California Regional Water Quality Control Board
Central Coast Region

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Arnold Schwarzenegger
Governor

October 6, 2006

Mr. Curt Richards
Olin Corporation
Environmental Remediation Group
P.O. Box 248
Charleston, TN 37310-0248

Dear Mr. Richards:

SLIC: 425 TENNANT AVE, MORGAN HILL; TERMINATION OF REPLACEMENT WATER AND POST MONITORING REQUIREMENTS

This letter is in response to your August 8, 2006 letters "Response to Split-Sampling and Reinstatement of Bottled Water at Well 10S03E12C006 and August 2, 2006 Letter" and "Olin Corporation Site, 425 Tennant Avenue, Morgan Hill, CA, Response to Central Coast Water Board July 19, 2006 Letter Bottled Water Termination Phases One Through Five and August 2, 2006 NOV," and your August 18, 2006 letter "August 3, 2006 Letter – State Water Board Monitoring Requirements." The primary objective of this letter is to provide comments and clarify our requirements related to replacement water (e.g., bottled water) issues and post bottled water termination monitoring. Central Coast Regional Water Quality Control Board (Central Coast Water Board) staff has taken a conservative approach in dealing with all issues related to bottled water termination because the users of private domestic supply wells in the Morgan Hill, San Martin, and Gilroy area depend on their well water as their main source of drinking water. Central Coast Water Board staff has provided comments and clarification of the requirements associated with bottled water termination in the following sections.

BOTTLED WATER TERMINATION

Phases One through Five

From June 15 through July 18, 2006, Olin provided Central Coast Water Board staff with five phases of analytical results for a total of 459 wells that Olin determined meet the State Water Resources Control Board (State Water Board) Order WQ 2005-0007 criteria for termination of replacement water (i.e., four consecutive quarters of perchlorate concentrations that are less than or equal to 6.0 micrograms per liter [µg/L]). Central Coast Water Board staff issued a letter to Olin on July 19, 2006, providing comments on the analytical data that had been submitted by Olin to terminate

bottled water service in accordance with the State Water Board Order WQ 2005-0007. 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. Central Coast Water Board staff concurred that the State Water Board criteria had been met for 419 out of the 459 wells. In our July 19, 2006 letter, Olin is directed to continue supplying bottled water to the users of 40 wells until the Executive Officer concurs with Olin's request to terminate bottled water service for these well users.

On August 8, 2006, Olin submitted analytical results from a July 2006 groundwater sampling event for the 40 wells that Central Coast Water Board staff identified to not meet the State Water Board criteria. Staff has reviewed the analytical results and associated QA/QC data for the July sampling event for the 40 wells and has made the following determinations:

1. 31 of the 40 wells now meet the State Water Board criteria; the 31 wells are:

10S03E01P003	10S04E18G007	10S04E19C012
10S03E12A013	10S04E18H016	10S04E29D002
10S04E07D010	10S04E18J001	11S04E04C006
10S04E07E001	10S04E18K002	11S04E04C009
10S04E07E005	10S04E18L004	Private Well 6
10S04E07E016	10S04E18Q001	
10S04E07E018	10S04E18Q007	
10S04E07E023	10S04E18R004	
10S04E07E029	10S04E18R016	
10S04E07E034	10S04E19A002	
10S04E07N017	10S04E19A004	
10S04E07N024	10S04E19B008	
10S04E17N007	10S04E19C009	

2. Four of the 40 wells require one more quarter of perchlorate concentration data with acceptable[1] QA/QC data to meet the State Water Board criteria. The four wells that require one more quarter of data are 10S04E07M020, 10S04E19A011, 10S04E20E003, and 10S04E33M006.

