

## DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

### RCRA Corrective Action Environmental Indicator (EI) RCRAInfo code (CA750) Migration of Contaminated Groundwater Under Control

**Facility Name:** Summit Research Labs, Inc.  
**Facility Address:** 15 Big Pond Road, Huguenot NY, 12746  
**Facility EPA ID #:** NYD001391200

#### **Definition of Environmental Indicators (for the RCRA Corrective Action)**

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

#### **Definition of "Migration of Contaminated Groundwater Under Control" EI**

A positive "Migration of Contaminated Groundwater Under Control" EI determination ("YE" status code) indicates that the migration of "contaminated" groundwater has stabilized, and that monitoring will be conducted to confirm that contaminated groundwater remains within the original "area of contaminated groundwater" (for all groundwater "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

#### **Relationship of EI to Final Remedies**

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Migration of Contaminated Groundwater Under Control" EI pertains ONLY to the physical migration (i.e., further spread) of contaminated ground water and contaminants within groundwater (e.g., non-aqueous phase liquids or NAPLs). Achieving this EI does not substitute for achieving other stabilization or final remedy requirements and expectations associated with sources of contamination and the need to restore, wherever practicable, contaminated groundwater to be suitable for its designated current and future uses.

#### **Duration / Applicability of EI Determinations**

EI Determinations status codes should remain in RCRAInfo national database ONLY as long as they remain true (i.e., RCRAInfo status codes must be changed when the regulatory authorities become aware of contrary information).



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1. Has **all** available relevant/significant information on known and reasonably suspected releases to the groundwater media, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been **considered** in this EI determination?

If yes - check here and continue with #2 below.

If no - re-evaluate existing data, or

If data is not available, skip to #8 and enter "IN" (more information needed) status code.

**BACKGROUND**

Summit Research Labs, Inc. manufactures aluminum chlorhydrate powder and other metal salts that are active ingredients in antiperspirants. The plant began operations at this site in 1962, owned and operated at the time by Wickhen Products. Dow Corning Corporation purchased the plant in 1986 and operated it until 1992, at which time it was sold to Summit. During Wickhen's time on site, benzene was reportedly used in some processes from 1970 to 1978.

The site is in a small village, five miles northeast of Port Jervis, New York. The plant occupies about 10.9 acres and is comprised of a main operations and manufacturing building, three warehouses, and various support facilities. A portion of the site is wooded on the northwest side. There are homes to the west, south and east. There is currently no other significant industry in the area.

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Figures 1 and 2 show the site location and the rural nature of the site.

2. Is **groundwater** known or reasonably suspected to be "**contaminated**"<sup>1</sup> above appropriately protective "levels" (i.e., applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action, anywhere at, or from, the facility?

If yes - continue after identifying key contaminants, citing appropriate "levels," and referencing supporting documentation.

If no - skip to #8 and enter "YE" status code, after citing appropriate "levels," and referencing supporting documentation to demonstrate that groundwater is not known or reasonably suspected to be "contaminated."

If unknown - skip to #8 and enter "IN" status code.

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<sup>1</sup>"Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriate "levels" (appropriate for the protection of the groundwater resource and its beneficial uses).



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**Rationale:**

Groundwater is contaminated by benzene that leaked from an underground wastewater pipeline sometime between 1970 and 1978. The pipeline was decommissioned in 1977 and capped at both ends. Detections of benzene found in the Phase 1 Site Investigation were as high as 85,000  $\mu\text{g/l}$ . In addition to benzene, groundwater monitoring occasionally detected trace concentrations of other process-related VOCs including cyclohexane, isopropyl alcohol (IPA) and 2-ethylhexanol. Traces of toluene, methane, and xylene were also detected from time to time. These were believed to be from an historical fuel oil spill. (Wehran Engineering 1987)

Active remediation in the unsaturated zone was done in the source area near MW 12 (Figure 3) using a soil vapor extraction system installed in 1991 and operated as needed through 1997. The peak benzene concentration in the blower exhaust of 1,402 parts per million by volume (ppmv) was detected right after startup. Subsequent concentrations, even after down periods, averaged 10 ppmv in 28 monitoring events from 1992 through 1997. The system was shut down in November 1997. At that time the benzene concentration in the exhaust was 1.3 ppmv. (Emcon, 2000)

