

STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION

STAFF REPORT FOR REGULAR MEETING OF SEPTEMBER 9, 2005

Prepared on August 17, 2005

ITEM NUMBER: 7

SUBJECT: Perchlorate Cleanup Sites

DISCUSSION:

New information is shown in *italics*. Please refer to the Central Coast Water Board's, July 9, 2004 and February 11, 2005 staff reports for additional historical background information.

General Information: The Department of Health Services (DHS) released the draft Maximum Contaminant Level (MCL) for perchlorate on October 27, 2004. The draft MCL is 6 ppb. The DHS must now formally adopt the MCL through a statutorily defined process. The main steps in DHS' Drinking Water Program's regulations process include review by DHS' Office of Regulations, DHS' Budget Office, the Department of Finance, and the Health & Human Services Agency. It is then released to the Office of Administrative Law (OAL) for publication in the *California Regulatory Notice Register* announcing the availability of the regulation for a 45-day public comment period. If changes are made in response to public comments received during the first comment period, then a second 15-day public comment period will be held. The draft MCL will then be approved by the DHS Director's Office followed by a final review by OAL. Following OAL approval, the regulation is filed with the Secretary of State, and becomes effective 30 days later. Regional Water Board staff anticipates the MCL will be adopted within the next 12 months and will provide updates as the draft MCL makes its way through the review and adoption process.

Olin Corporation Facility, 425 Tennant Avenue, Morgan Hill, Santa Clara County
Project Manager: David Athey 805-542-4644

Current milestones in the investigation of perchlorate contamination, on and off, the former Olin facility include:

On-site Groundwater Treatment and Containment:

On November 18, 2003, Regional Water Board staff approved the on-site groundwater containment and perchlorate removal system. The system's purpose is to provide hydraulic containment and removal of perchlorate through on-site groundwater extraction and treatment. The system began operation on February 23, 2004. By April 7, 2004, system startup was completed and has operated continuously since that time.

Update: Olin treated approximately 17.3 million gallons of perchlorate-contaminated groundwater from March 28, 2005 to June 30, 2005. Influent or raw water perchlorate concentrations, ranged from 64.0 to 110 µg/L during the March to June time period. According to Olin data, the treatment system removed approximately 4.5 kilograms of perchlorate. The mass removal is broken down by month and raw water perchlorate concentrations are assumed to be steady throughout each month. Therefore, the amount of perchlorate removed is only an estimate based on limited influent perchlorate concentration data.

**ESTIMATED PERCHLORATE MASS
REMOVAL BY MONTH**

Date	Total Flow (L)	Mass Removed (kg)
3/28-4/27/05	6,217,741	1.5
4/27-6/1/05	6,650,252	1.6
6/1-6/30/05	5,505,844	1.4

Olin is required to submit third quarter 2005 treatment system data report on October 31, 2005.

On-site Ex Situ and In Situ Soil Treatment:

Olin has proposed to treat on-site perchlorate impacted soils using both ex situ and in situ methods. The two main components of the treatment option include: ex situ anaerobic bioremediation of perchlorate-contaminated soils greater than 7,800 µg/kg, the United States Environmental Protection Agency (USEPA) residential Preliminary Remedial Goal, and in situ bioremediation of soils above the site-specific soil screening level of 50 µg/kg. The site specific soil remediation goal is derived from the methods described in the USEPA's *Soil Screening Guidance: Users Guide* and is the calculated concentration of perchlorate that would not result in groundwater impacts above 4 µg/L.

Regional Water Board staff conditionally approved Olin's *Remedial Action Work Plan & 90% Design Report For Soil Remediation* on June 10, 2004. Olin subsequently responded to comments and Regional Water Board staff provided final approval on August 3, 2004. Olin has concluded pre-remediation soil sampling and full operation is expected in August 2005.

Update: Olin has submitted sample results from pre remediation sampling activities. The results indicate that composite soil sample concentrations range from 11 to 1,100 ug/Kg. Olin is required to perform follow up depth discrete soil sampling to determine if composite sampling underestimated soil perchlorate concentrations. In addition to pre-remediation sampling, Olin is required to sample the soil unit on a periodic basis thereafter to monitor soil remediation progress. Olin has estimated that in situ soil

cleanup will take approximately two years to complete.

The in situ soil pile sampling results for the composite and depth discrete samples are shown on page 3.

Groundwater Monitoring and Reporting:

Cleanup or Abatement Order No. R3-2005-0014 (CAO No. R3-2005-0014) was signed and issued on March 10, 2005. CAO No. R3-2005-0014 requires Olin to submit an updated groundwater-monitoring plan that details plans to fully delineate the off-site plume's lateral and vertical extent. The groundwater-monitoring plan was received on April 9, 2005, as required. Regional Water Board staff has provided Olin with comments related to plan details. The City of Gilroy and Santa Clara Valley Water District have also provided comments to Olin. Regional Water Board staff had a meeting with Olin on June 8, 2005, to discuss the groundwater-monitoring plan and the submitted comments. Results of that meeting were provided to the Regional Water Board at the July 8, 2005 meeting.