[1] Central Coast Water Board staff will review all laboratory QA/QC data for each sample result to determine whether it is acceptable QA/QC data. All analytical results are validated by Olin using the October 2004 *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* as a guidance. Central Coast Water Board staff will only consider data that Olin validates as either unqualified ("A" flag - laboratory results with sample recoveries between 80 and 120 percent) and usable estimated with qualifications ("UJ", "J", "J-", "J+" flags - laboratory results with sample recoveries greater than 30 percent but less than the range of control limits of 80 to 120 percent recovery).

3. Five of the 40 wells now have perchlorate concentrations above 6.0 µg/L and require reinstatement of bottled water service. The users of the five wells that require bottled water service are 10S04E18B009, 10S04E18H011, 10S04E18J005, 10S04E20E002, and 10S04E20M002.

Therefore, Central Coast Water Board staff concurs that the State Water Board criteria have been met for 31 of the 40 wells and these wells are identified in Item 1 above. However, Olin must continue to supply bottled water to the users of the wells in Items 2 and 3 above, until the Executive Officer concurs with Olin's request to terminate bottled water service for these wells.

Phase 6

From September 5 through September 11, 2006, Olin provided Central Coast Water Board staff with the sixth phase of analytical results for 49 additional wells that Olin determined meet the State Water Board criteria for termination of bottled water service. Central Coast Water Board staff has carefully reviewed the analytical data and QA/QC data associated with phase six. Based on a thorough evaluation of all the analytical data and QA/QC results for each well identified in phase six, we have identified four wells that do not meet the State Water Board criteria. These four wells do not have four prospective quarters of analytical results with acceptable QA/QC. The four wells that do not meet the State Water Board Criteria are 10S04E07M020, 10S04E19A011, 10S04E20E003, and 10S04E33M006. These wells are also identified as the 4 out of the 40 wells discussed in Item 2 above.

Effective immediately, Olin must continue to supply bottled water to the users of the four wells identified above and conduct sampling until four consecutive quarters of perchlorate results with concentrations less than or equal to 6.0 µg/L (with acceptable QA/QC data) are obtained prior to termination of bottled water service. Olin must submit analytical data and QA/QC results for these and all wells prior to termination of bottled water service. Therefore, Olin must continue to provide replacement water until you receive Executive Officer concurrence with your request to terminate bottled water service. The remaining 45 out of 49 wells meet the State Water Board criteria.

Well Location Map

Olin has terminated bottled water service for numerous well users. Central Coast Water Board staff will continue to evaluate analytical results for all wells as they become available. Central Coast Water Board staff considers each well with equal importance; however, we are particularly observant of those wells that are within 500 feet of a well that has or had perchlorate results greater than 6.0 µg/L in the past. We are also particularly watchful of those wells that are in close proximity to the Olin site (i.e., Area I, described in Olin's Plume Migration Control Assessment Report).

To aid in our evaluation, the Central Coast Water Board requires that Olin provide an updated map showing the location of each well that Olin has determined to meet the State Water Board criteria. Submit the well location map **no later than November 6, 2006**. Olin is also required to update and submit a revised well location map when additional wells for bottled water termination are proposed.

CONFIRMATION SAMPLING

Olin proposes to follow the Department of Health Services (DHS) monitoring requirements for monitoring of chemicals with notification levels to assess whether bottled water service will be reinstated for domestic supply wells with perchlorate concentrations greater than 6.0 µg/L. The DHS monitoring requirements require that a confirmation sample be collected and analyzed as soon as possible after a concentration of 6.0 µg/L has been detected. Olin proposes to average the confirmation sample result and the result of the original sample to determine whether bottled water service will be reinstated. Central Coast Water Board staff does not concur with Olin's proposed use of averaging perchlorate concentrations from confirmation sampling to evaluate whether bottled water service will be reinstated for domestic supply wells. The DHS monitoring requirements are requirements for community water systems and non transient-non community water systems and not for individual domestic supply wells. Order No. R3-2004-0101, as amended by State Water Board Order WQ 2005–0007, requires Olin to supply interim uninterrupted bottled water service to owners of private domestic wells in which perchlorate has been detected at a concentration greater than 6.0 µg/L in the last twelve months regardless of past results. A single-sample detection in the last twelve months falls within this requirement. Nothing in either Order allows Olin to average multiple samples.

