Periodic Review Report

2013-2014 Period

For

CMS ASSOCIATES REMEDIATION SITE

Site no. 915168

210 French Road
Town of Cheektowaga
Erie County NY

April 2015

Prepared for:

CMS Property Associates, LLC
228 Linwood Avenue
Buffalo NY 14209

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I INTRODUCTION

1.1 Summary of Site

The CMS Associates Remediation Site is at 210 French Road in the Town of Cheektowaga, Erie County, NY, and is designated site no. 9-15-168 on the *NYS Registry of Inactive Hazardous Waste Sites*. CMS Property Associates LLC, formerly owned the property—which was the subject of a spill clean up after CMS excavated and removed a leaking, 2,000-gallon, underground storage tank in March 1996. See Figure 1 for the location.

In early 2005, NYSDEC reclassified the site from Class 2 to Class 4, which meant that it was properly closed but required continued management, including operation of a groundwater extraction/treatment system and groundwater monitoring. CMS sold the property to Cugini Ventures LLC in late 2005.

Cugini leases the property to the adjacent Rosina Food Products, Inc., who warehouses—among other items—maintenance supplies, mechanical equipment and parts, and packaging/shipping materials in the building. Additionally, the GWE/T System for the selected Remedial Measure (which CMS continues to own and operate) is in a room at the northwest corner of the building.

1.2 Nature and Extent of Contamination

The former LUST apparently contained fuel products, and chlorinated hydrocarbon solvents and other VOC wastes—although the complete range of compounds in the tank was not characterized. When the tank was removed, it was evident that an unknown quantity of its contents had leaked both into the surrounding soil and onto the surface of the bedrock on which the tank was installed.

About 350 tons of soil surrounding the LUST was contaminated from its leaking contents.

Subsequent groundwater monitoring revealed that the LUST contents had entered the bedrock groundwater regime as its constituents moved beyond the immediate tank location. Compounds observed in monitoring wells generally consist of mostly dense chlorinated solvents, dense insecticides and pesticides, dense refrigerants and halogens, light gasoline-related petroleum hydrocarbons (BTEX,) aromatic hydrocarbons, and some light chlorinated solvents. Nearly 50 VOC compounds have been identified, although not all are observed in every well, and total VOC concentrations vary by orders of magnitude between locations.

Sampling soon after the LUST and contaminated soil were removed contamination had reached, and likely extended beyond, the CMS Site—especially in the northwest and east directions. The extent of the contaminate plume was undetermined at that time, however.

Current monitoring at perimeter and off-site wells indicate that the current contaminate plume extends off site—primarily to the northwest, east, and southeast of the Site. Considerably lower VOC contaminations are observed at the west, north, and south boundaries of the site.

1.3 Remedial History and Effectiveness of the Program

Three Interim Remedial Measures were chosen for the CMS Site, which were to:

1. Remove and properly dispose of the LUST to eliminate the source contamination.
2. Excavate and clean up the surrounding contaminated soil.
3. Install a vacuum-enhanced, multi-phase groundwater extraction and treatment system to control the groundwater contaminate plume.

The first two IRMs reduced Total VOC concentrations in perimeter monitoring wells by up to 98-percent.

The extraction/treatment component of the IRM began operating in June 1998, but was destroyed by a fire in December 1999. CMS replaced and relocated the system inside the building—and it went back on line in April 2000.

IRM #3 has helped to decrease VOCs at the site perimeter wells, but the magnitude of the decreases are mixed—some wells exhibit significantly greater reduction than others. In particular, the highest VOC concentrations remain in the perimeter wells to the east, southeast, and northwest. In the perimeter wells where we have 1996 post-removal data, Total VOCs have been reduced by 32% to 96%.

For more than ten years, the groundwater extraction and treatment IRM had not operated as it was designed and specified—so it never reached its potential to reduce VOCs. The wells were rebuilt and retrofitted to the correct arrangement in 2009–2010. Although VOCs remain high in some perimeter wells, it may take years for the effect of the GWE/T System to reduce the contaminant plume.

<u>Progress Made Toward Meeting the Remedial Objectives of the Site</u>

It may take several years to see the effect of the rebuilt and retrofitted extraction wells. Nevertheless, the system continues to remove VOC mass from the source area. We are considering 2011 as the new ‘baseline” for comparing media contamination.

An SVI Evaluation program was completed for the adjacent properties and additionally for the 210 French Road building. No SVI issues were discovered for the off-site properties, so no further work was required at those locations. The 210 French Road building had low indoor-air VOCs, but sub-slab VOCs exceeded action levels—and SVI remediation is underway in the building. This work will be completed in early May 2015, with slab sealing and additional SSDS equipment being installed.

The groundwater plume has been more accurately defined toward the north, northwest, and southeast, and an additional monitoring well (MW-15) has been approved by the Site owner, and will be installed in spring 2015. This will allow better-informed conclusions about the extent of contamination and about any modifications to the RMs.

Ability of the Remedial Program to Achieve Remedial Objectives for the Site

It remains inconclusive whether the GWE/T System is sufficient to meet clean up objectives. An evaluation of the system zone of influence is scheduled for 2015.

It was inconclusive to what extent the two SSDSs in the 210 French building were controlling SVI. The 2013 SVI evaluation showed the systems covered about 80% of the footprint, but needed additional equipment installed to cover the remainder. Again, that equipment is being installed during spring 2015.

The Institutional Controls for the site are meeting their objectives and are adequate to minimize the potential for human contact.

1.4 Compliance with Institutional Control Plan

In the past CMS has complied with, and the current property owner is complying with, the Institutional Controls and no changes to the IC Plan are necessary.

1.5 Compliance with Operation, Maintenance, and Monitoring Plan

An outdated OMM Plan will be replaced in 2015 by a new *Site Management Plan* that will reflect the current site, and incorporate prior changes including an expanded monitoring well network, additional Engineering Controls, upgraded GWE/T System equipment and controls, and it will include appropriate monitoring and reporting for the Site.

1.6 Compliance with Engineering Control Plan

The building owner has complied with operating two SSDSs in the 210 French building (installed in 2005,) and the requirements for the additional SSDS equipment being installed will be included in the new *Site Management Plan*.

CMS has complied with operating the GWE/T System engineering control. The system effluent is tested semi-annually and reported to Erie County, and has always been in compliance with the discharge permit. Additional requirements for operating the GWE/T System and certain improvements that were made will be included in the new *Site Management Plan*.

1.7 Recommendations Based on Engineering Judgment for Necessary Changes to the Remedy, Engineering Controls, and OMM Plan

1. Modify the GWE/T equipment to reduce energy usage and cycle the air compressor
   a. Install a separate electronic controller on the groundwater extraction pump.
   b. Install a separate electronic controller on the treatment system/air stripper.
   c. Control the on-time of the extraction pump in order to cycle and reduce wear on the air compressor.
   d. Continue monitoring GWE/T System effectiveness to reduce groundwater VOC concentrations at the perimeter wells by evaluating analytical results.

e. Adjust the on-time of the treatment system to minimize both energy use and evaporation in the air-stripper.
(*Anticipated Summer 2015.*)

2. Prepare a *Site Management Plan* to update the site *Operation, Maintenance, and Monitoring Plan* to reflect, among other things:

   a. Revisions to groundwater well monitoring procedures.
   b. Modifications to the groundwater extraction and treatment system IRM.
   c. Retrofitting the extraction wells to the original engineering specifications.
   d. One new perimeter and two new off-site monitoring wells installed in 2010/2011.
   e. The appropriate way to operate the extraction wells and treatment system while the optimum operating conditions continue to be evaluated.
   f. Any new perimeter and off-site monitoring wells that may be installed.
   g. Operating the two SSDS systems installed in the 210 French building.
   h. Continually monitoring and where possible maximizing operation of the extraction wells (e.g. adjusting the suction tubes, well vacuum, which wells are on/off, etc.)

   This was delayed pending installing SSDS equipment in the 210 French Building—so that revisions or additions to the current SSD Systems could be incorporated in the SMP. (This effort is currently underway.)

3. Review and revise the SMP annually if necessary to reflect changes at the site. No change in the groundwater well monitoring schedule is anticipated at his time.

The following address data gaps about the site and the remaining contamination, and their sequencing are based on CMS's very limited financial resources. Many items discussed in the prior PRR have not been able to be accomplished on the anticipated schedule because of the financial penalty imposed by the 2013 Consent Order, CMS being required to duplicate SVI sampling done in 2010-2011, and the need for indoor-air sampling (that CMS did not anticipate in 2010 when beginning the SVI evaluation effort.)

4. Determine bedrock hydraulic conductivity at each monitoring well to provide an overall characterization of site hydrogeology and to provide data to further refine the *Conceptual Site Model.* This had been started but low groundwater (below the sand pack level) during the initial testing caused erroneous readings at key wells.
(*Anticipated late spring/summer 2015.*)

5. Install new perimeter monitoring well MW-15 southeast of the 210 French building to evaluate the southerly limit of the contaminant plume
(*Anticipated late spring/summer 2015.*)

6. Determine the zone of influence of the multi-phase groundwater extraction system
(*Anticipated Summer 2015.*)

7. During low groundwater, seal the extraction well manhole barrels to minimize groundwater intrusion
(Anticipated Summer 2015 lowest groundwater period.)

8. Using existing information and the bedrock hydraulic conductivity evaluation, develop a first-cut analysis of the contaminant mass flux across the site, and estimate the mass discharge off-site to help characterize the contaminant plume and refine the *Conceptual Site Model*
(Anticipated Fall/Winter 2015.)

9. Depending on the results of sampling new monitoring well MW-15, install an off-site well on Boxwood Drive to help determine the extent of the contaminant plume toward the east. If MW-15 verifies the extent of the plume, an additional well may be unnecessary.
(Anticipated Summer/Fall 2015.)

10. As reliable groundwater quality data is collected after MW-15 is developed, evaluate the plume stability and pathways. Identify and prepare a contour map of parent and daughter VOC compounds to determine historical trends and natural contaminant attenuation. The goal being to further characterize site hydrogeology, refine the *Conceptual Site Model,* and to evaluate the GWE/TS for potential improvements to enhance collecting VOCs and controlling the groundwater plume.
(Anticipated Fall 2015.)

11. After the GWE/TS zone of influence is established, evaluate if modifications are appropriate to enhance lowering the piezometric head and increase it's area of collection.
(Anticipated Fall 2015.)

12. Evaluate the optimized GWE/T RM against an MNA option.
(Anticipated Spring 2016.)

13. As site hydrogeology is better characterized, evaluate if a more-aggressive RA is appropriate. Methods that could be considered are ISCO by applying electron donor or other catalysts to enhance biotransformation/dechlorination of VOCs, accelerated groundwater flushing by injecting the treatment system effluent, or conversion of groundwater contaminants by thermal destruction.
(Anticipated Spring 2016.)

II SITE OVERVIEW

2.1 Site Location and Features

The CMS Associates Remediation Site contains 3.74 acres situated at 210 French Road in Cheektowaga, NY, about four-tenths-mile east of Union Road (NYS Route 277.) French Road borders it on the south and Industrial Parkway is to the north (see Figure 1 for location.) The site contains a single-story, 44,750-square-foot, concrete slab-on-grade, masonry-block building, and a large asphalt and gravel parking lot, sections of which have had new bituminous overlays in 2008, 2009, and 2011.

The following properties surround the CMS Remediation Site (see Figure 2):

• Northwest (across Industrial Pkwy)	Partially occupied warehouse/distribution center 1 Scrivner Drive
• North (across Industrial Pkwy)	Sears and UPS Supply Chain distribution center 60 Industrial Parkway.
• North	Building Rosina Food Products uses for Storage 109 Industrial Parkway.
• Northeast	Uni-Punch, Inc. 56 Boxwood Lane.
• East	South Line Fire District #10 station 40 Boxwood Lane.
• East	Occupied warehouse building. 240 French Road.
• South (across French Rd)	Patio home development along Hickory Grove.
• West	Rosina Food Products, Inc. 170 French Road and 75 Industrial Parkway.

Available utilities include belowground public water and natural gas, and aboveground electricity and telephone. According to the 1996 studies prepared for the site, there are no known potable water wells or other groundwater supply wells in the area, and there were no features on or near the site to indicate any material risk for public contact with groundwater contaminants.

Figure 3 depicts the surrounding land uses, which consist of:

- Commercial/light industrial/warehousing to the west, north, and east.
- Multi-family apartments to the southwest.
- A newer single-family patio home development to the south.
- Established single-family neighborhoods to the southeast.

There are no nearby public-use areas that have a risk of exposure to groundwater contaminants.

Slate Bottom Creek (Class C, ~1,900 feet north-northeast of the Site) is a tributary of Cayuga Creek (Class B and Class C) and is the nearest waterway. There are no state-regulated wetlands within one-mile of the site, but there are several narrow US Fish and Wildlife Service *National Wetland Inventory* sites along Slate Bottom Creek and Cayuga Creek.

Site grade drops four feet from French Road (627.5') to Industrial Parkway (623.5',) and local drainage pattern mirrors the topography. Runoff is overland, and intercepted and transported by open roadside ditches with driveway culverts. A drainage swale north of Industrial Parkway collects runoff from the Site and surrounding areas, carries it north, and discharges to Slate Bottom Creek (see Figure 3.)

2.2 Nature and History of Contamination Prior to Remediation Effort

According to CMS a former tenant installed a UST in the 1960s and later abandoned its use. Reportedly, at some unknown point in time, a tenant disposed of spent solvents and cleaners in UST—which could have been a one-time event or possibly a continuing practice.

In April 1996, CMS disposed of approximately 1,810 gallons in the UST (Research Oil Company; Cleveland OH,) removed the tank, and found it compromised and the contents (chlorinated solvents, and some gasoline components) leaking into the surrounding soil and onto the bedrock upon which it had been installed in the 1960s.

CMS began a remedial investigation initial groundwater at the site perimeter revealed that contamination extended beyond the CMS property boundary. The highest VOCs were toward the northwest (MW-5 at Industrial Parkway – total VOCs ~5,000 ppb) and toward Boxwood Lane to the east (MW-7; total VOCs ~1,500 ppb,) but no off-site monitoring was performed to define the off-site limits .

2.3 Selected Remedial Program for the Site

Two of three IRMs for the Site were successfully completed, and the third is ongoing.

First, the LUST contamination source was removed in March 1996 and properly disposed of offsite.

Second, about 350 tons of contaminated soil was excavated from around the LUST, treated on site until it met NYSDEC TAGM 4046 guidance values, and was spread on the lawn north of the building, and graded, topsoiled, and seeded.

The third IRM was a vacuum-enhanced, multi-phase groundwater extraction/treatment system to control the contaminate plume. Monitoring wells MW-1, -2, -3, and -9 are manifolded to the GWE/TS, which began operating in June 1998. A fire destroyed the system in December 1999—and CMS moved its replacement to inside the northwest corner of the building and put it on line in April 2000.

Historical RI reports document the anticipated levels of VOCs to be treated and the GWE/T equipment (Carbtrol Corporation model MPX-75, multi-phase System,) but no evaluation of bedrock/groundwater elevations, the production/elevations of wells, the location/elevation of the GWE equipment, or its potential to extract groundwater/contaminants from the tight bedrock.

The GWE/TS has operated since 2000 except when it was shut down during:

- Periodic cleaning of and maintenance on the VOC stripper.
- Excessive problems with and servicing of the liquid-ring extraction pump.
- Times the liquid-ring pump failed and CMS replaced it with an air-driven diaphragm pump.
- Subsequent maintenance on and servicing the groundwater extraction diaphragm pump.
- Maintenance on, and replacing a failed air compressor.
- Maintenance on, or rebuilding/retrofitting the extraction wells.
- Excavating and repairing the underground suction manifold to the wells.
- When cold weather caused the extraction wells to freeze.

The extraction/treatment system in the "Carbtrol room" of the building is checked daily—and the extraction system vacuum, treatment system run time, effluent pump run time, and maintenance items recorded in a logbook. During the reporting period 2014, the system was set to continuously extract groundwater (i.e., run 24/7.)

During 2014, there was no major equipment replacement, major repairs to the equipment, or abnormal maintenance performed on the GWE/T equipment, with only normal replacements made (for example, filters on the air compressor, air regulator, etc.) The float switch on the effluent pump had been stuck in the 'run' position, but this did not affect the extraction/treatment system itself.

The extraction pump and the standby pump continue to be maintenance issues due to scale deposited from the groundwater. They required rebuilding during 2014—which is typically an annual (and oftentimes more frequent) occurrence.

2.4 Additions to the Original Remedial Program

2.4.1 210 French Building SVI Equipment

The 2014 SVI Evaluation of the 210 Building showed that sub-slab VOCs in the north portion of the footprint exceeded NYSDOH SVI action levels. The existing two SSD Systems in the building were controlling SVI by imposing a reduced pressure zone over most the building footprint, but there remained areas that remained un-remediated. See Appendix A for the findings of the SVI Evaluations.

A design was completed for, and construction begun on, supplemental SSDS Engineering Control equipment to extend the RPZ in order to remediate the entire warehouse footprint. The southern portion of the building needed passive remediation—inspection and sealing of any potential sources of SVI into the building envelope.

That construction is ongoing and scheduled to be completed by the end of April 2015. See Appendix A for the additions being constructed for the SSD System.

III PERFORMANCE of the REMEDIAL MEASURES

3.1 Conceptual Site Model

There has been no change to the Site *Conceptual Site Model* during the reporting period. Additional Remedial Investigations are scheduled for the Site (see *Recommendations*, PRR Section 1.7)—the result of which will be incorporated into and help refine the CSM so that it is a continuously updated representation of the Site.

The *CSM* (See Figure 4) depicts a north-south cross-section of the Site approximately through MW-1—running from French Road to north of Industrial Parkway. Well locations are plotted perpendicular to the profile baseline. For reference, each well profile shows the groundwater levels that HEI observed in August 1997 (after CMS removed the LUST.)

3.2 Performance of Groundwater Extraction in Controlling the Piezometric Surface

A key goal of the GWE/T System is to arrest the movement of the contaminant plume toward the site perimeter by lowering the confined groundwater head in the vicinity of the former LUST. Because the extraction wells were rebuilt and retrofitted as of spring 2010, and MW-12 and MW-13, and MW-14 were installed in 2010 and 2011 respectively, we are considering 2011 as the baseline condition to evaluate RM performance. Figure 5 shows groundwater conditions for the baseline period.

