STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION

STAFF REPORT FOR REGULAR MEETING OF SEPTEMBER 7-8, 2006
Prepared on August 2, 2006

ITEM NUMBER: **4**

SUBJECT: **Perchlorate Cases**

DISCUSSION:

Please refer to previous staff reports for historical information. Olin's latest monthly update is included as Attachment 1.

Background

Perchlorate is both a naturally occurring and man-made chemical, although it is rarely found naturally in the United States. One-third of all perchlorate used in the United States is used in California and 90% of California's perchlorate use is related to the aerospace industry. There are three major sources of perchlorate in the United States: ammonium perchlorate has been and continues to be used as an oxidizer in solid rocket propellant, sodium perchlorate is used in slurry explosives, and potassium perchlorate is used in road flares and air bag inflation systems. Wastes from the manufacture and improper disposal of perchlorate-containing chemicals are increasingly being discovered in soil and water.

Health Effects

Perchlorate is known to interfere with the natural function of the thyroid gland by inhibiting the uptake of iodide. Because iodide is an essential component of thyroid hormones, perchlorate disrupts how the thyroid functions. Such an effect decreases production of thyroid hormones, which are needed for prenatal and postnatal growth and development, as well as for normal body metabolism. Potassium perchlorate was used until recently to treat hyperthyroidism related to Grave's disease, and is still used diagnostically to test thyroid hormone production in some clinical settings.

Regulatory Standards

Currently there is no State or federal drinking water maximum contaminant level (MCL) for perchlorate. Both the U.S. Environmental Protection Agency (USEPA) and the California Department of Health Services (DHS) are in the process of studying the occurrence and health effects of perchlorate.

On March 12, 2004, the Office of Environmental Health Hazard Assessment (OEHHA) published a final public health goal of 6 micrograms per liter ((µg/L) [or parts per billion (ppb)] for drinking water. The PHG is a public health-based drinking water goal used to establish the MCL. To date, DHS continues its internal process of conducting the technical and economic feasibility study to set California's perchlorate MCL. The DHS's status in setting the MCL is unknown.

Until an MCL is in place, DHS uses a 6 µg/L advisory action level to protect consumers from perchlorate's potential adverse health effects. The DHS raised the Action Level from four to six on the same day the PHG was released. An action level is an advisory level and is not an enforceable standard. When it is exceeded, a water purveyor is required to notify local governing agencies and is

recommended to issue a consumer notice. In addition, DHS recommends that a source of drinking water be taken out of service if perchlorate contamination exceeds 40 µg/L.

Treatment Methods

Treatment of perchlorate contamination in water is complicated because the perchlorate anion does not respond to typical water treatment techniques because of its fundamental physical and chemical nature. The perchlorate tetrahedron itself is structured such that the four oxygen atoms surround the central chlorine atom, effectively blocking reductants from directly attacking the chlorine. Although perchlorate is thermodynamically a strong oxidizing agent, it is a kinetically sluggish species, making its reduction generally very slow and rendering common reductants ineffective. It can persist in the environment for many decades under typical groundwater and surface water conditions because of its resistance to react with other available constituents.

Perchlorate treatment technologies may be generally classified into categories of destruction or removal technologies. Destructive processes include biological reduction, chemical reduction, and electrochemical reduction. Physical removal processes include anion exchange, membrane filtration (including reverse osmosis and nanofiltration), and electrodialysis, which all require subsequent disposal of removed perchlorate. The optimum treatment technology for a given perchlorate occurrence may depend on several factors, including perchlorate concentration, the presence and concentration of co-contaminants, other water quality parameters and geochemical parameters. The presence of indigenous perchlorate-reducing microbes and substances inhibitory to their activity will also influence perchlorate treatment technology effectiveness. For in-situ treatment of perchlorate contamination, variables related to the site hydrogeologic setting, such as depth to and distribution of contaminants, soil permeability, groundwater flow velocity, etc. are also additionally important.

