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Olin
3855 NORTH OCOEE STREET, SUITE 200, CLEVELAND, TN. 37312
(423) 336-4000 FAX (423) 336-4166

October 21, 2011

Mr. Alex Czuhanich
New York State Dept.of Environmental. Conservation
Division of Hazardous Waste
625 Broadway
Albany, NY 12233

Re: Semiannual Report: Olin Chemicals
Buffalo Ave. Facility, Niagara Falls, NY

Dear Mr. Czuhanich:

This is the second Semiannual report for 2011 as required by Olin's Administrative Order on Consent (AOC) for our Niagara Falls Plant, (Index #R9-4171-94-08, Site Registry #9-32-051A, and B). The timeframe for this report covers the period from April 1, 2011 through October 31, 2011. A full copy of this report is also included as a PDF file on the attached CD.

Scheduling and Submittals:
Olin currently submits semiannual reports containing quarterly system and piezometric data, plus annual groundwater monitoring data. We propose to submit these same data to NYSDEC in a single annual report. We believe that an annual reporting schedule is appropriate, given the maturity of the remediation program (12 years) and the consistent results that have been reported in recent years. Of course, should there be any variations from these consistent results during the year, Olin would notify NYSDEC upon their occurrence. We feel that annual reporting would be consistent with reporting for our other Niagara Falls sites. Please let me know whether NYSDEC agrees to this scheduling change, at your earliest convenience.

Operation / Maintenance issues :
The most significant operational enhancement during this reporting period was the replacement of the original air stripper with a new air stripping unit. Details of the implementation of routine maintenance tasks and trouble shooting activities are included for this reporting period in the six monthly memoranda from Olin's consultant, AMEC E&I (***Attachment 1, on CD***). The most significant metrics of system performance are the tracking of downtime and of target drawdown levels. Historically, when the system is running and operating efficiently, hydraulic capture is achieved. The monthly O&M reports document the details of all issues.

Hydraulic Capture:
Attachment 2 on CD includes PDF files of piezometric maps for each hydraulic zone representing the most recent two quarters. That attachment also includes tables and hydrographs documenting empirical monthly hydraulic capture comparisons, plus piezometric data and system flow data.

A-zone: The A-zone groundwater capture criteria are via empirical comparison to Gill Creek stage and Buffalo Avenue sewer invert levels. In general, A-zone capture is being achieved over the

300 foot boundary with Gill Creek, and relative to potential northward flow toward Buffalo Avenue.

This is largely aided by seasonally dry conditions. A-zone capture has been maintained during the two reporting quarters. One minor area of capture weakness is at the piezometer PN6A, covering a span of approximately 20 feet. This is evidenced by the Gill Creek elevation being slightly higher than this piezometer's level. Past monitoring indicates that any effects of this apparent hydraulic gradient are de minimis due to daily fluctuations in Gill Creek level causing diurnal gradient reversals and inhibiting groundwater discharge.

B-zone: Capture is also being maintained. C-zone: C and CD-zone gradients indicate westward flow toward and capture by the high volume Production well in Plant 1. There is some . eastward flow toward the Solvent Site groundwater collection system at the Plant 2 area. Limited C-zone data also suggest northward flow during some measurement episodes.

Groundwater Quality:
The recovery well header groundwater data, plus influent, mid-carbon, and effluent data for the second and third quarters of 2011, are included on the CD as ***Attachment 3***. Annual groundwater monitoring data, for the May, 2011 sampling, are also included in ***Attachment 3.***

Overview of extracted groundwater volume and contaminant mass:
The volume of pumped groundwater for the two quarters comprising this reporting period was approximately 13.8 million gallons. The total volume of groundwater extracted and treated since system startup is approximately 360 million gallons. Since startup the system has extracted over 77,600 pounds of organics, 355 pounds of pesticides and approximately 4 pounds of mercury. ***Attachment 3*** contains tables showing the current reporting quarters' header data per well, mass removed per quarter and mass removed over the operational life of the system to date. Graphs of mass removed per million gallons of water show that mercury and pesticide rates have dropped, indicating significant progress in removing those constituents. The graph or organics mass removed per million gallons continues to show cyclicity in organics removal rates. Note that approximately 90 per cent of organics mass removed by the Olin treatment system have moved onsite from non-Olin sources.

We believe that we are continuing to make significant progress in removing contaminant mass from Olin's Niagara Falls Plant site via our remediation system. We will continue to improve the system and monitor its effectiveness. Please direct any questions or comments to me at 423/336-4587.

Sincerely,

Michael J. Bellotti

Michael J. Bellotti
OLIN CORPORATION

cc: Pat Concannon - NYSDEC Buffalo, NY
Gina Senia: Olin Niagara Falls, NY
Ellen Stein: USEPA: Region II, New York, NY
Rick Marotte: AMEC E&I: Kennesaw, GA

List of Attachments on CD

Attachment 1:

- Monthly Operation and Maintenance Status Reports:

Attachment 2:

- Piezometric maps, hydrographs and supporting data
- System Flow Data

Attachment 3:

- Groundwater Quality Data: Q2-11quarterly recovery well header data and influent/effluent data plus annual monitor well sampling data
- Groundwater Quality Data: Q3-11 quarterly recovery well header data and influent/effluent data
- Quarterly Mass Removed and Project to Date Mass Removed Data
    - Quarterly Contaminant Mass Removed Tables
    - Project to Date Groundwater Flow and Mass Removed