

Meeting Notes: Community Advisory Group - Aerojet Superfund Issues, August 2010

1. Attendees

Janis Heple, Tim Murphy (Aerojet), Jackie Lane, Gary Riley and Kevin Mayer (EPA), Jimmy Spearow, Travis Anderson (Golden State Water Co.), Stephen Green, (SARA), Allen Tsao, Kendra De Santolo (resident), Alex MacDonald (CVRWQCB), Steve Nugent, Larry Ladd, Claudette Altamirano (Recorder, Weston Solutions, Inc.).

2. June minutes were approved with minor change on page 2.

3. Aerojet GET L-A Facility, Steve Nugent

A tour of the GET L-A facility was given to start off the meeting. See the attached "GET L_A Open House" fact sheet.

3. Aerojet Community Updates: Tim Murphy, Aerojet

Mr. Murphy did not have any additional comments to the tour.

4. Review OU5 Documents and Progress, Gary Riley for Kevin Mayer, EPA

Kevin is working on the Record of Decision (ROD) for the western groundwater portion of the site. The response to comments is anticipated to be completed by September 30th which marks the end of the Federal Government year. Their response to comments will be posted on the internet and can also be sent out electronically.

Janis will send the CAG comments submitted on the Proposed Plan to the CAG so any new members can see the comments.

Question: Jimmy - EPPA has new limits of 0.35ppb for dioxane. 1,4 dioxane was used as a stabilizer for TCE; will the response to comments reflect this change in toxicity level.

Answer: Alex - Dioxane was not seen in the Western OU but was found in GET E-F Gary will ask Kevin if this is an issue in the Perimeter OU and if there is a potential issue in the sources sites.

Gary - this would also be covered in the required 5- year reviews

Alex - The treatment system is adequate for the effluent. The Water Board picks the lowest toxicity levels regulated

It was noted that Libby and Aerojet both discharged to the area by the fish hatchery and most dioxane was found on the south site of the river.

4. General Aerojet Cleanup Overview: Alex MacDonald. RWQCB

(Handout provided by Alex MacDonald)

Aerojet Activities – August 2010 CAG Meeting

(Bold Items shown on Figure)

- A **GET L-A**. Construction has been completed at the system is up and operating at approximately 900 gpm.
- B **GET KA: NO CHANGES**. Operating with all initially planned wells operating, including former **AC-7** (Georgetown). Flow is approximately 1700 gpm and could be increased up to 1900 gpm. **AC-12** was turned off due to NDMA concentrations near 5 ppt. Since the shutdown, the last two samples have been non-detect for NDMA and the well has been restarted. It will be hooked up to treatment plant when concentrations of pollutants reach trigger levels. Aerojet is looking at having an “open house” for the public at **GET K-A** sometime in the future.
- C **AC-6** will be is being provided with a treatment system to remove perchlorate. California Department of Public Health will require some testing of the system prior to use within the Golden State system. Discharge of water not into the distribution system is under Aerojet’s NPDES permit. This well should begin operations soon.
- D **AC-18** and **AC-23** have been provided with perchlorate IX units with and startup of the treatment systems will commence when perchlorate concentrations become greater. Well **AC-23** will be started soon. Similar process to **AC-6** prior to use within the system. Currently the wells contain around 1-3 ppb perchlorate.
- E **GET H-A: NO CHANGES**. Working on getting two new extraction wells (White Rock Park and Coloma Road area) on north side of US 50 back to **GET H**. CALTRANS encroachment permit has been received to allow the work on the undercrossing of US 50 to begin. Should begin the undercrossing this week.
- F **GET B** – **GET B** is being expanded to accept transfer of **GET A** facility to the **GET B** location and to accept water from new extraction wells located in southern Zone 3 near Teichert. New treatment plant will be operating by the end of September. Pipeline from **GET A** to **GET B** is completed. Solar field adjacent to the facility has been completed and is already being expanded. Working on design for treatment of **GET A** at **GET B** – installation of UV system for **GET A** initially and pilot testing a UV/HiPox system. Two extraction wells north and east of Teichert are now hooked up to **GET B**. Two other wells will follow – south on **Teichert Facility** next to the Tracy property.
- G White Rock Road North Dump – **NO CHANGES**. 90% Design going out to bid to hook up two extraction wells and treat the water at the system at **AKT-1** treatment

system next to Teichert. Treated water will be discharged to **Teichert** for their use or to Rebel Hill Ditch near **GET B** when Teichert does not need the water. System operational in September.