Olin Corporation Facility, 425 Tennant Avenue, Morgan Hill, Santa Clara County

Project Manager: Hector Hernandez
Technical Support: Thea Tryon

The former Olin Corporation site is a 13-acre parcel located in southern Morgan Hill. Olin and Standard Fusee used Potassium perchlorate in the manufacture of flares from 1956 to 1995. Olin manufactured signal flares at the facility for about 32 years from 1956 to 1988. Standard Fusee leased the site and manufactured signal flares for seven years from 1988 to 1995. Perchlorate was first detected at the site in August 2000 during a due diligence investigation by a potential buyer. Olin made initial contact with Board staff regarding the perchlorate contamination in February 2001. Perchlorate contamination at the site may have occurred primarily from an unlined evaporation pond that received wastes from the cleaning of the ignition material mixing bowls, on-site incineration of cardboard flare coatings with residues on them, and accidental spills. The Water Board never regulated waste disposal practices while the facility operated, but facility records do make reference to inspections by Water Board staff.

Groundwater in the region typically occurs in alluvial sediments, at depths ranging from 7 to 400 feet below ground surface. The alluvial deposits are composed of heterogeneous layers of clay, silt, sand, and gravel. Interconnected multiple aquifers exists within the area. Groundwater underneath the site is generally unconfined, although there are identified confined zones within the sub-basin to the southeast of the property. The groundwater flow direction is predominantly to the south-southeast with

occasional variation to the south and south-southwest.

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

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

Bottled Water Terminations: Central Coast Water Board staff issued a letter to Olin on July 19, 2006, to provide comments on analytical data that had been submitted by Olin to establish which wells would no longer receive replacement water in accordance with State Water Board Order WQ 2005-0007. Water Board staff reviewed five phases of analytical results that were provided by Olin to determine if the State Water Board criteria for termination of bottled water service (i.e., four consecutive quarters of perchlorate concentrations that are less than or equal to the 6.0 micrograms per liter [µg/L]) had been met. Staff carefully evaluated the analytical data and the associated quality control/quality assurance (QA/QC) data for 459 wells to determine if perchlorate concentrations were less than or equal to 6.0 µg/L for four consecutive quarters. With the exception of 40 wells, Water Board staff concurred that the State Water Board criteria had been met. Water Board staff also recommended that Olin re-evaluate the analytical results for all the wells using a more conservative trend analysis approach and conduct additional sampling for those wells with quarterly sampling events separated by less than 30 days. Water Board staff also requested that Olin submit maps of specific wells that no longer receive replacement water, to aid in staff's evaluation of the analytical results for future monitoring requirements. A copy of the July 19, 2006 letter addressing bottled water termination is attached as Attachment 2.

On July 20, 2006, Water Board staff issued over 600 letters to users of over 400 wells in the Morgan Hill, Gilroy, and San Martin area. The letters informed well users that Water Board staff had reviewed all the analytical data associated with their wells and whether Water Board staff agreed or disagreed with Olin that the State Water Board criteria had been met for termination of their replacement water service. The letters provided well users Water Board staff contact information if they had questions and Water Board staff has answered numerous phone calls from concerned residents regarding termination of their bottled water.

Water Board staff will continue to carefully review and evaluate all of the data submitted by Olin associated with bottled water termination.

Ion Exchange (IX) System Installations: As of May 31, 2006, Olin has or is implementing IX systems on 16 wells; there are 14 IX units installed and operating as designed, system installation remains on hold at one well, and access approval has been received at one well. Installation is not currently scheduled for one candidate well located on vacant property and another well is not being used as a potable source.

Certification of Reverse Osmosis Perchlorate Treatment Unit: Water Board staff received notice from the Santa Clara Valley Water District (Water District) that the Department of Health Services (DHS) has certified an under-sink reverse osmosis (RO) drinking water treatment unit to remove perchlorate. The cost of the RO unit (the Watts Premier Brand) ranges between $200 to $500 dollars. Water Board staff is coordinating with Sylvia Hamilton of the Perchlorate Community Advisory Group (PCAG) to make this information available to the affected well owners.

