



# California Regional Water Quality Control Board

## Central Coast Region



**Terry Tamminen**  
Secretary for  
Environmental  
Protection

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**Arnold Schwarzenegger**  
Governor

June 10, 2004

Mr. Richard W. McClure  
Olin Corporation  
Environmental Remediation Group  
PO Box 248  
Charleston, TN 37310-0248

Mr. Jay McLaughlin  
President and CEO  
Standard Fusee Corporation  
PO Box 1047  
Easton, MD 21601

Dear Messer's McClure and Mr. McLaughlin:

**SLIC: 425 TENNANT AVENUE, MORGAN HILL; REMEDIAL ACTION WORK PLAN & 90% DESIGN REPORT FOR SOIL REMEDIATION, 425 TENNANT AVENUE FACILITY, SANTA CLARA COUNTY**

Regional Board staff have reviewed the *Remedial Action Work Plan & 90% Design Report for Soil Remediation* (RAWP) submitted April 8, 2004. Regional Board staff met with Olin and their consultant, GeoSyntec Consultants on April 15, 2004 to clarify and discuss the RAWP. We have received and considered additional comments from Komex on the behalf of the Cities of Morgan Hill and Gilroy and the Santa Clara Valley Water District (SCVWD). Copies of these comments are attached for your review and consideration.

As requested by the Regional Board in our February 9, 2004 letter, the RAWP details the design and implementation of treatment option 4A: *Focused excavation and ex situ bioremediation coupled with in situ bioremediation*, as presented in the Soil Remediation Feasibility Study. 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 (US EPA) residential Preliminary Remedial Goal (PRG), 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 US EPA's *Soil Screening Guidance: Users Guide* and is the calculated concentration of perchlorate that would not result in groundwater impacts above 4 µg/kg.

Regional Board staff approves the overall design and implementation detailed in the RAWP. The Regional Board will consider a waiver of Waste Discharge Requirements for the enhanced bioremediation substrate application at its July 9, 2004 meeting in Watsonville. However, execution of the soil remediation treatment option shall incorporate our comments provided below:

1. The addition of bromide, a conservative tracer, within the TSA is recognized as a useful method in determining vadose zone and groundwater flow patterns. We recommend, based on previous site investigations in the Central Coast Region, that

***California Environmental Protection Agency***



- background sampling for bromide be conducted prior to application. This may aid in determining if your tracer results are acceptable and accurate.
2. The RAWP mentions that Olin may, at a latter date, request an increase in the site soil remediation goal of 50 µg/kg. As we understand, your potential request would be based on the DHS Action Level change from 4 ppb to 6 ppb. While it may appear appropriate to change the remediation goal based on the DHS action level change, we are not inclined to do so. Ideally, the perchlorate soil remediation goal should be reflective of achieving background groundwater conditions, which is 0 ppb and not 4 ppb. However, since the most reasonable achievable detection limit for perchlorate is 4 ppb, staff is using that as its groundwater protection basis. This shall not be construed as a groundwater cleanup level, rather, it should be viewed a basis for moving remediation forward. Therefore, Regional Board staff will only consider approving a lower soil remediation goal at this time, unless the Regional Board approves a groundwater remediation goal higher than 4 ppb.
  3. Olin is proposing to collect soil samples to determine the effectiveness of in situ and ex situ anaerobic bioremediation. The proposed soil sampling program for in situ bioremediation will analyze perchlorate, bromide, and acetate at 24 sample locations across the target soil area (TSA) yearly. Soil will be sampled using direct push technology and following sampling, the 16 ft soil core samples will be homogenized and analyzed for perchlorate. We have several concerns with the proposed sampling and analysis plan including:
    - a. The RAWP does not contain any provision for pre-remediation sampling to establish baseline concentrations. While some of the soil borings will be advanced in areas with numerous soil-boring data, some areas have little data. Additionally, eight of the locations are outside of the TSA 50 µg/kg concentration contour. Regional Board staff acknowledges that this line demarcates an approximated 50 µg/kg area limit. However, these locations could already be below 50 µg/kg, which will not aid Olin in determining if soil remediation is effective on affected soils. Therefore, Regional Board staff requests that pre-remediation soil sampling be conducted at all proposed soil-boring locations to establish baseline concentrations.
    - b. There are two areas with elevated concentrations of perchlorate that have confirmation soil borings situated in either outside the 50 µg/kg area or are just inside. The attached figure shows the locations of these two areas. Regional Board staff requests that a sample boring be located in the middle of these areas. Our request is based on the fact that confirmation soil borings are located in high concentration areas, and the goal of soil sampling plan should not merely be to set up a random sampling grid, but to also confirm that areas with high concentrations are remediated.
    - c. The approach will not allow for measurement of potentially stratified perchlorate concentrations, and may miss areas of high concentrations. Homogenizing a 16 ft soil core may lead to a dilution of perchlorate soil concentrations that are contained in finer grain soils. At a minimum samples