Follow up meetings were held on June 20 and July 27, 2005 to discuss the Llagas Subbasin characterization and monitoring well installation work plans. Monitoring well installation comments have been resolved and Regional Water Board Staff have directed Olin to move forward with monitoring well installation. The approval letter is included as Attachment 1. Comments related to Subbasin characterization have been discussed with Olin and interested parties. Olin will be submitting the Llagas Subbasin characterization work plan by August 12, 2005.

Northeast Groundwater Flow Assessment:

Olin has completed installation of the multi level and single level piezometers to the northeast. Four multi—port piezometers (also called continuous multi channel tubing piezometers or CMT) and three deeper single (or double depending on lithology and depth) screen piezometers have been installed. Olin will be submitting perchlorate testing results and monitoring well installation information by the end of August 2005.

RESULTS FROM COMPOSITE SOIL SAMPLES

Sample ID	Result ($\mu\text{g}/\text{kg}$)	Reporting Limit ($\mu\text{g}/\text{kg}$)
PRS-001	210	40
PRS-002	60	8
PRS-003	27	4
PRS-004	1100	400
PRS-005	57	8
PRS-006	21	4
PRS-007	130	40
PRS-008	93	16
PRS-009	62	16
PRS-010	780	160
PRS-011	11	4
PRS-012	28	4

RESULTS FROM DEPTH DISCRETE SOIL SAMPLES

Interval (ft)	PRS-007A ($\mu\text{g}/\text{kg}$)	PRS-008A ($\mu\text{g}/\text{kg}$)
0-1	290	79
2-3	77	73
4-5	170	110
6-7	77	96
8-9	96	83
10-11	55	110
12-13	77	110
14-15	10	110
16-17	10	Not Analyzed
Average	96	96
Core (0-16')	130	93

Cleanup or Abatement Order No. R3-2004-0101:

The July 9, 2004 Cleanup Order directs Olin and Standard Fusee to supply uninterrupted replacement water to well owners with perchlorate-contaminated wells. The Order requires Olin and Standard Fusee to provide interim uninterrupted water to well owners whose wells meet two important criteria. The first criterion is for wells that test at or higher than 4 ppb. Well owners with wells that test at or higher than 4 ppb shall be supplied interim uninterrupted water service (currently bottled water). The Order also establishes a mechanism for stopping bottled water supply to these wells and includes follow up monitoring.

On August 5, 2004, Olin petitioned the State Water Resources Control Board (State Water Board) to review the Order. The State Water Board reviewed the petition and issued a final Order on April 19, 2005.

Update: Regional Water Board staff sent a letter to Olin (see Attachment 2) on June 16, 2005 requesting an update of Olin's efforts to install ion exchange systems on private wells with detections above 10 ppb and an update of the October 29, 2004 Alternative Water Supply Work Plan. Olin responded (see attachment 3) to Regional Water Board staff on July 15, 2005. According to Olin's July 15, 2005 letter, three additional wells will be outfitted with ion exchange units by the end of August 2005.

Perchlorate Community Advisory Group (PCAG)

Update: Regional Water Board staff provided an update at the August 5, 2005 PCAG meeting. A copy of the August 5, 2005 PCAG agenda is included as Attachment 4. The next Perchlorate Community Advisory Group meeting is scheduled for September 2, 2005, at 7 p.m.

Cleanup or Abatement Order R3-2005-0014:

The Executive Officer issued CAO R3-2005-0014 on March 10, 2005, to Olin and Standard Fusee. CAO R3-2005-0014 applies to areas

south of the Olin site. CAO R3-2005-0014 requirements include a:

- Llagas subbasin groundwater monitoring plan.
- groundwater monitoring well installation work plan.
- Llagas subbasin characterization report.
- plume migration control feasibility study.
- plume migration control work plan.
- Llagas subbasin cleanup level report.
- Llagas subbasin cleanup feasibility study.
- Llagas subbasin cleanup work plan.

Regional Water Board staff solicited public comments on the Draft CAO R3-2005-0014 to facilitate the community's participation. Comments were received from the Perchlorate Community Advisory Group, Olin Corporation, City of Morgan Hill, Santa Clara Valley Water District, Perchlorate Medical Advisory Group and Dr. Richard Peekema. Regional Water Board staff considered all submitted comments and included its responses in the final CAO R3-2005-0014 transmittal letter. The Order and transmittal letter were provided to Regional Water Board as part of the February 2005 Staff Report. CAO R3-2005-0014 was not petitioned to the State Water Board.

Olin submitted a request on June 2, 2005, to extend the deadline for submittal of the groundwater monitoring well installation work plan. Their request was based on the lack of approval of the Llagas Subbasin Monitoring Plan. Regional Water Board staff responded to Olin's request in a letter dated June 9, 2005.

Update: As discussed earlier, Regional Water Board staff has approved the monitoring well installation work plan and Olin will be submitting the groundwater characterization work plan on August 12, 2005.

Discharger Status:

Standard Fusee requested that the Regional Water Board issue a determination that Standard Fusee is not a discharger for purposes of California Water Code Sections 13267 or 13304. In support of this request, Standard Fusee submitted witness testimony developed in the matter of Palmisano v. Olin Corporation. Regional Water Board staff has

not made a determination on discharger status at this time. However, since Olin has carried out all investigation and cleanup work to date, staff sent a letter to Standard Fusee removing them as a responsible party (Attachment 5). This letter does not limit the Regional Water Board from reassigning discharger status to Standard Fusee should evidence or circumstances warrant that determination.

