California Regional Water Quality Control Board
Central Coast Region

Terry Tamminen
Secretary for Environmental Protection

Internet Address: http://www.swrcb.ca.gov/rwqcb3
895 Aerovista Place, Suite 101, San Luis Obispo, California 93401
Phone (805) 549-3147 • FAX (805) 543-0397

Arnold Schwarzenegger
Governor

April 12, 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 Messrs. McClure and Mr. McLaughlin:

SLIC: 425 TENNANT AVENUE, MORGAN HILL; FOURTH QUARTER 2003 GROUNDWATER MONITORING REPORT REVIEW

Regional Board staff has reviewed the Fourth Quarter Groundwater Monitoring Report (Report) submitted January 30, 2003 by Olin Corporation. For purposes of this letter, Olin Corporation and Standard Fusee Corporation are hereafter called the "Discharger" when referred to collectively. The Report outlines Olin's activities to comply with Revised Monitoring and Reporting Program No. 2001-161 (MRP No. 2001-161). The Report also contains updated onsite hydrogeologic information and an analysis of onsite vertical groundwater gradients. We have also received and considered Report comments from the Santa Clara Valley Water District and Cities of Morgan Hill and Gilroy. The Cities of Morgan Hill and Gilroy's comments are attached for your review and consideration.

Based on our review, the Report is generally adequate. However, we are still concerned that the use of supply wells for offsite contamination characterization does not provide adequate lateral and vertical characterization information or long term location-specific monitoring points. It still appears that the offsite supply wells do not adequately delineate specific depth discrete aquifer intervals that contain perchlorate. An evaluation of your monitoring system is required to be included in your First Quarter 2004 Monitoring Report, due April 30, 2004. Regional Board staff will conduct a point by point and an overall evaluation of your proposed system, which may indicate the need for additional monitoring locations. We recommend that you critically review your system to determine if the existing supply wells can supply accurate depth discrete perchlorate plume information. If depth discrete information cannot be provided at any proposed monitoring location then wells specifically designed for monitoring shall be proposed.

Acquiring depth discrete perchlorate data is critical to formulating an alternative analysis for basin wide cleanup. Regional Board staff has previously requested a basin wide cleanup alternative analysis in a letter dated March 13, 2003. As reflected in comments sent to the Discharger on October 30, 2003, the required alternatives analysis was

inadequate. On December 9, 2003, Regional Board staff met with Olin representatives and requested that a review of potential remedial alternatives and timeframes for basin-wide cleanup be submitted along with the Long Term Replacement Water Report. The Long Term Water Replacement Report is due April 16, 2004. As you know, our May 5, 2004 meeting has been rescheduled because key Olin personnel are unavailable that day. We anticipate meeting with you sometime in the following two weeks and are awaiting the specific day's final confirmation. As part of the rescheduled meeting, we want to discuss offsite groundwater cleanup. In the meantime, please call to contact us if you have any questions or comments concerning offsite cleanup.

As we understand, you will be submitting an onsite pump and treat system startup analysis as part of the First Quarter Groundwater Monitoring Report due April 30, 2004. This analysis was undertaken to evaluate the treatment system's effectiveness in preventing offsite perchlorate migration. Please be aware that we have special interest in the area west of monitoring well MW-1 since high perchlorate concentrations have been detected there, it is relatively far from the extraction wells, groundwater flow directions fluctuate, and because there are no performance monitoring wells west of Railroad Avenue or offsite monitoring wells to gauge how far the plume has traveled west. If it is shown that the pump and treat system is not effective in preventing offsite migration, then the Discharger shall propose changes or modifications within 30 days. In addition, boring logs for all performance monitoring wells installed to monitor the extraction systems effectiveness shall be submitted as part of the First Quarter 2004 Groundwater Monitoring Report or in subsequent quarterly reports, if additional wells are installed.

The Report periodically states that some perchlorate detections in the deeper "C" zone are considered insignificant. Please be aware that the Regional Board and Regional Board staff consider perchlorate detections as significant regardless of location or concentration. Perchlorate detections in deeper zones should not be considered lightly, since your current report cites periodic downward vertical gradients in all aquifer zones and shows that perchlorate appears to migrate through the A/B aquitard into the shallow B zone. Since the discharge of perchlorate can impact groundwater beneficial uses, any detection(s) that you believe are insignificant shall be accompanied by a technical justification explaining why the results are insignificant. This justification shall include information, such as down gradient monitoring well data that demonstrates that perchlorate is not migrating.