The *Conceptual Site Model* shows the piezometric surface present in August 1997—and illustrates a noticeable elevated head in the confined groundwater at the former LUST (also observed in subsequent years, and is noted as a groundwater "mound" in the NYSDEC March 2000 *Record of Decision*.)

During groundwater monitoring after the GWR/TS extraction wells were rebuilt and retrofitted, we notice that the same condition occurs after precipitation events. This indicates and confirms that there is significant groundwater recharge in the local vicinity of the extraction well network. This hampers the ability of the GWE/TS to lower the piezometric surface on a consistent basis, and the additional RIs scheduled for 2015-2016 will need to consider this situation.

Observations and Conclusions Regarding the Groundwater Surface

Referencing the *Conceptual Site Model*, the following were noted in the previous PRR, and are again stated for this reporting period:

- Adjacent toward the northeast is a substantial permeable lawn area, which likely contributes to short-term perched groundwater, and subsequent rapid, localized, groundwater recharge into the limestone and shale bedrock.

- Well MW-9 appears to be at a localized low spot in the rock surface—so groundwater moving across the rock could accumulate at that location and contribute to bedrock groundwater recharge.

- Most of the surface on and adjacent to the CMS Site is impervious parking lot and building coverage—and would not contribute to groundwater recharge below their footprints.

Compared to other areas on the Site, the above observations support our hypothesis that the elevated piezometric head (or groundwater "mound") at wells MW-1, -2, -3, and -9 is due to greater surface water recharge of the bedrock in that immediate vicinity. The bedrock in that vicinity could also have greater fracturing—and would contribute to more rapid recharge than at other areas of the site. The additional RIs will consider this possibility.

Therefore, the performance of the extraction system in its current configuration is undetermined, because groundwater elevations taken before the extraction wells were retrofitted *cannot be used to gauge the effectiveness that Interim Remedial Measure*. Additional investigation is required to determine its performance (see *Recommendations,* report Section 1.7.)

Maintaining constant/consistent vacuum on the extraction well network was, at times in the past, problematic due to maintenance and equipment repair issues (such as a failed suction pump, air solenoid valve, the air compressor resetting, etc.) Most concerns have been mitigated with more intensive preventive maintenance, but there are other improvements that will increase reliability of the GWE/TS (see PRR Section 1.7.)

Because the extraction wells are connected to a single, underground, suction manifold running to the GWE/T equipment inside the building, low groundwater availability can also affect performance—losing vacuum at one well can affect the entire system. These constraints will need to be addressed in determining the radius of influence of the extraction system. Likewise a leak occurring in the manifold, or between it and any extraction well, will affect the entire GWE/T System.

Groundwater levels in wells that have applied vacuum are problematic in determining the local piezometric head because its water surface is artificially depressed. Therefore, one extraction well is typically isolated from the GW/T System to use as a control to measure a stabilized groundwater level.

We have observed that—while the GWE/TS will lower the groundwater level in the other extraction wells—MW-3 sometimes remain elevated. At other times, the level at MW-3 reflects the groundwater head at the other extraction wells. This indicates a highly complex site—and therefore, the additional RIs are recommended to, among other things, determine the hydraulic conductivity at each well, and further characterize Site hydrogeology (see PRR Section 1.7.)

Nevertheless, initial observations after retrofitting the groundwater extraction wells appear to be positive—the system can significantly lower the groundwater head in the extraction wells. For instance, Figure 6 shows the contrast between the August 1997 piezometric grade line (showing the groundwater "mound") to the June 2011 elevations (after the extraction-well retrofitting began operating,) using MW 3 as the control point to represent the static groundwater elevation near the former LUST.

Groundwater elevation monitoring at MW-4 continues to be problematic—it consistently shows a discontinuity between it and groundwater elevations at the other wells. Because it is only 66-feet east of MW-1, significantly different groundwater elevations continue to suggest a possible discontinuity in groundwater connectivity between MW-4 and the other wells. Further RIs of site hydrogeology may help define the relationship between both the observed mounding at the former LUST, and the apparent discontinuity at MW-4.

Figure 7 shows average groundwater elevations in during the reporting period. Note that groundwater at MW-4 is consistently lower than nearby wells.

The depicted groundwater contours were prepared without the benefit of the RIs that are recommended (PRR Section 1.7.) Therefore, the map should be interpreted with caution. Detailed evaluation of site hydrogeology had not been undertaken in the original (1996-1997) RIs, and such information is key to understanding the Site, interpreting the groundwater contour map, determine groundwater direction, and refining the CSM.

The regional groundwater flow is toward the northwest, but until these studies are complete, localized groundwater flow on the site cannot be inferred based on the contours. The induced vacuum on the bedrock and zone of influence of the GWE/TS is undetermined—and its capture distance will affect groundwater movement, regardless of the groundwater elevations observed in the wells.

The BOW at MW-9 is approximately 603', so it appears sufficiently deep to lower the piezometric head. Nevertheless, once vacuum is removed at MW-9 and the other extraction wells, groundwater can rapidly returns to within 1-2 feet of the surface (the "groundwater mound.") This suggested that it would be valuable to increase the on-time of the GWE/T System in order to increase the piezometric gradient between wells. This was done during the reporting period (to run 24 hours/day) and the results will be observed over time.

Referencing the CSM, Figure 4, and Figure 6, it is evident that the lower the piezometric surface that the GWE/T System can maintain—the more effective it can be in capturing the groundwater plume. However, as shown, depressing the groundwater surface at the extraction wells has greater significantly greater effect on the up-gradient side, (to the south) than it does in the down-gradient direction (to the north.) This limits the ability of the GWE/TS to control both the groundwater movement and the contaminant plume.

Conversely stated, the groundwater surface at the extraction wells must be greatly depressed in order to have a significant effect in the northerly direction toward which the plume (generally) migrates. It is therefore critical to maintain the maximum vacuum possible at the extraction wells—but the effective depth is limited by the type of pumping equipment.

Additional Investigations To Address Issues Regarding Groundwater Control

The RIs in recommended in PRR Section 1.7) may help answer:

1. Why the groundwater mound persists at the extraction wells.

2. If the GWE/TS can be enhanced to reduce or eliminate the groundwater mound.

3. Why anomalies exist in the groundwater elevations at MW-4, and how this may affect performance of the GWE/TS.

4. The GWE/T System's ability to lower the piezometric head at the extraction wells and \
5. The radius of influence of the GWE/T System.
6. Whether it is advisable to change to submersible pumps to draw down the groundwater surface to below what the current system can accomplish. This could be done while maintaining vacuum on one or more wells in order to continue capturing VOC vapors.

3.3 Performance of Extraction in Controlling the Contaminant Plume

Nearly 50 VOC compounds have been identified in the groundwater monitoring wells, although not all are observed in each well, and total VOC concentrations vary by orders of magnitude between locations. Appendix E contains the list of compounds of concern tested for and their groundwater SCGs, and Appendix B, the VOCs observed in each perimeter well.

The second goal of the GWE/TS is to arrest migration of the contaminant plume—which is related to lowering the piezometric surface at the four extraction wells. But, achieving one goal does not necessarily lead to success in the other. For instance, extracting contaminants from the source (LUST) area can still benefit (reduce) contaminant migration (albeit less dramatically,) whether or not the piezometric gradient is toward the extraction wells. We believe that this is the situation for the CMS Site.

Observations Regarding Control of the Contaminant Plume

The highest total VOC concentrations remain in perimeter wells to the east (MW-7,) southeast (MW-14,) and northwest (MW-5) of the LUST—than in perimeter wells to the south, west, and north.

Appendix B summarize the total VOCs observed in the perimeter wells, off-site wells, and groundwater extraction wells since removing the LUST. While the RMs have decreased the initial concentrations that were observed in the perimeter wells, the reduction to date is not sufficient in MW-5, MW-7, and MW-14. This is reflected in, and best recognized by, the graphical summaries of groundwater quality in those three wells. Nevertheless, because the retrofitted GWE/TS extraction wells have been operating correctly only since 2011, observing significant and consistent downward trend at the perimeter wells may take several more years.

The order of magnitude of the groundwater VOCs at MW-14 is higher than even what is observed in the wells adjacent to LUST. Being on the upgradient side of the Site, VOC levels at MW-14 are consistent with the *CSM* 's depiction of the tank contents having traveled across the top of bedrock until encountering vertical fractures that allowed it to enter the bedrock-groundwater regime.

3.4 Mass of Groundwater Contaminates Removed and Treated

The GWE/TS removes VOC product and contaminated groundwater from at least the immediate vicinity of the LUST—which removes those contaminants from what could migrate to the site boundary. The treated effluent has consistently been below the discharge limit of 155 µg/l, as set by the Erie County/Buffalo Sewer Authority permit.

Observations Regarding Groundwater Contaminants Removed

During 2013, any GWE/T System downtime includes days the system was off for cleaning, pump servicing, reconfiguring piping, etc. The Sullair air compressor had failed in May 2013 and the new replacement Atlas-Compco is more reliable and delivers greater air to drive the extraction pump.

During 2014, any GWE/T System downtime includes days the system was off for cleaning, pump servicing, reconfiguring piping, etc., and there were no major malfunctions or failures.

The manual timer on the GWE/T System was set to operate approximately 12 hours per day (two hours on-time/two hours' off-time,) and 2013 the system was set to run continuously (i.e., 24/7.)
Since the system was installed in 1998, we estimate the following performance:

Reporting Period	CY 2013	CY 2014
GWE/T System operated	332 days	347 days
Cumulative VOC mass removed, lbs	45.052	45.292
Mass VOC removed for year, lbs.	0.777	0.240
Groundwater volume extracted	59,946	32,382
Cumulative extracted	876,146	878,528

The discharge of the treated groundwater is calculated on a monthly basis, the average daily flow typically varies between 20 gpd to 500 gpd.

There is no method to determine, or compare removals to the VOC mass that was discharged to the groundwater from the LUST. Nevertheless, the information allows a relative comparison of month-to-month and year-to-year performance of the GWE/T System.

Appendix D depicts the VOCs extracted and treated by the system on a monthly basis. The first chart depicts the monthly removals since the extraction system was installed—the second chart the cumulative removals and the arithmetic trend for the system.

3.5 Current Extent of Groundwater Contamination Plume

As of December 2011, contamination extended to all perimeter wells and to the two off-site wells toward the northwest (MW-12) and north (MW-13.) The current estimated plume is shown by Figure 8.

Observations Regarding Extent of Contaminant Plume

Figure 8 depicts the current iso-concentration map showing the estimated extent of the groundwater contaminant plume based on average groundwater VOCs during 2014. The three most-recently installed monitoring wells have been invaluable in defining the plume and we anticipate that installing MW-15 will have a similar benefit.

The range of contaminants of concern (~50) makes it unwieldy to include tabular data of the results on one well location map and it would be impossible to read—so we show the results for the contaminants of concern in tabular form in Appendix B. See Appendix B also for a graphical analysis of each well since the original source (LUST and soil) were removed, and for the period after the GWE/TS began extracting groundwater/VOCs.

The contours depicted on Figure 8 are based on average total VOCs observed during 2014, and shows the average concentrations at each well. The bedrock hydraulic conductivity at each location is unknown, and the contours were developed without the aid of RIs that are scheduled to better define site hydrogeology. Therefore, we suggest caution when interpreting the depicted contamination zones. Detailed evaluation of site hydrogeology had not been undertaken in the past, and such characterization is necessary in order to refine the iso-concentration map.

Until these studies are completed, it is felt that the map presented should be considered preliminary, as it will be refined based on contaminant mass flux and mass discharge evaluations and developing a better definition of the contaminant distribution. See PRR Section 1.7, which describes the planned RIs.

Additional Investigations to Address Issues Regarding Contaminant Plume

To address the high VOCs in MW-14, additional investigation is warranted to establish the limit of the groundwater plume toward the east and southeast. Therefore, installing MW-15 will address this concern.

Additionally, one or two off-site wells may be necessary to establish the extent of contamination toward Boxwood Lane (see PRR Section 1.7.) The procedure will be to establish MW-15—and depending on the results—decide whether a second well is appropriate, and if so its location.

It is obvious that the chosen RMs have not been as effective in reducing groundwater VOCs as quickly as was desired. Nevertheless, because the GWE/TS never operated as intended and never reached its full potential to control groundwater movement and the contaminant plume, we cannot conclude that the GWE/T RM is inadequate. As the system is optimized and further groundwater quality data is obtained, the efficiency of that IRM will be evaluated and a determination made as to whether any modifications are warranted. Due to the low bedrock hydraulic conductivity, it may take several years to observe a consistent trend at the perimeter wells.

In addition to the continued well monitoring, bedrock hydraulic conductivity must be established at each well to provide a more-complete picture of the Site, which will assist in locating additional wells or modifying the RM strategy.)

IV COMPLIANCE with SITE INSTITUTIONAL and ENGINEERING CONTROLS

4.1 Compliance with Institutional Controls

There are two institutional controls that are provided for in order to limit potential human and environmental pathway exposure of contaminants, and this protect human health. The owner(s) of the site are precluded from using:

- Groundwater from beneath the CMS Site without first treating it to render it safe.
- The property for anything other than commercial or industrial use.

These two restrictions were filed as a Deed Declaration that runs with the land, and are therefore binding on the current owner of the property, Cugino Ventures LLC. The covenants apply to two parcels—the southerly one that generally contains the 210 French Road building and parking lot, and a northerly parcel that abuts Industrial Parkway and contains parking and lawn areas (see the survey and property description in Appendix E.)

The property owner is complying with these restrictions, and the institutional controls meet their intended purpose and are effective in preventing human exposure to contaminants. No modifications or additions to the IC Plan are necessary at this time.

4.2 Compliance with Engineering Controls

Two site engineering controls consist of (1) the GWE/T System RM, and (2) the SSD Systems installed in the 210 French Building.

Groundwater Extraction and Treatment System

The first engineering control is now operating substantially as was designed according to the engineering specifications for the system as supplied by the Equipment Manufacturer and detailed by Hazard Evaluations in 1996 when it recommended that IRM.

The groundwater extraction portion of the system and the treatment unit have been controlled by one timer since the system was installed in 1998. However, a dual channel controller is being installed so that their on-times can be controlled separately. CMS has, and continues to operate the GWE/T System for the Site.

Description of Performance Monitoring

The performance of the extraction system is determined primarily by evaluating the vacuum on the suction manifold and in the four extraction wells (MW-1, -2, -3, -9.) Secondarily, its long-term performance will be determined by monitoring groundwater VOCs at the site perimeter and off-site wells. Inspections of the extraction system performance (e.g., pump operation, air compressor operation, vacuum applied to the suction manifold, well vacuums) were typically performed monthly while monitoring groundwater elevations. When appropriate (depending on the cause and the effect on the system) the extraction wells were also checked if a problem was recognized such as lower vacuum on the suction manifold or if an issue developed with the extraction pump. The frequency of these inspections will be increased if necessary to develop a trend in system performance, so that low vacuum or other issues can be more-quickly identified and addressed.

The GWE/T System's ability to capture the contaminant plume is undetermined in its new configuration and will be determined through ongoing monitoring and the recommended RIs to better characterize site hydrogeology and determine the zone of influence of the system (see *Recommendations*, report Section 1.7.)

The performance of the treatment system in removing VOCs before discharging effluent to the sanitary sewer is determined by semiannual effluent sampling according to the Erie County/Buffalo Sewer Authority permit for the discharge. EC/BSA compliance reports are copied to the NYSDEC Region 9 DER. The effluent is also typically sampled concurrent with the quarterly groundwater monitoring.

Routine Maintenance and Inspection Forms

The maintenance and inspection form that documents system performance indicators (i.e., pump, manifold, and extraction well vacuum readings) is logbook that filled out daily. It additionally used to identify trends when inspecting the extraction and treatment system. A copy of the logbook is submitted separately with the PRR submittal.

Sub-slab Depressurization Systems

The two SSD Systems installed in the 210 French building are operating as they were intended.

Description of Performance Monitoring

Performance monitoring existing SSD Systems in 210 French Road building was preformed during the *Soil Vapor Intrusion Evaluation* for the site. The result was that the systems are operating as intended, and the reduced pressure zone ~80% of the footprint. The additional SSD equipment being installed in the building will be subject to periodic performance monitoring as specified in the new SMP for the Site. See Appendix XX for the SVIE results showing the performance of the existing SSD Systems.

Routine Maintenance and Inspection Forms

There are currently no maintenance and inspection forms that document the SSDS system performance. Standard forms will be prepared as required by the new SMP for the Site, including an annual certification of the system.

V COMPLIANCE with SITE OPERATION, MAINTENANCE and MONITORING PLAN

5.1 Status of Site OMMP

The OMM Plan for the CMS Site is outdated—and a new SMP will be instituted in 2015. It will reflect all current RM components and Engineering Controls, and appropriate monitoring and reporting for the site.

The new SMP will be submitted in Spring 2015, and should be approved by the NYSDEC during the Summer. In the meantime, while that review and any revisions are being made, CMS is proposing to follow the SMP as submitted, including monitoring and inspections of newly installed Engineering Controls and new installed wells that were not covered in the previous OMMP.

5.2 Monitoring to Determine Treatment System Performance and Effectiveness

Effluent from the GWE/TS is subject to a permit to discharge that requires semi-annual compliance monitoring and reporting to Erie County and the BSA. The submitted reports are additionally copied to Region 9 DER electronically.

Since the GWE/T System went on line in 1998, the effluent has consistently met the permit limits , and oftentimes VOCs have been non-detectable using EPA method 625 (as provided for in the discharge permit.) More recently, we used the lower-detection-limit EPA Method 8021, and now EPA Method 8260. Using any of the three test methods, the treatment system effluent is consistently an order of magnitude below the 1.55 mg/l permit discharge limit.

During the reporting period, the following effluent discharge compliance testing was performed:

Date	Total VOCs GWE/T System Effluent
June 20, 2013	122 µg/l
January 27, 2014	290 µg/l
June 10, 2014	320 µg/l
December 5, 2014	140 µg/l

Note: Discharge permit limit is 1,550 µg/l

5.3 Building Sub-Slab Vapor Sampling

The *Soil Vapor Intrusion Evaluation* for the 210 French Road building addressed VOC vapor under the floor slab and in the indoor air. Indoor air quality had no concerns regarding SVI, but the sub-slab VOCs exceeded NYSDOH action levels, and the building is being remediated. Appendix A shows the results of the SVIE in tabular and a summary graphical format.

