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February 6, 2007

Mr. Michael J. Hinton, P.E.  
Environmental Engineer II  
New York State Department of Environmental Conservation  
270 Michigan Avenue  
Buffalo, New York 14203-2999

E-FILED

**Subject: Charles Gibson Site  
NYSDEC Registry No. 9-32-063  
Fourteenth Annual Report - 2006**

Dear Mr. Hinton:

As requested by NYSDEC I have attached one hard copy and one electronic version (in Adobe PDF format) of the subject report. This report summarizes the activities performed during 2006 for the operation and maintenance of the containment remedy for the site and the ground water monitoring program outside of the containment area.

The following is a summary of major activities that occurred during 2006.

- Semi-annual groundwater sampling events were performed during April and September 2006.
- Annual sediment sampling was performed in September.
- Annual sampling and analysis of leachate was completed in April.
- There were 52,891 gallons of leachate discharged to the City of Niagara Falls Wastewater Treatment Facility.

The Semi-Annual Ground Water Sampling and Annual Sediment Sampling Report - September 2006, is included as Appendix A to this report. The Data Usability Summary Report is included in this report.

Olin requests that NYSDEC consider our 2004 request to discontinue hexachorobenzene (HCB) monitoring in ground water wells.

Please direct any comments to me at 423/336-4587. Thank you.

Sincerely,  
OLIN CORPORATION

Michael J. Bellotti  
Principal Environmental Specialist

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FEB 15 2007

cc: C. M. Richards via e-mail  
Brian Vain – Olin Niagara Falls via e-mail  
Mike Walker – Severson Environmental Services via e-mail  
Matthew Forcucci – NYSDOH Buffalo

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Charles Gibson Site  
NYSDEC Registry No. 9-32-063  
Fourteenth Annual Report -2006

**FOURTEENTH ANNUAL REPORT**

**2006**

**CHARLES GIBSON SITE**

**(PINE AND TUSCARORA SITE)**

**NIAGARA FALLS, NEW YORK  
NYSDEC REGISTRY NO. 9-32-063**

**PREPARED BY OLIN CORPORATION**

**FEBRUARY 2007**

## **Introduction**

This is the fourteenth Annual Report from Olin Corporation (Olin) for the Charles Gibson Site (Pine and Tuscarora Site), located in Niagara Falls, New York. This report summarizes activities performed during 2006 for the operations and maintenance of the containment remedy for the Site and the ground water monitoring program outside of the containment area. This year's data for the Semi-Annual Ground Water and Annual Sediment Sampling, collected during September 2006 has been incorporated as part of the Annual Report.

## **Background**

The Charles Gibson Site (Site) is located approximately four miles east of downtown Niagara Falls, New York. The Site comprises an area of approximately two acres of land in Niagara County bordered on the south by private property, on the west by Tuscarora Road and on the north and east by Cayuga Creek. The Site is a fully remediated waste site currently surrounded by a fence.

Construction of the remedy on the Site concluded in 1990. The remedy consisted of rerouting Cayuga Creek around and away from the waste, installation of a fully circumscribed soil-bentonite slurry wall barrier and installation of a double flexible membrane liner cap with a perimeter collection drain system. The first year of operations and maintenance (O&M) of the containment remedy for the Site and the ground water monitoring program began in 1993.

Waters collected in the Site perimeter collection drain system are managed by direct discharge to the City of Niagara Falls Wastewater Treatment Facility. The Site is classified as a commercial/small industrial/residential user (CSIRU) and does not require a permit.

Reports are submitted as appropriate to the New York State Department of Environmental Conservation (NYSDEC). Records of all environmental monitoring are maintained by Olin Corporation. These records are available for review and inspection by the State.

## **Discussion**

The Stipulation and Consent Judgment, CIV 83-1400, and its modification, CIV 83-1400C, (the Agreement) listed the following elements to be included in the required remediation plan for the Site (Plan C):

1. Quarterly ground water monitoring for 30 years (revised in 1997 to semiannual);
2. Sample collection and analysis of creek water and of creek sediments annually for 30 years. During 1993 the creek water sampling was discontinued and sediment sampling was modified to collection during the low flow/dry season;
3. Establishment of an upward hydraulic gradient within the containment area, unless Olin can demonstrate by clear and convincing evidence the establishment of the same is unnecessary or inappropriate to the accomplishment of the goals set forth in paragraph 4(a) of the stipulation;
4. Acquisition by Olin of easements which would permit the required monitoring;
5. Provisions for protection of the Site from disturbance which might increase the threat of contamination migration, including regular inspection of the site;
6. Provisions for the design and implementation of a contingency plan in the event that migration of the contaminants occurs despite the implementation of the containment remediation plan;
7. Containment or removal of the contaminants deposited or caused to be deposited by Olin which have migrated off-Site consistent with the goals of paragraph 4(a);

8. Fiscal arrangements, guarantees, or the provision of financial assurances sufficient to ensure that Olin possess the financial ability to perform the containment remedial plan and monitoring. Olin's performance has been demonstrated and the financial assurance notification is no longer required.

The Agreement includes a provision in the event that after seven years following the delivery of a Release of Liability (issued December 15, 1992), Olin demonstrates that conditions at the Site are such that the stated frequency or duration of the requirements of elements 1, 2, or 5 are no longer necessary to determine whether the remediation is effective, Olin may reduce the frequency and duration of such monitoring or inspections. Modifications are noted in the discussion above.