Cleanup or Abatement Order R3-2005-0014:

Llagas Subbasin Characterization Report: Water Board staff reviewed and approved the *Llagas Subbasin Characterization*

(Characterization Report), dated March 30, 2006. Water Board comments were provided in a letter dated June 29, 2006 (Attachment 3). As recommended in the Characterization Report and with Water Board staff concurrence, Olin has completed the installation of dedicated monitoring wells at six locations. Four of the wells were installed at locations south of the Site and the other two at locations west and east of the Site. Additionally, in December 2005, Olin completed a cone penetrometer test (CPT) program at twenty-eight locations east and south of Tennant Avenue. Based on the results of the CPT investigation, Olin expanded its CPT program to include 11 CPT borings in the area immediately northeast of Tennant Avenue, and 16 others at several additional locations south of the Site. Olin is required to fully characterize groundwater conditions with regard to perchlorate within the intermediate and deep aquifer zones.

Llagas Subbasin Cleanup Feasibility Study: Staff is presently reviewing Olin's *Llagas Subbasin Cleanup Feasibility Study*, received on June 30, 2006. The Feasibility Study Report proposes a groundwater cleanup level for perchlorate at 6 µg/L. Water Board staff intends to complete its review of the Feasibility Study Report and propose the establishment of an appropriate groundwater cleanup level for perchlorate in accordance with State Board Resolution 92-49. As part of its review, staff is evaluating Olin's justification for the proposed groundwater cleanup level and the proposed remedial alternatives. Water Board staff will update the Water Board on its review of the Feasibility Study Report at the September Board meeting.

Water Board staff will prepare a cleanup order that will include an appropriate cleanup level. Since the ultimate cleanup goal depends in part of technical and economic feasibility, the goal may be adjusted (upward or downward) as the cleanup progresses. Due to scheduling, public notice requirements, and for planning purposes, staff anticipates the earliest date a proposed cleanup order which will include a groundwater cleanup level for perchlorate in the Llagas Subbasin will likely be presented for Board consideration during the first quarter of 2007, assuming the Board holds a hearing on the order.

Llagas Subbasin Plume Migration Control Assessment Report: On June 30, 2006, Olin submitted the *Plume Migration Control Assessment Addendum* for Area I as part of the *Llagas Subbasin Cleanup Feasibility Study*. Water Board staff is presently reviewing the addendum.

On-site Groundwater Treatment and Containment: Operation of the on-site groundwater treatment system continues uninterrupted. The treatment system began operation on February 23, 2004, and is designed to accommodate an injection rate into the treatment system ranging from 50 to 250 gpm, with the expectation that extraction rates will generally occur within a range of 50 to 175 gpm. Extracted groundwater is filtered, and perchlorate is removed using an ion-exchange process. As of March 3, 2006, treated groundwater is injected into the shallow (A-zone) aquifer using three injection wells located along the northern portion of the site. Two additional injection wells may be added in the future, if necessary. While the goal is to inject all effluent into the shallow aquifer, Olin retains the capability of discharging effluent to the Butterfield Retention Pond (as was the case prior to March 3, 2006) when deemed necessary during emergencies.

As of June 30, 2006, the treatment system had treated approximately 121 million gallons of extracted groundwater.

On-site Ex Situ and In Situ Soil Treatment: On July 18, 2006, Olin issued a press release announcing its completion of the soil remediation at the former Olin Site. The in-situ bioremediation (ISB) system results are presented in Olin's *Soil In Situ*

Bioremediation System Closure Report, prepared by GeoSyntec Consultants, dated July 18, 2006. The ISB System Closure Report was prepared to document the successful completion of soil remediation. The approved soil remedy for the Site consisted of a two-phase remediation program for perchlorate in soils. Phase I consisted of excavation and ex-situ treatment of soils (approximately 1,000 cubic yards) containing perchlorate concentrations above the United States Environmental Protection Agency Residential Preliminary Remediation Goal of 7.8 milligrams per kilogram (mg/kg). Phase II consisted of ISB of remaining soils (approximately 40,000 cubic yards) containing perchlorate concentrations above the Central Coast Water Board specified remediation goal of 0.05 mg/kg.

Phase I was implemented in July 2004, and performance monitoring conducted in April 2005 indicated successful completion of the ex-situ remediation program. Phase II was implemented in May 2005. According to the Closure Report, the ISB system achieved the remediation objectives in less than 10 months of operation, more than 14 months ahead of schedule. Performance Monitoring results of the ISB system indicate that the soils were effectively treated to the Water Board's remedial goal of 0.05 mg/kg.

