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CURT M. RICHARDS
Vice President
Environment, Health & Safety

March 30, 2004

Mr. Jeffery S. Young
Chair
California Regional Water Quality Control Board
Central Coast Region
895 Aerovista Place, Suite 101
San Luis Obispo, CA 93401-7906

Dear Mr. Young:

Olin Corporation appreciated the opportunity to present Dr. Pleus and his view on the toxicity of perchlorate at the last RWQCB meeting. We recently compiled a list of 2003 accomplishments associated with Olin's activities regarding the Olin/Standard Fusee site and wish to share it with you and the Board. During the RWQCB meeting, a comment was made about the progress of the investigation for perchlorate in the San Martin area. Olin believes that this list of accomplishments illustrates that we have been investigating this question in an expedited manner.

Sincerely,

A handwritten signature in black ink that reads "Curt M. Richards". The signature is written in a cursive, flowing style.

Curt M Richards
OLIN CORPORATION

cc: Roger Briggs - RWQCB

Item No. 19 Attachment No. 3
May 14, 2004 Meeting
Perchlorate Sites

Olin Corporation



ACCOMPLISHMENTS DURING 2003

Olin/Standard Fusee Site
Morgan Hill, California

SITE CHARACTERIZATION:

- Completed characterization of Site's complex lithology, hydrostratigraphy, and perchlorate presence to a depth of over 400 feet through installation of wells and soil borings and collection of soil and groundwater samples.
- On-site Groundwater samples:
 - 266 groundwater samples collected for perchlorate analysis
 - 13 groundwater samples collected for a full suite of analysis, included: metals, volatile organic compounds, etc.
 - 31 wells routinely sampled (e.g: monthly or quarterly)
- On-site Soil Samples:
 - 183 soil borings drilled
 - 439 soil samples analyzed
- 16 BarCad® Wells Installed:
 - 5 to a depth of 50' bgs.
 - 4 to a depth of 99' bgs.
 - 4 to a depth of 142' bgs.
 - 3 to a depth of 195' bgs.

INTERIM ACTIONS:

- Installed and maintained interim cover over certain areas of the Site
- Increase cover size as additional data were developed

LLAGAS SUB-BASIN CHARACTERIZATION:

- Obtained and analyzed hydrogeologic information from well logs to characterize the complex lithology and hydrostratigraphy throughout the Llagas Sub-basin
- Developed complex geologic cross-sections and fence diagrams characterizing the Llagas Sub-basin to a length of approximately 9.5 miles, width of 2 miles, and depth of over 400 feet
- Developed and implemented a RWQCB-approved quarterly groundwater sampling program containing nearly 300 wells
- Identified a subset of 45 RWQCB-approved monitoring wells with extensive well construction data that are representative of basin conditions for long-term perchlorate monitoring
- Routine quarterly groundwater sampling that resulted in:
 - 2,613 groundwater samples collected and analyzed



ACCOMPLISHMENTS DURING 2003

Olin/Standard Fusee Site
Morgan Hill, California

LLAGAS SUB-BASIN CHARACTERIZATION (cont.):

- 788 wells routinely sampled over 4 quarters
- Established well access agreements with well owners

BOTTLED WATER PROGRAM:

- Pursuant to RWQCB direction, as a precautionary measure, providing bottled drinking water for well owners whose well exceeded 4 part per billion perchlorate even though the Department of Health Services does not recommend removal of a municipal well from service until the perchlorate concentration exceeds 40 ppb
- 746 bottled water locations transitioned from the VWD to Olin

SITE REMEDIATION:

- Developed conceptual soil remediation alternatives
- Identified potential treatment technologies for perchlorate in groundwater
- Evaluated several leading consulting firms with recognized perchlorate remediation expertise and selected GeoSyntec to lead on-site perchlorate remediation
- Developed and implemented a scientifically based supplemental soil sampling program
- Developed soil screening levels (SSLs) based on a comprehensive, EPA-approved approach
- Performed and analyzed data from aquifer tests:
 - 2 step-down tests and 2 constant rate tests were conducted
 - Geotechnical soil samples were collected and analyzed
- Developed numerical groundwater flow model to verify on-site groundwater containment
- Evaluated infiltration scenarios for in-situ soil remediation
- Installed extraction, observation and performance wells:
 - 3 extraction wells were installed on-site:
 - 1 to a depth of 100 feet below ground surface
 - 2 to a depth of 50 feet below ground surface each
 - 5 observation wells were installed on-site:
 - 1 to a depth of 50 feet below ground surface.
 - 1 to a depth of 100 feet below ground surface.