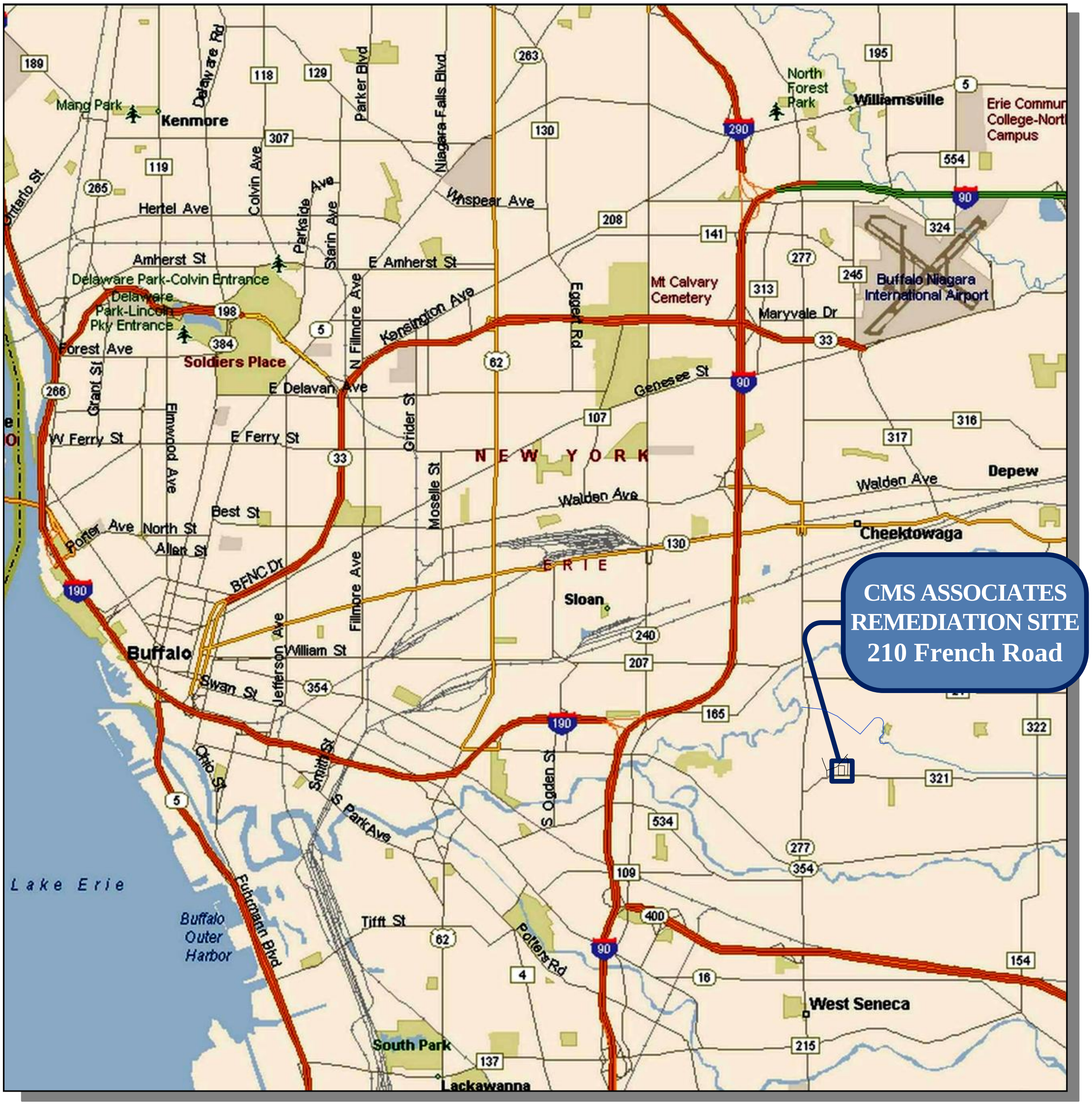
5.4 Groundwater Elevation and Quality Monitoring

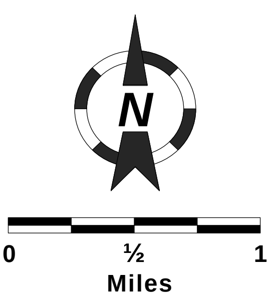
No change is proposed in the new SMP for the Site regarding groundwater well monitoring. The previous OM&MP specified annual sampling for off-site wells, but these have often been sampled more frequently. In the new SMP we recommend sampling those at the same frequency as all other wells due to the sensitive nature of the contaminant plume possibly entering the off-site properties at MW-10 and MW-11. We feel that an "early warning" is beneficial, compared to annual sampling.

The manholes that contain extraction wells MW-9 and MW-1 appear to leak, which occasionally allows perched groundwater to flood them. This occurs during the fall and then the manholes freeze in early winter. Maintenance will be performed on the extraction well manhole barrels during 2015 to prevent groundwater entry by sealing with grout or injected epoxy as necessary,

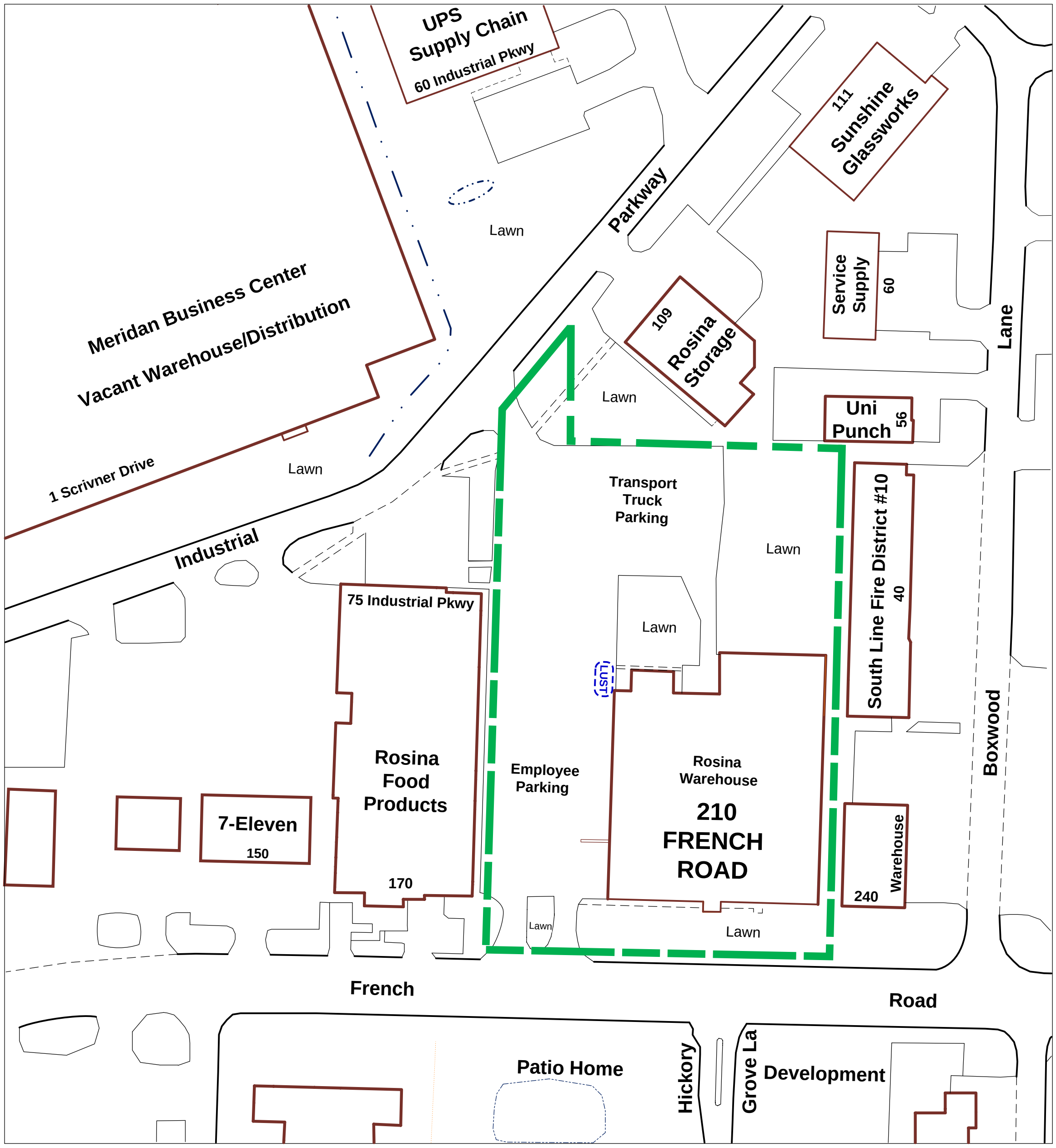
Appendix B summarizes the results of groundwater monitoring—no change is recommended in the sampling frequency or the analyte list (see Appendix E.) Appendix C is an evaluation and graphical presentation of the quality in all wells, and shows that during the reporting period the perimeter wells continue, generally, to decrease in VOC levels. However, the rate at which this occurred in the past was not as quickly as expected—but the retrofitted GWE/T System extraction wells will help increas this rate. It may take several years to observe a consistent trend, with the 2011 period being the new "baseline" for comparison.

FIGURES





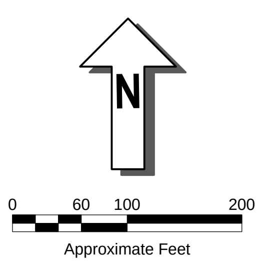
CMS Associates Remediation Site Periodic Review Report
Figure 1 **SITE LOCATION**
Ken W. Kloeber Consulting Engineers



Key:

LUST — *Former LUST Location*

CMS Site Property Boundary

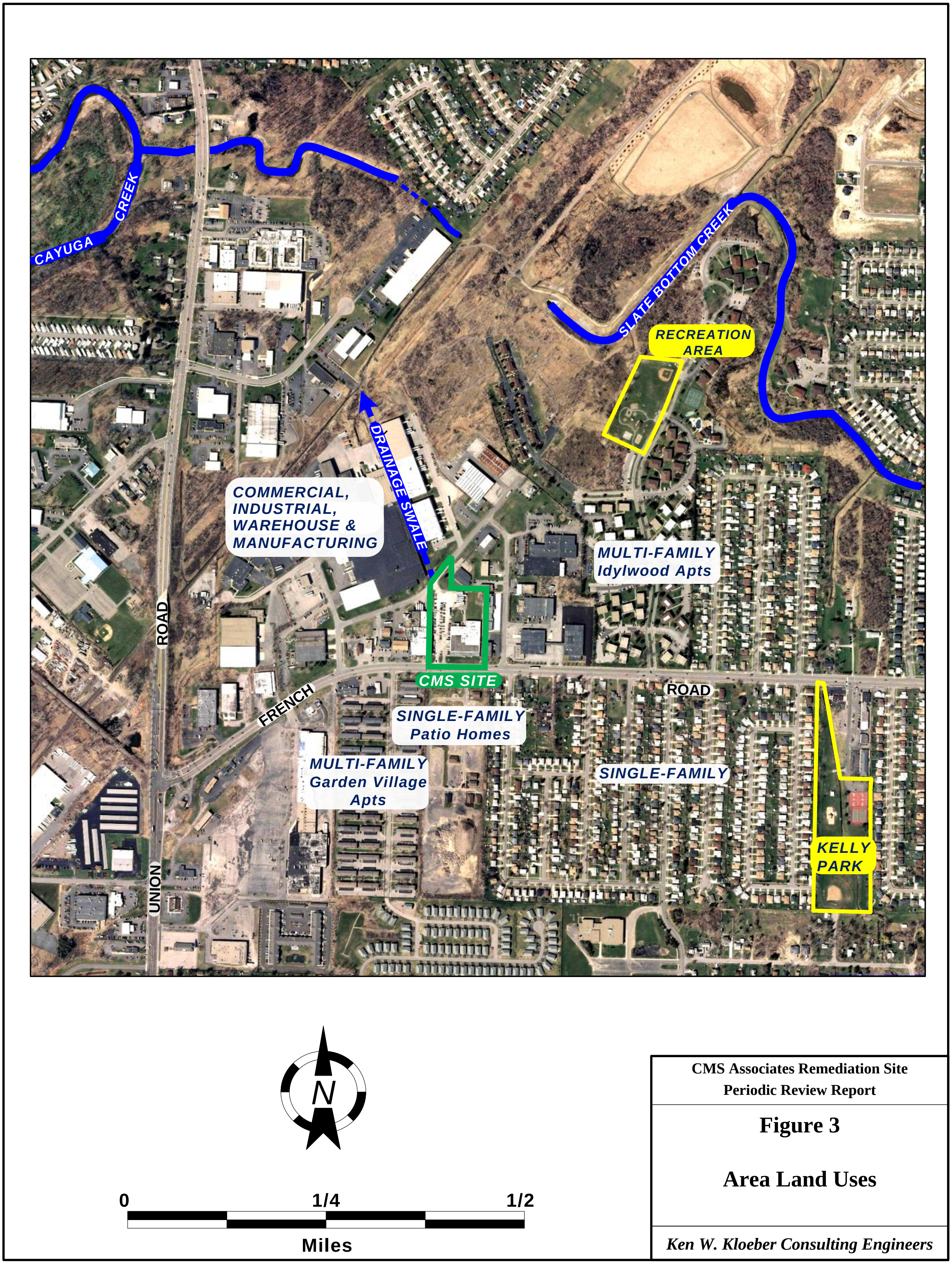


CMS Associates Remediation Site
Periodic Review Report

Figure 2

Surrounding Properties

Ken W. Kloeber Consulting Engineers

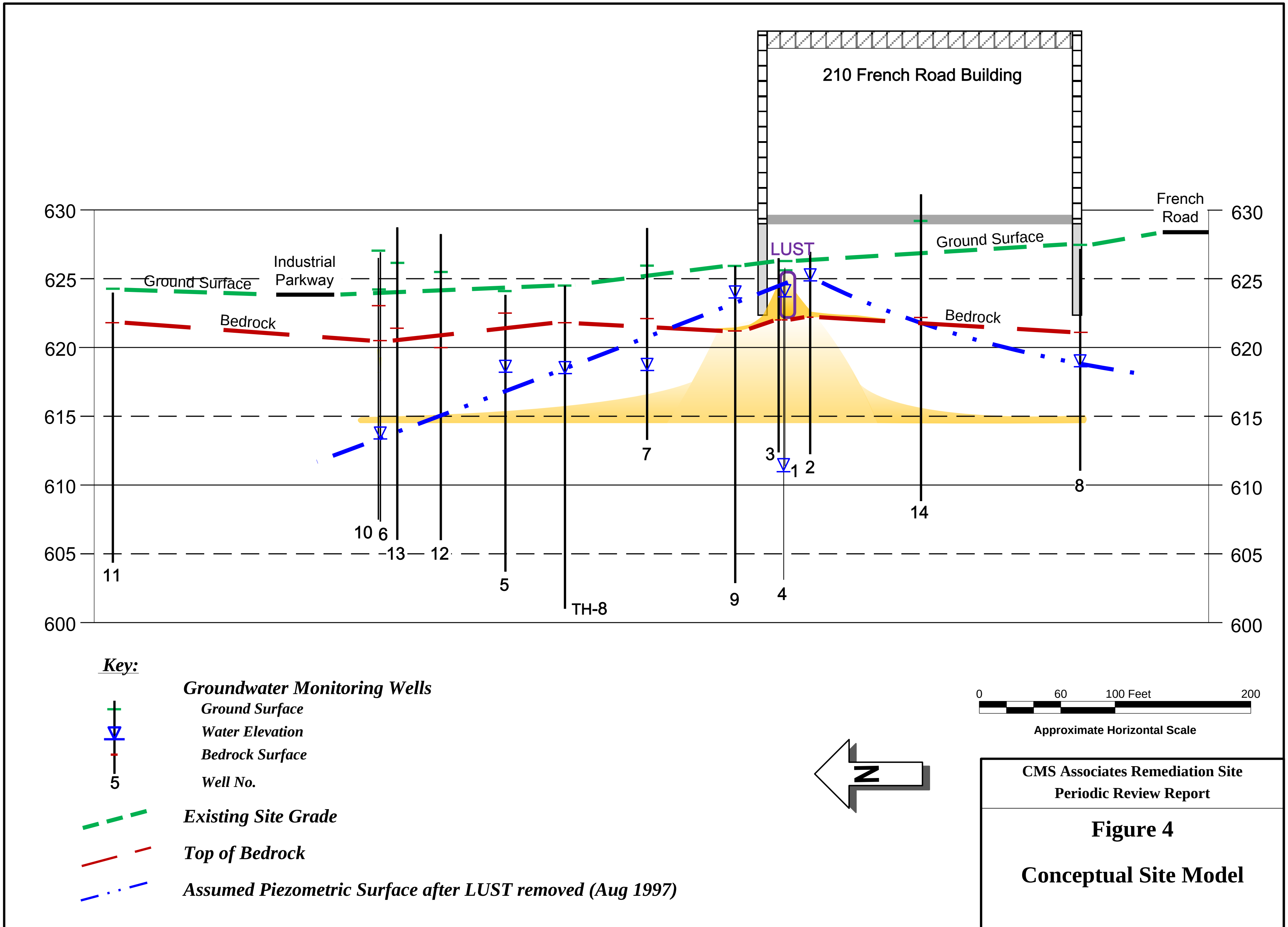


CMS Associates Remediation Site
Periodic Review Report

Figure 3

Area Land Uses

Ken W. Kloeber Consulting Engineers



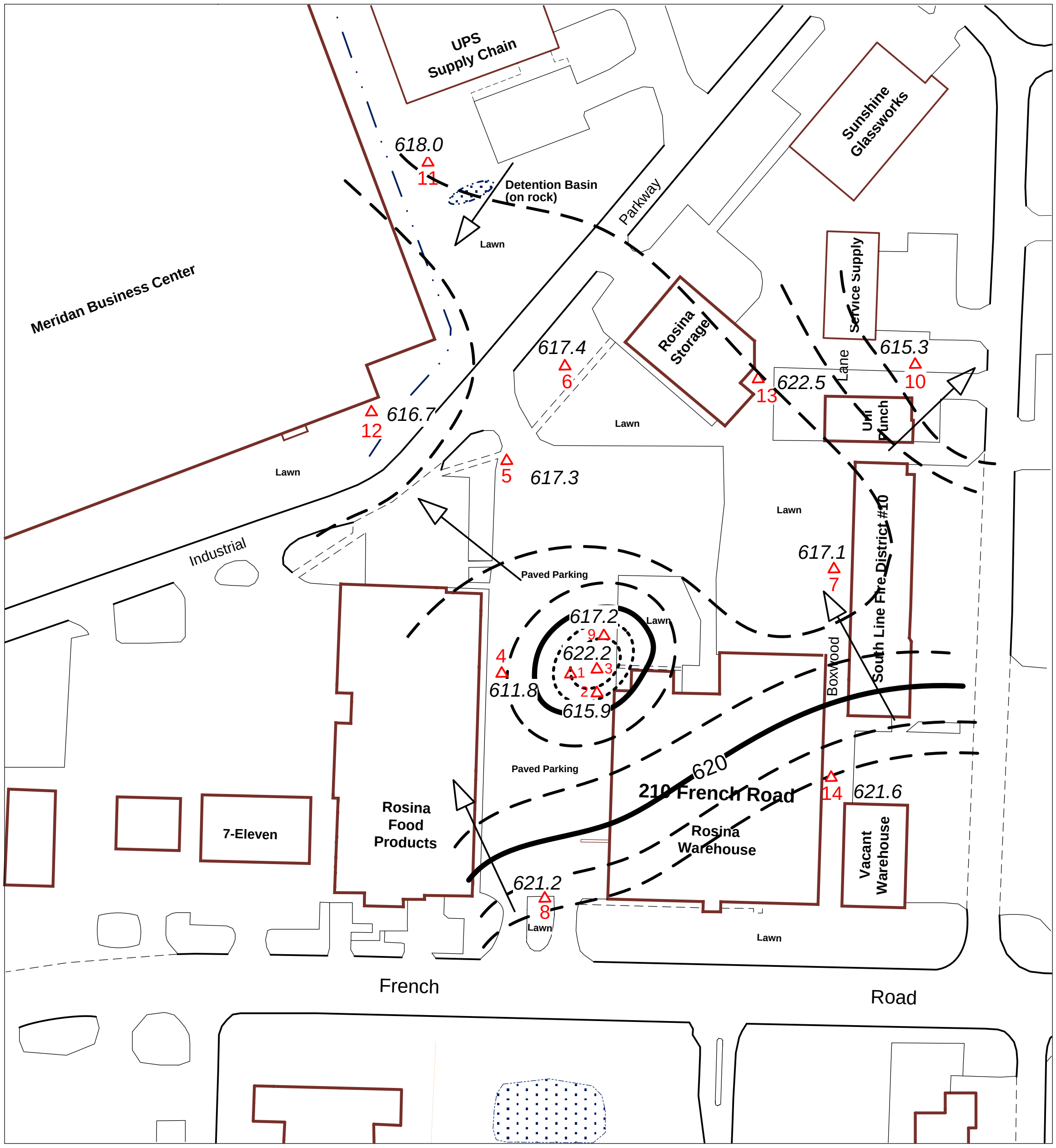
Note: Site cross-section is an approximate north-south line through well MW-1. Elevations are NAVD88.

CMS Associates Remediation Site
Periodic Review Report

Figure 4

Conceptual Site Model

Ken W. Kloeber Consulting Engineers



KEY:

LUST *Former LUST Location*

△ *Groundwater Monitoring Well*

622.2 ***Groundwater Elevation (NAVD88)***

Note: MW-4 and MW-13 were discounted -- see report.
The piezometric head at MW-1, -2, -9 is artificially depressed by the groundwater vacuum pump.

N

0 60 100 200
Approximate Feet

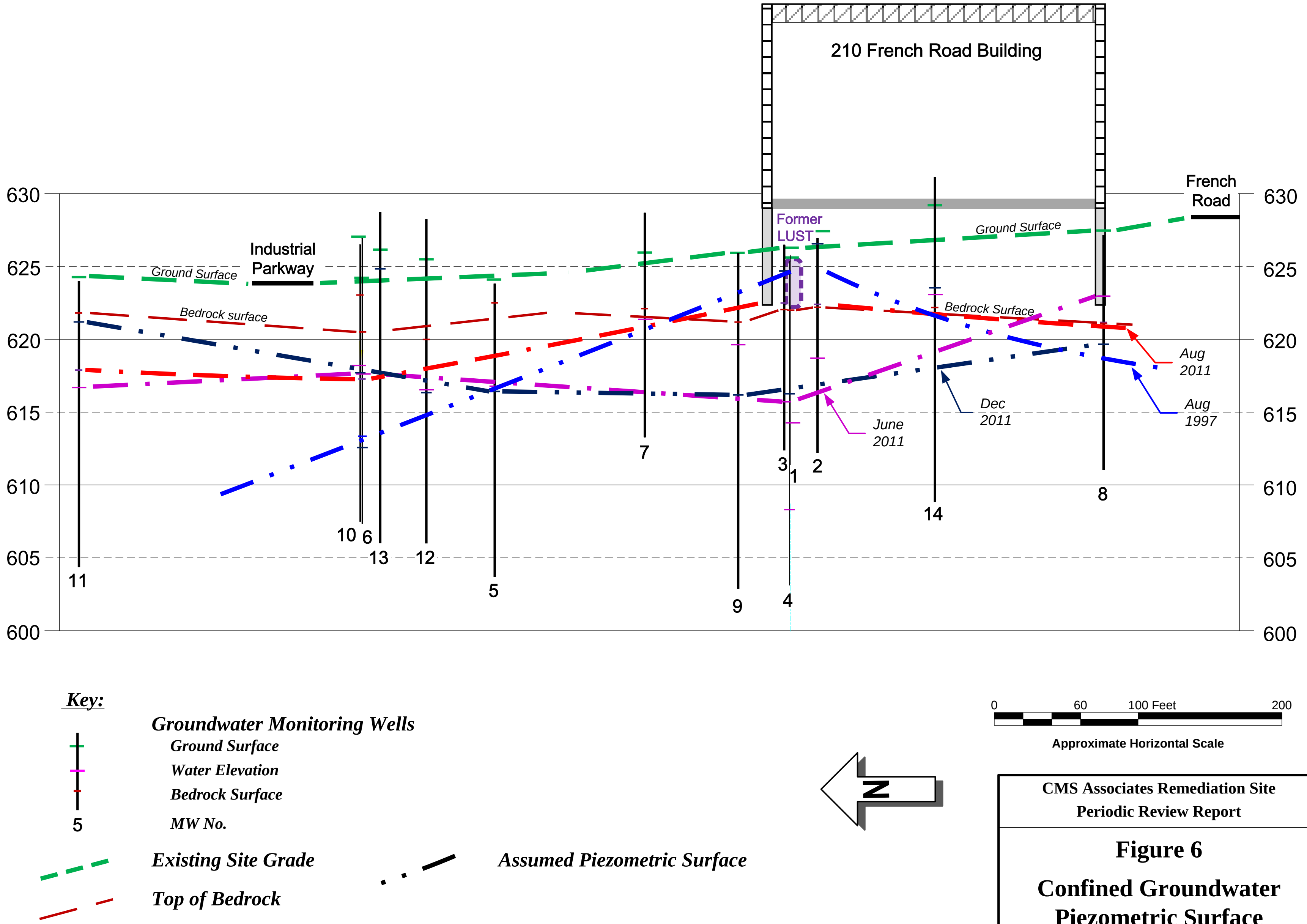
CMS Associates Remediation Site
Periodic Review Report

Figure 5

August 2011
Groundwater Elevations

Ken W. Kloeber Consulting Engineers

fig 6 189-02 prr gw profile.vsd



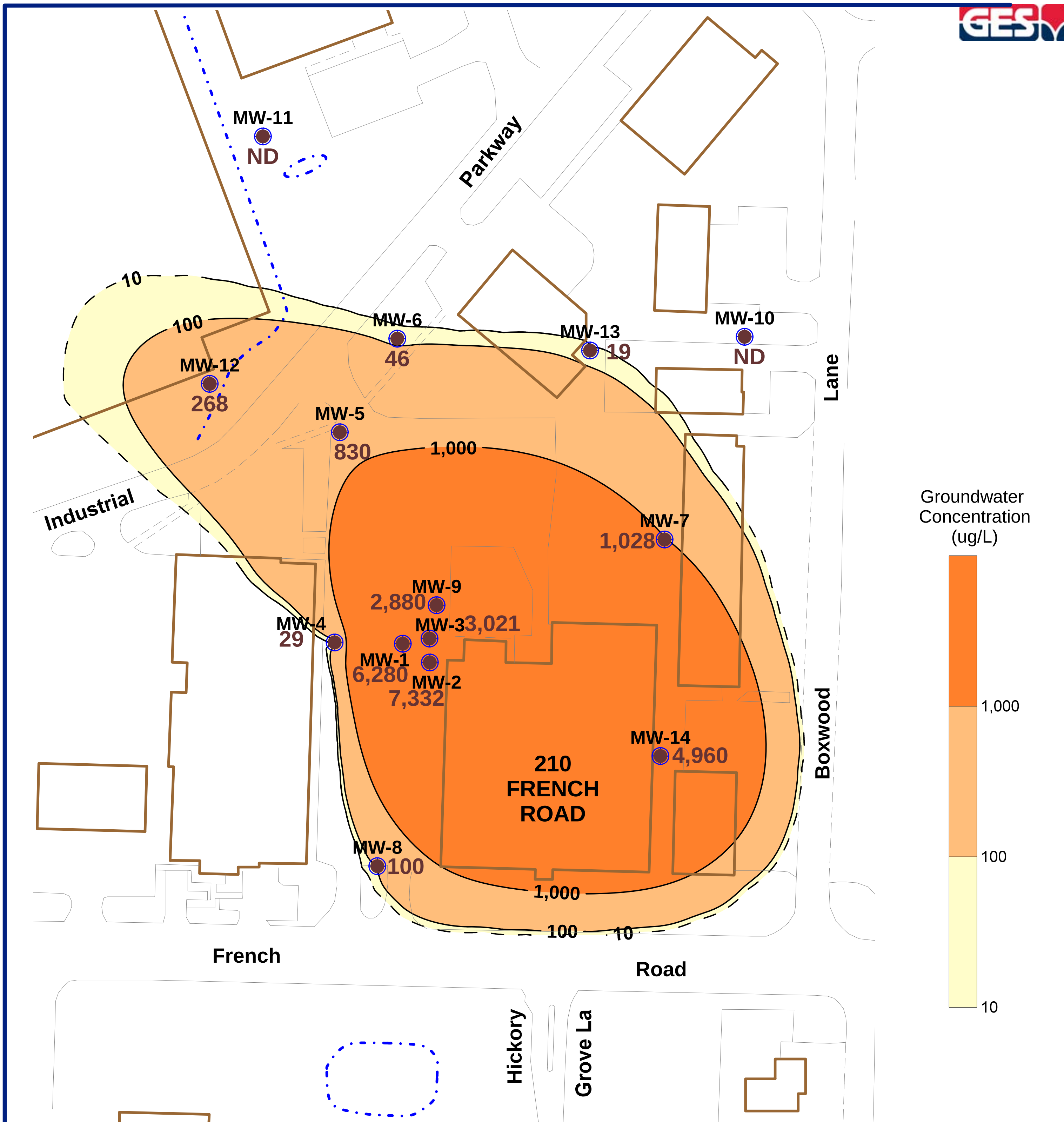
Note: Site cross-section is an approximate north-south line through well MW-1. Elevations are NAVD88.
Assumed piezometric surface is from well elevations and is generalized between wells.

CMS Associates Remediation Site
Periodic Review Report

Figure 6

Confined Groundwater Piezometric Surface

Ken W. Kloeber Consulting Engineers



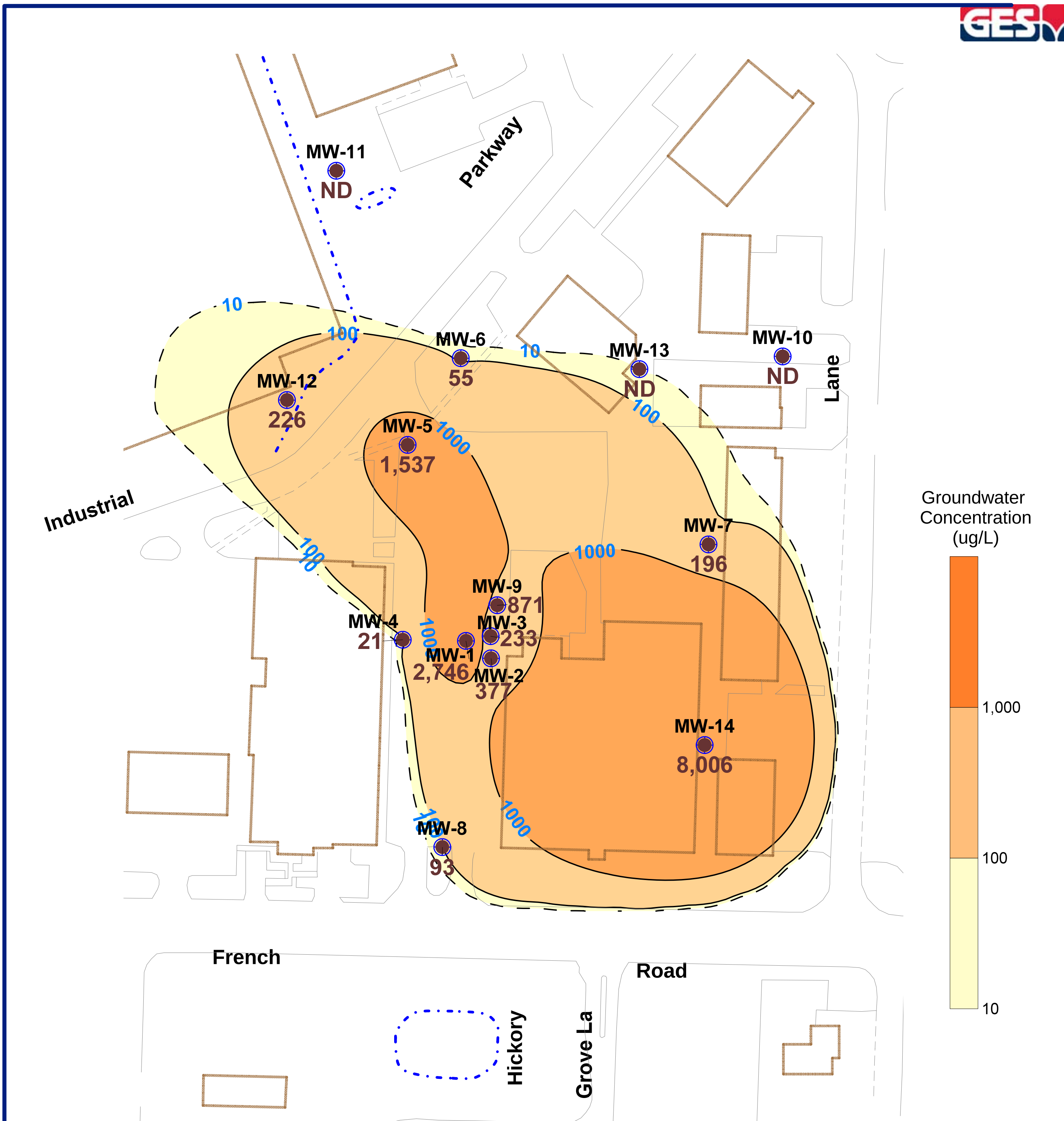
Legend:

19 Average Total VOC Groundwater Concentration (ug/L)

Inferred Contour Line

Water Retention Pond

Drafted By: AMC	**Average Total VOCs in Groundwater 2011**
Checked By: DL	CMS Associates Remediation Site 210 French Road Cheektowaga, New York
	Groundwater & Environmental Services, Inc. 1750 Kraft Drive, Suite 2700, Blacksburg, VA 24060
North	Map Scale (ft) 0 100 200 — **Figure 7**



Legend:

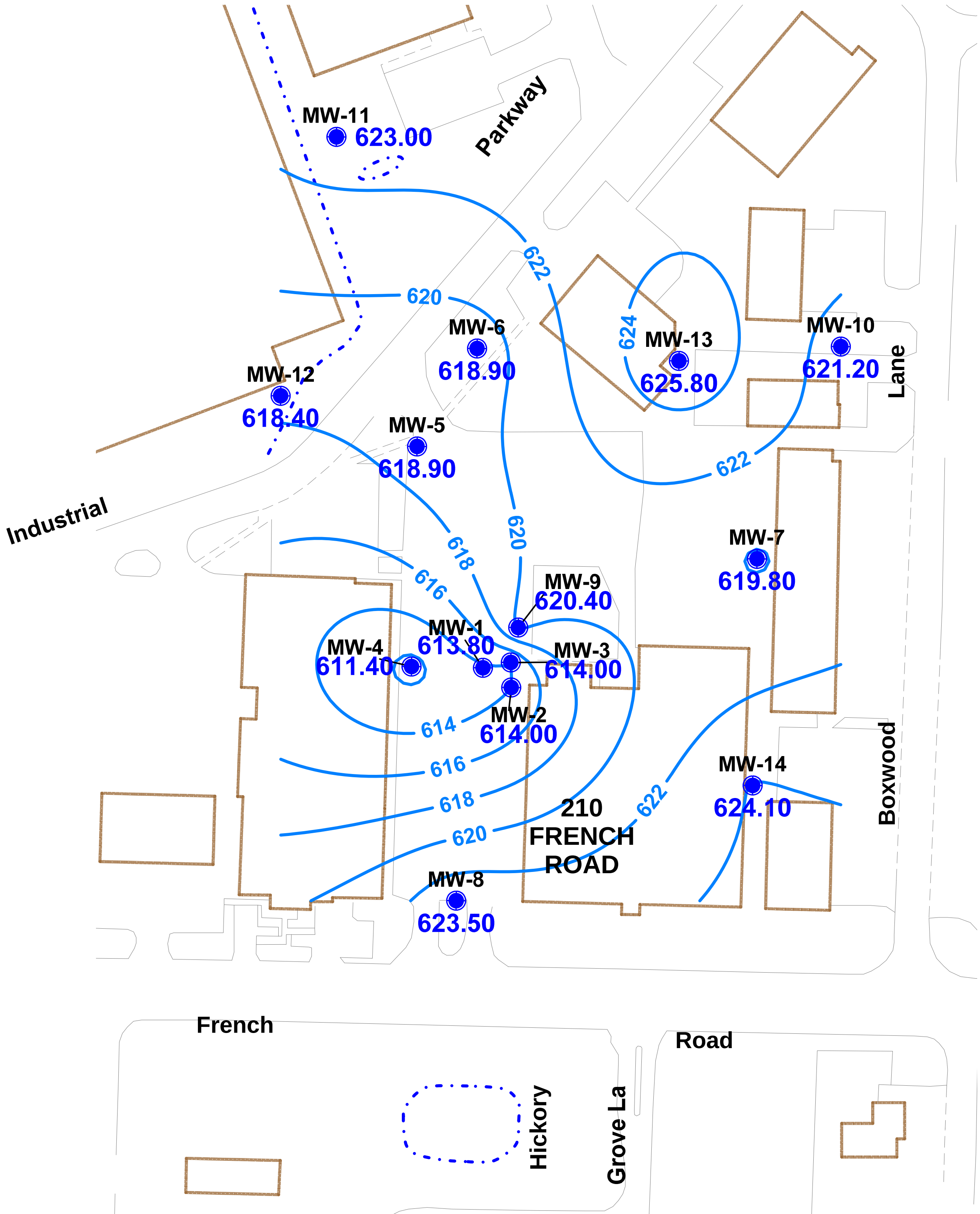
19 Average Total VOC Groundwater Concentration (ug/L)

Inferred Contour Line

Water Retention Pond

Drafted By: JTL	**Total Groundwater VOCs December 2014**
Checked By: DMC	CMS Associates Remediation Site 210 French Road Cheektowaga, New York
Date: 04-22-2015	**Groundwater & Environmental Services, Inc.** 1750 Kraft Drive, Suite 2700, Blacksburg, VA 24060
North	Map Scale (ft) 0 100 200

Figure 8



Note:

Average groundwater elevation at MW-4 was not used in contours.