Olin reports and significant correspondence can be accessed on our web site by going to: <http://www.swrcb.ca.gov/rwqcb3/Facilities/Olin%20Perchlorate/Olinsite.htm>

**McCormick Selph, 3601 Union Road,
Hollister, San Benito County**
Project Manager: David Athey 805-542-4644

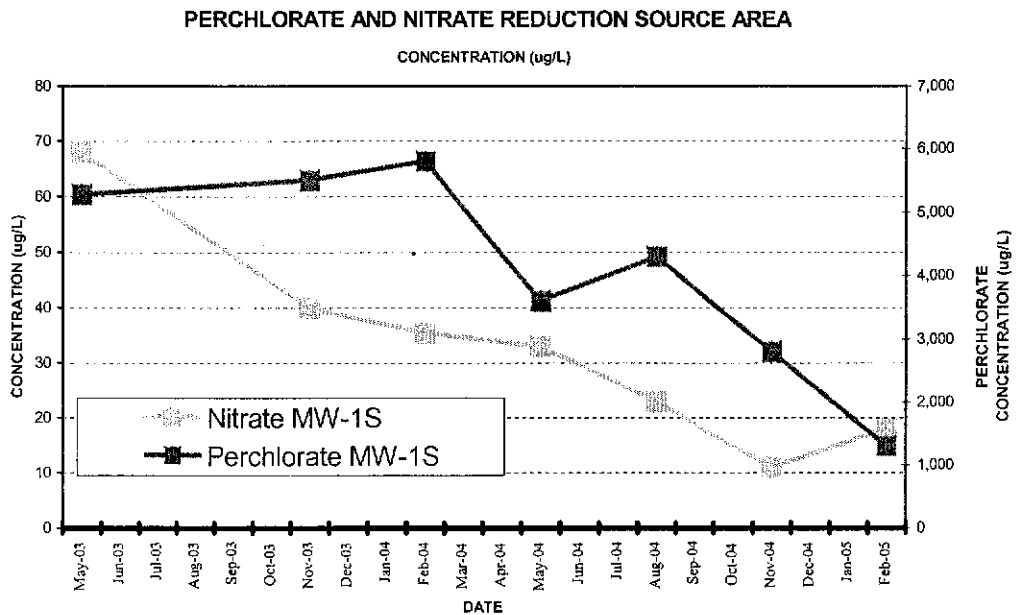
The Discharger performed the first quarter 2005 sampling event on February 21, 2005. Regional Water Board staff received the monitoring data as part of the first quarter 2005 groundwater monitoring report received April 30, 2005. Staff has finished reviewing the report. Monitoring results are summarized below.

The data collected as part of the quarterly monitoring events will be used to assess the

success of the enhanced in situ bioremediation program (EISB). Components of the EISB include: 1) pre-injection groundwater monitoring (completed), 2) pilot scale injection of Hydrogen Releasing Compound[®] (completed), 3) post injection groundwater monitoring (ongoing), and 4) preparation and implementation of a full-scale EISB work plan. Prior to preparation of the full-scale EISB work plan, six groundwater monitoring events are scheduled. There is one remaining groundwater monitoring event scheduled prior to full-scale EISB work plan submittal. The Discharger will be submitting the full-scale EISB work plan by September 30, 2005.

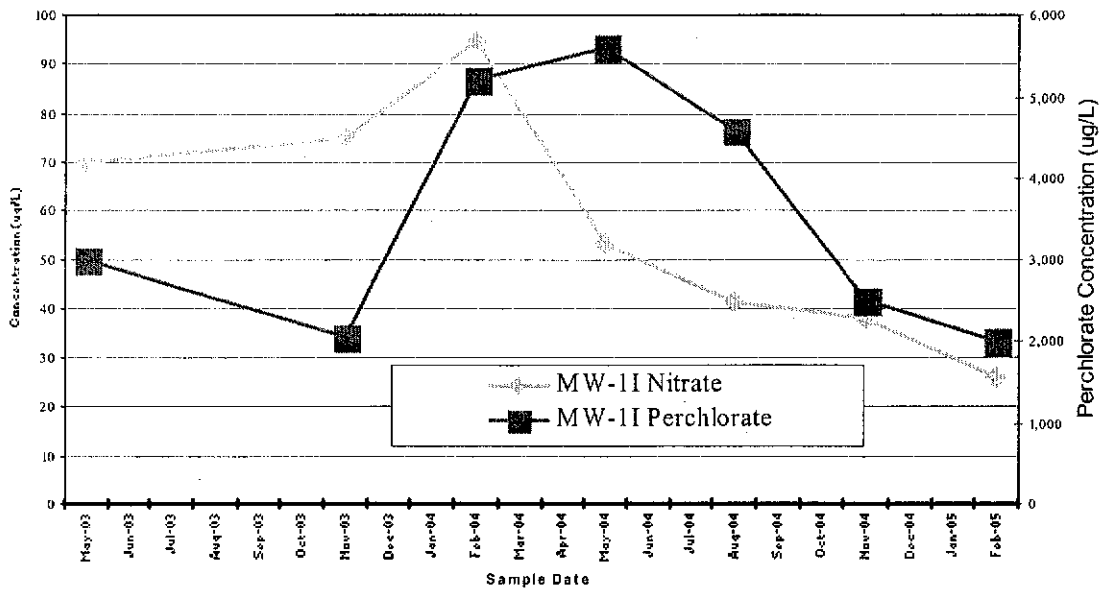
Alluvial Aquifer Perchlorate – Source Area
Alluvial aquifer perchlorate concentrations have declined near the source area and downgradient barrier area. These two areas are shown on Figure 1, page 8. Nitrate concentrations also appear to be declining in these two areas. The decline in perchlorate and nitrate levels appears to indicate that bioremediation has been effective in the source areas. The decline is shown on the following charts:

Alluvial Deposits – Source Area - Chart 1



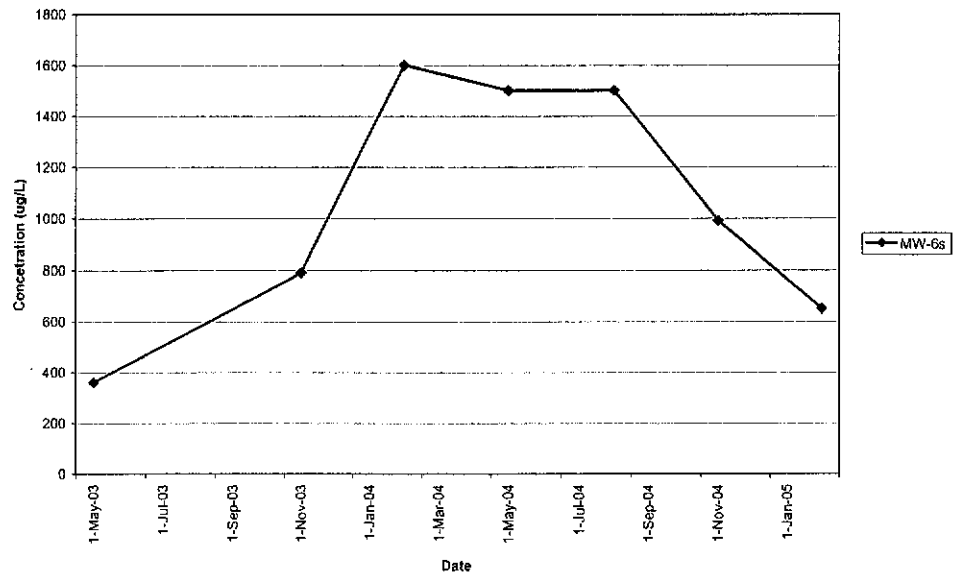
Alluvial Deposits – Source Area- Chart 2

PERCHLORATE AND NITRATE REDUCTIONS SOURCE AREA



The reduction in nitrate concentrations, shown on Chart 2, is more pronounced than the corresponding perchlorate reduction. Perchlorate levels are only 1000 ug/L lower than those recorded in May 2003. While there has been an overall decrease in perchlorate concentrations, this could represent seasonal variation. However, the site has not seen an increase in perchlorate concentrations as was experienced between November 2003 and February 2004 and perchlorate concentrations are lower overall from the peak in May 2004 and beginning of testing in May 2003. Seasonal Variations do appear to occur in the

CHART 3 – MW-6S
MW-6s Seasonal Variation



alluvial aquifer plume as seen in MW-6S (see Chart 3), which is outside the source treatment area.