Based on the performance monitoring results including boring sample data collected in May 2006, Olin has confirmed that the remedial objective for the ISB phase has been achieved. As such, all soil remediation activities are complete and Olin intends to decommission the soil ISB system pending Water Board review and concurrence with the results presented in the ISB Closure Report.

Water Board staff is presently reviewing the ISB System Closure Report, including first and second quarter 2006 performance monitoring reports to confirm the reported results. As soon as the review of these reports is completed, staff will prepare a formal response concerning Olin's request for closure.

Update Concerning Assessment in Area Northeast of Tennant Avenue:

Water Board staff has evaluated all available information concerning the detections of perchlorate northeast of the Olin Site, including pertinent information provided in Olin's March 30, 2006 *Llagas Subbasin Characterization Report* and the *First Quarter 2006 Groundwater Monitoring Report*. In response, Water Board staff provided two letters directing Olin to implement additional characterization activities immediately north and east of the Olin Site. Required activities include the completion of several borings, delineation of the intermediate and deep aquifer zones and continued monitoring of existing multi-port wells. The specific comments are included in letters dated June 29, 2006 (Attachment 3) and July 24, 2006 (Attachment 4).

In particular, our July 24, 2006 letter required Olin to provide, by September 29, 2006, a work plan to perform the additional characterization activities necessary to fully characterize the lateral and vertical extent of perchlorate impacts in the area immediately east of the Olin Site and north of Tennant Avenue.

The letter requires additional characterization activities to delineate the intermediate and deep aquifer zones in the area immediately east and north of the Site. The required plan must address the following items:

- A discussion of the CPT investigation performed to date.
- Recommendations for the installation of additional CPT borings and monitoring wells (if deemed appropriate).
- A proposed monitoring schedule.

Water Board staff intends to evaluate the results of the additional investigation activities required to confirm potential

increases in perchlorate concentrations north of the Site and to fully delineate the perchlorate detected north and east of the site.

On July 19, 2006, Water Board staff received a letter (Attachment 5) from the City of Morgan Hill addressed to Chair Young and members of the Board. The City's letter requests that the Water Board adopt a cleanup or abatement order specific to the area northeast of the Tennant Avenue and assign responsibility to Olin for the detections of perchlorate concentrations in the City's water supply well (Nordstrom Well).

Water Board staff addressed this matter specifically during the May 12, 2006 Water Board meeting. It is Water Board staff's position that Olin is proactively implementing all necessary characterization activities immediately northeast of Tennant Avenue and additional sampling of the multi-level wells northeast of the Olin site is forthcoming. Characterization of perchlorate detections must follow a step-wise approach, similarly to the approach implemented south of the Site. Once the most recently required characterization activities are completed, Water Board staff will evaluate the results and determine whether and to what extent any additional characterization activities are necessary. Staff will briefly present and discuss any recent developments concerning characterization activities northeast of the Site, if available, at the September 7th Board meeting.

Groundwater Monitoring and Reporting in Northeast Area: The sharing of water level data between the City of Morgan Hill's consultant (WorleyParsons-Komex) and Olin's consultant (MACTEC) continued throughout the first and second quarters of 2006. The sharing of water level measurements from several City water supply wells and Olin's monitoring wells located northeast of Tennant Avenue has helped all parties gain a better understanding of water level fluctuations northeast of the Olin facility.

Update Concerning Other Potential Perchlorate Sources:

Water Board staff is continuing with its investigation of other potential sources of perchlorate northeast of the Olin site. As requested by Chairman Young during the May 12, 2006 Board meeting, staff will present a summary of the other potential sources of perchlorate and update the Water Board on the most recent developments concerning the other potential sources northeast of the Site. Water Board staff is currently waiting for analytical results from two investigations that are presently being conducted regarding this matter.

Update Concerning Forensic Chemistry Study: As discussed during the May 12, 2006 Board Meeting, the Water District is in the process of the initial stages of a forensic chemistry study, the goal of which is to answer two questions related to the occurrence of perchlorate in municipal water supply wells and residential domestic wells in the Llagas Subbasin:

a) Is there a detectable background concentration of perchlorate in the Llagas Groundwater Subbasin?
b) Can best-available forensic environmental geochemistry techniques reliably distinguish the source(s) of perchlorate found in municipal water supply wells and residential domestic wells in the Llagas Groundwater Subbasin?

