

STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION

STAFF REPORT FOR REGULAR MEETING OF FEBRUARY 10, 2006

Prepared on January 20, 2006

ITEM NUMBER: 20

SUBJECT: Perchlorate Cleanup Sites

DISCUSSION: New information is shown in *italics*. Please refer to previous staff reports for historical information. *Olin Latest Monthly update is included as an attachment to this staff report.*

Olin Corporation Facility, 425 Tennant Avenue, Morgan Hill, Santa Clara County
Lead Staff: Hector Hernandez 805-543-4641

Current milestones in the investigation of perchlorate contamination emanating from the former Olin facility include:

On-site Groundwater Treatment and Containment:

Update: Olin performed a hydrogeologic investigation to aid in the design and construction of an onsite treated groundwater injection system. Water Board staff has reviewed the results of the hydrogeologic investigation and it appears to support Olin's contention that on-site recharge is viable. Olin submitted a "90% Engineering Design Report" (Design Report) for the onsite recharge system on December 19, 2005. The Design Report provides design details, including anticipated flow rates and injection well locations. Water Board staff is currently reviewing this report.

On-site Ex Situ and In Situ Soil Treatment:

Update: In situ soil treatment commenced on August 16, 2005. Olin is currently completing treatment system optimization, which includes determination of infiltrative capacity for each

treatment cell and nutrient injection optimization. Optimization of the in situ bioremediation system is proceeding according to the scope of work provided in the "Remedial Action Work Plan & 90% Design Report for Soil Remediation" submitted in April 2004. Olin has also collected lysimeter and moisture sensor data as required by the Monitoring and Reporting Program. Through September 22, 2005, approximately 1.2 million gallons of amended water has been applied to the in situ bioremediation system. The system was shut off on September 22, 2005 to allow establishment of a sustainable anaerobic bacterial soil population. The system was restarted in late October. In situ bioremediation system monitoring results are presented in Olin's "Third Quarter 2005 Containment and Treatment Report" (MRP 2003-168) submitted to the Water Board on October 31, 2005.

Groundwater Monitoring and Reporting:

Update: Olin completed monthly and quarterly sampling during September 2005. The water-level measurements included 20 on-site and off-site monitoring wells, and 26 nested BarCad wells at eight on-site locations. Groundwater samples were collected from the 28 on-site wells. Groundwater samples were collected from 145 off-site wells for the Third Quarter 2005 monitoring event.

Sampling results are included in Olin's "Third Quarter 2005 Groundwater Monitoring Report" submitted on October 31, 2005. Water Board staff is currently reviewing the third quarter report. The "Fourth Quarter

2005 Groundwater Monitoring Report" is due January 30, 2006. Water Board staff intends to review this report and provide comments to Olin.

Northeast Perchlorate Area:

Update: The Water Board hosted a meeting on December 20, 2005, to discuss the status of Olin's northeast perchlorate investigation. The meeting was held to facilitate an ongoing discussion of this issue and to summarize the data for the Water Board's new project managers. Attendees included Water Board staff, City of Morgan Hill staff, Komex (City of Morgan Hill consultant), Olin Corporation, MACTEC (Olin Consultant), and Water District staff. The Water District, Komex and MACTEC each made presentations supporting their positions regarding Olin's responsibility for detections of perchlorate northeast of the Site. Olin presented new information regarding stable isotopes and additional sampling data collected from northeasterly-located wells. No decisions related to Olin's responsibility have been made. Olin will be submitting the latest northeast perchlorate information as part of the "Fourth Quarter 2005 Groundwater Monitoring Report" due January 30, 2005.

Cleanup or Abatement Order No. R3-2004-0101

Olin continues to install groundwater ion exchange (IX) treatment systems on domestic wells. Olin is working with the Department of Health Services on certification issues. Olin has not provided Water Board staff with an update regarding when IX certification is expected.

On September 22, 2005, Olin submitted a revised "Alternative Water Supply Implementation Work Plan." The work plan was submitted to revise the "Alternative Water Supply Implementation Work Plan" submitted in October 2004. The work plan was revised to incorporate State Water Resources Control Board Order No. WQ 2005-0007.

Olin continues to provide interim alternative drinking water in accordance with Water

Board CAO No. R4-2004-0101 (revised by the State Water Resources Control Board in its Order No. WQO 2005-0007, adopted on May 19, 2005). On September 15, 2005, Olin requested to discontinue bottled water service to 78 wells that have tested below 4 ppb for four consecutive quarters. Water Board staff prepared draft Resolution R3-2005-0014 for Water Board consideration. Please refer to the alternative water cessation staff report for additional information.