Legend:

Water Retention Pond

Drafted By: JTL	**Groundwater Elevations December 2014**
Checked By: DMC	CMS Associates Remediation Site 210 French Road Cheektowaga, New York
Date: 04-22-2015	**Groundwater & Environmental Services, Inc.** 1750 Kraft Drive, Suite 2700, Blacksburg, VA 24060
North	Map Scale (ft) 0 100 200 — Figure No:

APPENDIX A

Summary – 2013 and 2014 Soil Vapor Intrusion Evaluations

Soil Vapor Intrusion Evaluation
of Surrounding Properties

for

CMS ASSOCIATES REMEDIATION SITE

Site no. 915168

210 French Road
Town of Cheektowaga
Erie County NY

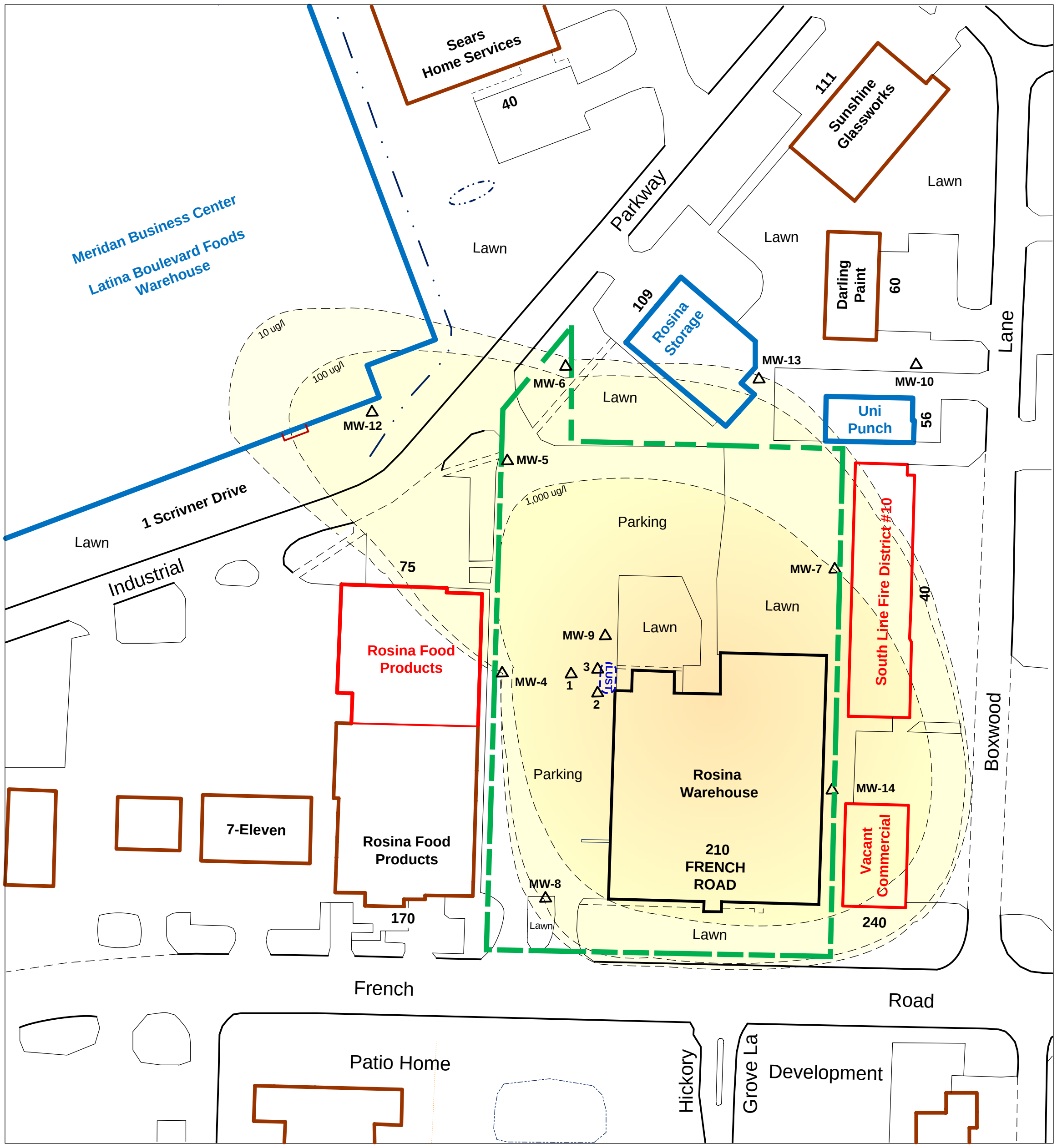
October 2013

Prepared for:

CMS Property Associates, LLC
228 Linwood Avenue
Buffalo NY 14209

Ken W. Kloeber
Consulting Engineers ENVIRONMENTAL SOLUTIONS • CIVIL & SANITARY ENGINEERING • PLANNING & DESIGN

PO BOX 140 • BOSTON NY 14025 • 716-864-0012 • Fax 775-860-3804 • KloeberEng@aol.com



Key:

- LUST — *Former LUST Location*
- *CMS Site Property Boundary*
- Darling — No Potential for SVI Impact in building
- UniPunch — Low Potential for SVI Impact in building
- Vacant — Moderate Potential for SVI Impact in building
- 1,000 ug/l — *Average Total Groundwater VOCs 2010-2011*

N

0 60 100 200

Approximate Feet

CMS Associates Remediation Site
SVI Evaluation of Surrounding Properties

Figure 2

Surrounding Properties

Ken W. Kloeber Consulting Engineers

1.2 Conclusions and Recommendations

Based on the sub-slab vapor, indoor air, and outdoor air sampling results, and the further evaluations presented in this *Soil Vapor Intrusion Evaluation,* the following are concluded for:

1. **170 French Road, 40 Industrial Parkway, 111 Industrial Parkway, 60 Boxwood Lane**

   Based on an evaluation of the potential for vapor intrusion, the historical groundwater quality, and the monitoring results from off-site MW-13 (installed in 2010,) there is no anticipated potential for SVI impact in these buildings. Therefore, ***no further action is necessary regarding these four properties*.**

2. **75 Industrial Parkway, 109 Industrial Parkway**

   The evaluation of the potential for vapor intrusion and the 2010 sub-slab monitoring at 109 Industrial indicate a low potential for SVI impact in these two buildings. Nevertheless, in June 2010 the property owner declined the offer to test the sub-slab at 75 Industrial, and in November 2012 declined further testing at 109 Industrial. Therefore, ***no further action is necessary regarding these properties***.

3. **1 Scrivner Drive, 56 Boxwood Lane**

   The evaluation of the potential for vapor intrusion, the historical groundwater quality, the 2010 sub-slab testing, and the monitoring results from off-site MW-12 and MW-13 (installed in 2010,) indicate a low potential for SVI impact in these two buildings.

   The results of 2013 sub-slab and indoor-air testing confirm that there is no SVI impact in either building and therefore ***no further action is necessary regarding these properties***.

4. **40 Boxwood Lane**

   The evaluation of the potential for vapor intrusion, the historical groundwater quality, the results of 2010-2011 sub-slab monitoring, and the monitoring results from off-site MW-14 (installed in 2011,) indicate a moderate potential for SVI impact in this building.

   The sub-slab vapor testing revealed levels of gasoline-related hydrocarbons (*Benzenes, Heptane, Hexanes, Toluene, Xylenes, etc.)* that are noticeably higher than was observed at the other properties tested for SVI. Additionally, nearby groundwater monitoring exhibits none or very low concentrations of the *BTEX compounds*, so there is no immediate evidence linking these to the CMS LUST, or an explanation why these vapors are observed at 40 Boxwood. The source could be contamination from the CMS plume with compounds that are no longer observed in the groundwater, or alternately from a prior fuel spill off the CMS property.

   CMS is proposing to install an additional perimeter monitoring well south of the 210 French building, and at least one other off-site well along Boxwood Lane. Both these will help define the source of the contamination that is observed under the sub-slab at 40 Boxwood Lane.

The immediate action recommended at 40 Boxwood Lane is to ***install the additional groundwater monitoring wells as soon as practical**,* so that additional groundwater quality data is available to help evaluate the source of the *BTEX* and related compounds.

The sub-slab and indoor-air testing confirms that there is no SVI impact due to NYSDOH-regulated VOCs or other compounds when compared to typical indoor air quality, and ***<u>no further action is necessary regarding SVI at this property</u>***. .

5. 240 French Road

The evaluation of the potential for vapor intrusion, historical groundwater quality, the results of 2010-2011 sub-slab monitoring, and monitoring results from off-site MW-14 (installed in 2011,) indicate a moderate potential for SVI impact in this building.

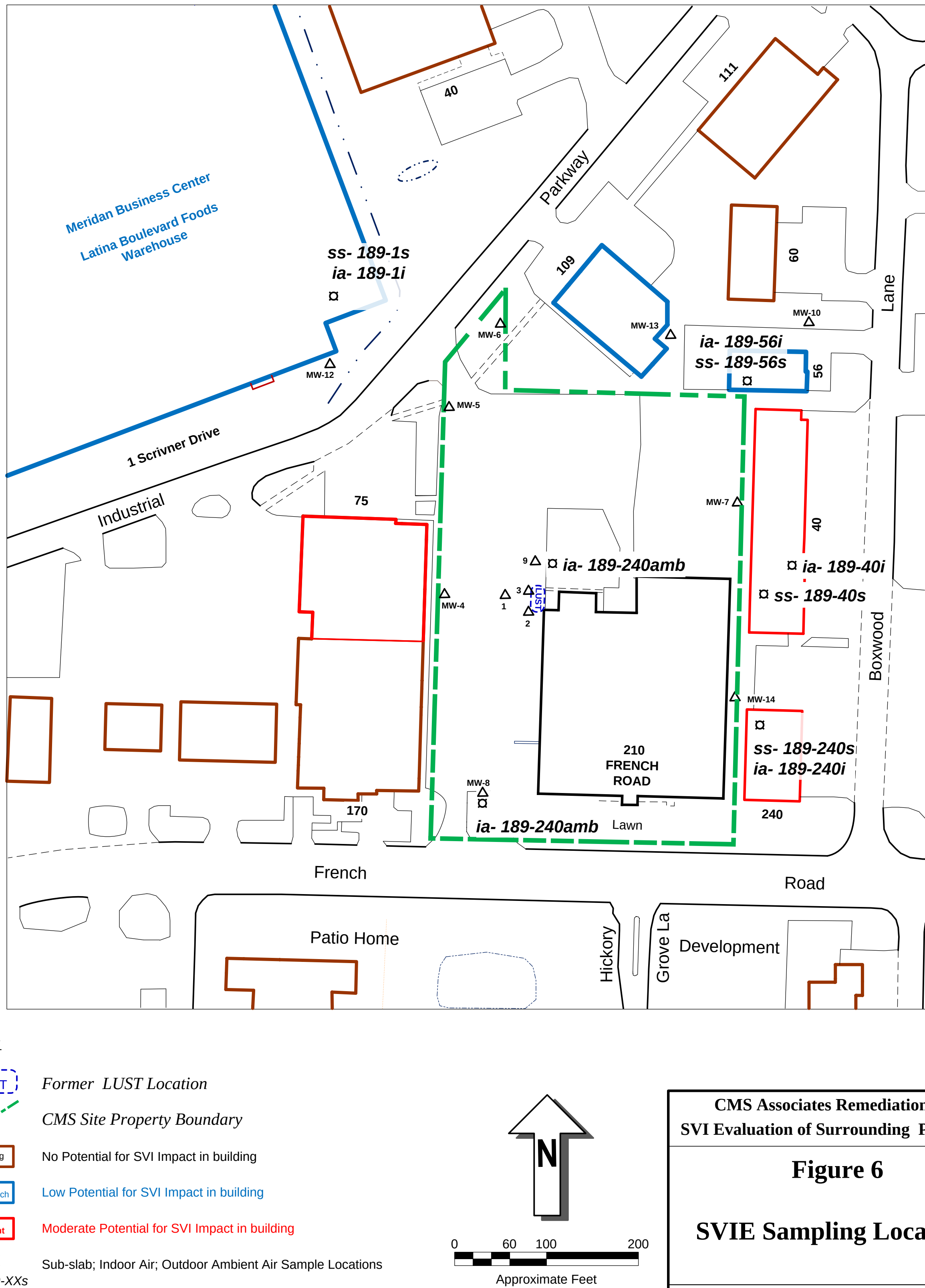
However, as with the 40 Boxwood building to the north, the sub-slab contains levels of gasoline-related hydrocarbons (*Benzenes, Heptane, Hexanes, Toluene, Xylenes, etc.)* that are again higher than observed at the other surrounding properties.

Groundwater monitoring at MW-14 (adjacent to 240 French) exhibits very low concentrations of only a few *BTEX* compounds—so there is no immediate evidence linking the sub-slab vapors to the CMS plume, or an explanation why these are observed at 240 French. The source could be contamination from the CMS plume with compounds that are no longer observed in the groundwater, or alternately from a prior fuel spill off the CMS property.

The owner has been unable to lease the building since 2010, and he reports that it may be razed and the site redeveloped. This would afford an excellent opportunity to eliminate any future concern about soil vapor intrusion.

CMS is proposing to install additional wells south of the 210 French building and along Boxwood Lane—which will help define the source of *BTEX* under the 240 French sub-slab. The immediate action recommended is to *install the additional groundwater monitoring wells as soon as practical,* so that additional groundwater quality data is available to help evaluate the source of the *BTEX* and related compounds.

The sub-slab and indoor-air testing confirms that there is no SVI impact due to NYSDOH-regulated VOCs or other compounds when compared to typical indoor air quality, and ***<u>no further action is necessary regarding SVI at this property</u>***.