If analytical results are provided to Central Coast Water Board staff by parties other than Olin, for the purpose of obtaining replacement water from Olin for a well, Central Coast Water Board staff will review the analytical data and allow confirmation sampling by Olin on a case-by-case basis.

SPLIT SAMPLING

On June 29, 2006, Central Coast Water Board staff collected a split sample with Olin's consultant, MACTEC Engineering and Consulting, Inc. (MACTEC), from well 10S03E12C006. The split sample was analyzed by three State-certified laboratories: TestAmerica Analytical Testing Corporation (TestAmerica); BC Laboratories, Inc. (BC Labs); and Santa Clara Valley Water District Laboratory (Water District Lab). The analytical results for the split sample ranged from 4.3 to 6.6 µg/L. Central Coast Water Board staff intends to conduct additional split sampling with Olin to evaluate the accuracy and precision of perchlorate testing results. However, to date we have not secured a laboratory contract and cannot conduct sampling activities until a laboratory contract is in place. Central Coast Water Board staff will coordinate with Olin and MACTEC once laboratory funding is available. We anticipate that the laboratory

funding will be available by the end of October 2006. Based on the results from the next split sampling event, Olin may be required to fund all future laboratory and investigation costs associated with Central Coast Water Board staff coordinated sampling efforts for evaluation of sample result variability. Order No. R3-2004-0101 requires Olin to reimburse the Central Coast Water Board for all reasonable oversight and investigation costs.

Considering that perchlorate was detected at 6.6 µg/L on June 29, 2006 and perchlorate has been detected above 6.0 µg/L historically, Olin is required to reinstate bottled water service for a minimum of four consecutive quarters for the users of well 10S03E12C006.

POST BOTTLED WATER TERMINATION MONITORING

Olin's August 18, 2006 Proposed Monitoring Frequencies

Upon concurrence from Central Coast Water Board staff that bottled water service may be terminated, specific monitoring requirements are necessary for each domestic supply well whose users no longer receive bottled water. In our letter dated August 3, 2006, "SLIC: 425 Tennant Ave, Morgan Hill; State Water Board Monitoring Requirements," Central Coast Water Board staff provided a paraphrased summary of the monitoring requirements specified in Attachment A of the State Water Board Order WQ 2005-0007. In a letter dated August 18, 2006, Olin outlined its disagreement with Central Coast Water Board staff's paraphrased summary and requested concurrence from the Executive Officer for Olin's proposed post-bottled water termination monitoring schedule for 450 wells. Olin's proposed monitoring schedule for the 450 wells is based on its interpretation of Attachment A of the State Water Board Order WQ 2005-0007. Central Coast Water Board staff has reviewed Olin's proposed monitoring schedule and requires the following additional information to finalize and expedite our review of the proposed monitoring schedule. Olin is required to submit the required information **no later than November 6, 2006**.

1. A compilation of all the concentration data associated with each well that is used to determine the Mann-Kendall trend analysis.
2. A table summarizing the Mann-Kendall analysis results for each well in Phase 6 that Olin has determined meets the State Water Board criteria for termination of bottled water service.
3. A copy of the entire and most recent Microsoft Access database file for all the available groundwater analytical data. At a minimum, the groundwater analytical data is required for those wells that Olin is currently or has previously provided replacement water for.

Clarification of Post Bottled Water Termination Monitoring

After considering Olin's interpretation of Attachment A of State Water Board Order WQ 2005-0007, Central Coast Water Board staff has decided to revise the post bottled water termination monitoring requirements in order to clarify the requirements. The post-bottled water termination monitoring requirements described below will apply to all wells for which bottled water service has been terminated. After replacement water has been terminated and the Central Coast Water Board's Executive Officer has concurred with the request to terminate bottled water service, the monitoring requirements described below must be implemented. Olin may use all of the unqualified and usable estimated[2] analytical data, to propose the monitoring frequency for domestic supply wells whose users no longer receive bottled water. Additionally, the Executive Officer must approve the post-bottled water termination monitoring frequency for each well before the monitoring frequency is implemented.