- H GET Effectiveness Meeting. Agencies and Aerojet held a two-day meeting to discuss evaluations of the effectiveness of the existing groundwater extraction systems that are part of the Western Groundwater OU.
- I New Monitor Wells: No new monitor wells.
- J **Chettenham Well:** The Chettenham well remains off and the concentrations of perchlorate have remained around 3-4 ppb. Aerojet has reached an agreement with Cal-American Water Company concerning the Chettenham Well.
- K Aerojet and Sacramento County are continuing negotiations on water replacement issues. Meetings are occurring one to two times per week. City of Folsom, The Boeing Company and Golden State Water Company also participate in some or all of the meetings.
- L Perimeter Operable Unit - Aerojet is looking at removal of soils at site **C41** within the PGOU. Soils are impacted by perchlorate to the groundwater (approximately 80 feet) and perchlorate is in the groundwater. The area is within the proposed development area. To facilitate development, Aerojet would like to have the issue addressed sooner rather than waiting for ROD and subsequent order/implementation. Soils would be removed in the upper 10 feet to levels that allow unrestricted use.
- M EPA is in the final stages of completing the draft Record of Decision for the Perimeter Groundwater Operable Unit (OU-5).
- N Treatability Studies:
 - i) **Line 03.** NO CHANGES. Column studies on-going. Looking at various ways to bioremediate/degrade perchlorate and TCE.
 - ii) **HOGOUT** - Treatability study on-going to look at in-situ treatment of soils and groundwater has been completed. Aerojet is now looking at constructing and evaluating its "box of rocks" system.
- O Island OU -NO CHANGES. Remedial Investigation Field Work: Second round of field work is complete. Assessing data for the RI/FS
- P Eastern Operable Unit - NO CHANGES - all initial and follow-up sampling completed last week. Aerojet and their consultants will now commence development of the report.

Q Central Operable Unit – NO CHANGES. Draft sampling plan has arrived, agency review has been completed and comments are being assembled for transmittal to Aerojet.

R IRCTS:

- i) **Sigma Complex In-situ Bioremediation of Groundwater.** System has been operational for nearly two years. Boeing is adding an electron donor to remediate high concentrations on perchlorate in groundwater at the Sigma Complex. Boeing is recirculating groundwater and adding an electron donor (acetic acid) to stimulate biological growth and reduction of perchlorate. Initially the system will include one extraction and one recharge well, and several monitor wells. System is working very well. The system will be expanded after obtaining operational data from the initial wells to deal with the high concentrations of perchlorate (>4000 µg/L) in the upper groundwater. Boeing looking at trying to enhance the flushing of perchlorate in the vadose zone upgradient of the system to decrease the length of operation of the treatment system.
 - ii) An in-situ perchlorate remediation system has been constructed for pilot testing at the **Propellant Burn Area**. A gaseous electron donor, hydrogen, along with propane and nitrogen is being used. The pilot test has been completed and we are awaiting the submittal of the results.
 - iii) Additional soil sampling to define extent of perchlorate at the **Former GET F Sprayfield** has been completed.
 - iv) **White Rock Road Dumps 1 and 2.** NO CHANGES. These two old burn dumps will be combined at the Dump 2 location on the IRCTS. That area is slated to be a park in the Rio Del Oro development. Work may not begin this year depending on the time it takes for the construction bidding process to be completed.
- S The first modular biotreatment cell at **GET F Sprayfield and PBA** to remove perchlorate from extracted groundwater has been constructed and filled with media. The cell will be tested and then commence operation where the treated water is sent back to the ground for recharge

7. Tentative next meeting date October 27, 2010

A Cooperative Effort Between

AEROJET

**CARMICHAEL
WATER DISTRICT**



Department of Toxic
Substances Control

GET L-A OPEN HOUSE

ANCIL HOFFMAN COUNTY PARK • CARMICHAEL, CALIFORNIA • AUGUST 25, 2010

A cooperative effort between Aerojet, the Carmichael Water District, Sacramento County Parks and state and federal regulators led to the recent construction of a groundwater extraction and treatment (GET) facility at Ancil Hoffman Park. The facility designation is GET L-A.

