Attachment 2

Comment Letters on Draft Waste Discharge Requirements Order
No. R3-2011-0209 and draft Staff Report

San Martin Neighborhood Alliance
"Together We Make A Difference"

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June 4, 2011

Mr. Dean Thomas
Central Coast Regional Water Quality Control Board
895 Aerovista Place, Suite 101
San Luis Obispo, CA 93401-7906
Submitted via email to dthomas@waterboards.ca.gov

Re: Draft Waste Discharge Requirements Order No. R3-2011-0209

Dear Mr. Thomas,

The Perchlorate Community Advisory Group (PCAG) appreciates this opportunity to comment on the draft Waste Discharge Requirements (WDR) Order R3-2011-0209 for Olin Corporation's Aquifer Containment and Cleanup System for remediation of the perchlorate contamination in the Llagas Subbasin.

PCAG supports the adoption of the proposed WDR which supports reinjection of treated groundwater into the shallow aquifer beneath the Olin site. PCAG does not support anything that would once again delay the perchlorate remediation process. For over two years, the members of PCAG have been reviewing/discussing information regarding nitrate problems in our area and possible affects of reinjection; we understand the pros & cons and find it to be the best possible solution. We know that thorough monitoring will be in place and regularly reviewed. All parties, including PCAG, will continue to review the findings of this monitoring and the WDR needs to stipulate that reinjection will be halted if the aquifer starts to push toward the level of the drinking water standard.

Once again, thank you very much for this opportunity. PCAG members asked me to provide you with their position.

Sincerely,

Sylvia Hamilton

PCAG Chair
(408) 683-2667
sylviaLRS@hotmail.com

3855 North Ocoee Street, Suite 200
Cleveland, Tennessee 37312

May 20, 2011

Mr. Dean Thomas, P.G.
Central Coast Regional Water Quality Control Board
895 Aerovista Place, Suite 101
San Luis Obispo, CA 93401-7906

Subject: **Comments on Draft Staff Report for Regular Meeting of July 14, 2011 and Draft Waste Discharge Requirements for the Olin Treated Groundwater Reinjection Facility, Santa Clara County**

Dear Mr. Thomas:

Olin appreciates the opportunity to provide the Water Board comments on the *Draft Staff Report for Regular Meeting of July 14, 2011 (Draft Staff Report)* and the *Draft Waste Discharge Requirements for the Olin Treated Groundwater Reinjection Facility, Santa Clara County (Draft WDR)*. Attached to this letter are Olin's specific comments on the two draft documents. Our general comments on the documents are summarized as follows:

- **Treatment of Nitrate** – There are several locations in the Draft WDR where the Board has introduced references that treatment of nitrate by Olin may be required if WDRs cannot be achieved. It has been consistently documented by the Regional Board that the nitrate concentrations in the Llagas Subbasin are not connected with any Olin activities. Beyond treatment by blending, within the limitations imposed by existing water quality within the basin, treatment for nitrate is not a plan or requirement of this perchlorate remediation project under Cleanup and Abatement Order No. R3-2007-0077. Moreover, the ACS infrastructure is purposefully designed to monitor, control and adjust nitrate concentrations in the extracted and blended groundwater to ensure that nitrate levels in the recharge water remain below specified discharge requirements. Olin therefore requests that the references to potential nitrate treatment be removed from the final WDR.
- **Impact of Reinjection on Tennant Well** – In the Draft WDR, the Water Board estimates that at the proposed quarterly and monthly nitrate discharge limits, on-Site reinjection of treated groundwater may have the potential to increase nitrate concentrations by up to 2 mg/L as nitrate. As noted in the attached comments, the method used to calculate the percent increase is incorrect and overestimates the potential effect of recharge on the nitrate concentration at the Tennant Well (which Olin earlier replaced by paying the cost of installing the higher capacity San Pedro Well in 2005). Applying the correct mathematical formula (described in the attached comments), the potential impact of on-Site reinjection on nitrate concentrations in the Tennant Well is estimated to be less

than 0.5 mg/L, which is negligible compared to the temporal and spatial fluctuations of nitrate concentrations in the Llagas Subbasin.

- **Quarterly and Monthly Nitrate Limits** – As illustrated by existing data, nitrate concentrations within the Llagas Subbasin fluctuate temporarily and spatially. As an example, the nitrate concentrations at MW-64 in the shallow and upper intermediate aquifer have varied by 225% and 50%, respectively, over the past 6 or 7 years. In addition, the proposed recharge is shown to have a negligible impact at the replaced Tennant well. Given these factors, the quarterly and monthly nitrate discharge requirements should be adjusted to 40 mg/L and 45 mg/L, respectively. These limits are protective of beneficial use, would allow maximum system operational flexibility, and maintain compliance with State Board Resolution 68-16.

