Answers to questions from 1/25/2012 CIG meeting and January TAG meeting

1. Was vinyl chloride analyzed in the indoor air and sub-slab samples in Operable Unit (OU) 1 Vapor Intrusion investigation?

Vinyl chloride was not detected in the great majority of soil gas samples and when it was, it was well below Soil Gas Human Health Screening Level (SGHHSL). Therefore, it was not an analyte in indoor air and sub-slab samples.

2. Will there be winter indoor air sampling in OU1? When will we expect more indoor air sampling in OU1?

Yes, an additional winter sampling round occurred in Feb. 2012. Homes that were sampled for the first time in February (as step-outs) will be sampled again in the warm season, likely June or July.

3. What is the name of the 3D software that was used several years ago to look at the Motorola 52nd St. groundwater plume, but that ADEQ and EPA do not hold licenses for?

The name of the software for the 3D groundwater model is Environmental Visualization Software. The public can contact Brad Cross with Arcadis at (480) 905-9311 with additional questions on how to purchase viewing rights. It looks like the public can purchase a "key" for about $500.00 to view this model but would have to go through a brief training to familiarize them with how to navigate through the model.

4. Would it be possible to see a new plume map using a boundary line of 1 part per billion (ppb) as this may be the new standard in the future?

ADEQ and EPA cannot dedicate resources to creating such a map at this time. Our priority at this time is for ADEQ to update the actual 5 ppb plume map, as the current map is based on 2008 data. A new plume map will be created when a new standard is established. An idea of where the boundaries would be can be extrapolated by looking at the OU1 and OU2 Effectiveness Reports. Another option is for the community to request that the TAG Technical Advisor work on drafting such a map.

5. How do we know what's being expelled from the sub-slab depressurization systems, and is what's being expelled safe?

We will record the concentration and flow of emissions from the sub-slab depressurization systems. If there is concern about a specific system based on these numbers, there is the option to install a control device or to model the emissions. At the concentrations present we don't expect this will be needed.

6. More information regarding the EWS well in the Southern portion of the plume.

The EWS well is the southernmost extraction well at the 20th Street treatment facility. Like the other two extraction wells it was drilled and screened from the A subunit to bedrock. Based on the available data the well provides the southernmost capture and extends across all three sub-units. The well flow rate is actively managed by the operators to provide the greatest practical operating capture zone. That capture zone is evaluated formally on an annual basis and informally following recurring field monitoring and sampling events.

7. Is there dense non-aqueous phase liquid (DNAPL) in OU2?

As of yet it hasn't been seen in existing wells. The Remedial Investigation/Feasibility Study (RI/FS) for OU2 will give us more information.

8. Has any sampling been done in attics? Does the vapor intrusion study take into account cooler vs. A/C

air exchange? What about soil vapor under skirted mobile homes? Are they vented are 100% enclosed?

No, there has not been any sampling done in attics. Sampling is done where people would be exposed, in their main living spaces, in order to have the most representative data and risk calculations. Yes, the vapor intrusion study takes into account cooler air as well as A/C air exchange. By sampling in both the summer and winter, we can see whether there are any differences related to the temperature of the air and whether A/C systems are turned on or off.
There were no mobile homes in the areas that we sampled.
In order to get the most realistic data possible, we asked people to go about their usual routines, so if they normally kept their homes vented or enclosed, these were the conditions in which their homes were sampled. There were several vacant properties that were completely enclosed, which also showed us a good representation of "worst case scenario" conditions.

9. When can we expect to see reports on activities taking place in OU3?

Activities in OU3 can be discussed at any time at CIG meetings if the community would like to put it on the agenda. Here is a short summary of the most recent activities:

- The OU3 Group has been conducting semi-annual groundwater sampling events, in addition to quarterly soil vapor sampling events.
- At the Adobe Air Facility, the Soil Vapor Extraction System is operating to remove VOCs from the vadose zone (unsaturated layer of soil) and is sampled on a monthly basis. Groundwater sampling and soil vapor sampling are also conducted at this facility on a semi-annual basis.
- APS will conduct indoor air sampling in one of the buildings on their facility on South 2nd Avenue, once the new HVAC system is installed.
- A map of the well locations can be found at: http://yosemite.epa.gov/r9/sfund/r9sfdocw.nsf/3dc283e6c5d6056f88257426007417a2/a04327eb41021960882579b8007b1a08!OpenDocument