Key:

LUST	*Former LUST Location*
	CMS Site Property Boundary
Darling	No Potential for SVI Impact in building
UniPunch	Low Potential for SVI Impact in building
Vacant	Moderate Potential for SVI Impact in building
¤ *ss- 189-XXs* *ia- 189-XXi* *oa- 189-XXamb*	Sub-slab; Indoor Air; Outdoor Ambient Air Sample Locations

CMS Associates Remediation Site
SVI Evaluation of Surrounding Properties

Figure 6

SVIE Sampling Locations

Ken W. Kloeber Consulting Engineers

Table 3

Group	1 SCRIVNER DRIVE TO-15 RESULTS					
	Sample ID	189-1s	189-1i	189-240amb		
	Date	17-Jun-13	17-Jun-13	17-Jun-13		
	Matrix	Sub-slab	Indoor air	Outdoor air	**In MW-12**	***NYSDOH Matrix***
	yy = found in LUST; zz= found in surrounding soil					
Matrix 1 NYSDOH	**Carbon Tetrachloride**	**0.24** J	**0.44**	**0.45**		
	Trichloroethylene	**0.30** J	**0.14** J	**0.42**		***No Further Action***
	Vinyl Chloride	**0.16** J	0.09 U	**0.048** J	X	
Matrix 2	**1,1-Dichloroethylene**	**0.40**	0.14 U	0.14 U		
	1,1,1-Trichloroethane	**2.3**	**0.42**	**2.0**		***No Further Action***
	cis-1,2-Dichloroethylene	**0.59**	0.14 U	**0.40**	X	
	Tetrachloroethylene	**3.0**	**2.3**	**1.1**		
Compounds present in groundwater wells	1,1,2,2-Tetrachloroethane	0.69 U	0.24 U	0.24 U		
	1,1,2-Trichloro-1,2,2-trifluoroethane (R-113)	**2.7**	**0.47**	**0.51**		
	1,1,2-Trichloroethane	0.55 U	0.19 U	0.19 U		
	1,1-Dichloroethane	**1.0**	**0.077** J	**0.50**	X	
	1,2,4-Trimethylbenzene	**5.2**	**3.3**	**7.1**		
	1,2-Dichlorobenzene	0.60 U	0.21 U	0.21 U		
	1,2-Dichloroethane	0.40 U	0.14 U	0.14 U	X	
	1,2-Dichloropropane	0.46 U	0.16 U	0.16 U		
	1,3,5-Trimethylbenzene	**1.6**	**0.91**	**2.1**		
	1,4-Dichlorobenzene	**1.4**	**1.6**	**0.29**		
	2-Butanone (MEK)	**4.1** J	**5.5**	4.0 J		
	Benzene	**0.91**	**0.78**	**0.80**	X	
	Bromomethane	0.39 U	0.14 U	0.14 U		
	Carbon Disulfide	**1.0** J	**0.87** J	**0.25** J		
	Chlorobenzene	0.46 U	0.16 U	0.16 U		
	Chloroethane	0.26 U	**0.11**	**0.25**	X	
	Chloroform	**0.87**	**1.3**	**0.65**		
	Chloromethane	**0.49**	**1.3**	**1.6**		
	cis-1,3-Dichloropropene	0.45 U	0.16 U	0.16 U		
	Cyclohexane	**1.3**	**0.41**	0.12 U	X	
	Ethylbenzene	**14**	**1.4**	**23**		
	m&p-Xylene	**13**	**2.0**	**18**		
	Methyl tert-Butyl Ether (MTBE)	0.36 U	0.13 U	0.13 U		
	Methylene Chloride	**11**	**11**	**1.0** J		
	o-Xylene	**5.0**	**1.2**	**5.3**		
	Styrene	**3.2**	**9.3**	**2.5**		
	Toluene	**12**	**4.9**	**10**		
	trans-1,2-Dichloroethylene	0.40 U	**0.081** J	0.14 U		
	trans-1,3-Dichloropropene	0.45 U	0.16 U	0.16 U		
	Trichlorofluoromethane (R-11)	**210**	**120**	**1.2**		
Not present in gw wells	1,2,4-Trichlorobenzene	0.74 U	0.26 U	0.26 U		
	1,2-Dibromoethane (EDB)	0.77 U	0.27 U	0.27 U		
	1,3-Dichlorobenzene	0.60 U	0.21 U	0.21 U		
	Acetone	**29**	**53**	**41**		
	Benzyl chloride	0.52 U	0.18 U	0.18 U		
	Bromodichloromethane	0.67 U	0.24 U	0.24 U		
	Bromoform	1.0 U	0.36 U	0.36 U		
	Dibromochloromethane	0.85 U	0.30 U	0.30 U		
	Dichlorodifluoromethane (R-12)	**3.4**	**1.2**	**1.3**		
	Hexachlorobutadiene	1.1 U	0.37 U	0.37 U		
Not on EPA Method 8260	**1,2-Dichloro-1,1,2,2-tetrafluoroethane (R-114)**	0.70 U	0.25 U	**0.083** J		
	1,3-Butadiene	0.22 U	0.078 U	0.078 U		
	1,4-Dioxane	3.60 U	1.3 U	1.3 U		
	2-Hexanone (MBK)	0.41 U	**1.0**	**1.5**		
	4-Ethyltoluene	**1.1**	**0.6**	**1.6**		
	4-Methyl-2-pentanone (MIBK)	0.41 U	**0.89**	**0.64**		
	Heptane	**1.3**	**1.5**	**2.5**		
	Hexane	**5.5** J	**3.2** J	**2.1** J		
	Isopropanol	**2.5** J	**22**	**1.9**		
	Tetrahydrofuran	0.29 U	**0.14**	**0.28**		
	Vinyl Acetate	7.0 U	2.5 U	2.5 U		

Table 4

Comparison of 1 Scrivner Drive Indoor Air to EPA *BASE Study* Values

1 SCRIVNER DRIVE **TO-15 RESULTS** (µg/m3)	Sample ID / Date / Matrix	189-1s	189-1i	**EPA**	**In MW-12**	189-240amb	Notes
	Date	17-Jun-13	17-Jun-13	***BASE***		17-Jun-13	
yy = found in LUST; zz= found in surrounding soil	Matrix	Sub-slab	Indoor air	Values		Outdoor	
TO-15 compounds below are present in CMS groundwater wells							
1,1,2-Trichloro-1,2,2-trifluoroethane (R-113)		**2.7**	**0.47**	**na**		**0.51**	(1)
1,1-Dichloroethane		1.0	0.077 J	0.7 U	X	0.50	
1,2,4-Trimethylbenzene		5.2	3.3	9.5		7.1	
1,3,5-Trimethylbenzene		1.6	0.91	3.7		2.1	
1,4-Dichlorobenzene		1.4	1.6	5.5		0.29	
2-Butanone (MEK)		4.1 J	5.5	12		4.0 J	
Benzene		0.91	0.78	9.4	X	0.80	
Carbon Disulfide		1.0 J	0.87 J	4.2		0.25 J	
Chloroform		**0.87**	**1.3**	**1.1**		**0.65**	(1)
Chloromethane		0.49	1.3	3.7		1.6	
Cyclohexane		1.3	0.41	na	X	0.12 U	
Ethylbenzene		14	1.4	5.7		23	
m&p-Xylene		13	2.0	22.2		18	
Methylene Chloride		**11**	**11**	**10**		**1.0** J	(1)
Styrene		**3.2**	**9.3**	**1.9**		**2.5**	(1)
Toluene		12	4.9	43		10	
Trichlorofluoromethane (R-11)		**210**	**120**	**18.1**		**1.2**	(2)
TO-15 compounds below are not observed in CMS groundwater wells							
Acetone		29	53	98.9		41	
Dichlorodifluoromethane (R-12)		3.4	1.2	16.5		1.3	
TO-15 compounds below are not analyzed for in CMS groundwater wells							
4-Ethyltoluene		1.1	0.6	3.6		1.6	
Heptane		1.3	1.5	na		2.5	
Hexane		5.5 J	3.2 J	10.2		2.1 J	
Isopropanol		**2.5** J	**22**	**na**		**1.9**	

Reasonable indoor air value and/or present in ambient air -- no concern. (1)

Not due to CMS GW plume -- compound is not present in plume. (2)
It was observed only once (in MW-7 in 2003)

Table 5

Group	**56 BOXWOOD LANE** **TO-15 RESULTS** (µg/m3) — Sample ID / Date / Matrix	189-56s 21-May-13 Sub-slab	189-56i 21-May-13 Indoor	189-56amb 21-May-13 Outdoor	In MW-7	In MW-13	*NYSDOH Matrix*
NYSDOH Matrix 1	*yy = found in LUST; zz= found in surrounding soil*						
	Carbon Tetrachloride	**0.31** J	**0.49**	**0.46**			
	Trichloroethylene	**0.19** J	0.19 U	0.19 U	X		***No Further Action***
	Vinyl Chloride	0.26 U	0.09 U	0.09 U	X		
Matrix 2	1,1-Dichloroethylene	0.4 U	0.14 U	0.14 U	X		
	1,1,1-Trichloroethane	**1.4**	**0.11** J	**0.10** J			
	cis-1,2-Dichloroethylene	0.4 U	0.14 U	0.14 U	X		***No Further Action***
	Tetrachloroethylene	**0.71**	**0.63**	**0.10** J		X	
Compounds present in groundwater wells	1,1,2,2-Tetrachloroethane	0.69 U	0.24 U	0.24 U			
	1,1,2-Trichloro-1,2,2-trifluoroethane (R-113)	**0.83**	**0.74**	**0.68**	X		
	1,1,2-Trichloroethane	0.55 U	0.19 U	0.19 U			
	1,1-Dichloroethane	**0.19** J	0.14 U	0.14 U	X	X	
	1,2,4-Trimethylbenzene	**16**	**16**	**3.9**		X	
	1,2-Dichlorobenzene	0.6 U	0.21 U	0.21 U			
	1,2-Dichloroethane	0.4 U	**0.23**	**0.068** J	X		
	1,2-Dichloropropane	0.46 U	**0.13**	0.16 U			
	1,3,5-Trimethylbenzene	**3.6**	**4.8**	**0.9**		X	
	1,4-Dichlorobenzene	**0.19** J	**0.076** J	0.21 U			
	2-Butanone (MEK)	**5.3** J	**14**	**4.0** J			
	Benzene	**0.51**	**12**	**0.54**	X	X	
	Bromomethane	0.39 U	0.14 U	0.14 U			
	Carbon Disulfide	**0.31** J	**0.26** J	**0.044** J			
	Chlorobenzene	0.46 U	0.16 U	**0.14** J			
	Chloroethane	0.26 U	0.20	0.093 U	X		
	Chloroform	0.49 U	0.17 U	**0.14** J	X		
	Chloromethane	**0.37** J	**1.5**	**1.4**		X	
	cis-1,3-Dichloropropene	0.45 U	0.16 U	0.16 U			
	Cyclohexane	0.34 U	**11**	0.12 U	X	X	
	Ethylbenzene	**4.8**	**14**	**1.3**		X	
	m&p-Xylene	**16**	**49**	**4.0**		X	
	Methyl tert-Butyl Ether (MTBE)	0.36 U	0.13 U	0.13 U			
	Methylene Chloride	**1.7** J	**2.3**	**1.3**	X	X	
	o-Xylene	**5.9**	**17**	**1.6**		X	
	Styrene	**8.7**	**0.65**	**0.66**			
	Toluene	**9.2**	**88**	**2.7**		X	
	trans-1,2-Dichloroethylene	0.4 U	0.14 U	0.14 U			
	trans-1,3-Dichloropropene	0.45 U	0.16 U	0.16 U			
	Trichlorofluoromethane (R-11)	**78**	**880**	**1.9**	X		
Not present in gw wells	1,2,4-Trichlorobenzene	0.74 U	0.26 U	0.26 U			
	1,2-Dibromoethane (EDB)	0.77 U	0.27 U	0.27 U			
	1,3-Dichlorobenzene	**1.7**	0.21 U	**1.8**			
	Acetone	**33**	**170**	**23**			
	Benzyl chloride	0.52 U	0.18 U	0.18 U			
	Bromodichloromethane	0.67 U	0.24 U	0.24 U			
	Bromoform	1.0 U	0.36 U	0.36 U			
	Dibromochloromethane	0.85 U	0.3 U	0.3 U			
	Dichlorodifluoromethane (R-12)	**4.6**	**21**	**2.5**			
	Hexachlorobutadiene	1.1 U	0.37 U	0.37 U			
Not on EPA Method 8260	**1,2-Dichloro-1,1,2,2-tetrafluoroethane (R-114)**	0.7 U	**0.12** J	**0.11** J			
	1,3-Butadiene	0.22 U	0.078 U	0.078 U			
	1,4-Dioxane	3.6 U	1.3 U	1.3 U			
	2-Hexanone (MBK)	**0.75**	0.14 U	**0.86**			
	4-Ethyltoluene	**5.1**	**4.7**	**0.85**			
	4-Methyl-2-pentanone (MIBK)	**0.58**	0.14 U	**0.47**			
	Heptane	**0.7**	**19**	**0.37**			
	Hexane	**1.2** J	**42**	**0.69** J			
	Isopropanol	**1.7** J	**8.1**	**1.4** J			
	Tetrahydrofuran	0.29 U	**0.23**	**0.20**			
	Vinyl Acetate	7.0 U	2.5 U	2.5 U			

Table 6

Comparison of 56 Boxwood Indoor Air to EPA *BASE Study* Values

56 BOXWOOD LANE **TO-15 RESULTS** (µg/m3)	ID / Date / Matrix	189-56s 21-May-13 Sub-slab		189-56i 21-May-13 Indoor		EPA ***BASE*** Values	In MW-7	In MW-13	189-56amb 21-May-13 Outdoor		*Notes*
yy = found in LUST; zz= found in surrounding soil											
TO-15 compounds below are present in CMS groundwater wells											
1,1,2-Trichloro-1,2,2-trifluoroethane (R-113)		**0.83**		**0.74**		na	X		**0.68**		(1)
1,2,4-Trimethylbenzene		**16**		**16**		**9.5**		X	**3.9**		(1,3)
1,3,5-Trimethylbenzene		**3.6**		**4.8**		**3.7**		X	**0.90**		(1,3)
Benzene		**0.51**		**12**		**9.4**	X	X	**0.54**		(1,2,3)
Carbon Disulfide		0.31	J	0.26	J	4.2			0.044	J	
Chloromethane		0.37	J	1.5		3.7		X	1.4		
Ethylbenzene		**4.8**		**14**		**5.7**		X	**1.3**		(1)
m&p-Xylene		**16**		**49**		**22.2**		X	**4.0**		(2,3)
Methylene Chloride		1.7	J	2.3		10	X	X	1.3		
o-Xylene		**5.9**		**17**		**7.9**		X	**1.6**		(2,3)
Styrene		8.7		0.65		1.9			0.66		
Toluene		**9.2**		**88**		**43**		X	**2.7**		(2,3)
Trichlorofluoromethane (R-11)		**78**		**880**		**18.1**	X		**1.9**		(4)
TO-15 compounds below are not observed in CMS groundwater wells											
Acetone		**33**		**170**		**98.9**			**23**		(4)
Dichlorodifluoromethane (R-12)		**4.6**		**21**		**16.5**			**2.5**		(4)
TO-15 compounds below are not analyzed for in CMS groundwater wells											
4-Ethyltoluene		**5.1**		**4.7**		**3.6**			**0.85**		(1)
Heptane		**0.7**		**19**		**na**			**0.37**		(3)
Hexane		**1.2**	J	**42**		**10.2**			**0.69**	J	(3)
Isopropanol		**1.7**	J	**8.1**		na			**1.4**	J	

Reasonable indoor air value and / or present in ambient air -- no concern. (1)

Indoor air concentration partially due to contribution from paints and solvents stored in and used at facility. (2)

Indoor air concentration partially due to contribution from manager's vehicle typically stored inside during working hours. (3)

Not due to CMS LUST -- compound is not present in plume. (R-11 was observed only once in MW-7 in 2003 and has not been present since then). (4)

Table 7

40 BOXWOOD LANE
TO-15 RESULTS (µg/m3)

yy = found in LUST; zz= found in surrounding soil

Group	Sample ID / Date / Matrix	189-40s 17-Jun-13 Sub-slab	189-40i 17-Jun-13 Indoor Air	189-240amb 17-Jun-13 Outdoor air	In MW-7	In MW-14	NYSDOH Matrix
NYSDOH Matrix 1	**Carbon Tetrachloride**	**0.21**	**0.41**	**0.45**			
	Trichloroethylene	**2.9**	**0.13**	**0.42**	X		*No Further Action*
	Vinyl Chloride	0.26 U	0.09 U	0.048	X	X	
Matrix 2	1,1-Dichloroethylene	0.40 U	0.14 U	0.14 U	X	X	
	1,1,1-Trichloroethane	**2.6**	**0.28**	**2.0**		X	*No Further Action*
	cis-1,2-Dichloroethylene	**5.9**	**0.12**	**0.40**	X	X	
	Tetrachloroethylene	**4.1**	**0.73**	**1.1**		X	
Compounds present in groundwater wells	1,1,2,2-Tetrachloroethane	0.69 U	0.24 U	0.24 U			
	1,1,2-Trichloro-1,2,2-trifluoroethane (R-113)	**0.74**	**0.59**	**0.51**	X	X	
	1,1,2-Trichloroethane	0.55 U	0.19 U	0.19 U			
	1,1-Dichloroethane	**1.7**	**0.16**	**0.50**	X	X	
	1,2,4-Trimethylbenzene	**38**	**12**	**7.1**		J	
	1,2-Dichlorobenzene	0.60 U	0.21 U	0.21 U			
	1,2-Dichloroethane	0.40 U	0.14 U	0.14 U	X		
	1,2-Dichloropropane	0.46 U	**0.071**	0.16 U			
	1,3,5-Trimethylbenzene	**11**	**3.1**	**2.1**		J	
	1,4-Dichlorobenzene	**0.67**	**0.12**	**0.29**			
	2-Butanone (MEK)	**8.0**	**2.8**	**4.0**			
	Benzene	**4.0**	**3.2**	**0.80**	X	J	
	Bromomethane	0.39 U	0.14 U	0.14 U			
	Carbon Disulfide	**1.6**	**0.21**	**0.25**			
	Chlorobenzene	0.46 U	0.16 U	0.16 U			
	Chloroethane	0.26 U	**0.061**	**0.25**	X		
	Chloroform	**0.51**	**0.19**	**0.65**	X	X	
	Chloromethane	**0.45**	**1.1**	**1.6**		X	
	cis-1,3-Dichloropropene	0.45 U	0.16 U	0.16 U			
	Cyclohexane	**2.5**	**2.0**	0.12 U	X	X	
	Ethylbenzene	**45**	**6.5**	**23**		J	
	m&p-Xylene	**69**	**22**	**18**		J	
	Methyl tert-Butyl Ether (MTBE)	0.36 U	0.13 U	0.13 U			
	Methylene Chloride	**5.8**	**6.7**	**1.0**	X	X	
	o-Xylene	**32**	**9.9**	**5.3**		J	
	Styrene	**2.0**	**0.47**	**2.5**			
	Toluene	**69**	**31**	**10**		J	
	trans-1,2-Dichloroethylene	0.4 U	0.14 U	0.14 U			
	trans-1,3-Dichloropropene	0.45 U	0.16 U	0.16 U			
	Trichlorofluoromethane (R-11)	**1.7**	**1.7**	**1.2**	X		
Not present in gw wells	1,2,4-Trichlorobenzene	0.74 U	0.26 U	0.26 U			
	1,2-Dibromoethane (EDB)	0.77 U	0.27 U	0.27 U			
	1,3-Dichlorobenzene	**0.20**	0.21 U	**0.24**			
	Acetone	**51**	**330**	**41**			
	Benzyl chloride	0.52 U	0.18 U	0.18 U			
	Bromodichloromethane	0.67 U	0.24 U	0.24 U			
	Bromoform	1.0 U	0.36 U	0.36 U			
	Dibromochloromethane	0.85 U	0.30 U	0.30 U			
	Dichlorodifluoromethane (R-12)	**1.8**	**1.2**	**1.3**			
	Hexachlorobutadiene	1.1 U	0.37 U	0.37 U			
Not on EPA Method 8260	**1,2-Dichloro-1,1,2,2-tetrafluoroethane (R-114)**	0.70 U	**0.083**	**0.083**			
	1,3-Butadiene	0.22 U	0.078 U	0.078 U			
	1,4-Dioxane	3.6 U	1.3 U	1.3 U			
	2-Hexanone (MBK)	**2.5**	0.14 U	**1.5**			
	4-Ethyltoluene	**6.7**	**3.0**	**1.6**			
	4-Methyl-2-pentanone (MIBK)	**1.5**	**6.0**	**0.64**			
	Heptane	**4.7**	**3.5**	**2.5**			
	Hexane	**6.9**	**20**	**2.1**			
	Isopropanol	**3.3**	**9.0**	**1.9**			
	Tetrahydrofuran	**0.68**	**0.24**	**0.28**			
	Vinyl Acetate	7.0 U	2.5 U	2.5 U			