If you have any questions regarding our general comments or the attached specific comments, please call me.

Sincerely,
OLIN CORPORATION

David M. Share, P.E.
Director, Environmental Remediation Group

cc: *Ms. Thea Tryon, RWQCB – Central Coast Region*
Mr. John Robertson, RWQCB – Central Coast Region
*Mr. Behzad Ahmadi, SCVWD**
*Ms. Sylvia Hamilton, PCAG Chairperson**
*Mr. Karl Bjarke, City of Morgan Hill**
*Mr. Curt Richards, Olin**
*Mr. Richard McClure, Olin**

** via email*

Olin Comments on Draft Staff Report (Staff Report) for the Regular Meeting of July 14, 2011:

Page 2, paragraph 1: The new Order rescinds enrollment into the General Waiver of Waste Discharge Requirements Resolution No. R3-2008-0010 in its entirety, including specific discharge allowances for soil and groundwater generated during well sampling, installation and testing activities. These routinely generated waste streams cannot normally be treated via the ACS because of elevated turbidity or occasional exceedance of other parameters. The General Waiver allows groundwater to be treated using a portable ion exchange and/or granular activated carbon system to ensure that it meets waste discharge requirements. With Water Board approval, treated groundwater is then discharged to the ground surface on-site or through the ACS. Likewise, with Water Board approval, soils that meet discharge requirements are reused onsite; those that do not are transferred to a proper disposal facility. We recommend adding the following sentence to the end of this paragraph:

> "Enrollment into the General Waiver will remain in place for soil and groundwater waste streams associated with remediation activities, including but not limited to well installation, testing, and monitoring activities."

Page 3, Perchlorate Distribution, first paragraph, second sentence: The correct direction is "southeast" not "southwest".

Page 3, Perchlorate Distribution, first paragraph, last sentence: The Water Board attributes the perchlorate plume decrease to *only* the "natural attenuation" processes. While natural attenuation is one of the factors responsible for perchlorate reductions, the Water Board fails to mention other factors acknowledged elsewhere in the Cleanup and Abatement Order #R3-2007-0077 (CAO), Draft Staff Report and the Draft WDR. For example, in the CAO and several areas of the Draft Staff Report and the Draft WDR, the Water Board acknowledges the beneficial impact of the on-site groundwater treatment system, but fails to attribute source control for reducing perchlorate distribution in the Basin. (CAO, paragraph 8.b). Likewise, the Water Board acknowledges Olin's installation of the domestic and community IX systems (e.g.: the West San Martin Water Works and San Martin County Water District) in the basin, but fails to acknowledge the beneficial impact of these treatment systems to reduce perchlorate. (CAO, paragraph 8.a) Finally, the Water Board failed to mention the substantial benefit of our in-situ and ex-situ, enhanced bioremediation efforts for on-site soils and omitted their October 26, 2006 acknowledgement regarding successful completion of on-site remediation activities. (CAO, paragraph c.) These efforts should be acknowledged as they represent several documented factors responsible for the significant reduction in perchlorate distribution.

Page 3, Perchlorate Distribution, second paragraph, third sentence: Priority Zone C (PZC) is incorrectly defined; PZC perchlorate concentrations are between 11.0 µg/L and those >6.0 µg/L (greater than is omitted in the draft staff report). According to the California Office of Environmental Health Hazard Assessment, a perchlorate concentration equal to 6 µg/L is safe as below the MCL.

Page 4, Prohibitions and Effluent Limitations, first paragraph, second sentence: "(typically 'between' 1.2 and 1.6 µg/L)" should be "typically *below* 1.2 to 1.6 µg/L". Paragraph #8 of the Draft Waste Discharge Requirements provides a better definition of the MDL.

Page 4, Prohibitions and Effluent Limitations, second paragraph, second sentence: If the Water Board documents a particular practical quantitation limit (e.g.: 4 µg/L), it is recommended that they also specify the EPA test method, in this case Method 314.0.

Page 5, first paragraph (partial), first complete sentence: It is more accurate to state that simulations indicate that after 10 years of ACS operation, reinjected water in the vicinity of the Site will constitute 50 percent of groundwater in the upper intermediate, 30 percent in the middle intermediate, and 10 percent in the lower intermediate aquifer zones. Recommend revising as suggested.

Page 5, Receiving Water Limitation for Nitrate section, second paragraph, second sentence: Suggest inserting "i.e. to above the MCL solely from mixing with reinjected treated groundwater" after "significantly" since nitrate increases may occur due to other (anthropogenic) sources. The revised sentence would be:

> "Therefore, this Order prevents Olin's discharge from causing nitrate to increase above the MCL solely caused by mixing with reinjected treated groundwater, in the intermediate and deep aquifers."