During the time that the soil vapor extraction system was reducing the flux of benzene from the unsaturated zone to the groundwater system, natural attenuation was also reducing benzene concentrations in the groundwater. This was demonstrated through groundwater monitoring that showed a reduction in the benzene concentrations and the extent of groundwater impacts on the site. The role of microorganisms in the natural attenuation processes was documented by a laboratory study performed on behalf of Dow Corning in 1991 and 1992. (Dow Chemical Company, 2000)

**References:**

Wehran Engineering, December 1987, *Phase 1 Site Investigation Report*, Prepared for Wickhen Products, Inc. Huguenot, New York.

Wehran EnviroTech, September 1989, *Site Investigation Report - Summary of Phase II Investigations*, Prepared for Dow Corning Corporation, Middletown, N.Y., Wehran-New York Inc.

Dow Chemical Company, April 1992, *Natural Attenuation of Benzene in Groundwater: The Dow Corning Huguenot Site*, Environmental Toxicology and Chemistry Research Laboratory, Midland, MI. Prepared on behalf of Dow Corning Corporation.

Emcon, January 2000, Letter to J.R. Meacham of NYSDEC regarding operations summary for soil vapor extraction system at Summit Research Labs, Huguenot, New York; prepared on behalf of Dow Corning Corporation.

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3. Has the **migration** of contaminated groundwater **stabilized** (such that contaminated groundwater is expected to remain within "existing area of contaminated groundwater"<sup>2</sup> as defined by the monitoring locations designated at the time of this determination)?

  X   If yes - continue, after presenting or referencing the physical evidence (e.g., groundwater sampling/measurement/migration barrier data) and rationale why contaminated groundwater is expected to remain within the (horizontal or vertical) dimensions of the "existing area of groundwater contamination"<sup>2</sup>.

\_\_\_\_\_ If no (contaminated groundwater is observed or expected to migrate beyond the designated locations defining the "existing area of groundwater contamination"<sup>2</sup>) - skip to #8 and enter "NO" status code, after providing an explanation.

\_\_\_\_\_ If unknown - skip to #8 and enter "IN" status code.

**Rationale:**

Long-term groundwater monitoring has demonstrated a substantial decline in the concentrations of benzene and the size of the plume. (Figure 4)

The on-site sentinel wells (MW-11 and MW-11R) continue to verify the absence of benzene at the downgradient site boundary. (Cardinal Resources LLC, July 2008) (Figure 3)

Over the entire 19 year monitoring period (July 1990 – May 2009) the benzene concentration in the former source area (MW-12) shows a 90% decline from an average of over 2,000 ug/L in 1990-1991 to an average of about 200ug/L in 2008-2009. (Figure 5)

Monitoring over the past 8 years demonstrates that this significant reduction in source area concentrations in MW-12 are still occurring; declining about 80% from an average in 2000-2001 of 1,048 ug/L, to an average of 214 ug.L in 2008-2009. (Table 1 – Figure 5)

Percentage concentration reductions elsewhere in the contaminated area were even greater, with over 95% decline for the same period in MW-8, MW-9 and MW-10. Of these, MW 9 and MW 10 showed no detectable benzene in the last two rounds of sampling. (Table 1 - Figure 6)

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<sup>2</sup>"existing area of contaminated groundwater" is an area (with horizontal and vertical dimensions) that has been verifiably demonstrated to contain all relevant groundwater contamination for this determination, and is defined by designated (monitoring) locations proximate to the outer perimeter of "contamination" that can and will be sampled/tested in the future to physically verify that all "contaminated" groundwater remains within this area, and that the further migration of "contaminated" groundwater is not occurring. Reasonable allowances in the proximity of the monitoring locations are permissible to incorporate formal remedy decisions (i.e., including public participation) allowing a limited area for natural attenuation.