Table 8

Comparison of 40 Boxwood Lane Indoor Air to EPA *BASE Study* Values

40 BOXWOOD LANE Sample ID **TO-15 RESULTS** (µg/m3) Date Matrix *yy = found in LUST;* zz= found in surrounding soil	189-40s 17-Jun-13 Sub-slab	189-40i 17-Jun-13 Indoor Air	In MW-7	In MW-14	EPA *BASE* Values	189-240amb 17-Jun-13 Outdoor air	*Notes*
TO-15 compounds below are present in CMS groundwater wells							
1,1,2-Trichloro-1,2,2-trifluoroethane (R-113)	0.74	0.59	X	X	na	0.51	
1,1-Dichloroethane	1.7	0.16	X	X	0.7 U	0.50	
1,2,4-Trimethylbenzene	**38**	**12**		J	**9.5**	**7.1**	(1,2)
1,3,5-Trimethylbenzene	**11**	3.1		X	3.7	2.1	
1,4-Dichlorobenzene	0.67	0.12			5.5	0.29	
2-Butanone (MEK)	8.0	2.8			12	4.0	
Benzene	**4.0**	3.2	X	X	9.4	0.80	
Carbon Disulfide	1.6	0.21			4.2	0.25	
Chloroform	0.51	0.19	X	X	1.1	0.65	
Chloromethane	0.45	1.1		X	3.7	1.6	
Cyclohexane	2.5	2.0	X	X	na	0.12 U	
Ethylbenzene	**45**	6.5		J	5.7	23	(1,2)
m&p-Xylene	**69**	22		X	22.2	18	(1,2)
Methylene Chloride	5.8	6.7	X	X	10	1.0	
o-Xylene	**32**	**9.9**		J	**7.9**	**5.3**	(1,2)
Styrene	2.0	0.47			1.9	2.5	
Toluene	**69**	31		X	43	10	
Trichlorofluoromethane (R-11)	1.7	1.7	X		18.1	1.2	
TO-15 compounds below are not observed in CMS groundwater wells							
Acetone	**51**	**330**			**98.9**	**41**	(1,3)
Dichlorodifluoromethane (R-12)	1.8	1.2			16.5	1.3	
TO-15 compounds below are not analyzed for in CMS groundwater wells							
4-Ethyltoluene	**6.7**	3.0			3.6	1.6	
4-Methyl-2-pentanone (MIBK)	1.5	6.0			6	0.64	
Heptane	**4.7**	3.5			na	2.5	
Hexane	**6.9**	**20**			**10.2**	**2.1**	(2)
Isopropanol	3.3	9.0			na	1.9	
Tetrahydrofuran	0.68	0.24			na	0.28	

Reasonable indoor air value and/or present in ambient air -- no concern. (1)

Indoor air concentration partially due to contribution from vehicles garaged on the apparatus floor. (2)

Not due to CMS LUST -- compound is not present in plume. (3)

Table 9

240 FRENCH ROAD
TO-15 RESULTS (µg/m3)

yy = found in LUST; zz= found in surrounding soil

Group	Sample ID / Date / Matrix	189-240s 17-Jun-13 Sub-slab	189-dup4 17-Jun-13 Sub-slab	189-240i 17-Jun-13 Indoor	189-240amb 17-Jun-13 Outdoor	In MW-14	NYSDOH Matrix
NYSDOH Matrix 1	**Carbon Tetrachloride**	**0.44** J	**0.38** J	**0.42**	**0.45**		
	Trichloroethylene	**0.27** J	**0.26** J	0.064 J	0.42 J		*No Further Action*
	Vinyl Chloride	0.26 U	0.26 U	0.09 U	0.048 J	X	
Matrix 2	**1,1-Dichloroethylene**	0.40 U	0.40 U	0.16	**0.14** U	X	
	1,1,1-Trichloroethane	**3.3**	**3.8**	0.16 J	**2.0**	X	*No Further Action*
	cis-1,2-Dichloroethylene	**0.35** J	**0.32** J	**0.053** J	**0.40**	X	
	Tetrachloroethylene	**7.5**	**6.7**	**0.70**	**1.1**	X	
Compounds present in groundwater wells	1,1,2,2-Tetrachloroethane	0.69 U	0.69 U	0.24 U	0.24 U		
	1,1,2-Trichloro-1,2,2-trifluoroethane (R-113)	**1.1**	**1.1**	**0.61**	**0.51**	X	
	1,1,2-Trichloroethane	0.55 U	0.55 U	0.19 U	0.19 U		
	1,1-Dichloroethane	**0.28** J	**0.53**	**0.082** J	**0.50**	X	
	1,2,4-Trimethylbenzene	**50**	**20**	**2.1**	**7.1**	J	
	1,2-Dichlorobenzene	0.60 U	0.60 U	0.21 U	0.21 U		
	1,2-Dichloroethane	0.40 U	**1.6**	**0.065** J	0.14 U		
	1,2-Dichloropropane	0.46 U	0.46 U	0.16 U	0.16 U		
	1,3,5-Trimethylbenzene	**13**	**4.8**	**0.59**	**2.1**	J	
	1,4-Dichlorobenzene	**1.7**	**0.79**	**1.2**	**0.29**		
	2-Butanone (MEK)	**6.9** J	**2.9** J	**4.9**	**4.0** J		
	Benzene	**6.8**	**6.1**	**0.64**	**0.80**	J	
	Bromomethane	0.39 U	0.39 U	0.14 U	0.14 U		
	Carbon Disulfide	**0.46** J	**0.53** J	**2.0**	**0.25** J		
	Chlorobenzene	0.46 U	0.46 U	0.16 U	0.16 U		
	Chloroethane	0.26 U	0.26 U	0.093 U	**0.25**		
	Chloroform	**1.5**	**1.6**	**0.16** J	**0.65**	X	
	Chloromethane	**0.33**	**0.37** J	**1.2**	**1.6**	X	
	cis-1,3-Dichloropropene	0.45 U	0.45 U	0.16 U	0.16 U		
	Cyclohexane	**3.3**	**3.1**	**0.48**	**0.12** U	X	
	Ethylbenzene	**41**	**14**	**0.96**	**23**	J	
	m&p-Xylene	**93**	**27**	**2.9**	**18**	J	
	Methyl tert-Butyl Ether (MTBE)	0.36 U	0.36 U	0.13 U	0.13 U		
	Methylene Chloride	**1.9** J	**2.6** J	**1.2** J	**1.0** J	X	
	o-Xylene	**44**	**14**	**1.5**	**5.3**	J	
	Styrene	**2.0**	**0.86**	**0.17**	**2.5**		
	Toluene	**120**	**44**	**6.0**	**10**	J	
	trans-1,2-Dichloroethylene	0.40 U	0.40 U	0.14 U	0.14 U		
	trans-1,3-Dichloropropene	0.45 U	0.45 U	0.16 U	0.16 U		
	Trichlorofluoromethane (R-11)	**1.2**	**1.2**	**1.2**	**1.2**		
Not present in gw wells	1,2,4-Trichlorobenzene	0.74 U	0.74 U	0.26 U	0.26 U		
	1,2-Dibromoethane (EDB)	0.77 U	0.77 U	0.27 U	0.27 U		
	1,3-Dichlorobenzene	**0.17** J	0.60 U	0.21 U	**0.24**		
	Acetone	**45**	**27**	**53**	**41**		
	Benzyl chloride	0.52 U	0.52 U	0.18 U	0.18 U		
	Bromodichloromethane	0.67 U	0.67 U	0.24 U	0.24 U		
	Bromoform	1.0 U	1.0 U	0.36 U	0.36 U		
	Dibromochloromethane	0.85 U	0.85 U	0.30 U	0.30 U		
	Dichlorodifluoromethane (R-12)	**1.8**	**1.8**	**1.2**	**1.3**		
	Hexachlorobutadiene	1.1 U	1.1 U	0.37 U	0.37 U		
Not on EPA Method 8260	**1,2-Dichloro-1,1,2,2-tetrafluoroethane (R-114)**	0.70 U	0.70 U	**0.078** J	**0.083** J		
	1,3-Butadiene	0.22 U	0.22 U	0.078 U	0.078 U		
	1,4-Dioxane	3.6 U	3.6 U	1.3 U	1.3 U		
	2-Hexanone (MBK)	0.41 U	0.41 U	**1.7**	**1.5**		
	4-Ethyltoluene	**9.2**	**4.7**	**0.33**	**1.6**		
	4-Methyl-2-pentanone (MIBK)	0.41 U	**0.75**	**0.53**	**0.64**		
	Heptane	**7.1**	**3.5**	**0.68**	**2.5**		
	Hexane	**9.6** J	**6.7** J	**6.8**	**2.1** J		
	Isopropanol	**2.8** J	**2.0** J	**2.7** J	**1.9** J		
	Tetrahydrofuran	**0.61**	**0.31**	**0.095** J	**0.28**		
	Vinyl Acetate	7.0 U	7.0 U	2.5 U	2.5 U		

Table 10

Comparison of 240 French Road Indoor Air to EPA *BASE Study* Values

240 FRENCH ROAD / **TO-15 RESULTS** (µg/m3) — Sample ID / Date / Matrix	189-240s / 17-Jun-13 / Sub-slab	189-240i / 17-Jun-13 / Indoor	**In MW-14**	**EPA** / ***BASE*** / Values	189-240amb / 17-Jun-13 / Outdoor	*Notes*	
yy = found in LUST; zz= found in surrounding soil							
TO-15 compounds below are present in CMS groundwater wells							
1,1,2-Trichloro-1,2,2-trifluoroethane (R-113)	1.1	0.61	**X**	**na**	0.51	(1)	9
1,1-Dichloroethane	0.28 J	0.082 J	**X**	0.7 U	0.50		11
1,2,4-Trimethylbenzene	50	2.1	**J**	9.5	7.1		12
1,2-Dichloroethane	0.40 U	0.065 J		0.9 U	0.14 U		14
1,3,5-Trimethylbenzene	13	0.59	**J**	3.7	2.1		16
1,4-Dichlorobenzene	1.7	1.2		5.5	0.29		17
2-Butanone (MEK)	6.9 J	4.9		12	4.0 J		18
Benzene	6.8	0.64	**J**	9.4	0.80		19
Carbon Disulfide	0.46 J	2.0		4.2	0.25 J		21
Chloroform	1.5	0.16 J	**J**	1.1	0.65		24
Chloromethane	0.33	1.2	**J**	3.7	1.6		25
Cyclohexane	3.3	0.48	**J**	**na**	0.12 U	(1)	27
Ethylbenzene	41	0.96	**J**	5.7	23		28
m&p-Xylene	93	2.9	**J**	22.2	18		29
Methylene Chloride	1.9 J	1.2 J	**J**	10	1.0 J		31
o-Xylene	44	1.5	**J**	7.9	5.3		32
Styrene	2.0	0.17		1.9	2.5		33
Toluene	120	6.0	**J**	43	10		34
Trichlorofluoromethane (R-11)	1.2	1.2		18.1	1.2		37
TO-15 compounds below are not observed in CMS groundwater wells							
Acetone	45	53		98.9	41		41
Dichlorodifluoromethane (R-12)	1.8	1.2		16.5	1.3		46
TO-15 compounds below are not analyzed for in CMS groundwater wells							
4-Ethyltoluene	9.2	0.33		3.6	1.6		52
Heptane	7.1	0.68		**na**	2.5	(1)	54
Hexane	9.6 J	6.8		10.2	2.1 J		55
Isopropanol	2.8 J	2.7 J		**na**	1.9 J	(1)	56
Tetrahydrofuran	0.61	0.095 J		**na**	0.28	(1)	57

Reasonable indoor air value and / or is present in ambient air -- no concern. (1)

Soil Vapor Intrusion Evaluation

For

CMS ASSOCIATES REMEDIATION SITE
210 French Road Building

Site no. 915168

210 French Road
Town of Cheektowaga
Erie County NY

September 2014

Prepared for:

CMS Property Associates, LLC
228 Linwood Avenue
Buffalo NY 14209

Ken W. Kloeber
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In 2004, the NYSDEC requested further investigations in the 210 French building (see correspondence, *Appendix A*) to determine if there was soil vapor intrusion into the building envelope. The result of the investigations showed high levels of VOCs under the tested concrete building slab, and corresponding VOCs were detected in the indoor air. Subsequently, in fall 2005, two Sub-Slab Depressurization Systems were installed in the building to mitigate the SVI impact and minimize the opportunity for VOCs to enter the building envelope.

Figure 2 shows the CMS Site and the 210 French Road building under investigation, in relation to the extent of the groundwater contaminant plume as it is currently estimated based on historical groundwater monitoring. This *SVI Evaluation* encompasses only the current warehouse building on the CMS Site—a previous report addresses vapor intrusion into the surrounding buildings.

In spring 2010, CMS filed a *SVI Work Plan* with the NYSDEC and NYSDOH for additional SVI evaluations of the 210 building in order to determine the efficiency of the two SSD Systems and for testing of the building slab in follow-up to the previous 2004 and 2005 work. The results showed that additional indoor-air and sub-slab testing was necessary to determine whether additional SVI remediation is needed to address the VOC levels under the floor slab.

This current *Soil Vapor Intrusion Evaluation* continues the 2010-2011 investigations and addresses both sub-slab and indoor-air VOC levels. The *SVI Work Plan* for this most-recent effort was approved by the NYSDEC in April 2013 and fieldwork started the beginning of May 2013.

1.2 Findings

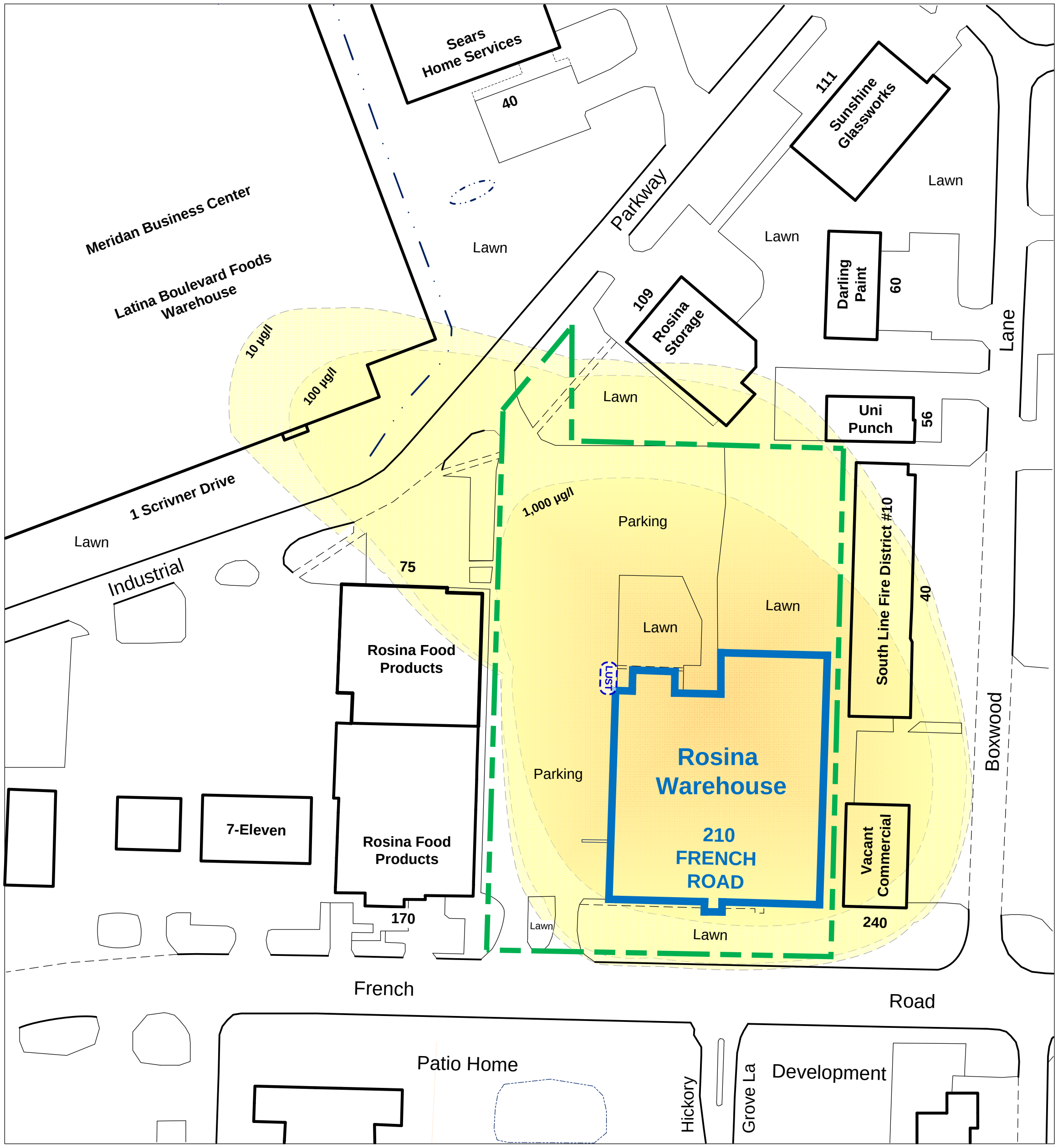
Based on the sub-slab vapor, indoor-air and outdoor-air sampling results, and the evaluations presented in this *Soil Vapor Intrusion Evaluation*, the following is concluded for the 210 French Road building:

1. **When tested during this investigation, the two SVI Sub-Slab Depressurization Systems that were installed in the building in 2005 were highly inefficient in capturing sub-slab VOCs.**

   Although both SSD Systems maintained a sub-slab reduced pressure zone proximate to their locations, sub-slab communication tests in 2010-2011 and in 2013 indicated that the systems were unable to extend the negative-pressure zone across the warehouse footprint. The zone generally extended no more than 20 to 30 feet from each system.