N-Nitrosodimethylamine (NDMA), a byproduct associated with liquid rocket engine testing, was detected in 2003 in a monitor well in the Rossmoor Bar area in Rancho Cordova. Additional sampling indicated that NDMA was also present in a monitor well just north of the American River in Carmichael.

Aerojet and the Carmichael Water District (CWD) began working together to implement a remedy to stop migration of NDMA to any of CWD's water supply wells and remediate the groundwater. Under the regulatory guidance of the US EPA, the California Regional Water Quality Control Board and California Department of Toxic Substances Control, Aerojet and CWD developed a solution that accomplished these mutual objectives.

The GET facility is designed to remove NDMA from groundwater conveyed to the facility via a network of extraction wells. Extracted groundwater is exposed to an ultra violet (UV) light treatment technology approved by the US EPA and the California Department of Public Health for the removal of NDMA. The facility has extra space should the treatment system require expansion.

Once treated, the cleaned groundwater provides irrigation for the Ancil Hoffman golf course. The volume of groundwater is sufficient to meet approximately half of the course's water needs from May through September, and all of the water needs from October through April. Any excess is discharged to the American River.

Aerojet designed GET L-A to blend into the local surroundings, using building materials and colors that complement the existing golf course buildings and the Effie Yeaw Nature Center. The building houses the treatment system and a new irrigation pump station, replacing the previous outdoor station. The south lawn loading dock area utilizes grass pavers, providing a permeable yet reinforced vehicular surface, in keeping with park surroundings.

By permitting Aerojet to construct the GET L-A facility at Ancil Hoffman Park, Sacramento County was able to greatly reduce the volume of potable water used to irrigate the course. The County now saves \$100,000 annually in water costs, while allowing for the annual conservation of 125 million gallons of potable water.

This project shows how a collaborative effort protects drinking water resources for CWD ratepayers, provides a beneficial reuse of treated water, reduces dependency on potable water and saves County taxpayers money in park irrigation costs.

GET L-A Facility

FAST FACTS

- The GET system treats NDMA with ultra violet (UV) light
- The GET system protects drinking water wells to the west, ensuring CWD ratepayers continue to have access to safe, clean drinking water
- The treated water will be used to irrigate the Ancil Hoffman golf course
- The GET facility saves the County water costs and fosters the conservation of potable water
- Construction of the GET system is not funded by CWD ratepayers



GET L-A: QUESTIONS AND ANSWERS

- Q. Why was this treatment facility built?
A. The GET L-A facility treats N-Nitrosodimethylamine, also known as NDMA. The chemical was found in a monitor well north of the American River at depths approximately 400 feet below the surface.
- Q. Is drinking water served in this area safe for my family to drink?
A. Water being served to CWD's customers is routinely tested and meets rigorous state regulations set by the California Department of Health Services for drinking water quality.
- Q. What is NDMA?
A. NDMA is a byproduct associated with liquid rocket engine testing. NDMA is also found widely in food (milk, processed meats, bacon and beer) and pesticides. NDMA is also a byproduct of the water chlorination process.
- Q. How does the facility treat NDMA?
A. NDMA can be removed from the groundwater by exposing it to ultra violet light, a treatment method approved by the US EPA and the California Department of Health Services.
- Q. What happens to the treated water?
A. The cleaned water is used to irrigate the golf course at Ancil Hoffman Park, and will provide 50% of the water needs of the course from May through August, and 100% of the water needs from September through April, reducing dependency on potable water for irrigation. Cleaned water in excess of what the park uses will be discharged to the American River.
- Q. Can I drink the treated water?
A. While the treated water no longer contains NDMA, it does not undergo the treatment process used for drinking water and is not served to the public. The potable water at Ancil Hoffman Park is directly provided by the Carmichael Water District.
- Q. Will Carmichael Water District water rates go up to pay for this treatment system?
A. The treatment system construction and operation costs are paid by Aerojet.