Olin Comments on Draft Waste Discharge Requirements, Order No. R3-2011-0209:

Page 1, paragraph #3: The new Order rescinds enrollment into the General Waiver of Waste Discharge Requirements Resolution No. R3-2008-0010 in its entirety, including specific discharge allowances for soil and groundwater generated during well sampling, installation and testing activities. These routinely generated waste streams cannot normally be treated via the ACS because of elevated turbidity or occasional exceedance of other parameters. The General Waiver allows groundwater to be treated using a portable ion exchange and/or granular activated carbon systems to ensure that they meet waste discharge requirements. With Water Board approval, treated groundwater is then discharged to the ground surface on-site or through the ACS. Likewise, with Water Board approval, soils that meet discharge requirements are reused onsite; those that do not are transferred to a proper disposal facility. We recommend adding the following sentence to the end of this paragraph:

> "Enrollment into the General Waiver will remain in place for soil and groundwater waste streams associated with remediation activities, including but not limited to well installation, testing, and monitoring activities."

Page 3, continued paragraph #7, last paragraph, last sentence: The extracted groundwater volume (4,210,000 gallons) is incorrect. This volume represents the Forth Quarterly 2010 extraction total, not the system total. The correct extracted volume from 2004 through 2010 is 266,974,000 gallons.

Page 4, paragraph #9, second paragraph, third sentence: The Water Board's characterization of a topographic high as an "alluvial fan" is incorrect. As described in the 2007 Llagas Subbasin Characterization report, (MACTEC, 2007), we suggest this sentence be revised to:

> "The Llagas Subbasin's northern boundary consists of a groundwater divide that is believed to coincide with the topographic high near where the Coyote Creek emerges from the eastern foothills."

Page 5, continued paragraph #10, point 3) and last sentence: The cited maximum depth of the deep aquifer is incorrect. As indicated in our Annual Characterization reports, maximum depth increases southeast of the Site, but exceeds 500 feet bgs.

Page 6, paragraph #14, second sentence: The correct direction is "southeast".

Page 6, paragraph #14, third sentence: As noted in comments on the Draft Staff Report, there are several other factors that are also responsible for perchlorate decreases throughout the basin. For example, over the past several years our quarterly Groundwater Monitoring Reports have attributed this decreasing trend to: 1) mass removal through successful onsite soil bioremediation, 2) onsite groundwater extraction and treatment via the on-site groundwater treatment facility, and 3) groundwater extraction and treatment at offsite IX facilities.

Page 6, paragraph #14, second paragraph, third sentence: Priority Zone C (PZC) is incorrectly defined; PZC perchlorate concentrations are between 11.0 µg/L and those >6.0 µg/L (greater

than is omitted). According to the California Office of Environmental Health Hazard Assessment, a perchlorate concentration of 6 µg/L is safe.

Page 7, continued paragraph 15, tenth sentence: The Water Board estimates that at their proposed WDR limits, ACS recharge may result in as much as a 2 mg/L nitrate increase in the Tennant well (which Olin earlier replaced by paying the cost of installing the higher capacity San Pedro Well in 2005). However, the Water Board's estimated increase is incorrectly calculated. As noted on pages 9-10, the Water Board estimated the 2 mg/L increase based on the observation that 1/20 of the shallow aquifer perchlorate concentration is present in the deep aquifer. The Water Board then took this ratio and multiplied it by the proposed maximum nitrate discharge limit (i.e., 39 mg/L), which is inaccurate. The correct potential increase is estimated by multiplying the ratio and the *difference* between the recharge nitrate concentration and the existing nitrate concentration in the deep aquifer (approximately 11 mg/L, or 39 - 28 mg/L). As a result, the correctly estimated increase in the deep aquifer would be approximately 0.5 mg/L (not 2 mg/L), which is negligible compared with potential changes attributed to other factors, including spatial and temporal fluctuation. For this reason, and given the variability in nitrate concentrations basin-wide, the quarterly and monthly nitrate discharge requirements be adjusted to 40 mg/L and 45 mg/L, respectively. These proposed nitrate requirements are protective of beneficial use, would allow maximum system operational flexibility, and maintain compliance with State Board Resolution 68-16.

Page 9, paragraph 22, second paragraph, second sentence: As noted above, for the proposed quarterly and monthly nitrate discharge limits, the Water Board incorrectly estimated a 2 mg/L nitrate concentration increase at the Tennant well. Correctly calculated, the estimated increase is likely 0.5 mg/L, which is negligible compared with potential changes attributed to other factors, including spatial and temporal fluctuation. For this reason, the quarterly and monthly nitrate discharge requirements should be adjusted to 40 mg/L and 45 mg/L, respectively. These proposed nitrate requirements are protective of potential beneficial uses and would allow maximum system operational flexibility, yet still be consistent with State Board resolution 68-16.