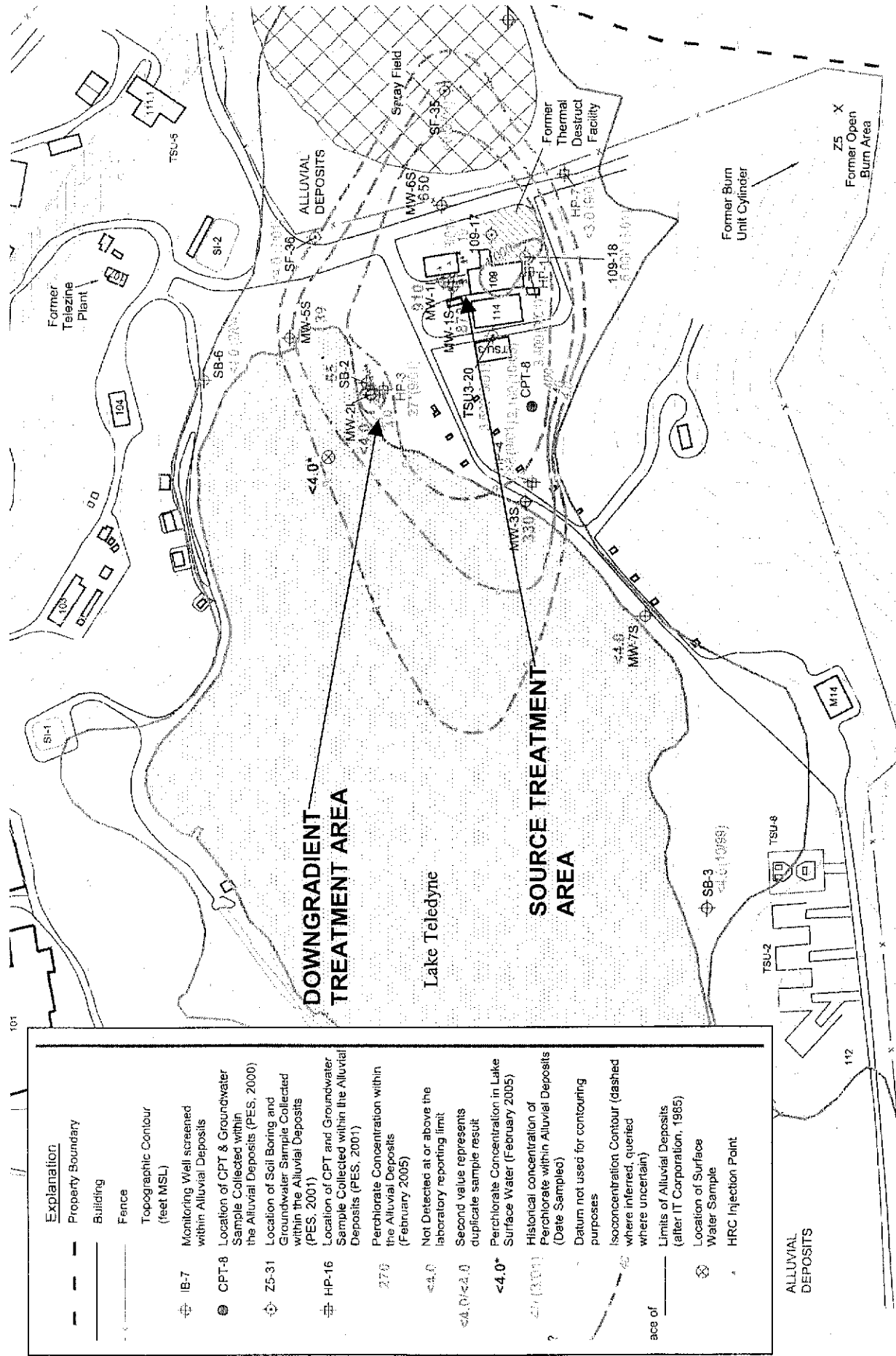


Figure 1

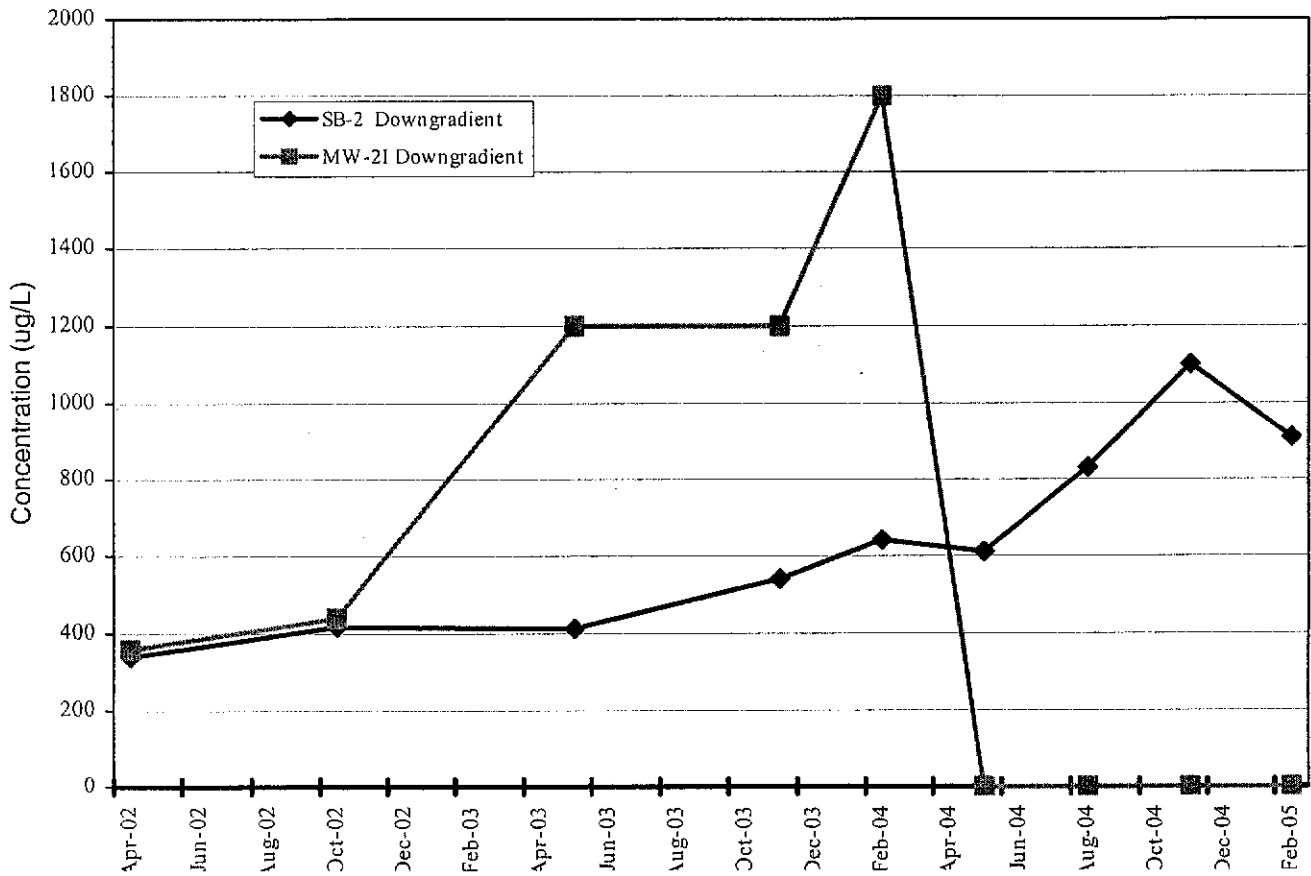
Alluvial Aquifer Perchlorate – Downgradient