The following requirements clarify and supercede Attachment A of Order No. R3-2004-0101, as added by Order WQ 2005-0007 for all wells:

1. The monitoring frequency for a given well is determined by the concentration of perchlorate detected in the most recent sample collected before bottled water service termination. Olin will determine trends by performing a Mann-Kendall analysis that includes all of the data collected for a given well, provided the well data has unqualified or usable estimated QA/QC data. Each well will be sampled in accordance with the following frequency:

    a. **Wells with a perchlorate concentration between 5.0 and 6.0 µg/L**: Olin will sample the well every other month (bimonthly) for eight months (four sampling events). If, after eight months, there is no trend or an increasing or probably increasing trend in perchlorate concentrations, Olin will continue to sample the well every other month until there is a stable, decreasing, or probably decreasing trend in perchlorate concentrations. If the trend is stable, decreasing, or probably decreasing, then Olin will sample at least twice per year for one year (during presumed periods of maximum concentration changes such as the dry and wet seasons or summer and winter). If the trend is still stable, decreasing, or probably decreasing after sampling twice per year for one year, Olin will sample once in the next year, and if it is still stable, decreasing, or probably decreasing, then Olin may stop sampling the well with concurrence from the Central Coast Water Board's Executive Officer.

[2] Unqualified data are laboratory results with sample recoveries outlined in USEPA Method 314.0, such as 80 and 120 percent for fortified matrix samples. Usable estimated data are laboratory results with sample recoveries greater than 30 percent but less than the range of control limits of 80 to 120 percent recovery and sample recoveries greater than 120 percent.

b. **Wells with a perchlorate concentration equal to or above 4.0 and less than 5.0 µg/L:** Olin will sample the well at least twice per year (summer and winter). If, after two years or four sampling events (including perchlorate results collected since May 19, 2005), there is no trend or an increasing or probably increasing trend in the perchlorate concentrations, Olin will continue to sample twice per year until the perchlorate concentrations are either stable, decreasing, or probably decreasing; Olin will then sample once in the next year. If that concentration is less than 5.0 µg/L and the trend is still stable, decreasing, or probably decreasing, Olin may stop sampling the well with concurrence from the Central Coast Water Board's Executive Officer. If perchlorate concentrations are detected greater than 5.0 µg/L at any time, then Olin will sample according to a. above, beginning with the four bimonthly sampling events.

c. **Wells with perchlorate concentrations below 4.0 µg/L (and within 500 feet of wells that have had a detection of perchlorate greater than 6.0 µg/L):** Olin will sample twice per year for one year (summer and winter). If the perchlorate concentrations continue to be below 4.0 µg/L (includes perchlorate results collected since May 19, 2005), then Olin must sample once in the next year. If that concentration is also less than 4.0 µg/L, Olin may stop sampling the well with concurrence from the Central Coast Water Board's Executive Officer. If perchlorate concentrations are detected greater than 4.0 µg/L or 5.0 µg/L at any time, then Olin will sample according to b. and a. above, respectively. For example, Olin will take all samples required by b. or a., i.e., starting with two years of summer and winter sampling or four bimonthly samples, respectively, in addition to any samples previously taken under this paragraph.

d. **Wells with a perchlorate concentration below 4.0 µg/L (and <u>not</u> within 500 feet of wells that have had a detection of perchlorate greater than 6.0 µg/L):** Olin may stop monitoring with concurrence from the Central Coast Water Board's Executive Officer.