Page 9, paragraph 22, second paragraph, remaining sentences: As noted above, for the proposed quarterly and monthly nitrate discharge limits, the Water Board's estimated nitrate increases at the Tennant well are incorrect. Correctly calculated, the estimated increase is likely 0.5 mg/L, which is negligible compared with potential changes attributed to other factors, including spatial and temporal fluctuation. For this reason, Olin requests that the quarterly and monthly nitrate discharge requirements be adjusted to 40 mg/L and 45 mg/L, respectively. These proposed nitrate requirements are protective of beneficial use, would allow maximum system operational flexibility, and maintain compliance with State Board Resolution 68-16.

Page 10, paragraph 22, first full paragraph, last sentence: This sentence cites the ACS' beneficial effects; however, the statement about reduction in nitrate loading to the land is not related to Olin, and should be clarified.

Page 10, paragraph 23: This paragraph, stating that Olin is prohibited from "causing nitrate to increase significantly," is ambiguous as there are no quantitative criteria expressed. Given the seasonal fluctuations and spatial variations of nitrate concentrations in the different aquifers, it will be difficult to evaluate this criterion. This paragraph should be deleted; it is unnecessary

given that compliance with the Waste Discharge Requirements is directly established by compliance with specific permit limits.

Page 11, paragraph 27: Olin generally agrees with the Water Board's analysis regarding State Water Board Resolution 68-16 (anti-degradation). The permitted discharge is a part of an overall ACS system that removes perchlorate and restores beneficial uses of the aquifers affected by perchlorate while at the same time maintaining nitrate concentrations that are (i) consistent with the maximum benefit to the People, (ii) will not unreasonable affect present and anticipated beneficial uses, and (iii) will not result in water quality less than that prescribed in State policies.

Page 12, paragraph 31, second sentence: Because of the verb tense, this paragraph seems to imply that characterization is not yet complete. As acknowledged in the Water Board's June 30, 2010 letter, basin characterization has been completed sufficient to proceed with remediation. We suggest that the verb tense be changed to past tense.

Page 12, paragraph 33, second sentence: The sentence references "partial nitrate treatment," although the Order acknowledges that Olin is not the source of nitrate contamination in the basin. Moreover, the ACS infrastructure includes nitrate analyzers and programmable controls to monitor nitrate concentrations in the extracted and blended groundwater to ensure that nitrate levels in the recharge water remain below the specified discharge requirements. The reference to "partial nitrate treatment" should therefore be deleted.

Page 14, Ordering paragraph B, point #2 (graph): "Nitrate" should be specified as "Nitrate (as NO_3)"

Page 14, Ordering paragraph B, point #2 (graph), Quarterly and Monthly Nitrate Average Limitations: It appears that the Water Board's proposed quarterly and monthly nitrate discharge limits for on-Site reinjection of treated groundwater are based on their calculated nitrate increase (2 mg/L) at the replaced Tennant well. As noted above, the method used to calculate the percent increase is incorrect and overestimates the potential effect of recharge on the nitrate concentration at the Tennant Well. Applying the correct mathematical formula, the potential impact of on-Site reinjection on nitrate concentrations in the Tennant Well is estimated to be less than 0.5 mg/L. Given the temporal and spatial fluctuations of nitrate concentrations in the Llagas Subbasin, the potential effect of on-Site reinjection on Tennant Well nitrate concentrations is negligible. Given this, and basin-wide nitrate variability, the quarterly and monthly nitrate discharge requirements be adjusted to 40 mg/L and 45 mg/L, respectively. These proposed nitrate requirements are protective of beneficial use, would allow maximum system operational flexibility, and maintain compliance with State Board Resolution 68-16.

Page 14, Ordering paragraph B, point #2 (graph), footnote #2: The Water Board's requirement to "minimize nitrate in the effluent while maximizing perchlorate" is ambiguous. The statement should be worded to better reflect planned operation as follows:

> "The discharger shall operate the ACS to establish containment of perchlorate and, if necessary, adjust extraction rates to achieve the specified discharge requirements."