The results from downgradient areas are mixed (Chart 4, below). Well MW-2I has been non-detect for perchlorate from May 2004 to February 2005. However SB-2 has only just recently exhibited a drop in perchlorate concentrations, reversing an upward trend since April 2002. The drop in perchlorate concentrations appears to correspond with a drop in Oxidative Reduction Potential (ORP) levels to below -100 Mv

(Chart 5, below). Usually, a negative ORP indicates reducing environment, which is necessary for biological perchlorate treatment. A review of MW-2I data indicates that a drop in perchlorate concentrations followed a similar drop in ORP levels. However, the drop in perchlorate concentration is not very significant and may be caused by heavy winter rains or laboratory data. Regional Water Board staff will continue to monitor the results from SB-2.

Downgradient Area – Alluvial Deposits Chart 4

Perchlorate Results - Source and Downgradient Areas



installation activities performed to better define groundwater conditions downgradient. It also presents a revised interpretation of the geology and hydrostratigraphy beneath the Whittaker site. Staff has provided comments on this report.

- **Second Semiannual Groundwater Monitoring Report** – This Report was received on January 31, 2005. The report summarizes soil and groundwater monitoring activities during the second half of 2004. The report also presents the status of remediation activities.

Remedial activities currently underway at the site include:

- Point-of-use treatment systems for three off-site private supply wells including ion exchange for perchlorate remediation and granular activated carbon for VOC treatment.
- Air stripping at the Riverside well for VOC contamination.
- Groundwater extraction and treatment and soil vapor extraction at the north Building 5 septic tank area.
- Ozone sparging at the north building 5 septic tank area. Since March 2003, the system has not been operational, and although major efforts to repair the system have been conducted, no further operation of the system is proposed.
- In situ reactive zone groundwater remediation programs at the northwest site boundary, Building 23 area, upper burn area and southwest burn area.
- Proposed soil flushing at the Former Burn area. Construction efforts are underway for soil flushing. However, this remediation strategy will be reevaluated for the site-wide remediation strategy before implementation.

Regional Water Board staff has reviewed the Second Semiannual Groundwater Monitoring Report, in conjunction with the DAAR and Monitoring Well Installation Report. Comments were issued May 2, 2005. In summary, staff provided the following comments.

1. Provide a strategy to resolve monitoring gaps down gradient from the Lower Facility.
2. Enroll the Groundwater Extraction and Treatment System on our General Waiver of Waste Discharge Requirements for injection of treated water to groundwater. The GETS enrollment was approved by staff in a letter dated December 7, 2001. However, since that time, the Regional Water Board has adopted a general waiver that is more appropriate for developing effluent limits and monitoring requirements. Staff is working with the consultant to enroll the GETS in the General Waiver.
3. Staff requested setting effluent standards for irrigation wells at detection limits. Specifically, the Riverside well treatment system effluent has varied between 1.7 ug/L and 15 ug/L for TCE and the most recent perchlorate detection was 120 ug/L.

Update: Whittaker addressed our May 2, 2005 letter in a letter dated July 7, 2005. Whittaker's response to comments are as follows: 1) Whittaker will develop additional cross-sections to address data gaps along the southern boundary of the Site. 2) Whittaker has proposed to abandon the GETS system when installation of the Site extraction and treatment system is complete. Staff agrees with the proposal because the GETS would be redundant. 3) Whittaker's consultant has informed the Regional Water Board that they will decommission the Riverside well in the first quarter of 2006.

- **Draft Sampling and Analysis Plan** - This report was submitted in response to Regional Water Board staff's request for a comprehensive review of on- and off-site groundwater monitoring. The draft report applies to soil and groundwater sample collection, analysis, and data review. It also applies the soil vapor extraction systems, groundwater extraction systems, and domestic and irrigation supply well treatment systems. On and off-site monitoring is conducted to assess the vertical and lateral extent of contamination, and to design, modify, and assess corrective actions and evaluate treatment system performance. The report was submitted on February 25, 2005.