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<b>TABLE 1</b>			
Well No.	2000 - 2001 Average Benzene Concentration <i>Ug/L</i>	2008 - 2009 Average Benzene Concentration <i>Ug/L</i>	Percent Reduction from 2000- 2001 to 2006-2009
<u>Source Area Well</u>			
MW-12	1,048	214	80%
<u>Other Wells</u>			
MW-2	202	3.4	98%
MW-8	1,668	83	95%
MW-10	97	3	97%

**References:**

Cardinal Resources LLC, July 2008, Letter Report, Groundwater Monitoring Program – May 2008, Summit Research Labs, Huguenot, New York, Prepared on behalf of Summit Research Labs.

4. Does “contaminated” groundwater **discharge** into **surface water** bodies?

\_ If yes - continue after identifying potentially affected surface water bodies.

X If no - skip to #7 (and enter a “YE” status code in #8, if #7 = yes) after providing an explanation and/or referencing documentation supporting that groundwater “contamination” does not enter surface water bodies.

\_\_\_\_\_ If unknown - skip to #8 and enter “IN” status code.

**Rationale:**

Groundwater monitoring indicates that there is no discharge into surface water bodies.

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5. Is the **discharge** of "contaminated" groundwater into surface water likely to be "**insignificant**" (i.e., the maximum concentration<sup>3</sup> of each contaminant discharging into surface water is less than 10 times their appropriate groundwater "level," and there are no other conditions (e.g., the nature, and number, of discharging contaminants, or environmental setting), which significantly increase the potential for unacceptable impacts to surface water, sediments, or eco-systems at these concentrations)?

**(Not Applicable)**

6. Can the **discharge** of "contaminated" groundwater into surface water be shown to be "**currently acceptable**" (i.e., not cause impacts to surface water, sediments or eco-systems that should not be allowed to continue until a final remedy decision can be made and implemented<sup>4</sup>)?

**(Not Applicable)**

7. Will groundwater **monitoring** / measurement data (and surface water/sediment/ecological data, as necessary) be collected in the future to verify that contaminated groundwater has remained within the horizontal (or vertical, as necessary) dimensions of the "existing area of contaminated groundwater?"

**X** If yes - continue after providing or citing documentation for planned activities or future sampling/measurement events. Specifically identify the well/measurement locations which will be tested in the future to verify the expectation (identified in #3) that groundwater contamination will not be migrating horizontally (or vertically, as necessary) beyond the "existing area of groundwater contamination."

If no - enter "NO" status code in #8.

If unknown - enter "IN" status code in #8.

**Rationale:**

Groundwater monitoring will continue at the site. The details are not yet specified, but the monitoring plan will include sentinel wells beyond the existing area of groundwater contamination.

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<sup>3</sup>As measured in groundwater prior to entry to the groundwater-surface water/sediment *interaction* (e.g., hyporheic) zone.

<sup>4</sup>Note, because areas of inflowing groundwater can be critical habitats (e.g., nurseries or thermal refugia) for many species, appropriate specialist (e.g., ecologist) should be included in management decisions that could eliminate these areas by significantly altering or reversing groundwater flow pathways near surface water bodies.

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8. Check the appropriate RCRAInfo status codes for the Migration of Contaminated Groundwater Under Control EI (event code CA750), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (attach appropriate supporting documentation as well as a map of the facility).

  X   YE - Yes, "Migration of Contaminated Groundwater Under Control" has been verified. Based on a review of the information contained in this EI determination, it has been determined that the "Migration of Contaminated Groundwater" is "Under Control" at the **Summit Research Labs, Inc.**  
**Facility EPA ID #: NYD001391200**  
**15 Big Pond Road, Huguenot NY, 12746**

Specifically, this determination indicates that the migration of known or reasonably suspected to be "contaminated" groundwater is under control, and that monitoring will be conducted, as necessary, to confirm that contaminated groundwater remains within the "existing area of contaminated groundwater". This determination will be re-evaluated when the Agency becomes aware of significant changes at the facility.

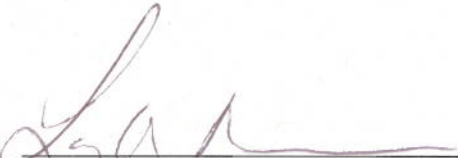
       NO - Unacceptable migration of contaminated groundwater is observed or expected.