Cleanup or Abatement Order R3-2005-0014

Olin submitted the "Llagas Subbasin Characterization Work Plan" (Work Plan) on August 12, 2005. Water Board staff determined that the Work Plan was incomplete and provided comments to Olin. Water Board staff and Olin met to discuss comments related to the Work Plan on October 18, 2005. Olin resubmitted the Work Plan on October 24, 2005, and Water Board staff issued a conditional acceptance on December 21, 2005. The conditional approval requested additional information by either January 11, 2006 or March 30, 2006. However, due to time constraints and multiple submittals, Water Board staff agreed with Olin's request to revise the January 11, 2006 due dates to February 3, 2006.

Perchlorate Community Advisory and Perchlorate Working Groups

The next PCAG meeting will be held at the San Martin Lions Club on Friday February 3, 2006, at 2pm. Water Board staff will discuss current Olin cleanup issues.

Olin reports and significant correspondence can be accessed on our website at: <http://www.swrcb.ca.gov/rwqcb3/Facilities/Olin%20Perchlorate/Olinsite.htm>

McCormick Selph, 3601 Union Road, Hollister, San Benito County
Lead Staff: Hector Hernandez 805-543-4641

McCormick Selph submitted the full-scale corrective action work plan on September 30, 2005. The work plan describes McCormick

Selph's plans for implementing groundwater treatment using hydrogen release compounds over a much broader plume area. Water Board staff is evaluating the report and will be providing comments to McCormick Selph.

Whittaker Ordnance Facility, 2751 San Juan Road, Hollister, San Benito County
Lead Staff: Kristina Seley 805-549-3121

Remedial Design/Remedial Action Work Plan (Work Plan) – On May 28th, Water Board staff received Whittaker's "Remedial Design/Remedial Action Work Plan" (Work Plan) for site-wide cleanup. The Work Plan included a design description, rationale, and schedule to mitigate impacts from Site constituents of concern including perchlorate, hexavalent chromium, and volatile organic compounds (VOCs). The purpose of the proposed design is to contain off-site migrating groundwaters and reduce the risk of impacting off-site groundwater beneficial uses.

The proposed groundwater containment system (System) consists of 1) a groundwater extraction well network, 2) conveyance to a treatment system, 3) treatment, and 4) discharge of treated groundwater. The proposed extraction well network will consist of four shallow clustered wells that will operate at 70 gallons per minute (gpm) and two Unit 3 extraction wells that will operate at 22.5 gpm each. The purpose of the proposed extraction wells is on-site groundwater containment; the wells are not designed to contain impacted groundwater that has already migrated from the site.

After the on-site groundwater is extracted, Whittaker proposes to treat and discharge the water into the San Benito River (approximately 2000 feet north of the Site boundary) under an NPDES permit. The draft treatment system proposed consists of granular activated carbon for VOC removal and either ion exchange or a bioreactor for perchlorate remediation. The Work Plan proposed to treat off-site contamination by natural attenuation, including dilution and dispersion for perchlorate ions. Results of the off-site monitored natural attenuation (MNA) approach indicated that once the on-site

groundwater containment system is operational, the off-site COC plumes will stabilize and contract over time. The MNA approach will be developed and implemented, including identification and construction of additional monitoring wells, following the startup of the on-site containment system.

Whittaker states source area soil remedial measures in the most heavily impacted areas will not greatly benefit the restoration of Site-wide groundwater to cleanup goals within a reasonable time frame. Therefore, capping of the soil, opposed to soil remediation, is the preferred soil cleanup approach.

Whittaker plans to decommission the Riverside and Christopher agricultural wells to reduce the vertical migration of contaminants. Members of the Riverside Irrigation Company (RIC) have expressed their concern regarding replacement water for the Riverside Well. Staff required Whittaker to obtain written approval from landowners/residents of the RIC prior to submittal of an alternative water supply source final design.

On October 12, 2005, Water Board staff sent Whittaker a letter that outlines the next steps anticipated in the cleanup process. Staff provided detailed Work Plan comments in a letter dated October 25, 2005. In summary, staff approved the System to extract, treat, and contain groundwater migrating from the site and to reduce the risk to off-site receptors provided Whittaker addresses Water Board comments, addresses public comments, and enrolls in our general NPDES permit for highly treated groundwater. Performance monitoring of the System will dictate if additional cleanup or abatement is required. Whittaker is required to

- a. Submit a community involvement draft fact sheet and distribution list
- b. Complete additional investigations in the North Building 5 and Building 23 areas prior to approval of the proposed soil capping solution.
- c. Submit a performance-monitoring plan.
- d. Submit a final Remedial Action/Remedial Design Report.