ACCOMPLISHMENTS DURING 2003

Olin/Standard Fusee Site
Morgan Hill, California

SITE REMEDIATION (cont.):

- 1 to a depth of 150 feet below ground surface.
 - 1 to a depth of 200 feet below ground surface.
 - 1 to a depth of 260 feet below ground surface.
 - 6 performance wells, 2 on-site and 4 off-site, were installed:
 - 3 to a depth of 50 feet below ground surface.
 - 3 to a depth of 100 feet below ground surface.
 - 6 monitoring wells were complete on-site:
 - 3 to a depth of 50 feet below ground surface.
 - 3 to a depth of 100 feet below ground surface.
- Conducted 48-hr infiltration test at the Butterfield Retention Pond and analyzed data to support WDR Application and Encroachment Permit Application
- Applied for and obtained a waiver of discharge requirements from the Regional Water Quality Control Board associated with treated groundwater management
- Applied for and obtained an encroachment permit from the City of Morgan Hill for treated groundwater management
- Constructed an on-site groundwater containment and treatment system on an accelerated timeframe; the system was constructed on time

OFF-SITE ION EXCHANGE SYSTEM INSTALLATIONS:

- Designed, installed and leased two ion exchange systems for the West San Martin Water Work Colony and County wells
- Assisted the West San Martin Water Works in obtaining permit modification from the California Department of Health Services to operate ion exchange systems
- Assisting the West San Martin Water Works in monitoring the ion-exchange systems
- Designed, installed and leased an ion exchange system for the San Martin County Water District Camping World well
- Assisted the San Martin County Water District to modify its operations permit with the California Department of Health Services to operate the ion exchange system
- Assisting the San Martin County Water District to monitor the ion-exchange system



ACCOMPLISHMENTS DURING 2003

Olin/Standard Fusee Site
Morgan Hill, California

CITY OF MORGAN HILL:

- Provided \$455,384.50 check to the City of Morgan Hill for its documented costs associated with the replacement of the Tennant Avenue well (i.e. the San Pedro well)
- Provided \$56,916.00 check to the City of Morgan Hill for its documented costs associated with the construction of the San Pedro well

REPORTS SUBMITTED TO THE CENTRAL COAST, REGIONAL WATER QUALITY CONTROL BOARD:

- Successfully responded to eight California Code 13267 demands
- 12 Monthly Progress Reports
- Fourth Quarter 2002 Groundwater Monitoring Report
- Soil Remediation Alternative Evaluation and Potentially Feasible Groundwater Treatment Technologies For Perchlorate
- Tier 4 Offsite Well Sampling Workplan
- Phase 3 Soil and Groundwater Investigation Workplan
- First Quarter 2003 Groundwater Monitoring Report
- Phase 3 Soil and Groundwater Investigation and Remedial Action Conceptual Design Report
- Second Quarter 2003 Groundwater Monitoring Report
- Initial Design for Combined Full-Scale Remediation of Perchlorate-Impacted Soil & On-Site Groundwater
- Third Quarter 2003 Groundwater Monitoring Report
- Development of Screening Levels for Perchlorate in Soil at the Olin-Standard Fusee Site
- 45% Design Report for Full-Scale Remediation of On-Site Groundwater
- 90% Design Report for On-Site Containment of Perchlorate-Impacted Groundwater
- Groundwater Flow Assessment Workplan
- Soil Remediation Feasibility Study, Olin/Standard Site, Morgan Hill, California
- Application/Report of Waste Discharge Olin/Standard Fusee Site Morgan Hill, California



ACCOMPLISHMENTS DURING 2003

Olin/Standard Fusee Site
Morgan Hill, California

REPORTS SUBMITTED TO THE CENTRAL COAST, REGIONAL WATER QUALITY CONTROL BOARD (cont.):

- Commissioning of On-Site Containment and Treatment System, Olin/Standard Fusee Site, Morgan Hill, California

ON-SITE MAINTENANCE:

- Maintained Site in accordance with local fire district code