- Page 14, Ordering paragraph B, point #2 (graph), footnote #2: The reference to nitrate treatment (should nitrate blending not achieve effluent limits) should be removed. The Water Board has documented, here and in other documents, that the Basin's nitrate

> contamination, much of which exceeds the nitrate MCL, is unrelated to Olin. Beyond treatment by blending, within the limitations imposed by existing water quality within the basin, treatment for nitrate is not a plan or requirement of this perchlorate remediation project under Cleanup and Abatement Order ("CAO") No. R3-2007-0077, which CAO does not require nitrate remediation. Moreover, the ACS infrastructure includes nitrate analyzers and programmable controls to monitor nitrate concentrations in the extracted and blended groundwater to ensure that nitrate levels in the recharge water remain below the specified discharge requirements. Any and all nitrate remediation requirements should be stricken from the draft Staff Report and WDR.

Page 14, Ordering paragraph C, point #1: This goal is stated incorrectly. The goal of the ACS is to establish perchlorate containment in the designated aquifers, treat groundwater to achieve the specified perchlorate discharge limits, and recharge treated groundwater in a manner that is compliant with the discharge specifications.

Page 14, Ordering paragraph C, point #3: Please see previous comment Page 10, paragraph 23

Page 14, Provision paragraph 1: As stated above, enrollment in R3-2008-0010 should not be rescinded it its entirety. Rather, it should remain in place for other soil and groundwater generated during remediation activities. We recommend changing the text to read:

> "Enrollment in the General Waiver of Waste Discharge Requirements Resolution No. R3-2008-0010 (General Waiver) for onsite treatment system reinjection is hereby rescinded. Enrollment in the General Waiver remains in place for other types of discharges specified in R3-2008-0010."

CITY OF MORGAN HILL

CITY ATTORNEY'S OFFICE

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May 20, 2011

Roger W. Briggs
Executive Officer
c/o Dean Thomas, PG
Engineering Geologist,
Site Cleanup/Perchlorate
Central Coast Regional Water Quality Control Board

RE: Morgan Hill Comments on Waste Discharge Requirements for the Olin Aquifer Containment and Cleanup System, Santa Clara County (Order No. R3-2011-0209)

Dear Mr. Briggs:

Please accept and submit to the Board the following comments on the above-referenced subject matter.

Summary

1. Nitrate concentration levels resulting from the proposed action would potentially cause Morgan Hill drinking water supply to exceed drinking water safety standards for nitrate. Board staff projects that the City's Tennant Well aquifers would see an increase of nitrate concentration to a *projected* 36mg/L. Department of Public Health mandates the *shut down* of the City's well operation if nitrate concentration level in its well water reaches 40mg/L *at any time*.

2. The proposed Order that "the discharge shall not cause a significant increase in nitrate concentrations . . ." would not meet the requirement of State Water Board Resolution 68-16 requiring the "best practicable treatment and control of discharge". The City proposes a defined "significance level" so that Olin must cease reinjection operations any time the concentration in the intermediate and deep aquifer reaches 34mg/L in order to investigate the potential impact on drinking water supplies and methods to reduce nitrate levels.

Background

The City of Morgan Hill is the domestic drinking water supplier to nearly 40,000 residents of our city. In particular, the City operates the Tennant Well located in the immediately vicinity of the Olin site and the site of the proposed action to re-injected treated water laden with higher concentrations of nitrate.

The City's well and pumping operations must comply with drinking water standards promulgated by the Department of Public Health. These regulations required *daily* sampling of water pumped from the City's wells for contaminants. Relevant to the matter at hand, if any one of the daily test detects nitrate concentration of 40mg/L, the City must *shut down* its well operation. The maximum nitrate level for drinking level is 45mg/L.

Therefore, the City is extremely concerned about any action that would raise nitrate concentration levels at any of the aquifers from which the City draws its drinking water supply.

Proposed Action Would Degrade Drinking Water Supply Nitrate Levels to the Edge of Water Safety Threshold Standards

Though the City supports the treatment of perchlorate, the City has raised with Board Staff concerns that the proposed treatment system would transport water from areas with high nitrate concentrations to the City's Tennant Well area where the nitrate concentration is lower. Indeed, the Board staff report indicates that "effluent nitrate limits could increase the nitrate concentrations in the receiving water (shallow aquifer) from approximately 24 mg/L up to 39 mg/L . . ." More concerning to the City is that "the average nitrate concentrations in the upper intermediate aquifer (the vicinity of the site) could increase from the current average of 33 mg/L up to *36 mg/L*, after ten years of reinjection."

The proposed action pushes nitrate concentration levels at the City's Tennant Well perilously close to the level where the City would have to shut down its well operation. As discussed above, the City is obligated to shut-down the Tennant Well in the event nitrate levels are greater than or equal to 40 mg/L. To meet this requirement, nitrate levels at Tennant Well are closely monitored; measured by an on-line analyzer, checked daily by a certified operator and samples sent to a certified laboratory weekly. The City's on-line nitrate analyzer at Tennant Well shows nitrate levels in decline. There is a 9% decrease in the annual average nitrate level measured at Tennant Well by this instrument from May 2005 to May 2011.