Update: On December 1, 2005, Whittaker submitted a draft community involvement fact sheet. Water Board staff has reviewed and updated the fact sheet. Water Board staff will distribute the fact sheet following final review by Whittaker. The public will have 30 days to review and comment on Whittaker's proposed design. Water Board staff and Whittaker will respond to all comments received prior to System startup.

On December 22, 2005, Whittaker submitted a "Notice of Intent" to enroll in the "General Permit for Discharges of Highly Treated Groundwater to Surface Water". Water Board staff will develop a site-specific Monitoring and Reporting Program and respond to the request prior to the February 2006 Water Board Meeting.

BAE Systems (former United Defense), 900 John Smith Road, Hollister, San Benito County

Lead Staff: Kristina Seley 805-549-3121

On June 24, 2005, former United Defense representatives informed the Water Board that BAE Systems purchased United Defense Industries. Although BAE Systems now operates the facility, staff has not changed.

The site is located on approximately 1,200 acres. The former United Defense has conducted military armor and tracked vehicle testing since 1968. Currently, the site is developed with several buildings, former munitions magazines, and two munitions test arenas.

On March 28, 2005, Ms. Seley spoke with BAE Systems' consultant and discussed the request by the Regional Board to implement interim corrective actions at perchlorate source areas in Arena 1. On September 21, 2005, BAE Systems submitted a "Interim Remedial Action Work Plan".

Update: In late September 2006, BAE Systems excavated shallow perchlorate-impacted soils in Arena 1 at concentrations greater than 5 milligrams per kilogram (mg/kg). BAE Systems removed approximately 400 cubic yards of soil to a depth of 2 to 2.5 feet. In

addition, BAE Systems installed a 35,000 square foot temporary chip seal cap at Arena 1 to minimize potential mobilization associated with rainfall and runoff.

On July 1, 2005, the Executive Officer issued Monitoring and Reporting Program No. 05-0113 for the BAE site.

Update: The first quarterly report, "Third Quarter 2005 Groundwater Monitoring Report," was received on October 31, 2005. Water Board staff will provide comments prior to the February Regional Board Meeting.

On October 15, 2005, BAE Systems submitted the Phase V Environmental Investigation Report. BAE Systems conducted additional site work to determine the extent of perchlorate and explosives in groundwater and soil. The following areas were investigated:

- **Burn Pit Area:** The landowner identified this area as a location where refuse materials had been burned in the past. Perchlorate has not been detected in soil borings at the Burn Pit Area. HMX has been detected in one of four historic soil borings, and no energetics were detected in the Phase V soil borings.
- **Arena 1:** Perchlorate has impacted groundwater and storm water quality. The highest perchlorate concentrations were found at depths less than 5 feet. Perchlorate was detected in nine of ten Phase V drainage soil borings. Perchlorate was detected in eight of ten Phase V shallow groundwater samples ranging from 950 micrograms per liter ($\mu\text{g/L}$) to 76 $\mu\text{g/L}$. BAE conducted source removal as described below.
- **Building No. 6 Area:** Phase V concluded that energetics including HMX, RDX, TNT, and TNB in soil are concentrated in two areas, the former wastewater clarifier and the Building 6 entrance road. During historical investigations, HMX (at 0.3 $\mu\text{g/L}$) at 32 feet bgs) was the only energetic detected. During the Phase V investigation, 2,4, DNT was the only energetic detected (12 $\mu\text{g/L}$ at 104 feet

and 19 $\mu\text{g/L}$ at 105 feet bgs). Energetics were detected at low concentration in one of three Phase V borings.

- **Building No. 1 Area:** Rain runoff from metal parts and equipment storage may have resulted in soil and groundwater impacts at this area. Perchlorate was detected in two of three historic soil borings at concentration less than 0.160 milligrams per kilogram (mg/kg). During the Phase V investigation, perchlorate was detected in two of five soil borings ranging from 0.015 mg/kg and 0.12 mg/kg.

Regional Water Board staff has reviewed the "Phase V Environmental Investigation Report" and has provided comments. BAE Systems will submit a work plan for its next environmental investigation based on Water Board staff comments. BAE Systems will submit a Risk Assessment and Remedial Investigation/ Feasibility Study by February 28, 2006.

ATTACHMENTS

1. Olin – Progress Report #41, Field activities December 1 through 31, 2005, Morgan Hill, California

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