The approved Operation and Maintenance Manual (O&M Manual (June 2000)) provides details on the O&M of the containment remedy on the northern portion of the site and includes provisions for site control and environmental monitoring. The O&M Manual (June 2000) reflects current activities being performed for the operation and maintenance of the containment remedy for the Site and the ground water monitoring program outside the containment area. The yearly inspection and sampling schedule for the Site is included in **Attachment 1**.

The O&M Manual (2000) addresses the required elements as set forth in the Agreement. Element 4, acquisition of easements, is a completed task. Element 6, a contingency plan, is addressed in the O&M Manual. Element 7, containment of the contaminants, has been achieved and is being monitored for effectiveness. Element 8, provision of financial assurance, is being met. This report discusses elements 1, 2, 3, and 5 of the Agreement.

**Element 1) Semi-annual ground water monitoring.** Monitor wells MW-A3, MW-1R, MW-2, MW-4, and MW-5 were sampled on April 19 and on September 6 for the site compounds alpha-BHC, beta-BHC, gamma-BHC, delta-BHC. Analyses were performed using SW-846 Method 8080. During 2006, with one exception, sampling results for all BHC isomers in all wells were either undetected (U) or tentatively detected (J) at levels below 0.1 ug/l. Since 2000, monitor wells have been sampled for hexachlorobenzene (HCB) biennially. The next HCB sampling is scheduled for September 2007. NYSDEC has been asked to reconsider an Olin request to discontinue the HCB monitoring. Monitoring locations are shown on **Figure 1**.

A historic summary of semi-annual ground water monitoring data from 1997 through 2006 is provided in **Table 1**. The 1997 time period represents the start of the semi-annual events. **Table 1A** shows groundwater monitoring data for 2006. Since 2003, concentrations of site compounds being monitored have been undetected or estimated at concentrations below the detection levels, in all monitor wells.

**Element 2) Annual creek sediment monitoring.** Annual sediment sampling was performed on September 7, 2006. A historic summary of annual sediment sampling results is presented in **Table 2**. Table 2A shows stream sediment and manhole monitoring data for 2006. Sediment monitoring was modified in 2001 from collecting a grab sample to placement of sediment traps at the upstream and downstream locations. Sediment traps were installed for the first time during the April 2001 sampling event. All detections are similar or slightly lower than detections since 2001, for both upstream and downstream samples.

**Element 3) Establishment of an upward (inward) hydraulic gradient.** Quarterly ground water elevations were monitored at piezometer pairs P1/P2, P3/P4, and P5/P6 to document an inward hydraulic gradient in the containment area of the site. The data collected during each event are recorded on the Sampling Field Form. An evaluation of data from the piezometer pairs at the Site indicates that an inward hydraulic gradient is being maintained year round in two of the three piezometer pairs and a roughly level gradient occurs in the third pair (P1/P2) in three of four quarters. We will adjust pump intake levels to attempt to re-establish the inward gradient. Water

level elevations in Manhole A and Manhole B are monitored quarterly and are consistently below the 555 ft-msl level. All data are shown in **Table 3**.

There were 52,891 gallons of leachate discharged to the POTW during 2006. A summary of yearly discharge volumes for the Site is provided in **Table 4**. Since 1991 a total of 981,681 gallons of leachate were removed from the Site. Annual leachate sampling and analysis for BHC isomers began in 2000 to replace the POTW sampling that was previously performed. HCB is monitored every

five years (started in 2000). The sampling location is Manhole B. Analytical results for 2006 are provided in **Table 5**. The next scheduled sampling is 2010.

**Element 5) Site protection.** Quarterly site inspections were conducted to identify any potential issues with the physical structures and to ensure that the remedial measure components are operating effectively. Routine site maintenance included fertilizing, mowing, weeding and mulching the site area.

Other non-routine repairs completed in 2006 include: replacing the man gate and darkening the well markings showing well numbers. General site conditions and security status were noted on the Site Inspection Form and addressed as appropriate. All inspection forms and field notes are included in **Attachment 2**.

**Conclusions/Recommendations:**

The work performed for the Site during 2006 was reviewed and found to be in accordance with the approved O&M Manual (2000). Ground water monitoring indicates there are no increased concentrations of the Site compounds being monitored. Evaluation of the ground water data generated during the 2006 monitoring year indicates that the containment remedy is effective. An evaluation of data from the piezometer pairs at the Site indicates that an inward hydraulic gradient is being maintained in the containment area of the site, but will be monitored in one zone where the gradient is level (P1/P2 area) and enhanced as necessary. Data from 2006 sediment trap monitoring were similar to prior monitoring episodes.

Olin requests that NYSDEC reconsider Olin's 2004 request to discontinue hexachlorobenzene (HCB) monitoring in ground water wells. The April 2005 leachate results had no detectable concentrations of HCB.

Figure 1

Site Aerial and Monitoring Points

**CHARLES GIBSON SITE**

**(PINE AND TUSCARORA SITE)**

**NIAGARA FALLS, NEW YORK**

**NYSDEC Registry No. 9-32-063**



**FIGURE 1**  
**Charles Gibson Site**  
**Niagara Falls, NY**  
**with Sampling Locations**