Consistent with the on-line nitrate analyzer, the weekly samples analyzed by the laboratory also show a downward trend in the level of nitrate as observed in the resulting water quality reports. Whereas 2005 returned two samples in February that reached 38 mg/L and 37 mg/L, laboratory analyst of Tennant Well nitrate levels in 2011 have not returned a single sample above 29 mg/L.

Overwhelming evidence supports the City's claims that nitrate levels in the vicinity of Tennant Well are in decline. This is a benefit to the community. Olin's plan reverses the trend of declining nitrate levels in the vicinity and increasing the nitrate threat to Tennant Well.

Proposed Order Should Defined What Constitutes "Significant Increase in Nitrate" That Would Trigger Protective Actions

Given the clear degradation of water quality in nitrate levels, the proposed action treads on the borderline of the State Water Board Resolution 68-16:

> *"Any activity which produces or may produce a waste or increased volume or concentration of waste and which discharges or proposes to discharge to existing high quality waters will be required to meet waste discharge requirements which will result in best practicable treatment and control of the discharge necessary to assure that (a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the State will be maintained."*

The City does not believe that that proposed Order is the "best practicable treatment and control of the discharge. With regard to the level of degradation in the receiving water, the proposed Order only provides that:

> "The discharge shall not cause a significant increase in nitrate concentrations in the intermediate and deep aquifer monitoring wells located within the ACS recharge area."

Given that Board staff projects nitrate concentrations of the injected water and increased concentration in the aquifer would come perilously close to drinking water safety thresholds, the proposed Order is unduly vague and does not propose the "best practicable treatment and control".

The City requests that Board clearly define what constitutes a "significant increase" in the nitrate level to the intermediate and deep aquifers. The City suggests an increase to 34 mg/L of nitrate in these aquifers (on a quarterly average basis) would be considered significant due to the contamination risks to the ground water and in particular the city owned Tennant Well. At this significant level, Olin should be required to cease reinjection of the treated water and cooperate with the Board and the City to undertake investigation as to ways to ensure that nitrate concentration does not exceed drinking water standards, including examination of potential other sources of nitrate.

The suggested limit of 34 mg/L would provide the City with a 12% buffer between the operating restriction of the Tennant Well (40 mg/L) imposed by the Department of Public Health and the projected increased nitrate levels (36mg/L) contributed by Olin's proposed operations.

The suggested limit is also reasonable in light of the permitted effluent concentration in the proposed Order. The proposed order limits Olin re-injected effluent to 39 mg/L on a quarterly average basis and 43 mg/L on a monthly average basis. The City notes that 39 mg/L is only 1 mg/L below the concentration at which the City would have to shut down its well operations and 43mg/L would cause the City to shut down its wells.

City understands that Board staff *projects* that the effluent concentration would be diluted when it blends with receiving water at the intermediate and deep aquifer levels (where the drinking water resides). However, these are only projections predicated upon assumptions that may or may not prove to be true. The City, faced with a strict order to SHUT DOWN its well operations cannot gamble with such projections and assumptions. The City is reasonable in requesting that there is a defined level of nitrate concentration in the aquifer itself (34 mg/L) that would trigger Olin and the Board to take cooperative action with the City to remedy nitrate contamination so that it stays below the drinking water safety standard threshold.

Sincerely,

Danny Wan
City Attorney
City of Morgan Hill

cc: Ed Tewes, City Manager

Santa Clara Valley Water District SM

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May 20, 2011

Mr. Roger Briggs
Central Coast Regional Water Quality Control Board
895 Aerovista Place, Suite 101
San Luis Obispo, California 93401-7906

Subject: Comment Letter – Draft Proposed Waste Discharge Requirements for Olin Corporation, 425 Tennant Avenue, Morgan Hill, Santa Clara County, Aquifer Containment and Cleanup System

Dear Mr. Briggs,

Thank you for the opportunity to comment on the proposed Waste Discharge Requirements (WDR) for Olin Corporation's Aquifer Containment and Clean-up System (ACS). The Santa Clara Valley Water District (District) serves nearly 1.8 million residents of Santa Clara County. Ensuring a safe, reliable supply of high-quality water now and in the future is a top priority for the District. As the local groundwater management agency, the District is charged with protecting groundwater resources, which provide nearly half of the water used in the county and are the sole drinking water source in the Llagas Subbasin.

