Meeting Notes: Community Advisory Group - Aerojet Superfund Issues, November 28, 2007

1. Attendees

Kevin Mayer (EPA), Jackie Lane (EPA), Alex MacDonald (RWQCB), Ed Cargile (DTSC), Nathan Schumacher (DTSC), Janis Heple, Jean Young (SCWA), Mike Girard (Aerojet), Tom Gray (Fair Oaks Water District [FOWD]), Larry Ladd, Tricia Carter (Recorder, CH2M HILL),

2. Approval of Meeting Minutes

The September meeting minutes were accepted as final.

3. Aerojet Community Updates: Mike Girard, Aerojet

Mike Girard noted that there were no planned public notices or activities in November or December. An update will be provided at the January 2008 CAG Meeting.

4. Update from the September 2007 Meeting Regarding Major Milestones in OU-3 and Outside of OU-3: Kevin Mayer, EPA

Kevin provided an update which was parallel to the summary from Alex MacDonald as summarized in item #5 below.

5. General Aerojet Cleanup Overview: Alex MacDonald, RWQCB

Alex reviewed the following items:

A GET L1 Construction: Facility completed and operation commenced the first week of September.

B GET L Construction: Construction will commence Spring 2008 with the construction of the reservoir beneath the treatment facility by Carmichael Water District. Aerojet is working on the design for the facility.

C GET KA: Portions of the pipeline are being completed along Coloma Road to beat the planned resurfacing of that street. Final plans are nearly complete and have been sent to the City of Rancho Cordova in order to obtain a building permit. Construction to begin in Spring 2008.

D GET H: Boeing repairing pipeline that was broken by subsidence from the regional sewer line.

E New Monitor Wells:

i) A new monitor well has been completed in the American River Parkway near Ambassador Drive. The well will be used to evaluate capture by the two new extraction wells discussed below.
ii) In Fair Oaks, monitor wells are being constructed near the locations of proposed extraction wells. The wells will initially provide information on whether the proposed locations for the extraction wells are appropriate. Later the wells will be used to provide information on the capture zone of the extraction wells.

iii) Monitor wells to be constructed in the American River parkway near Iron Point Road are still awaiting State Parks approval.
iv) Monitor wells in Zone 3 near Off Highway Vehicle Park have been completed to help locate Layers E and F extraction wells.
v) All initially planned Island Operable Unit monitor wells have been completed and wells are being sampled. The wells are being used to refine plumes and allow for locating extraction for containing the high concentrations of solvents and perchlorate near source areas.

F Chettenham Well Testing Continues: The concentrations of perchlorate in the well have dropped to approximately 11 ppb, down from initial concentrations of over 90 ppb.

G New Extraction Wells:

i) Two extraction wells have been complete in the River Vista Way area of the American River Parkway. The wells are screened in Layers C and D.
ii) Two extraction wells were completed near Beck's Furniture to complete capture of the Zone 1 plume on Aerojet property.
iii) Aerojet has constructed an extraction well screened in Layer C on the western edge of Sailor Bar Park as part of the proposed Area 1 extraction field. Locations of the other three proposed wells are more challenging due to lack of utility easements and may entail getting private property access agreements. Aerojet is working with Fair Oaks Water District in locating the wells.
iv) Aerojet is proposing a revision to its Area 1 extraction field and will no longer use AC5 to provide containment. Dedicated extraction wells will be constructed a bit farther to the west. We have not yet received the revised design proposal for the extraction well layout for Area 1 of the Western Groundwater Operable unit.
v) Extraction well in Zone 3 completed on Aerojet property for Layer E/F.

H Well Destruction: Aerojet completed destruction of 7 passive recharge wells on its property near the Folsom South Canal. Last time we informed you that Aerojet will also be destroying an old water supply well at the Fagundes' property as the well is no longer used and the property has been transferred to developers. The developers now may rent out the property for awhile and will still continue to use the well with the Aerojet treatment system in operation.

I Soil Gas Sampling:

i) No new activities this period.

