and submit a revised RAP for submittal to ADEQ for review and approval that includes an evaluation of proposed remedial options and presents the selected corrective measures that will be implemented to mitigate the groundwater contamination at the site.

Work Plan

As a result of several meetings with ADEQ concerning the current status of the Cave Creek Landfill, the Work Plan entitled *Addendum to Cave Creek Landfill Groundwater Characterization Work Plan, ADEQ Consent Order No. S-102-5*, dated May 11, 2009, was developed by our Consulting Engineering Firm, AMEC Earth and Environmental (AMEC), and was approved by ADEQ on May 13, 2009. The Work Plan calls for an approach to further characterize the lateral and downgradient extent of trichloroethene (TCE) contamination in groundwater below the site, which includes the following activities:

- Vertical water quality profiling of groundwater in MW-2.
- Adjustment of pump settings in groundwater monitoring wells PW, MW-2, and MW-3.
- Lateral plume definition by test boreholes and installation of new monitoring wells.
- Downgradient plume definition by test boreholes and installation of new monitoring wells.

Work Completed In September 2010

1. Performed water level monitoring on September 13, 2010.
2. Started drilling program for plume definition on September 20, 2010.
 - a. Reached groundwater and collected a groundwater sample from the first boring, TB-05, on September 24, 2010. TB-05 returned a concentration of 2.3 µg/L TCE.
 - b. Began reaming TB-05 to install monitor well MW-4 on September 26, 2010.
3. Began addressing a second set of ADEQ comments on the Work Plan for a voluntary extended soil vapor extraction pilot test.

Groundwater Sampling Frequency with Flow Direction and Magnitude

Groundwater sampling frequency has been reduced to quarterly sampling as approved by ADEQ on a letter dated, May 19, 2010. However, the collection of water level measurements are continuing on a monthly basis. Table 1 presents the groundwater elevations, the calculated direction and gradient of groundwater flow for September 2010. Groundwater elevations of PW, MW-2 and MW-3 were used to perform the 3-point calculations for groundwater flow direction and magnitude¹. The results continue to indicate groundwater gradient is relatively flat. The flow direction and gradients since October 2009 are presented in Table 1 below.

Table 1 – 12-Month Summary of Groundwater Quality Monitoring and Elevation Data

DATE	GROUNDWATER SAMPLING RESULTS–TCE (µg/L)			GROUNDWATER ELEVATION (ft amsl)			FLOW DIRECTION*	GRADIENT (feet/foot)
	PW	MW-2	MW-3	PW	MW-2	MW-3		
10/15/2009	3.1	430	ND	1172.59	1164.97	1165.73	170	0.0026
11/12/2009	3.9	340	ND	1172.59	1164.97	1165.93	176	0.0026
12/11/2009	8.0	410	0.79	1172.69	1164.77	1165.73	176	0.0027

¹ <http://www.epa.gov/athens/learn2model/part-two/onsite/index.html>, accessed on September 1, 2010.

September 2010 Monthly Status Report
 Maricopa County Cave Creek Landfill
 Consent Order Docket No. S-2-10

DATE	GROUNDWATER SAMPLING RESULTS-TCE (µg/L)			GROUNDWATER ELEVATION (ft amsl)			FLOW DIRECTION*	GRADIENT (feet/foot)
	PW	MW-2	MW-3	PW	MW-2	MW-3		
1/13/2010	9.3	400	ND	1172.14	1164.72	1167.23	215	0.0027
2/17/2010	9.5	410	ND	1173.49	1166.37	1168.03	198	0.0024
3/10/2010	12	340	0.52	1171.69	1164.93	1164.27	167	0.0026
4/16/2010	42	450	ND	1171.44	1164.07	1164.83	172	0.0027
5/20/2010	NS	NS	NS	1171.59	1163.97	1164.73	172	0.0028
6/16/2010	5.2	420	1.4	1171.59	1164.22	1164.68	165	0.0027
7/20/2010	NS	NS	NS	1171.69	1163.62	1164.53	174	0.0029
8/13/2010	NS	NS	NS	1171.69	1163.67	1164.63	176	0.0029
9/13/2010	38.3	428	0.66	1171.59	1163.87	1164.38	165	0.0029

ND- TCE concentration was not detected above the laboratory detection limit of 0.50 µg/L.

NS-Monthly sampling has been scheduled to quarterly sampling.

*All values converted to azimuth to eliminate misinterpretation of the nomenclature.

amsl – above mean sea level

Current Status

- The conditions of the Right of Entry (ROE) have been approved and a permit was issued by ASLD on July 13, 2010. The ROE permit was received by Maricopa County on August 2, 2010.
- Drilling for the installation of soil borings and groundwater monitoring wells began on September 20, 2010 with test boring location TB-05 (the proposed north-central location).
- Groundwater from TB-05 contained TCE at a concentration of 2.3 µg/L. Based on this concentration, discussions with ADEQ, and according to the approved work plan, installation of MW-4 was initiated at this location on September 26, 2010. Well installation activities for MW-4 are ongoing and are anticipated to continue into October 2010 due to the presence of cobbles and boulders at depth resulting in slower drilling rates.
- Monitoring of groundwater levels and landfill gas will continue.
- Maricopa County submitted responses to ADEQ comments on the SVE Pilot Test Work Plan on August 16, 2010. A second set of comments from ADEQ were received on September 15, 2010. Maricopa County will respond within 30 days.
- Planning, design and permitting for the extended SVE pilot test is ongoing.

Should you have any questions or require additional information, please advise.

Sincerely,

William Thornton, Director
 Solid Waste Management Department
 Maricopa County

attachments

Cc: Misael Cabrera, (AMEC)

September 2010 Monthly Status Report
Maricopa County Cave Creek Landfill
Consent Order Docket No. S-2-10

R. Jay Vanlandingham (AMEC)
Rita Neill (MCRM)
Thomas Curran (CAO)
File

Mindi Cross

**Arizona Department of Environmental Quality
1110 W. Washington Street
Phoenix, AZ 85007**

**Ref: Cave Creek Consent Order
Status Report for September 2010**