REINSTATEMENT OF BOTTLED WATER SERVICE

Olin is required to supply interim uninterrupted bottled water service to owners and users of private domestic wells in which perchlorate has been detected at concentrations greater than 6.0 µg/L. This applies to wells monitored after bottled water service has been terminated or any private domestic supply wells that have not been sampled previously. Olin will be required to supply interim uninterrupted bottled water for four consecutive quarters after a detection of perchlorate greater than 6.0 µg/L has been detected in a well.

The Central Coast Water Board Executive Officer will consider termination of bottled water service to well users for less than four consecutive quarters if a confirmation sample is collected and a perchlorate result less than or equal to 6.0 µg/L and Olin can demonstrate that the original detection of perchlorate above 6.0 µg/L is not representative. Provided that the original detection of perchlorate is demonstrated not to be representative and the confirmation sample is less than or equal to 6.0 µg/L, the following conditions must also be met:

1. Groundwater from the well has not had a detection of perchlorate above 6.0 µg/L, historically,
2. The well is not located within 500 feet of a well with perchlorate concentrations greater than 6.0 µg/L, and
3. The Mann-Kendall analysis of all the unqualified and usable estimated analytical data for the well shows a decreasing or probably decreasing trend.

Bottled water service must be reinstated until the laboratory result from a confirmation sample is available. If the confirmation sample result is greater than 6.0 µg/L Olin will be required to supply interim uninterrupted bottled water service for four consecutive quarters.

The Central Coast Water Board Executive Officer will consider termination of bottled water service for a well if the following conditions are met:

1. There are four consecutive quarters of perchlorate results with concentrations less than or equal to 6.0 µg/L with acceptable QA/QC data,
2. A minimum of 30 days must separate two sampling events between consecutive quarters,
3. The laboratory quality control parameters outlined in USEPA Method 314.0 are met and the perchlorate analytical result are unqualified (e.g., the analytical result is validated as acceptable without qualification as indicated by an "A" flag),
4. If a confirmation or duplicate sample is collected and the perchlorate result is below 6.0 µg/L for one sample and above 6.0 µg/L in the other sample, then the highest value must be used to determine whether bottled water service may be terminated or should be reinstated.

The Central Coast Water Board's requirements for a well location map, reinstatement of replacement water, updated Microsoft Access database file, and post bottled water termination monitoring of domestic supply wells are made pursuant to Section 13267 of the California Water Code. Pursuant to Section 13268 of the Water Code, a violation of a request made pursuant to Water Code Section 13267 may subject you to civil liability of up to $1,000 per day for each day in which the violation occurs.

The Central Coast Water Board needs the required information in order to ensure that perchlorate concentrations in public domestic supply wells are adequately monitored and that the public does not drink groundwater from their domestic supply well that

exceeds the public health goal. Olin is required to submit this information because available data indicates that the Olin Site is the source of perchlorate south of the Olin Site. More detailed information is available in the Central Coast Water Board's public file on this matter.

Any person affected by this action of the Central Coast Water Board may petition the State Water Board to review the action in accordance with Section 13320 of the California Water Code and Title 23, California Code of Regulations, Section 2050. However, to the extent that the post bottled water termination sampling requirements are the same as those in Order No. WQ 2005-0007, they are not subject to petition. A petition must be received by the State Board, Office of Chief Counsel, P. O. Box 100 Sacramento, 95812 within 30 days of the date of this order. Copies of the law and regulations applicable to filing petitions will be provided upon request.

We understand the significant efforts that are involved in sampling and managing all of the data associated with monitoring domestic supply wells in the Llagas Subbasin. We also understand the significant costs Olin has expended in supplying bottled water service to the public. Central Coast Water Board staff appreciates your continued cooperation on this matter and if you have any questions, please contact **Hector Hernandez at (805) 542-4641** or Eric Gobler at (805) 549-3467.

Sincerely,

Roger W. Briggs
Executive Officer

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cc via E-mail:

Ms. Lori Okun
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Olin Technical Contacts IPL