California Regional Water Quality Control Board
Central Coast Region

Alan C. Lloyd, PhD.
Secretary for Environmental Protection

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Arnold Schwarzenegger
Governor

March 2, 2006

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

Dear Mr. McClure:

SLIC: 425 TENNANT AVE, MORGAN HILL; PROPOSED CLEANUP LEVEL FOR PERCHLORATE IN OFF-SITE GROUNDWATER

We have reviewed *Cleanup Level for Perchlorate In Off-Site Groundwater, 425 Tennant Avenue Site, Morgan Hill, California* (Cleanup Level Report). The Cleanup Level Report was prepared by MACTEC Engineering and Consulting, Inc. (Mactec) on behalf of Olin Corporation (Olin), and is dated January 31, 2006. The Cleanup Level Report was submitted in accordance with Cleanup or Abatement Order (Cleanup Order) No. R3-2005-0014.

According to the Cleanup Level Report, it is Olin's contention that groundwater cleanup must be implemented in accordance with State Water Resources Control Board's Resolution No. 92-49, *Policies and Procedures for Investigation and Cleanup and Abatement under Water Code Section 13304* (State Board Resolution No. 92-49). Further, the Cleanup Level Report clarifies that the cleanup level analysis required by State Board Resolution No. 92-49 cannot be fully completed at this time because a substantial part of the necessary information required for a complete analysis has not been completed. The Cleanup Level Report points out that several elements of the cleanup level analysis are to be completed in forthcoming reports, including the background analysis in the Llagas Subbasin Characterization Report (due March 30, 2006), and the economic and technological feasibility analysis in the Llagas Subbasin Cleanup Feasibility Study (due June 30, 2006), pursuant to the Cleanup Order. Thus, it is Olin's position that it is premature for the Water Board to establish a perchlorate groundwater cleanup level at this time.

Despite the fact that the Water Board's required cleanup level analysis is not complete, Olin developed a proposed preliminary perchlorate cleanup concentration of 11 micrograms per liter (µg/L). According to the Cleanup Level Report, the preliminary level is protective of human health for drinking water use of the Llagas Subbasin. The proposed cleanup level is based on the work of the National Academy of Sciences (NAS), the United States Environmental Protection Agency (USEPA), and the California Environmental Protection Agency Office of Environmental Health Hazard Assessment (OEHHA). The Cleanup Level Report indicates the proposed preliminary cleanup level will be reanalyzed and adjusted, if necessary, in conformance with State Board Resolution No. 92-49, based upon information developed in the forthcoming Llagas Subbasin Characterization and Feasibility Study Reports.

Based on our review of the subject Cleanup Level Report, it is clear Olin's proposed cleanup level was developed strictly from a human health-based perspective. As such, the approach and basis for developing the proposed cleanup level is inconsistent with the Water Board's goal to protect groundwater as a resource and

responsibility to prevent water degradation. Thus, the establishment of a cleanup level for perchlorate in groundwater is inappropriate at this time. The Water Board will consider the establishment of a groundwater cleanup level for perchlorate after all necessary site characterization activities and the feasibility study are complete.

Nevertheless, we believe the timing of the Cleanup Level Report provides a good opportunity to discuss and clarify the required cleanup level analysis process, including the many factors that must be considered when developing and establishing groundwater cleanup levels. Following is a brief summary of the more significant considerations and further clarification concerning the development and establishment of a groundwater cleanup level for perchlorate.

Investigation and Cleanup Requirements - As you know, our Water Board's Basin Plan designates groundwater beneath and adjacent to the Olin facility as suitable for agricultural water supply, municipal and domestic water supply, and industrial use. While we understand the detected perchlorate concentrations at many well locations are presently below the Public Health Goal[1] (PHG), the mere presence of perchlorate in underlying groundwater indicates that the quality of groundwater has been degraded. By allowing the migration of perchlorate to off-site irrigation, municipal or domestic water supply wells, Olin is responsible for an ongoing waste discharge to waters of the state. Water Code section 13304 requires any person who has caused or permitted a condition of pollution or nuisance to clean up the waste or abate the effects of the waste. Olin does not have the right to pollute (degrade existing beneficial uses) state waters. Therefore, in accordance with section 13304 of the Water Code, the Water Board can require Olin to clean up and abate the effects of its discharge.