The following are specific comments on noted sections:

1. **3.0 Scope of Monitoring** – Olin collected 298 samples from 295 wells during the third quarter. This includes both onsite and offsite wells. Olin also attempted to contact additional property owners with wells that may aid in groundwater characterization. According to the Report, not all well owners grant sampling access, can be located, or respond to Olin's requests. Further, four attempts are made to sample wells prior to Olin abandoning sampling requests for specific wells. At this point, it is unclear to Regional Board staff how many well owners have not granted Olin access. Please include the total number of wells that you have been denied access to, basin wide, in

your next monitoring report. A map showing the location of these wells, along with well designations and addresses shall also be included.

2. **4.0 Fourth Quarter Field Sampling Activities** – Figures 7 and 8 are referenced in this section and show wells that were sampled offsite. While approximate well point locations are shown, the well points do not include designations. Future monitoring report figures shall include well designations next to each monitoring point. The well designations need to either be the well identification number or an easily identifiable moniker that correlates to the well identification number used in the Result Summary Tables and can be easily discernable. Larger Figure sizes, such as 11"x17" or 24"X36", may be submitted if the figures become cluttered.

Pursuant to Section 13267 of the California Water Code, the Discharger is required to provide the above-requested information, or technical justification for not including it, in the April 30, 2004 First Quarter Groundwater Monitoring Report. 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 the 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.

Should 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 Received from the Cities of Morgan Hill and Gilroy, Komex Letter, Dated March 9, 2004

cc via E-mail:

Ms. Lori Okun
Office of the Chief Counsel
State Water Resources Control Board

Mr. Jim Ashcraft
City of Morgan Hill

Mr. Rich Chandler
Komex

Mr. Peter Forest
San Martin County Water

Mr. Steven L. Hoch
Hatch & Parent

Mr. Bill O'Braitis
MACTEC

Ms. Sylvia Hamilton
PCAG

Mr. Tom Mohr
Santa Clara Valley Water District

PCAG Members

Elected Officials

U.S. Environmental Protection Agency

cc via U.S. Mail:

Mr. Jay Baska
City of Gilroy
7351 Rosanna Street
Gilroy, CA 95020-6197

Mr. Eric Lacy
CA Dept. of Health Services
2151 Berkeley Way
Berkeley, CA 94704-1011

Ms. Helene Leichter
City of Morgan Hill
17555 Peak Avenue
Morgan Hill, CA 95037

Mr. Eugene Leung
CA Dept. of Health Services
2151 Berkeley Way
Berkeley, CA 94704-1011

Mr. Richard Peekema
4817 Wellington Park Dr.
San Jose, CA 95136

Ms. Suzanne Muzzio
Santa Clara Co. Env. Health Services
1555 Berger Drive, Suite 300
San Jose, CA 95112-2716

Mr. Keith M. Casto
Sedgwick, Detert, Moran & Arnold
One Embarcadero, 16th Floor
San Francisco, CA 94111-3628

Mr. Joe Root, General Manager
Corde Valle
One Corde Valle Club Drive
San Martin, CA 95046

Mr. Rob Stern
7510 Kenbrook Place
Suwanee, GA 30024

S:\SLIC\Regulated Sites\Santa Clara Co\Olin\OLIN-425 TENNANT AVENUE\COMMUNICATIONS - RICK McCLURE\4th Quarter 2003 Comment Letter.doc

KOMEX

KOMEX • H2O SCIENCE • INC
2146 PARKER STREET, SUITE B-2
SAN LUIS OBISPO, CA 93401, USA
Tel.: (805) 787-0307 Fax.: (805) 787-0309
email: info@slo.komex.com
web site: www.komexh2o.com

ENVIRONMENT AND WATER RESOURCES

March 9, 2004
Project No.: 127-005

California Regional Water Quality Control Board,
Central Coast Region
895 Aero Vista Drive, Suite 101
San Luis Obispo, CA 93401
Attn: Mr. David Athey

Re: Comments on "Fourth Quarter 2003, Groundwater Monitoring Report, Olin/Standard Fusee Site, 425 Tennant Avenue, Morgan Hill, California"

Dear Mr. Athey,

Komex has performed a review of the document entitled *Fourth Quarter 2003, Groundwater Monitoring Report, Olin/Standard Fusee Site, 425 Tennant Avenue, Morgan Hill, California,* dated January 30, 2004, prepared by MACTEC Engineering and Consulting, Inc. for the Olin Corporation (Olin). We are pleased to submit our comments on behalf of the Cities of Morgan Hill and Gilroy (our Clients). The former Olin facility at 425 Tennant Avenue in Morgan Hill is herein referred to as the Site.