The District supports the Regional Water Quality Control Board's (Water Board's) efforts to expedite Olin's ACS and offers the following comments on the proposed WDR:

1. Nitrate Effluent Limitations
   The District is concerned about the nitrate effluent limitations of 39 parts per million (ppm; quarterly average) to 43 ppm (monthly average) as this water is to be re-injected into the shallow groundwater, which is of higher quality. The current shallow zone nitrate concentrations in the immediate vicinity of the site range from 10 to 27 ppm. The reinjection of the treated groundwater at rates of 500 to 1,000 gallons per minute (gpm) may result in significant impact on the shallow groundwater quality.

   Although the District acknowledges the benefit of reducing perchlorate in the intermediate and deep aquifers, this should not be achieved by degrading water quality in the shallow zone, which is hydraulically connected to deeper zones currently pumped for beneficial use. The District believes that additional actions can be required to lessen this impact, including lowering the effluent limitation for nitrate and monitoring to assess the significance of impacts to the shallow groundwater and to the domestic well owners in the ACS recharge zone.

   Olin's reinjection has the potential to adversely impact the 23 domestic wells located in the ACS recharge zone. Nitrate analysis should be required for the domestic wells located in the ACS recharge zone. Should this monitoring indicate statistically significant nitrate increases in the domestic wells, Olin should be required to assess the cause and evaluate options to minimize the increase it is attributed to the reinjection. If Olin's reinjection results

in any domestic wells in the ACS exceeding the MCL for nitrate, Olin should be required to provide an alternative water supply for the well users.

Addendum 3 to the Plume Migration Control Feasibility Study (Geosyntec, 2010) included pumping from well DEW-2 to provide containment for the lower deep aquifer and to reduce the nitrate concentrations in the blended groundwater entering the treatment system. The current plan does not include pumping from well DEW-2, instead relying on the proposed Gradient Driven Remediation (GDR). While the District will be commenting on the GDR concept separately, the District recommends that well DEW-2 be incorporated into the current plan to meet its initial goals.

2. Beneficial Use of Shallow Groundwater (Page 11, Number 27)
   This section states, "Although nitrate concentrations will increase locally in the shallow aquifer (that does not currently have a beneficial use)..." While the shallow aquifer is not currently being used as a source of drinking water, the District believes that this statement is inaccurate and recommends modifying this statement to read, "Although nitrate concentrations will increase locally in the shallow aquifer (that is not currently being used as a source of drinking water)..."

3. Effluent Monitoring (Item 25)
   Item 25 states that the Operation, Maintenance, and Monitoring (OMM) plan requires monthly sampling for perchlorate and nitrate. This frequency of sampling is sufficient once the system is up and running and reached a steady state. However, during initial operations, conditions may be much more dynamic. The District recommends that more frequent sampling be required during the start-up period until steady-state conditions can be demonstrated.

4. Monitoring and Reporting (Provision 2)
   A groundwater contour map should be required in each quarterly monitoring report in order to evaluate mounding in the injection area and capture in the intermediate and deep aquifers.

If you have any questions, please contact me at (408) 265-2607 ext. 2324.

Sincerely,

Behzad Ahmadi

Behzad Ahmadi
Unit Manager
Groundwater Monitoring and Analysis Unit
Santa Clara Valley Water District

cc: Mr. David Share, Olin Corporation
Mr. Karl Bjarke, City of Morgan Hill
Mr. Rick Smelser, City of Gilroy
Ms. Sylvia Hamilton, Perchlorate Community Advisory Group
Mr. John Robertson, Central Coast Regional Water Quality Control Board (via email)
Mr. Dean Thomas, Central Coast Regional Water Quality Control Board (via email)
Ms. Thea Tryon, Central Coast Regional Water Quality Control Board (via email)
J. Maher, J. Fiedler, V. De La Piedra, G. Cook

State of California—Health and Human Services Agency
California Department of Public Health

HOWARD BACKER, MD, MPH
Interim Director

EDMUND G. BROWN JR.
Governor

May 13, 2011

Mr. Roger W. Briggs
Executive Officer
Central Coast Region
California Regional Water Quality Control Board
895 Aerovista Place, Suite 101
San Luis Obispo, CA 93401-7906

Dear Mr. Briggs:

RE: DRAFT ORDER R3-2011-0209, DRAFT PROPOSED WASTE DISCHARGE REQUIREMENTS FOR OLIN CORPORATION, 425 TENNANT AVENUE, MORGAN HILL, SANTA CLARA COUNTY, AQUIFER CONTAINMENT AND CLEANUP SYSTEM

The Department of Public Health (Department) has reviewed the document for the subject project, received on April 21, 2011.