       IN - More information is needed to make a determination.




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Robert Phaneuf, P.E. - Acting Director  
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Division of Solid and Hazardous Materials

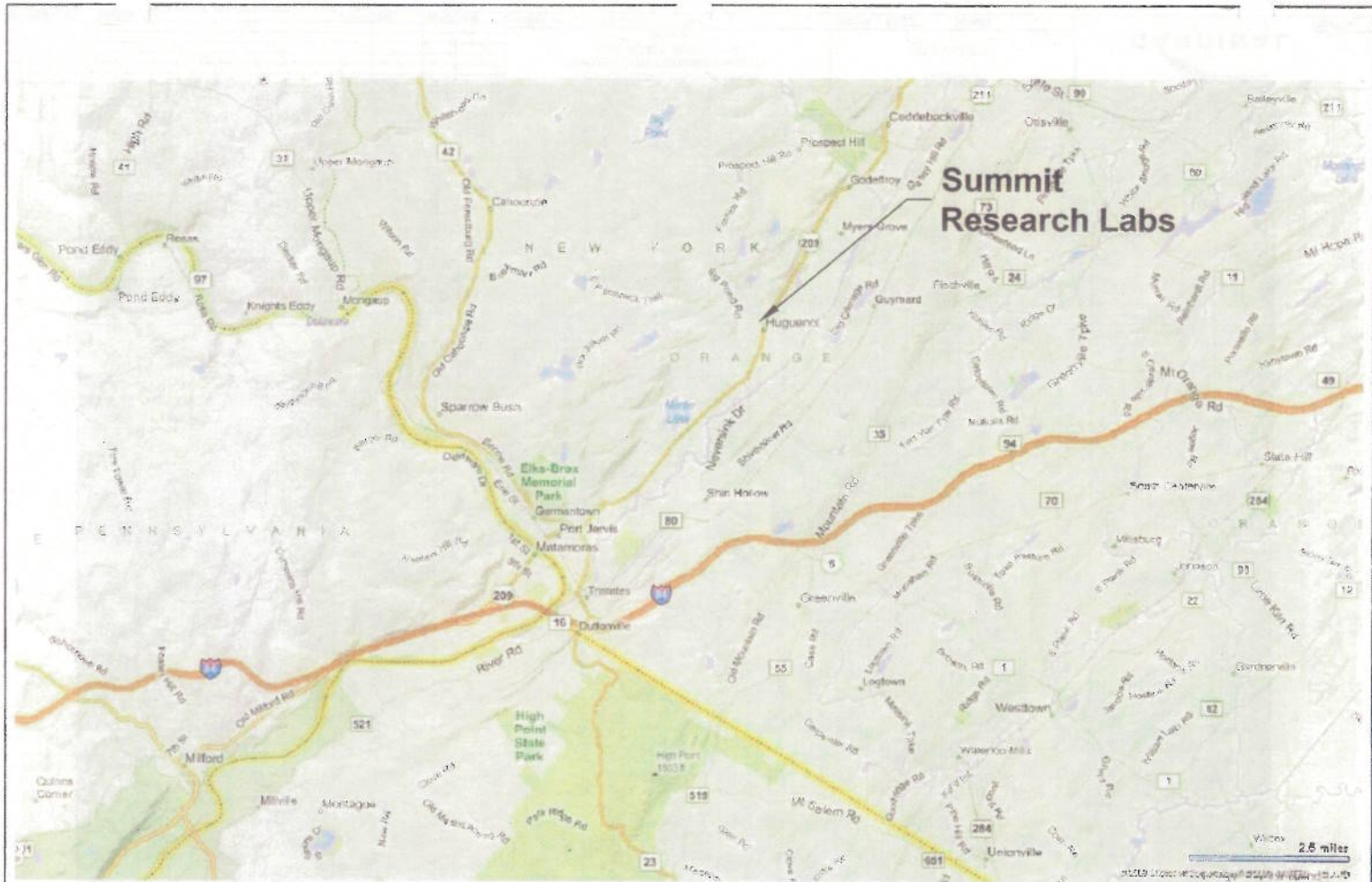
Locations where References may be found:

NYSDEC  
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Albany, NY, 12233-7252

Contact, telephone number and e-mail:

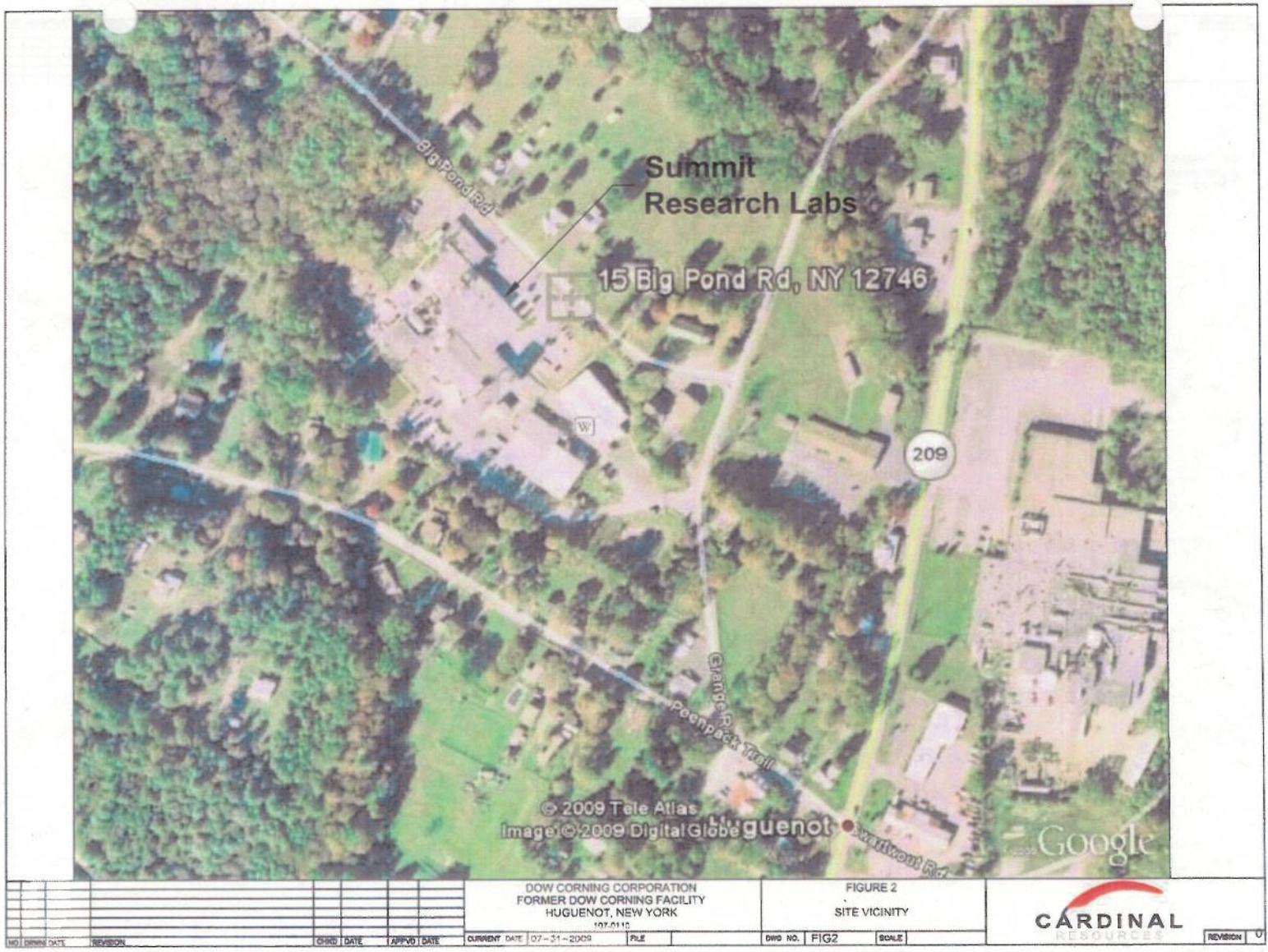
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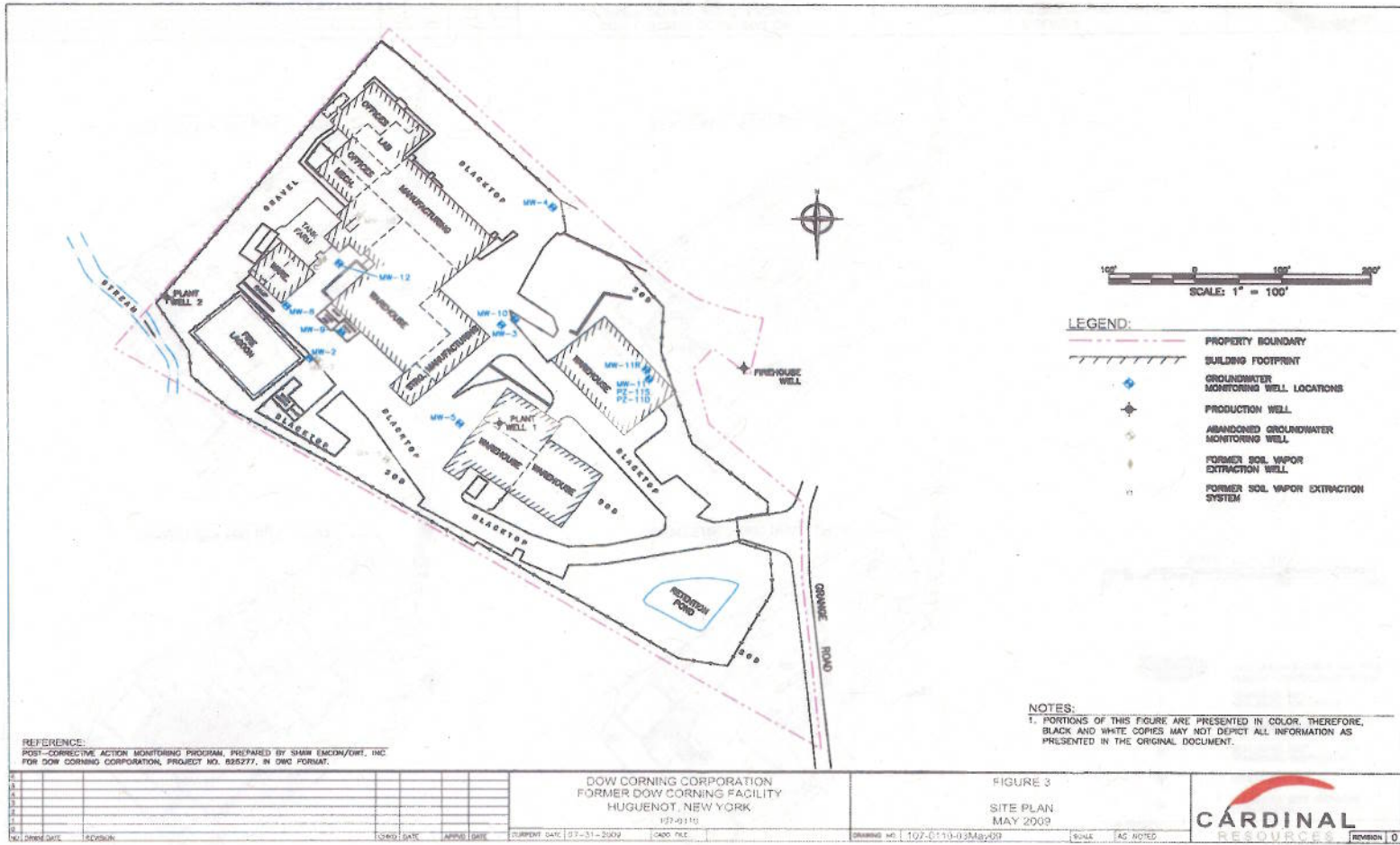
## Figures



