

January 17, 2011

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

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

Dear Ms. Cross:

The following is the status report for the Maricopa County Cave Creek Landfill (Site) summarizing work performed during December 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 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 December 2010

1. Continued drilling program for plume definition that was started on September 20, 2010.
 - a. Completed over-reaming of pilot boring TB-4 and installed monitor well MW-5 on December 22, 2010.
 - b. Participated in ongoing discussions and meetings with the Dove Valley Ranch Community Association for access.
 - c. Began planning for drilling of pilot boring TB-7 in the Dove Valley Ranch community.

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 December 2010. Groundwater elevations of PW, MW-2 and MW-3 were used to perform the 3-point calculations for groundwater flow direction and magnitude. The results continue to indicate groundwater gradient is relatively flat. The flow direction and gradients since December 2009 are presented in Table 1.

Fourth quarter 2010 groundwater sampling was conducted in November 2010 to accommodate County field schedules. Future quarterly sampling events will be conducted in February, May, August, and November, respectively. Fourth quarter 2010 groundwater sampling was conducted on November 16 and groundwater was resampled on November 24, 2010 at site monitor wells due to potential cross contamination in monitor well MW-4 from MW-2.

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	MW-4	PW	MW-2	MW-3		
12/11/2009	8.0	410	0.79	NA	1172.69	1164.77	1165.73	176	0.0027
1/13/2010	9.3	400	ND	NA	1172.14	1164.72	1167.23	215	0.0027

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DATE	GROUNDWATER SAMPLING RESULTS-TCE (µg/L)				GROUNDWATER ELEVATION (ft amsl)			FLOW DIRECTION*	GRADIENT (feet/foot)
	PW	MW-2	MW-3	MW-4	PW	MW-2	MW-3		
2/17/2010	9.5	410	ND	NA	1173.49	1166.37	1168.03	198	0.0024
3/10/2010	12	340	0.52	NA	1171.69	1164.93	1164.27	167	0.0026
4/16/2010	42	450	ND	NA	1171.44	1164.07	1164.83	172	0.0027
5/20/2010	NS	NS	NS	NA	1171.59	1163.97	1164.73	172	0.0028
6/16/2010	5.2	420	1.4	NA	1171.59	1164.22	1164.68	165	0.0027
7/20/2010	NS	NS	NS	NA	1171.69	1163.62	1164.53	174	0.0029
8/13/2010	NS	NS	NS	NA	1171.69	1163.67	1164.63	176	0.0029
9/13/2010	38.3	428	0.66	NA	1171.59	1163.87	1164.38	165	0.0029
10/15/2010	NS	NS	NS	NA	1171.83	1164.54	1163.62	174	0.0029
11/16/2010 ¹	21.2	412	0.74	5.21	1171.78	1163.53	1164.66	179	0.0029
11/24/2010 ¹	24.2	264	1.59	5.31	NM	NM	NM	NA	NA
12/16/2010	NS	NS	NS	NS	1171.74	1163.62	1165.13	189	0.0029

NA-Not Applicable

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

NM-Not Measured

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

P – Laboratory results pending

Note – The measuring point elevation has not been measured yet at MW-4, so groundwater elevation is not currently reported.

1 Fourth quarter 2010 groundwater sampling was conducted on November 16 and groundwater was resampled on November 24, 2010 at site monitor wells due to potential cross contamination in monitor well MW-4 from MW-2

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-5 (the proposed north-central location).
- Groundwater from TB-5 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 complete.
- TCE was detected at test boring TB-1 in groundwater at a concentration of 16 µg/L. After discussion with ADEQ, the decision was made to temporarily cap TB-1 with the option to complete a monitor well later and to move to a newly proposed location in the Dove Valley Ranch neighborhood (TB-7), located southeast of CCL in the Emerald Greens subdivision. The exact location is currently under evaluation and negotiation with the homeowners' association.
- Pending the drilling of test boring TB-7, test boring TB-4 was drilled to the south west of CCL. TCE was not detected above the reporting limit of 0.5 µg/L in groundwater collected from test boring TB-4. Based on this concentration, discussions with ADEQ, and according to the approved work plan, installation of monitor well MW-5 was initiated at this location on November 19, 2010. Downhole well installation activities for MW-5 were completed on December 22, 2010; bollards for final site construction are planned to be finished on January 7, 2011.
- Monitoring of groundwater levels and landfill gas will continue.

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- 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. Responses to comments were submitted on December 20, 2010.
- 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)
R. Jay Vanlandingham (AMEC)
Rita Neill (MCRM)
Thomas Curran (CAO)
File

Mindi Cross

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Status Report for December 2010**