Further, as addressed by Cleanup Order No. R3-2005-0014 and the Cleanup Level Report, investigation and cleanup of groundwater impacts associated with the Olin facility must be consistent with State Board Resolution No. 92-49. Specifically, State Board Resolution No. 92-49 (Section III.F) requires that all actions for cleanup and abatement conform to the provisions of State Board Resolution No. 68-16 (Anti-Degradation Policy) and to applicable provisions of Title 27, California Code of Regulations.

In accordance with State Board Resolution No. 92-49 (Section III.G), cleanup shall be conducted in a manner that promotes attainment of background water quality. If background levels of water quality cannot be restored, water quality must be restored to the best water quality, which is reasonable, considering all demands being made on those waters and the total values involved, beneficial and detrimental, economic and social, tangible and intangible. Any alternative cleanup level less stringent than background shall:

- Be consistent with maximum benefit to the people of the state;
- Not unreasonably affect present and anticipated beneficial use of such waters; and
- Not result in water quality less than that prescribed in the Water Quality Control Plans (Basin Plans) and Policies adopted by the State and Water Boards.

The underlying principle to remember is that it is the Water Board's mission to protect groundwater as a resource. It is the Water Board's responsibility to prevent degradation of water and if that is not technologically or economically feasible, then, at a minimum, water quality must be preserved to protect actual and potential beneficial uses of the water. According to State Board Resolution No. 92-49, alternative cleanup levels may not be more permissive than the most stringent level that is technologically and economically feasible. Further, an alternative cleanup level may not be higher than the maximum concentration that would be allowed under other applicable statutes and regulations. Therefore, an alternative groundwater cleanup level may not, under any circumstances, exceed the level needed to protect the beneficial

[1] **Public Health Goals (PHGs)** are levels established by Cal/EPA's Office of Environmental Health Hazard Assessment (OEHHA), pursuant to Health and Safety Code §116365. A PHG is the level of a contaminant in drinking water that is considered not to pose a risk to health if consumed for a lifetime. A PHG is a "risk assessment," and does not consider other risk management aspects such as detectability, treatment, etc.

uses designated in our Basin Plan (e.g., Maximum Contaminant Levels). Since neither the State nor Federal governments have established perchlorate Maximum Contaminant Levels, the Public Health Goal is presumed to be the least stringent level necessary to protect beneficial uses, and therefore the maximum allowable cleanup goal.

Cleanup Considerations: at a minimum, the Feasibility Study Report shall contain a proposed groundwater cleanup level for perchlorate in conformance with State Board Resolution 92-49, and as required by CAO No. R3-2005-0014. The Feasibility Study Report shall include a detailed description of the corrective action measures needed to achieve the proposed cleanup level for perchlorate detections within all impaired water-bearing zones. The Feasibility Study Report must address groundwater monitoring and planned groundwater remediation technologies for all perchlorate detections on the basis of relative efficacy and cost. It must address the expected time frame each feasible alternative will take to achieve the proposed perchlorate cleanup level. The Feasibility Study Report must discuss/evaluate alternative remedial technologies giving due consideration to technical merit, relative costs, long-term liability, current and future land use, duration of treatment, hydraulic containment, the ability to protect human health and restore/protect groundwater quality, and all factors in California Code of Regulations, Title 15, Section 2550.4.

We understand Olin intends to re-analyze and adjust its presently proposed preliminary health-based cleanup level, in conformance with State Board Resolution No. 92-49, as discussed and clarified above. We anticipate Olin will propose a revised groundwater cleanup level for perchlorate in its forthcoming Feasibility Study Report, due by June 30, 2006. Olin's groundwater cleanup goal must be to achieve background water quality. If, however, a cleanup level greater than background is proposed, the appropriate supporting data and demonstrations, as outlined in State Board Resolution No. 92-49, must be provided. We hope this discussion provides adequate clarification and guidance in developing an appropriate groundwater cleanup level for perchlorate.

If you have any questions, please contact **Hector Hernandez at: (805) 542-4641** or via e-mail at: Hhernandez@waterboards.ca.gov, or Eric Gobler at (805) 549-3467.

Sincerely,

Roger W. Briggs
Executive Officer

cc via E-mail:

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

cc via U.S. Mail:

Olin Correspondence IPL

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