10. How much pollution is estimated to be at OU2?

Pollution was released in OU1 and OU2 for many years before there were any environmental regulations on the use and disposal of chemicals (from the 1950s through the 1970s). Therefore we do not have records that show us exactly how much was released. We know what the concentrations of contaminants are in different areas, but there are some areas with much higher concentrations than others, and there are source areas, such as bedrock in OU1, that continue to release chemicals into the groundwater slowly. The OU2 Remedial Investigation and Feasibility Study for OU2 is underway, which will give us a better idea of how much contamination there is when it is completed. When the Remedial Investigation and Feasibility Studies are completed for all Operable Units and we reach the point where we can propose a final remedy for the site, we will have an estimate for how much contamination there is and how much time it will take to clean it up.

11. How do treatment costs compare with what was expected?

For a strict Operation and Maintenance (O&M) cost comparison:
Treatment costs for OU1 generally are higher than those originally estimated (this is also discussed in section 4.1.3.3 of the 5-Year review Report). For OU1 the original estimate (20 years ago) was $700,000, although the details of what this covered were limited. From 2006-2010 annual OU1 O&M costs were $1.21M to $1.32M. Treatment costs for OU2 were not compared to the original estimates (Sections 4.2.3.3 of the 5-Year review Report). However costs have been relatively consistent for the operation over the last five years with the exception of 2007 which includes costs for additional monitoring wells.

12. Who do I contact to ask questions about subsidence in the OU1 area?

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From Mr. Conway:

There are a number of resources that are available online for land subsidence and earth fissures. The first is our Department's land subsidence maps that we update every year (around May/June). We are collecting satellite-based radar data (InSAR) to monitor all the active land subsidence features around the State and turn that data into land subsidence maps on our website for public consumption. Here is a link to the land subsidence maps:
http://www.azwater.gov/AzDWR/Hydrology/Geophysics/LandSubsidenceMaps.htm

Also, here is a link to a map that shows the general location of all the land subsidence areas in Arizona:
http://www.azwater.gov/AzDWR/Hydrology/Geophysics/documents/ArizonaSubsidenceFeatures_Point_8x11.pdf

Finally, here is a link to the most-recent shapefile that outlines the extents of all the active land subsidence features that we monitor in Arizona:
http://www.azwater.gov/AzDWR/Hydrology/Geophysics/ArizonaActiveLandSubsidenceAreas_2010.zip

I can tell you that we are not detecting any land subsidence in the area of the 52nd St Motorola Plant (52nd St and McDowell).
One last resource is for earth fissures. The Arizona Geological Survey has mapped the majority of all the earth fissures in Arizona, except for a few areas in Cochise County. This data is available in an interactive viewer on the AZGS website. Here is a link to the viewer:
http://services.azgs.az.gov/OnlineMaps/fissures.html

Hopefully I have addressed all your questions. If you have anything else you would like to ask me, please don't hesitate to contact me. Thanks,

Brian Conway

13. What is the expected completion date of remedial activities in OU1?
At this time that is unknown, but we estimate it will be many more years before OU1 is cleaned up. Pumping and treating is a slow process and we are in the middle of exploring how to address the dense non-aqueous phase liquid (DNAPL) source, which is trapped in cracks of bedrock. Once we complete the final Record of Decision for the cleanup, we will be able to have some better estimates at timelines.

14. Are there emissions coming from the fume scrubbers at the treatment plants? How are the emissions from the groundwater treatment facilities regulated?

The vapor phase granular activated carbon (GAC) used to treat the off-gas for the air stripper towers at the Integrated Groundwater Treatment Plant (IGTWP) is considered to be a Best Available Control Technology (BACT). As noted in the OU1 Annual Effectiveness Report, the IGWTP is not required to have air controls based on the low level of calculated potential emissions. And the potential emissions are far below the Maricopa County threshold for requiring Best Available Control Technologies (BACT) versus Reasonable Available Control Technologies (RACT). In addition to using the vapor phase GAC on the air

stripper emissions, efforts are made to reduce the potential for fugitive emission by piping the air relief valves on the process tanks through portable GAC canisters. In short, the off-gas from the air strippers are treated using Best Available Control technology (e.g. vapor phase GAC) and the potential for fugitive emissions is reduced by piping process vents through vapor phase GAC where it is feasible to do so.

Also, look on page 2-4 first full paragraph (Section 2.0) from last year's OU1 Effectiveness Report for further explanation of emissions abatement requirements.