The Fourth Quarter 2003 Groundwater Monitoring Report (GMR) was submitted by Olin to the California Regional Water Quality Control Board, Central Coast Region (Regional Board) to satisfy the requirements of the Regional Board's Monitoring and Reporting Program No. 2001-161. The work performed included measuring groundwater levels in, and collecting water samples from, on-Site groundwater monitoring wells and off-Site water supply wells in order to evaluate the extent of the plume of perchlorate-impacted groundwater that emanates from the Site.

Our review of this document should in no way be considered a validation of the document contents or any portion of the document, including findings, interpretation, conclusions or opinions expressed therein. If we do not provide comments, corrections or questions for a respective sentence, paragraph or section, this should not be construed as agreement with the information presented within that respective sentence, paragraph or section.

GENERAL COMMENTS

Our major comments regarding the GWR and the effects of the Site on our Clients water supplies can be summarized as follows:

- The GWR attempts to minimize the impact of perchlorate releases from the Site by describing many of the perchlorate detections as "insignificant";

- Evaluations of the extent of on-Site perchlorate-impacted groundwater in some water-bearing zones are based on minimal information, and are therefore inappropriate and quite possibly incorrect, which has a direct impact on the City of Morgan Hill;

- Sample results indicate that shallow groundwater containing perchlorate in concentrations of approximately 500 micrograms per liter (ug/L) is present beyond the western boundary of the Site, within the City of Morgan Hill, and yet no effort has been undertaken to evaluate the extent of the contamination;

- Water supply wells south of the Site continue to yield samples with perchlorate concentrations up to or near 100 ug/L and yet no plan for off-Site groundwater remediation has been presented;

- The use of water supply wells for evaluating the extent of off-Site perchlorate-impacted groundwater is clearly inappropriate; and

- The southernmost extent of the plume of perchlorate-impacted groundwater has been poorly assessed, the water supply for the City of Gilroy is threatened, and yet Olin has neither provided a plan for a monitoring well network, nor assisted with contingency plans.

Our specific comments on these issues and others are provided below.

SPECIFIC COMMENTS

The GMR attempts to minimize the impact of perchlorate releases from the Site by describing numerous on-Site perchlorate detections as "insignificant," but nowhere in the GMR is any perchlorate detection referred to as "significant." Our Clients believe that all perchlorate concentrations that either currently, or that may in the future, impact their drinking water supplies are significant. We believe that the Regional Board is capable of evaluating the significance of the perchlorate contamination. We request that the Regional Board ask Olin to either provide perchlorate concentrations without subjective comment, or to quantify levels of insignificant and significant perchlorate and subsequently refer to perchlorate detections as significant when appropriate.

In some cases Olin inappropriately evaluates the extent of on-Site contamination based on insufficient information. The GMR concludes that sample results indicate "that for the A1 aquifer zone, perchlorate is limited to the western central and south central portions of the Site." This is based on the sample results for Wells MW-SW-001, MW-SW-002, and MW-SW-003. These wells are located along the western and southern Site boundaries and therefore cannot be used to make conclusions about the extent of perchlorate in the A1 aquifer in the central, northern, or eastern areas of the Site. Because there are only three locations at the Site where wells are screened at depths of 200 feet below the ground (bgs) or greater, and only one location where a well is screened at greater than 350 feet bgs, any conclusions regarding the extent of perchlorate in the deep water-bearing zones are suspect. The necessity for more wells of a greater depth is obvious. We request that the Regional Board require Olin to take the appropriate actions to evaluate perchlorate concentrations in the deep water-bearing zones.

Sample results since August 2003 indicate detections of perchlorate in samples from Well WM-SW-001 in concentrations ranging from 330 ug/L to 770 ug/L. This well is located approximately 20 feet from the western boundary of the Site. Because this well is located very near the Site boundary it may be assumed that similar concentrations exist off-Site to the west. Olin has not presented a plan to assess the extent of perchlorate-impacted groundwater to the west of the Site; therefore, it cannot be determined whether their groundwater extraction system will capture this contamination.