J Treatability Studies:

i) Line 04 – Treat study completed and report submitted showing that the HiPOx treatment unit successfully treated the high concentrations of TCE in the extracted water. The testing was also utilized to see what extraction rates are needed to control the groundwater around source areas. In this particular case,

flowrates on the order of 3-7 gpm were sufficient to provide capture. This information will be useful in planning types and sizes of treatment systems that will be needed.

ii) Line 03 – system has been installed to evaluate the ability to bioremediate very high concentrations of VOCs, with perchlorate, in-situ below the water table. The system extracts and recharges groundwater in a recirculation loop. The groundwater is amended with an emulsified edible oil to provide an electron donor/food source to stimulate biological growth. The initial testing was stopped due to an unacceptable increase in water elevation in the injection well that did not allow the 7-10 gpm of flow that was needed. It appeared that the vegetable oil and/or excessive biological growth caused the aquifer near the well to be plugged, reducing its ability to accept water. Hydrogen peroxide was added and that helped lower the water level in the well. Additional evaluations are being performed to see if the problem can be corrected. Looking at using soluble electron donor instead of edible oil.

iii) Area 40: Two permeable reactive barriers were installed across a portion of the shallow groundwater plume at Area 40. The first wall is an iron filings wall for the reduction of TCE. The second wall injects molasses in to stimulate bioremediation of perchlorate. Initial test results show that TCE is being reduced from 63,000 ppb to around 1.1 ppb in the wall and perchlorate is reduced from19,000 to3700 ppb in the first wall and from 1400 to 120 ppb in the second wall. Awaiting results of second round of sampling. No change from last update.

J Inactive Rancho Cordova Test Site – No changes to first four items.

i) Sigma Complex In-situ Bioremediation of Groundwater. Boeing has been issued waste discharge requirements for an in-situ remediation of high concentrations on perchlorate in groundwater at the Sigma Complex. Boeing will be recirculating groundwater and adding an electron donor (citric acid) to stimulate biological growth and reduction of perchlorate. Initially the system will include one extraction and one recharge well, and several monitor wells. 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.

ii) EX-27, EX-20 and EX-21 are all operational and the water is being treated at the EX-25 treatment system.

iii) An in-situ perchlorate remediation system is proposed for pilot testing at the Propellant Burn Area. A gaseous electron donor, hydrogen, will be used. Some of the initial wells have been constructed. Waiting final funding for the work through the ESTCP (Environmental Security Technology Certification Program). Operation should commence soon.

iv) Boeing is constructing two additional extraction wells on Mather Field just east of the runway along the roadway. The wells are being completed in Layers C and D.

v) Aerojet completed remediation of soils at Sites 74 and 80 – Completion Report submitted.
vi) DTSC working on Final RAP for Groundwater and Groundwater. Open for public comment.

6. IRCTS Remedial Action Plan Overview: Ed Cargile, DTSC

Ed provided a brief overview of the remedial action taken at the Inactive Rancho Cordova Test Site (IRCTS) (i.e. the Remedial Action Plan for soil and groundwater at the IRCTS):

Site History

- 1930s to 1962: Much of the IRCTS was dredged for gold by the Natomas Company.
- 1956: Aerojet purchased the 3,900 acre property and leased the eastern 1,700 acres to the Douglas Aircraft Company.
- 1961: The McDonnell Douglas Corporation (MDC) purchased the 3,900 acre property from Aerojet. MDC established six areas encompassing approximately 300 acres for assembly, development and testing of solid and liquid rocket propulsion systems. The facility closed in 1969.
- 1970-1979: Facility deactivated and demolished.
- 1979-1984: MDC sold or leased some parcels within the Administration Area (Security Park).
- 1984: Aerojet reacquired the remaining property.
- DTSC issued the Consent Order 6/30/94.
- The Consent Order was modified in 1997, releasing 1,100 acres of clean buffer land (WNN).

Groundwater Characterization

- Study Area: IRCTS, WNN, Mather Field and areas south of Douglas Rd.
- 590 monitoring points at 190 locations.
- Deepest completion at 574 feet bgs.
- Regional GW encountered between 66 and 158 feet below ground surface (bgs).
- Average depth at 125 feet bgs.

Source Areas

Administration Area

Alpha/IOC-1

Sigma

Propellant Burn Area

Aerojet Superfund Site

Contaminants of Concern

- **Soil**

  Dioxins/furans

  Polychlorinated biphenyls (PCBs)

  Perchlorate

  Thallium and lead

- **Soil Vapor**
  - Trichloroethylene (TCE)
  - Perchloroethylene (PCE)
  - 1,1-dichloroethene (1,1-DCE)
  - Carbon tetrachloride
- **Groundwater (GW)**
  - Perchlorate (max 4,700 ppb, median 70 ppb)
  - TCE (max 430 ppb, median 9 ppb)
  - PCE
  - Chloroform
  - Cis-1,2-dichloroethene (1,2-DCE)
  - Vinyl chloride

Most GW Risk due to perchlorate and TCE.