Thomas Mohr of the Water District will provide a ten-minute presentation to Board members on the forensic chemistry study. An abstract of the presentation is attached as Attachment 6. As discussed in a clarification letter dated May 11, 2006, it is the Water District's goal to provide a draft copy of the forensic study report by the end of 2007.

Perchlorate Community Advisory and Perchlorate Working Groups

The Perchlorate Community Advisory Group meets monthly in San Martin. The advisory group is a forum for public discussion of the perchlorate problem and potential solutions. Regional Board staff solicits advisory group input at key decision points in the investigation and cleanup process.

The next PCAG meeting will be held at the San Martin Lions Club on Friday, October 6, 2006, at 2 pm. Water Board staff will attend and be available to address questions from the public concerning the ongoing 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

Whittaker Ordnance Facility, 2751 San Juan Road, Hollister, San Benito County

Lead Staff: Kristina Seley: 805-549-3121

Note: ***New information concerning the following sites is shown in Italics.***

Remedial Design/Remedial Action Work Plan (Work Plan) – On May 28, 2006, Central Coast 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 groundwater and reduce the risk of impacting off-site groundwater beneficial uses.
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 a NPDES permit. The treatment system proposed consists of granular activated carbon for VOC removal and a bioreactor for perchlorate remediation. Whittaker plans to decommission the Riverside and Christopher agricultural wells to reduce the vertical migration of contaminants.

On December 22, 2005, Whittaker submitted a Notice of Intent (NOI) to enroll in the NPDES No. CAG993002 General Permit for Discharges of Highly Treated Groundwater to Surface Waters (General Permit). Central Coast Water Board staff provided a response to the NOI requesting additional information before approval. Whittaker has addressed all of our comments and we anticipate enrolling Whittaker in our General Permit prior to the September 8th meeting. Please see the "Low Threat and General Discharge Cases" Board item for additional information regarding enrollment in the General Permit.

Additional Source Area Investion: Central Coast Water Board staff reviewed Whittaker's March 28, 2006 "Potential Source Area Investigation Work Plan." The Work Plan was prepared in accordance with the Central Coast Water Board's request to conduct additional soil investigations at North Building 5 and Building 23. The Work Plan identified data gaps and proposed additional soil gas and soil sampling to further delineate TCE impacts beneath the two buildings.

On July 26, 2006, Central Coast Water Board staff member Kristina Seley conducted a site inspection and met with Whittaker's consultants. The consultants reviewed the preliminary VOC soil gas and soil sampling results collected at 5, 10, and 20 feet below ground surface from the source area investigation. In addition, Ms. Seley and the consultants discussed step-out soil gas and soil sampling locations to delineate soil gas impacts. Prior to the September 7th Board meeting,

Whittaker will submit a report with a summary of source area investigation results and a proposed "way ahead".

In addition, Ms. Seley and the consultants met with site drillers and viewed the groundwater treatment system extraction wells. The drillers will complete pump tests and begin construction of the groundwater treatment system this summer. Whittaker anticipates startup of the groundwater treatment system early next year.

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

Lead Staff: Kristina Seley 805-549-3121

Background: On June 24, 2005, former United Defense representatives informed the Central Coast 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. BAE Systems 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.

Cleanup Actions: In late September 2005, 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 and installed a 35,000 square foot temporary chip seal cap at Arena 1 to minimize potential mobilization associated with rainfall and runoff infiltration.

Current Investigation: 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 are under investigation:

- **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. A high melting explosive commonly known as HM (tetrahexamine tetranitramine) 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 five feet below ground surface. 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 (µg/L) to 76 µg/L. BAE conducted source removal as described below.

- **Building No. 6 Area**: Phase V concluded that explosives including HMX, cyclotrimethylene-trinitramine (commonly known as RDX), trinitrotoluene (TNT), and trinitrobenzene (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 µg/L) at 32 feet bgs was the only energetic detected. During the Phase V investigation, 2,4, dinitrotoluene was the only energetic detected (12 µg/L at 104 feet and 19 µg/L at 105 feet bgs).