				DOW CORNING CORPORATION FORMER DOW CORNING FACILITY HUGUENOT, NEW YORK 137-0110		FIGURE 1 SITE LOCATION			
NO.	DATE	REVISION	CHG. DATE	APPRO. DATE	CURRENT DATE 07-31-2009	PLS	DWG NO. FIG1	SCALE	REVISION 0









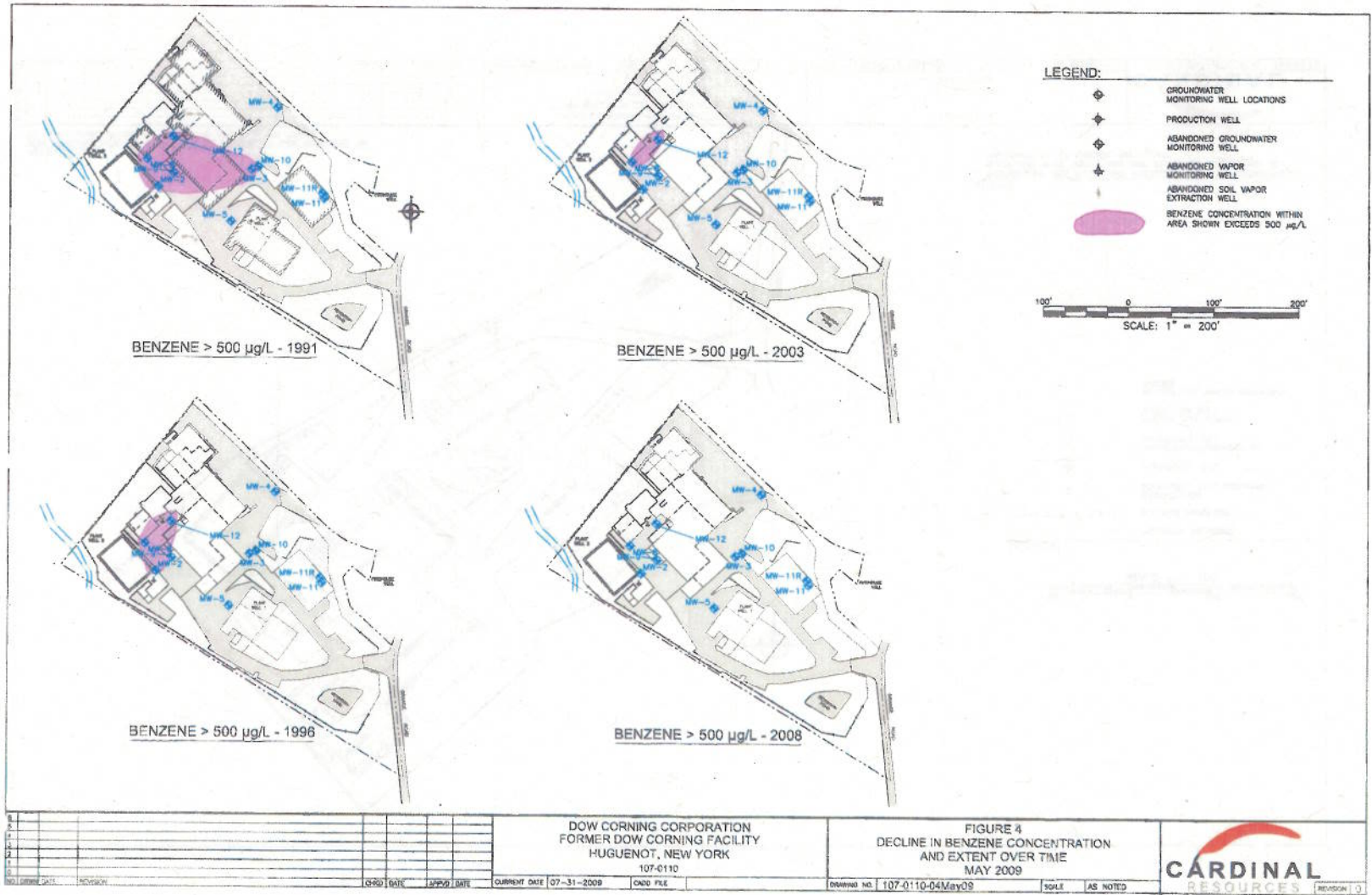






Figure 6  
Concentration Trends in MW-8, MW-9, MW-10, and MW-12  
April 2000 to May 2009