Inactive Rancho Cordova Test Site

- **Interim Remedial Actions**
  - Administration Area 1997-2004
  - Alpha Complex 2002
  - Mather Field 2003
  - Propellant Burn Area (PBA) 2005
  - Southern Groundwater 2006

Inactive Rancho Cordova Test Site

- **Administration Area**
  - Soil Vapor Extraction System 1997.

  - 35 well screens at depths between 15 and 140 feet bgs.
  - 7,730 lbs of VOCs removed by June 2007.
  - 87% was TCE.
  - 20 cubic yards of lead contaminated soil removed in September 2001.
- **Alpha Complex**
  - Soil Vapor Extraction System.
  - 81 individual well screens between 15 and 140 feet bgs.
  - Vapor-phase GAC treatment system.
  - 5,275 lbs. of VOCs removed by June 2007.
- **Mather Field**
  - EX-5 system pumped and treated 796 million gallons of water between April 2003 and Dec 2006 and removed 228 lbs of perchlorate.
  - Enlargement of treatment facility completed Dec. 2006.
  - Pumping and treating about 1,800 gpm.
  - Over 4 miles of pipeline.
- **Propellant Burn Area**
  - Approximately 9,400 tons of dioxin contaminated soil removed between Aug. 2005 and Aug. 2006.
  - No identified remedy for perchlorate contaminated soil.
  - Continuing source to groundwater.
- **Southern Groundwater**
  - Designed to control GW contamination south of Douglas Road.
  - Six extraction wells.
  - 17,000 foot of pipeline.
  - Five wells currently pumping and treating @ 385 gpm.
- **Proposed Remedy**
  - Leading edge plume control.
  - Source control.
  - Deed restrictions prohibiting use of GW.
- **Leading edge plume control**
    - Utilize existing Mather and Southern Groundwater containment systems.

    - Upgrade Mather system with up to 8 additional extraction wells and pipeline. 4000 gpm
    - Upgrade Southern Groundwater with up to 7 additional wells and pipeline. 1300 gpm

- **Source Control**
    - Continued operation of SVE systems @ Admin and Alpha.
    - New source area GW control at Sigma and PBA
        - Two 5-well pump, treat and reinject systems
        - Treat TCE at surface
        - Treat perchlorate insitu

- **Deed restrictions prohibiting use of GW**
    - No extraction for domestic, municipal, or industrial uses;
    - No recharge via control basins or injections wells; and
    - No dewatering for excavation
- **Proposed GW Remedial Action Goals**
    - Perchlorate 6 ppb
    - TCE 0.8 ppb
    - 1,1-DCE 6 ppb
    - Cis-1,2-DCE 6 ppb
    - Chloroform 1.1 ppb
- **Implementation Schedule**
    - Phase 1 work completed in 2007
    - Phase 2 work completed in 2009-2010

Central Area OU

- Approximately 2,300 acres of the IRCTS.
- Used as buffer land.
- No aerospace contamination other than groundwater.
- Sites 74 and 80, 2.3 acres and 5.1 acres respectively, were contaminated with lead and dioxins/furans.
- The CAOU RAW requires the following:

    - The excavation and offsite disposal of approximately 42,700 yards of dioxin and lead contaminated soil and ash from the two remaining sites.

- Risk-based remedial goals for soil are:
    - 6.1 picograms per gram for dioxin/furans.
    - 30 miligrams per kilogram for lead.
    - Additional soil vapor sampling at the Alpha/IOC-1 Complex.

Central Area OU

– Fencing around OUs with surface contamination.

– A 100 foot buffer around previously investigated/remediated OUs with potential indoor air issues and 500 foot buffers around previously investigated/remediated OUs with surface soil contamination.

– Recordation of deed restrictions on the use of groundwater beneath the 2,300 acres.

– Completion of the Remedial Action Plan for Site Wide Groundwater.

Central Area OU

- Removal Action Workplan (RAW) was approved on August 22, 2006.
- Excavation completed in 2007.
- Fences are up.
- Alpha Complex sampling completed.
- Sites and buffer areas have been surveyed.
- Deed Restrictions are being negotiated.

7. Community Relations Plan Update: Jackie Lane, EPA

This agenda item was not discussed due to time constraints. A copy of the Community Relations Plan is available upon request.

8. Next Meeting

Next meeting: Wednesday, March 26, 2007, City Hall, 2729 Prospect Park Drive, Rancho Cordova, 7 p.m. to 9 p.m.