- **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.

Water Board staff has reviewed the *Phase V Environmental Investigation Report* and has provided comments. Staff received the *Phase VI Environmental Investigation Work Plan* on March 1, 2006. Central Coast Water Board staff and BAE System consultants held a conference call on March 22nd to discuss initial comments.

On April 19, 2006, Central Coast Water Board staff member Kristina Seley conducted a site inspection and discussed Phase VI Work Plan comments. Following the meeting, Water Board staff provided final comments in our May 12, 2006 letter. BAE Systems will conduct Phase VI work this summer and will provide a report documenting the results and interpretation of soil and groundwater sampling on September 30, 2006.

Proposed Soil Cleanup Values: On February 28, 2006, Central Coast Water Board staff received the "Human and Ecological Risk Assessment." The risk assessment proposed soil cleanup values based on the risk to potential receptors (human ecological, and groundwater). Water Board staff requested Office of Environmental Health Hazard Assessment (OEHHA) assistance with the risk assessment review.

OEHAA completed its review of the risk-based soil cleanup values proposed based on the protection of human health and ecological receptors. Staff completed its review of the risk-based soil cleanup values proposed based on the protection of groundwater. We anticipate providing the comment letters to BAE Systems by August 1, 2006.

MK Ballistic Systems, 2707 Santa Ana Valley Road, Hollister, San Benito County
Lead Staff: Kristina Seley 805-549-3121

Background: The MK Ballistic Systems site is located west of the BAE Systems Test Facility. Currently, MK Ballistic Systems leases buildings and storage magazines on the five-acre property and manufactures "less-lethal" explosives and ordnance components and devices. Numerous other tenants have conducted similar operations at the facility and have used perchlorate and other explosive compounds in their manufacturing process. In 1991, US EPA conducted a time-critical cleanup action when one of the former tenants, Caelus Devices, Inc., went bankrupt and abandoned the facility without proper containment and storage of shock-sensitive explosive chemicals.

Concern: BAE Systems tested all its site wells for chemicals of concern. Perchlorate was detected for three consecutive quarters at about 30 ppb in a windmill well upgradient from all identified soil and groundwater perchlorate impacts. BAE Systems' *Phase IV Environmental Investigation Report* proposed that historical use of perchlorate at the neighboring site, MK Ballistic Systems, may be the cause of contamination. Based on the historical use of perchlorate and explosives at MK Ballistic Systems, and due to the perchlorate detections in the windmill well, we believe that current or past practices at the MK Ballistics site may have impacted groundwater.

Action: On January 9, 2006, Central Coast Water Board staff met with the landowner, her attorney and environmental consultant, and the current operator at the facility to discuss our concern that past practices may have impacted the windmill well. In a January 24, 2006 letter, the Central Coast Water Board directed the landowners and current operator to provide a work plan by March 24, 2006. The requested work plan must include a summary of historical practices, proposed investigation tasks, sampling and analysis plan, and time schedule.

On April 14, 2006, staff received the "MK Ballistic Systems Site Environmental

Investigation Work Plan." The work plan summarized historical site operations and proposed a perchlorate soil and groundwater investigation. Water Board staff generally concurs with the work plan, and provided comments in a June 23, 2006 letter. Subsequently, we discussed our comments with the consultant, who will proceed with the proposed soil and groundwater sampling this summer. MK Ballistic Systems' landowner and lessee are required to submit a summary of their findings and an interpretation of the data in an Environmental Investigation Report by October 31, 2006.

ATTACHMENTS

1. Olin's Progress Report #48, dated August 10, 2006
2. Central Coast Water Board July 19, 2006 Bottled Water Termination Phase One Through Phase Five letter
3. Central Coast Water Board June 29, 2006 Llagas Subbasin Characterization Report
4. Central Coast Water Board July 24, 2006 First Quarter 2006 Groundwater Monitoring Report
5. July 19, 2006 Correspondence from City of Morgan Hill
6. Thomas Mohr's Forensic Chemistry Work Plan Abstract and Clarification Letter.

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