Staff provided comments on April 25, 2005. The April 25th letter requires updates to the SAP, including expansion of data reporting and monitoring and sampling protocols. The SAP will serve as the monitoring and reporting doctrine for the Whittaker site. The SAP will be a living, stand-alone document that will be updated by Whittaker with Regional Water Board concurrence. Changes will be made as monitoring, sampling, and remediation efforts alter or new data is received. *We anticipate receiving the final report October 1, 2005.*

- **First Quarter 2005 Remediation Status Report** – The quarterly report, dated April 29, 2005, is currently under review by staff. The First Quarter Report describes groundwater monitoring and corrective action activities underway at the Site.
- **Remedial Design/Remedial Action Work Plan** - On January 27, 2005, Regional Water Board staff met with Whittaker's consultants to discuss their development of a comprehensive site strategy. The consultants presented their draft site cleanup strategy, a site model with remedial alternatives for contaminated areas, and a proposed remedial program. The conceptual site model identified six soil source areas impacting groundwater. Remediation alternatives for each soil area and each impacted groundwater zone were developed. Perchlorate and VOC remedial alternatives were ranked based on effectiveness, time, and cost. Regional Water Board staff provided feedback to the proposed strategy, including a request for a compilation of data presented in a site strategy report. In a May 2, 2005 letter, staff directed Whittaker to submit a Remedial Design/Remedial Action Work Plan for Site-Wide Cleanup by May 28, 2005.

Update: The Remedial Design/Remedial Action Work Plan was received May 31, 2005 and the Off-Site Groundwater Fate and Transport Modeling Report was received on June 3, 2005. Regional Water Board staff is reviewing the work plan. The Report presents a containment system for onsite groundwater. Contained groundwater will be treated via granular activated carbon and either ion exchange or a bioreactor for removal of VOCs, perchlorate, and hexavalent chromium.

Whittaker proposes to discharge the low threat effluent waste in conformance to Regional Water Board Order No. 01-134, NPDES permit for highly treated groundwater, into the San Benito River. Staff is communicating with Whittaker's consultants to discuss the site conceptual model, containment system model, and effluent limit standards.

- **First Semi Annual 2005 Groundwater Monitoring Report** – *The semiannual report is due July 31, 2005. Regional Board staff anticipates completing review prior to the September 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, United Defense representatives informed the Regional Water Board that BAE Systems purchased United Defense Industries. Although BAE Systems operates the facility, staff has not changed.

As reported at the July 9, 2004 Regional Water Board meeting, United Defense is proceeding with additional site investigations. Regional Water Board staff approved the additional investigation work items in a July 30, 2004 letter. The recommendations set forth within the Report include:

- Continued research and analysis of local hydrogeology and geology to determine the fate and transport of site contaminants.
- Ranch well groundwater sampling.
- Surface water sampling in the Santa Ana Creek up and down stream of the pond and up and down stream of Arena 2.
- Further evaluation of the lateral and vertical extent of perchlorate and nitrate including the implementation of additional monitoring wells, cone penetration test borings, and soil borings at Arena 1 and Building 6.
- Attainment of United Defense's non-drinking water well's construction log.

United Defense submitted the Phase III Environmental Investigation Report (Report) on September 30, 2004. The Report provides supplemental information to the Initial Site Assessment and Phase II Reports. The Phase

III investigation was conducted to more fully assess the extent of perchlorate, nitrate and nitrite, energetics (explosive compounds, i.e. TNT), and aluminum contamination in site soil, groundwater, and surface water. The following areas were investigated:

- Arena 1: Previous sampling during the Phase II investigation found perchlorate at a maximum of 2,900 milligrams per kilogram (mg/kg) in soil and 2,600 micrograms per liter ($\mu\text{g/L}$) in groundwater. Soil results from the Phase III investigation ranged from ND to 3.4 mg/kg. As stated in the Report, Phase II and Phase III perchlorate soil samples are generally highest within two feet below ground surface. Perchlorate detections in groundwater for the Phase III analysis ranged from ND to 8.5 $\mu\text{g/L}$. These results are from groundwater samples taken from recently installed groundwater wells. Previous groundwater perchlorate results were collected from temporary soil borings.
- Arena 2: One soil boring at 0.5 ft had a perchlorate detection of 3.7 mg/kg.
- Three Nearby Groundwater Wells: Perchlorate was detected in the Rancher's well at 15 $\mu\text{g/L}$ and the Windmill well at 34 $\mu\text{g/L}$. Nitrate + nitrite (as N) was detected in the Windmill well and WW-1 at 45 $\mu\text{g/L}$ and 4.2 $\mu\text{g/L}$ respectively.
- Ranch Pond Dredge Area: Perchlorate was detected at 1.1 mg/kg in one of the two soil boring samples taken. Nitrate + nitrite (as N) was detected at 8.2 mg/kg and 27 mg/kg in the two borings. Aluminum was also detected at 13,000 mg/kg and 17,000 mg/kg, but results were below the background sample results of approximately 25,000 mg/kg.
- Building No 6 Area: Additional energetic sampling was conducted near Building No. 6 to further assess the extent of HMX, RDX, and TNB (energetics) contamination. The Report states that generally concentrations increase with depth. HMX, RDX, and TNB were found at 2,400 $\mu\text{g/kg}$, 1,200 $\mu\text{g/kg}$, and 240 $\mu\text{g/k}$, respectively, 20 feet below ground surface.
- Building No 1 Area: All groundwater and surface water results tested non detect for energetics and perchlorate.

- Santa Ana Creek: All surface water samples of perchlorate, nitrates and nitrites, and energetics were non-detect. Dissolved aluminum was detected in four samples ranging from 0.14 mg/L to 0.25 mg/L. Sediment samples exhibited similar results; perchlorate, nitrates/nitrites and energetics samples were all non-detect. However, aluminum concentrations ranged from 6,300 mg/kg to 13,000 mg/kg.