- shall be collected at 0-1,1-5, 5-10, and 10-15 ft depths to directly compare pre- to post-remediation soil concentrations.
- d. The RAWP proposes utilizing a 95% upper confidence limit (UCL) for soil testing. This statistical method for soil sampling is based on modeling the soil as a *single population*. However, the potential variety of soil types at each sampling locations could lead to inappropriate application of this statistical method. We request that you address appropriateness of using the UCL with soil populations that are not identical.
  4. According to the excavation plan detailed in the process description, soils containing perchlorate above 7,800 µg/kg will be excavated and bioremediated onsite. The RAWP did not include a plan to verify that soil above 7,800 µg/kg would be fully removed. To ensure complete excavation of soils above 7,800 µg/kg, we request that bottom and sidewalls soil samples be collected to confirm that perchlorate-contaminated soil above 7,800 µg/kg is removed. A proposal with the number and location of confirmation sampling shall be provided to the Regional Board by MONTH, DAY, YEAR.
  5. Infiltration unit construction is not proposed near the TSA southern extent. This is related to concerns regarding infiltration to and flooding of a nearby utility trench. Regional Board staff is concerned that this area will remain a source of perchlorate long after remediation ends. Since this area cannot be treated, plans to excavate and treat the soil may be appropriate. We ask that you address this and or other options for treatment.
  6. Our February 9, 2004 letter requested a RAWP soil and groundwater performance monitoring plan. The RAWP outlines your plans to install two additional shallow (0-15') wells, ten soil moisture sensors, and 10 soil lysimeters around and within the soil TSA. We are still concerned with the potential for lateral migration of perchlorate and or substrate. Rather than require additional shallow wells (0-15') we request that additional soil moisture sensors be installed. We believe this will provide an early indication of lateral migration and will provide time to: adjust the treatment system and allow for shallow well (0-15') and or lysimeters installation. We request that a soil moisture sensor be placed adjacent to each infiltration zone, including at the ends of the TSA. These probes shall be in place prior to TSA operation.

We request you provide a response to our comments by June 30, 2004. Your response shall include an application for Waste Discharge Requirements for enhanced bioremediation substrate addition. We have attached a Waste Discharge Application Form 200 for your use. We anticipate considering a waste discharge requirement waiver at the July 9, 2004 Regional Board meeting.

Pursuant to Section 13267 of the California Water Code, Olin Corporation is required to provide the above-requested information, or technical justification for not including it, by June 30, 2004. Failure to submit adequate or complete information may subject you to a Regional Board enforcement action. The Regional Board requires the Discharger to submit your response in

accordance with Section 13267 of the Water Code to determine the concentrations and movement of the perchlorate plume in the vicinity of the Olin site. We require Discharger to submit the information as the current and former owner of the property, and as one of the previous operators of a flare manufacturing facility that caused soil and groundwater perchlorate contamination at and in the vicinity of the Olin site at 425 Tennant Avenue, Morgan Hill.

Any person affected by this action of the Regional Board may petition the State Water Resources Control Board (State Board) to review the action in accordance with section 13320 of the California Water Code and Title 23, California Code of Regulations, Section 2050. The State Board must receive the petition within 30 days of the date of this order. Copies of the law and regulations applicable to filing petitions will be provided upon request.

If you have any questions, please contact **David Athey at (805) 542-4644** or Eric Gobler at (805) 549-3467.

Sincerely,

Roger W. Briggs  
Executive Officer

Enclosures:

1. Comments from Komex on behalf of the Cities of Morgan Hill and Gilroy.
2. Comments from the Santa Clara Valley Water District
3. Figure 1
4. Form 200 Waste Discharge Application

DA: S:\SLIC\Regulated Sites\Santa Clara Co\Olin\OLIN-425 TENNANT AVENUE\COMMUNICATIONS - RICK McCLURE\RAWP&90\_060704.doc

cc

cc via E-mail:

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***California Environmental Protection Agency***

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