The GMR indicates that water supply wells south of the Site continue to yield samples with perchlorate concentrations up to 94 ug/L. In correspondence to Olin dated March 13, 2003, the Regional Board ordered Olin to present by June 30, 2003, alternatives for long-term, basin-

wide groundwater cleanup including proposed schedules for implementation of selected cleanup alternatives. We request that the Regional Board require Olin to perform to this work that is seven months overdue.

POTENTIAL IMPACTS TO THE CITY OF GILROY

The GMR restates Olin's position that water supply wells are sufficient to evaluate the lateral and vertical extent of off-Site perchlorate-impacted groundwater. The use of water supply wells to evaluate the extent of perchlorate was appropriate in the earliest stages of the investigation in order to assure public health, but to assess the extent of contamination prior to basin-wide cleanup, and to prevent or provide an early warning of impacts to the City of Gilroy wells, a network of suitably designed off-Site monitoring wells must be installed Due to the obvious threat to the City of Gilroy's water supply, this must be done extremely expeditiously.

As you know, the use of water supply wells for evaluation of off-Site hydrogeology and the extent of the plume of contamination is inappropriate for the following reasons:

- The boreholes are usually logged by persons with no geologic training and soils are not described in accordance with any standardized classification scheme;
- In the past, boreholes were typically logged based on drill cuttings, discrete-depth soil samples were almost never obtained;
- Water supply wells typically have long screen intervals and/or multiple screen intervals so it is not possible to evaluate perchlorate concentrations in discrete zones; and,
- Water supply wells are rarely drilled deeper than necessary to obtain a sufficient pumping rate.

For these reasons the off-Site cross-sections prepared by Olin are inadequate to evaluate off-Site hydrogeology. Likewise, the sample results for off-Site water supply wells probably represent only a vague approximation of the lateral extent of contamination and even less of an approximation of the vertical extent. A network of monitoring wells, with continuous-core logs and geophysical logs of the boreholes, is necessary to adequately assess the plume of contamination originating from the Site. This is the standard practice for evaluation of

impacted groundwater and we are not aware of any other similar site in this country where the oversight regulatory has not required such an investigation.

Related to the issue of using water supply wells for evaluating the extent of the plume of perchlorate-impacted groundwater is the evaluation of the southern extent of the plume. All investigations of the southern extent of the plume thus far is based on results for samples collected from water supply wells, and Olin proposes to use only water supply wells in additional investigations. Municipal water supply wells owned by the City of Gilroy are threatened and the City of Gilroy has been forced to prepare contingency plans to deal with the possibility that one or more wells could be impacted. It is essential that Olin install a network of sentry wells to provide an early warning of potential impacts, and assist the City of Gilroy with the preparation of contingency plans.

IMPACTS TO THE CITY OF MORGAN HILL

We note the GMR includes additional evaluation of the on-Site groundwater aquifers and monitoring well construction, and that this information confirms that northern and eastern groundwater flow occurs beneath the Site under certain conditions. The City of Morgan Hill's Nordstrom, Dunne No. 2, and Condit Wells, located northeast of the Site, have previously yielded samples containing perchlorate in concentrations of 4 ug/L or higher. These wells, and the Tennant Well, have been voluntarily taken off-line by the City of Morgan Hill. During the summer of 2003 this situation created a serious water shortage for the City of Morgan Hill and the same serious water shortage is likely to occur again this summer. We are not aware of any response by your office to the requests from the City of Morgan Hill concerning the operation of the Tennant Well, but we do recall that the Regional Board suggested to Olin that their Site remediation plans take the operation of Tennant Well into account.

Further, we look forward to the prompt initiation of Olin's proposed off-Site investigation of groundwater flow northeast of the Site and encourage the Regional Board to take whatever steps are necessary to expedite this work. As we have noted to you previously, we have certain issues with the work that has been proposed and the lack of a requirement to test for perchlorate.

CLOSING

Komex is pleased to provide our comments to the Regional Board. If you have any questions or need additional information please call Rich Chandler at (805) 787-0307 x244.

Sincerely,
KOMEX

Rich Chandler, R.G.
Senior Geologist

cc: Mr. Steve Hoch, Hatch and Parent
Mr. Jim Ashcraft, City of Morgan Hill
Mr. Mike Goodhue, City of Gilroy