As you know, the Olin Aquifer Containment and Cleanup System (ACS) is of concern to the Department due to the potential impacts to public water systems regulated by the Department. Specifically, the Department is concerned that the reinjection of treated water with higher nitrate concentrations relative to the current nitrate concentrations in the receiving water may negatively impact groundwater sources used for potable supply. As you know, the Maximum Contaminant Level (MCL) for nitrate in potable water supply is 45 mg/L. For the protection of public health, the Department would pursue enforcement actions against water public water systems that exceed the MCL and require the provision of treatment, termination of usage of the source, or other corrective action.

With respect to the potential impact to public water systems and public health, the Department would like to offer the following comments:

1. The Draft Order identifies only the City of Morgan Hill as potentially impacted by the ACS. It should be noted that there are other public water systems, including two small community water systems and three transient, non-community water systems, within the vicinity of the ACS (as bordered by Tennant Avenue, Santa Teresa Blvd, Cox Avenue in San Martin, and Highway 101) that may be impacted by the ACS. One of the systems currently has treatment for nitrate; therefore, any increase in nitrate levels to the source may affect nitrate treatment operations. These other systems should also be considered when assessing potential impacts due to the ACS.

2. Item 2 of the Discharge Specifications (page 14) indicates that the effluent discharge limits for nitrate is 43 mg/L for the monthly average and 39 mg/L for the quarterly average. Based on these discharge limits, it is anticipated that the corresponding increase in nitrate at Tennant Well will be up to 2 mg/L resulting in an estimated increase in the Tennant Well nitrate concentrations from 28 mg/L to 30 mg/L. Provided that the anticipated increase holds true, the Department considers the impact to City of Morgan Hill's Tennant Well to be non-significant. Furthermore, Tennant Well is equipped with an online nitrate analyzer that is programmed to shutdown the facility should the nitrate reach or exceed 40 mg/L. However, increases in nitrate concentration in Tennant Well above 36 mg/L and trending upward may warrant modified operation of the potable water source, which will negatively impact the City of Morgan Hill.

3. Item 25 of the Draft Order (page 10) states that "an Executive Officer-approved [operations, maintenance and monitoring] (OMM) plan is in place that requires monthly effluent sample collection and laboratory analyses for perchlorate and nitrate, and instantaneous monitoring for nitrate in the treatment stream using in-line analyzers. Instantaneous monitoring of nitrate allows for timely system adjustments and potential shutdowns, if necessary." Shutdown and alarm functions consistent with the effluent discharge limits and programmed into the in-line analyzer should be included in the operations and reliability of the ACS and should be specified in the OMM. Furthermore, action items should be specified in the event that a shutdown or alarm is triggered.

4. Item 1 of Receiving Water (Groundwater) Limitations (page 14) states that "the goal of the proposed ACS is to blend concentrations of nitrate from offsite extraction wells as close to the present receiving water concentrations for nitrate as economically and technically possible." Blending operations should be specified in the Executive Officer-approved operations, maintenance, and monitoring (OMM) plan and should include action items when the nitrate concentrations of the effluent discharge exceed those specified in the Draft Order.

The Department appreciates the opportunity to review the draft Order and Staff Report for the subject project. If you have any questions or comments, please contact Tara Ouitavon at (510) 620-2988.

Sincerely,

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Drinking Water Field Operations Branch

cc: Santa Clara County Environmental Health Department

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variable throughout the Subbasin, do in some cases already exceed the nitrate drinking water standard of 45 mg/L. We appreciate that the Order appropriately sets a quarterly effluent discharge limit of 39 mg/L of nitrate as NO_3 (Item #22) to provide a margin of safety, and prohibits nitrate levels to increase significantly in all aquifers currently used for domestic and municipal supply (Item #23). However, we are concerned that these measures alone do not accurately monitor or adequately protect the aquifers against degradation.

As part of our support for the WDR, therefore, CWA asks that a robust monitoring program be established to monitor trends in the nitrate levels of the aquifers, with a particular focus on the drinking water wells influenced by the recharge of the perchlorate treated water. Of course, because nitrate is unrelated to Olin's operations, it will be regulated under a separate WDR (R2-2008-0010). **To ensure optimum coordination and protection, we urge the Board to explicitly include a stipulation in this WDR revoking the discharge waiver for nitrates containing water if the trend in nitrate levels indicates that degradation of the aquifers threatens to cause exceedences of the drinking water standard.**

Again, we commend Regional Board Staff for their dedication to working with the local impacted community, as well as the responsible party, to ensure an effective perchlorate cleanup program. Because moving forward with the perchlorate treatment program is essential in protecting the health and safety of the community, we urge the Board to adopt this WDR. CWA certainly recognizes that it is not uncommon that efforts to address one water contaminant can conflict with concerns about other pollutants. Our recommendations above are therefore made in the spirit of strengthening the proposed WDR and we appreciate your consideration of them.

Sincerely,

Andria Ventura

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Toxics Program Manager

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