On November 30, 2004, United Defense submitted its Phase III Environmental Investigation Report Addendum. The Addendum provided additional monitoring results to fill data gaps; findings from the Addendum are included below.

- Arena 1: Additional soil borings were advanced to assess the extent of perchlorate contamination. One of 33 soil samples detected perchlorate at 1.1 mg/kg at a depth of 1.5 to 2 feet below ground surface (bgs).
- Cattle Guard: Soil samples where Arena 1 drainage meets the Santa Ana Creek were non-detect for perchlorate.
- Water Well WW-2: Groundwater was collected from WW-2 and analyzed for perchlorate, nitrate + nitrite, and nitroaromatics/nitroamines (energetics). Perchlorate and energetics were not detected, however, nitrate + nitrite as N was detected at 3.5 mg/L.

Regional Water Board staff has completed review of both the Phase III Report and Report Addendum. Regional Water Board staff provided comments to United Defense on December 22, 2004. Regional Water Board staff directed United Defense to proceed with the on-site environmental investigation and provide a Phase IV Report by April 1, 2005. The following highlights information United Defense is required to submit as part of the Phase IV Report:

- Resample the Windmill well. If perchlorate is confirmed, propose an investigation to identify the source and extent of perchlorate contamination.

- Continue to monitor for perchlorate and nitrate + nitrite in the Ranch Pond Dredge area.
- Determine vertical and lateral extent of energetic contamination at Building 6.
- Begin quarterly sampling of the Rancher's well and Windmill well and installed monitoring wells for nitroaromatics/nitroamines (energetics), perchlorate and nitrate + nitrite.
- Develop a site-specific monitoring plan for monitoring of constituents of concern (COCs).

On February 4, 2005, Regional Water Board received the following documents.

- **Revised Analytical Results for Table 1 and 2 for the Phase III Environmental Investigation** – The Phase III revised results include a greater detail of perchlorate concentrations. The lab's method detection limits were decreased to 4 ppb for perchlorate groundwater results and 10 to 40 ppb for perchlorate soil results. The laboratory reanalyzed the same samples with the increased sensitivity of 4 ppb. The decrease resulted in two soil detections at Arena 2 and over 16 soil detections between 0.17 mg/kg and 1.8 mg/kg that were previously non-detect.
- **Storm Water Pollution Prevention Plan**
- **Storm Water Monitoring Program**
- **Addendum Work Plan Phase IV Environmental Investigation** – The Addendum Work Plan proposes work to be performed during the Phase IV Environmental Investigation (EI). The Phase IV EI will address Regional Water Board comments issued in our December 6, 2004 letter and comments from the landowner who leases the site to United Defense. The EI will further assess site stratigraphy, water quality, and lateral and vertical extent of COC contamination, particularly at Arena 1. Regional Water Board staff anticipates approving the proposed work.

On February 8, 2005, Regional Water Board staff spoke with United Defense's consultant, URS. URS stated they were moving aggressively with the work plan and have already begun site work. The Reports have been reviewed and the addendum work plan was found to be adequate. Regional Water

Board staff approved a request by United Defense to extend the Phase IV Report due date from April 1 to May 15, 2005.

On March 28, 2005, Ms. Seley spoke with URS staff member Susie Vedantham, United Defense's consultant. Ms. Seley discussed the request by the Regional Water Board to implement interim corrective action at source areas. Pursuant to the request, URS will continue with the Phase IV work to delineate the perchlorate and energetic contamination to characterize the source areas. URS will also propose a draft cleanup level, which will be the basis for cleanup. Once the two items are complete, Regional Water Board staff will request a proposal for interim remedial options at the source areas and an overall cleanup strategy.

Staff received the Phase IV Report on May 13, 2005, and met with United Defense's consultant URS on June 2, 2005. URS reviewed the report findings and Regional Water Board staff discussed initial comments.

Update: Regional Water Board staff provided comments to the Phase IV Report on June 28, 2005. Comments included 1) approval to discontinue monitoring of the onsite windmill well 2) submittal of a work plan including well installation for two wells in the Arena 1 perchlorate contaminated area 3) additional groundwater analysis for energetics at the Building 6 area.

On July 12th, United Defense submitted its Phase V Environmental Investigation Work Plan. The Work Plan includes the efforts required to submit the Phase V Environmental Investigation Report due October 31, 2005. United Defense concluded additional site work should be completed prior to submittal of a risk-based soil cleanup goals for perchlorate and energetics. Following the Phase V site investigation, which includes additional soil and groundwater sampling and contaminant delineation, United Defense will propose risk-based soil cleanup goals.

On July 1, 2005 the Executive Officer issued Monitoring and Reporting Program No. 05-0113 for the United Defense Site. The first quarterly report, the Third Quarter 2005 Groundwater Monitoring Report, is due October 31, 2005.

ATTACHMENTS

1. Olin – August 3, 2005 letter to Richard McClure – Approval of monitoring well installation work plan.
2. Olin – June 16, 2005 letter, Request for Compliance Status Update.
3. Olin – Olin response to Regional Water Board staff's June 16, 2005 status update request.
4. Olin – PCAG agenda for the August 5, 2005 meeting.
5. Olin – Standard Fusee Letter dated July 19, 2005.

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