2. **The building floor slab contained significant air leakage such that the Sub-Slab Depressurization Systems were unable to maintain a wide reduced-pressure zone.**

   We discovered that the concrete floor slab had minor to severe air leaks near each SSD System, as well as further away—where the sub-low-pressure zones dropped off dramatically. Leakage was located along the perimeter block walls, in the repaired concrete floor atop the trenches where the SSDS suction lines were installed, around steel column bases, at pipe penetrations, and in cracks and joints in the concrete slab.

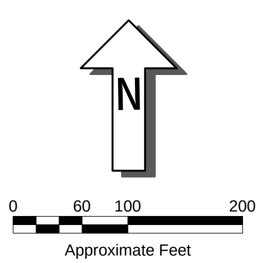


Key:

LUST *Former LUST Location*

CMS Site Property Boundary

1,000 µg/l *Average Total Groundwater VOCs 2010-2011*



Note: *VOC plume adapted from Groundwater Environmental Associates, 2014*

CMS Associates Remediation Site
SVI Evaluation of 210 French Road Building

Figure 2

Building Location and Groundwater VOC Plume

Ken W. Kloeber Consulting Engineers

3. **To be able to complete the SVI Evaluation properly, it was necessary to first remediate the floor slab and eliminate air leakage nearby the SSD Systems and in other locations across the building footprint.**

   It was necessary to coordinate with Rosina Food Products, the building operator—for it to relocate large pieces of equipment, a vehicle, and racks of spare parts stored in the warehouse—in order to carefully locate and verify leak locations, and then expose and clean them of debris and dust. Three days of sealing were undertaken in 2013—and all discovered leaks were sealed tight using urethane sealant and, where appropriate, closed-cell backer rod and sealant.

4. **Remediating the leaks in the floor slab was highly successful and dramatically increased the effectiveness of the SSD Systems and the reach of the reduced-pressure zone across the building footprint.**

   The building was tested after sealing the air leaks, first allowing the soil pores to dry out, and the sub-slab conditions to equilibrate. That was necessary in order to extend the below-slab "spider-like" pathways that transmit vacuum within the sub-slab media. The testing showed that negative pressures were observed over 80% of the central warehouse, with only the extreme northeast and southwest corners remaining uncovered.

5. **The 210 French Road building foundation prevents the extension of the reduced-pressure zone created by the SSD Systems to beyond its current extent.**

   A wall footer (that may extend to bedrock) surrounds the central warehouse perimeter. In effect, the footer interrupts the continuity of the sub-slab and traps the reduced-pressure zone within its footprint.

   Two building additions to the block structure—a room on the northeast corner (used for equipment maintenance, repair, and fabrication,) and the "Carbtrol room" on the northwest corner (that houses the groundwater extraction and treatment equipment,) are effectively isolated from the reduced pressure zone from the current SSD Systems. To the south, the footer also isolates a former office area that is currently used for storage.

6. **Indoor air tests show that the seven regulated VOC compounds generally fall into the lowest and second-lowest categories of the NYSDOH *Soil Vapor/Indoor Air Matrix 1* and *Matrix 2*.**

   An exception is the "Carbtrol room," where higher VOCs might be expected because it is next to the former LUST location and there is no reduced-pressure zone under its floor slab. Even though stripped VOCs are exhausted outside the building, the groundwater treatment system in the room may also be contributing to higher VOCs in that very limited area.

7. **Sub-slab VOC levels resulting from the LUST spill remain high beneath the floor slab, and warrant continued operation of the SSD Systems and extending their reduced-pressure zones across the building footprint.**

   When compared against regulated VOCs that are present in the building, the NYSDOH SVI decision Matrix 1 and Matrix 2 recommends remediation to prevent potential VOC intrusion into the building envelope and resulting indoor-air impacts. The remediation of leaks in the floor slab and increasing the efficiency of the SSD Systems will be significant in controlling soil vapor intrusion.

8. **The configuration of the current Sub-Slab Depressurization Systems needs to be improved in order to adequately capture and safely exhaust sub-slab vapors outside the building envelope.**

   The suction fans for the two systems are mounted on the floor slab inside the structure, and the two 4-inch PVC, higher-pressure discharge lines are hung on the adjacent walls and run from the fans to the roof. This configuration would allow a leak on the high-pressure (discharge) side to pump VOCs extracted from the sub-slab, into the building envelope.

   When inspected, the pipe joints appeared to be sealed and no leakage was observed. There were however, minor leaks at the discharge point on the fan—which we sealed to prevent those from introducing VOCs into the building during the short term.

   The two suction fans must be relocated to the roof, with all high-pressure piping relocated to outside the building envelope. The system components also need to be clearly labeled, and monometers installed on the suction headers so system performance can be easily verified.

9. **The current SSD Systems need to be augmented in order to control sub-slab VOCs under portions of the building that lie north and south of the central warehouse footer.**

   The reduced pressure zone from the two SSD Systems can be extended using the existing and two additional fans, and piping the suction lines into those two outlying areas of the building. Sub-slab vacuum "pods" can be constructed around selected building columns, with the suction lines led through the roof steel joist work, to the relocated fans.

10. **Once the two Sub-Slab Depressurization Systems are brought up to current standard, they should be placed on an at-least-annual inspection.**

    The improved SSD Systems must be inspected at least annually to verify proper fan operation and efficiency, that piping and joints are intact with no leaks, that negative pressure is maintained in the suction headers, and to ensure overall system performance. With manometers installed at key locations, a problem with the suction fans, a leak in the suction headers, or the overall operation of the system can be immediately observed by the building owner or operator and reported to CMS for correction.

1.3 Recommendations

Based on the findings above, the following SVI remediation is recommended:

1. **Relocate the blowers and high-pressure piping of the current Sub-Slab Depressurization Systems to the roof, so they are out of the building envelope.**

2. **Extend the reduced pressure zone to the remainder of central warehouse area.**

    - Install new sub-slab suction cavities to cover the northeast and southwest areas of the central warehouse footprint

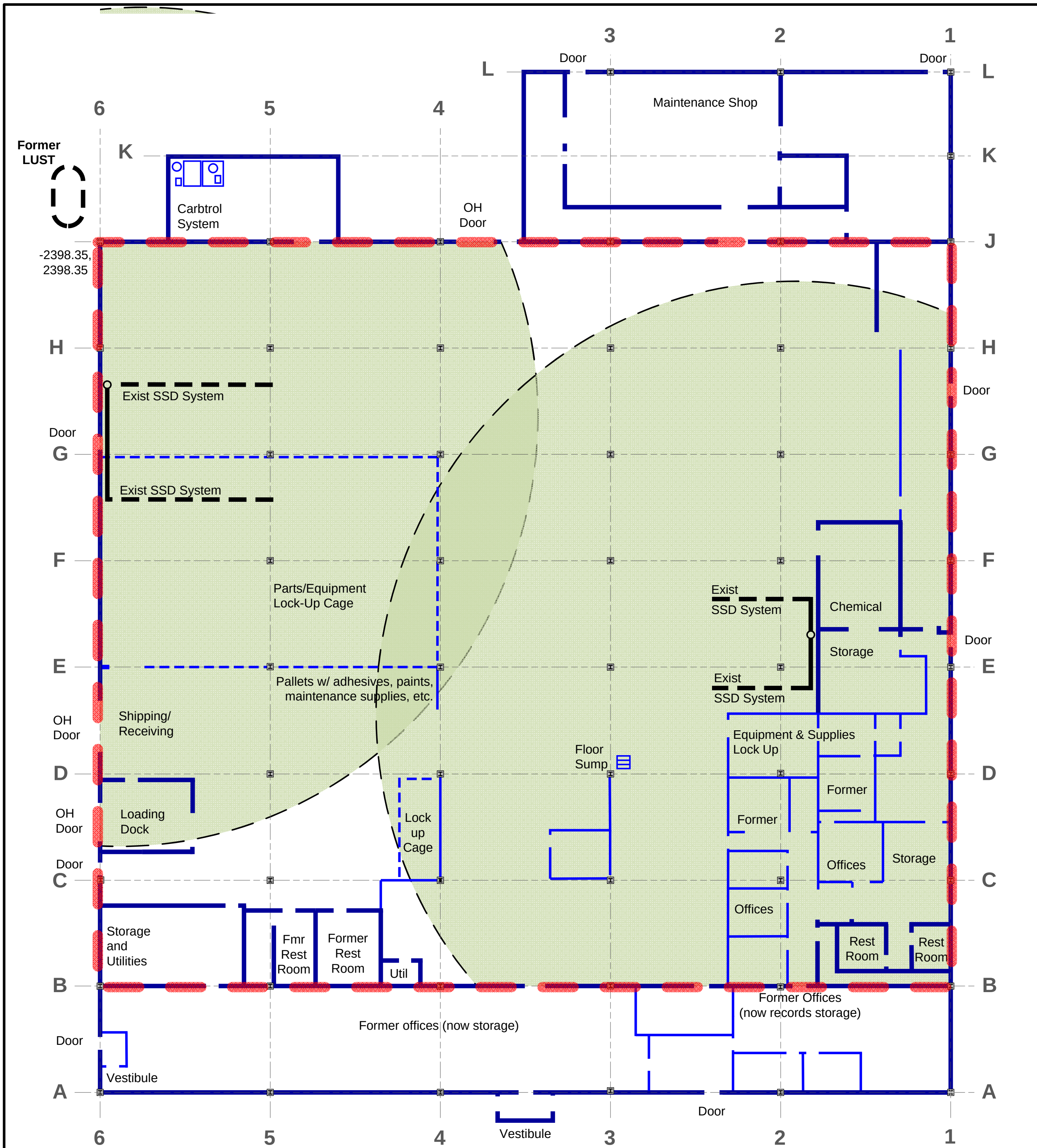
    - Tie these into the two current SSD Systems.

3. **Extend the reduced pressure zone to the north and south areas of the building.**

    - Install suction cavities and related suction manifolds, and two new blowers on the roof to cover those areas that lie north and south of the central warehouse footer.

    - Inspect the floor slab in those areas and seal air leaks as necessary.

4. **Install manometers on the remediation system at key locations, and place the system on an annual inspection.**



Key

Remediation System Reduced Pressure Zone

Building Footer

Note: Source Mitigation Tech, 2013

N

0 10 20
Approx Feet

CMS Associates Remediation Site
SVI Evaluation of 210 French Road Building

Figure 11

Remediation System Reduced Pressure Zone

Ken W. Kloeber Consulting Engineers

APPENDIX B

Tabular Summary of Groundwater Quality Monitoring – through Dec 2014

Groundwater Total VOC Concentrations (μg/l) after Removing Leaking UST

MW		-1	-2	-3	-9	-4	-5	-6	-7	-8
Date		Extraction Wells				Perimeter Wells				
Leaking UST removed March 5, 1996										
		Wells Installed 5/3/96			Well Installed 7/18/97					
5/15/96	Phase I	27,440	94,560	19,130		Wells Installed May 1996			Wells Installed 9/26/96	
5/29/96		--	--	--		20,970	12,990	--		
5/31/96		--	--	--		--	--	86		
6/5/96		--	--	--		138	4,028	--		
6/15/96		42,180	130,070	49,387		443	3,727	147	--	--
10/9/96	Phase II	--	130,600	55,700		620	5,230	277	1,500	249
10/30/9		--	153,300	--		--	--	--	--	--
3/20/97		--	117,861	29,134		600	5,800	100	2,000	72
1/7/98	Phase III	--	6,830	--	--	--	--	--	--	--
2/11/98		--	457	--	--	--	6,700	111	2,000	--

Groundwater Total VOCs (µg/l) after Installing Recovery / Treatment System

MW		-1	-2	-3	-9	-4	-5	-6	-7	-8	-10	-11
Date		Extraction Wells				Perimeter Wells					Off-Site Wells	
Post Recovery & Treatment Sampling (operational 6/4/98):												
8/12/98		--	3,740	--	--	--	4,080	--	751	--	Wells Installed	
10/12/98		27,400	30,100	10,600	29,800	--	--	--	--	--	11/23-24/98	
1/13/99	Phase	--	--	--	--	--	--	--	--	--	nd	nd
2/10/99	III	5,240	8,920	14,300	--	--	--	--	--	--	--	--
5/28/99		8,500	12,270	10,600	3,210	--	--	--	--	--	--	--
6/25/99	Phase	--	33,000	--	--	16	5,040	102	1,100	282	nd	nd
10/22/99	IV	40,990	28,400	28,400	10,490	--	--	--	--	--	--	--
Extraction System shut down 12/1/1999 when fire destroyed system -- replaced and back on line 4/6/2000												
NYSDEC *Record of Decision* March 2003												
6/13/00		6,530	379	29,400	5,220	--	--	--	--	--	--	--
11/1/01		2,027	2,152	7,114	8,015	226	2,631	23	2,092	74	nd	nd
9/25/02		2,442	3,943	5,621	9,813	--	2,462	23	241	138	nd	nd
6/29/03		--	--	--	--	--	3,177	20	870	--	nd	nd
6/30/03		2,174	5,081	17,918	12,984	--	--	--	--	--	--	--
8/9/03		6,372	375	5,890	3,926	31	1,740	31	676	140	nd	nd
11/7/03		3,830	8,900	18,500	8,700	14	3,434	--	1,400	115	--	--
3/31/04		6,920	4,280	14,600	1,626	22	1,490	--	804	63	--	--
5/28/04	Phase	9,280	1,624	8,630	1,715	37	3,220	69	610	112	nd	nd
9/26/04	IV	13,030	9,940	34,100	6,580	--	--	--	--	--	--	--
9/28/04		--	--	--	--	23	3,400	69	782	(1)	--	--
5/22/05		9,540	5,060	13,250	3,980	8	2,810	50	850	86	nd	nd
1/31/06		469	4,860	9,800	1,092	0	2,950	33	984	22	nd	nd
6/9/06		9,940	2,836	10,600	5,040	89	1,700	27	680	95	nd	nd
9/29/06		5,500	3,681	4,810	6,060	0	1,770	30	1,078	57	nd	nd
12/17/06		11,590	4,920	4,240	2,200	1	3,010	21	1,420	68	--	--
3/27/07		3,390	2,913	8,580	2,156	4	1,443	28	596	50	--	--
3/17/08		--	--	--	--	57	2,530	25	1,300	47	--	--
3/18/08		6,650	4,630	6,700	2,278	--	--	--	--	--	--	--
10/2/08		--	--	--	--	590	3,290	26	910	62	nd	nd
10/7/08		5,970	6,020	8,850	7,600	--	--	--	--	--	--	--

Note:

(1) Appeared to be sampling and/or lab result error, and 9/28/04 results were subsequently discarded

Groundwater Total VOCs (µg/l) after Rebuilding Extraction Wells

MW	-1	-2	-3	-9	-4	-5	-6	-7	-8	-14	-10	-11	-12	-13
Date	Extraction Wells				Perimeter Wells						Off-site Wells			
MW-5 connected to suction manifold; MW-3 suction closed in Oct 2008														
4/10/09	7,070	8,940	4,600	5,580	4	1,370	42	1,500	60		nd	nd		
9/4/09	2,910	4,780	3,960	5,590	52	780	26	540	68		--	--		
Extraction system shut down Oct 2009 for well rebuilding and manifold repairs														
2/25/10	7,040	13,970	1,268	670	44	880	21	1,200	--		--	--		
3/24/10	--	--	--	--	--	--	--	--	64		--	--		
MW-1, -2, -3, -9 Rebuilt / fully operating in April 2010														
4/13/10	8,940	16,790	2,170	1,437	49	1,200	39	1,300	49		nd	nd	Installed 10/21-25/10	
10/29/10	5,070	2,108	1,970	1,480	43	1,780	70	580	169		--	--		
11/20/10	--	--	--	--	--	--	--	--	--		--	--	136	5
2/3/11	--	19,560	8,610	2,910	14	--	34	740	--	Installed 4/7/11	--	--	126	5
4/15/11	4,990	920	5,130	238	8	136	39	1,700	35	5,380	nd	nd	312	5
6/8/11	--	--	--	--	--	556	--	--	--	4,500	--	--	560	3
7/21/11	--	--	--	--	--	950	--	--	--	3,460	--	--	197	16
10/18/11	6,118	4,615	46	8,335	33	355	47	--	146	6,498	1	nd	277	86
12/12/11	--	--	193	--	--	--	--	820	--	--	--	--	--	--
1/31/12	43	2,886	1,753	1,135	8	537	46	125	81	8,308	< 1	--	338	< 1
3/22/12	2,927	5,096	5,088	1,136	33	1,196	45	125	67	7,922	< 1	1	358	10
6/30/12	3,262	3,742	2,577	1,495	3	1,573	55	1,291	134	7,794	< 1	< 1	239	4
10/2/12	111	1,758	133	284	12	1,458	52	587	175	12,548	< 1	< 1	247	6
12/18/12	4,245	865	214	1,860	20	2,202	14	292	359	4,955	< 1	2	325	< 1
4/5/13	556	3,032	922	1,213	27	2,154	193	846	66	5,308	< 1	--	215	4
7/24/14	nd	186	455	2,203	54	1,265	76	571	130	61	< 1	1	64	< 1
12/4/14	2,746	377	233	871	21	1,537	55	196	93	8,006	< 1	< 1	226	< 1

CMS REMEDIATION SITE MW-1	<= pre IRM		post IRM =>				system down 12/12/99 to 4/6/00						post IRM	
Volatile Organic Compound	5/15/96	6/15/96	10/12/98	2/10/99	5/28/99	10/22/99	6/13/00	11/1/01	9/25/02	6/30/03	8/9/03	11/7/03	3/31/04	5/28/04
Detection limit	100													
<u>1,1,1-Trichloroethane</u>	9400	18000	14000	1400		16000	2200	509	564	688	2350	1000	1900	3200
1,1,2,2-Tetrachloroethane		640	1											
1,1,2-Trichloro-1,2,2-trifluoroethane														
1,1,2-Trichloroethane							240							
1,1-Dichloroethane	9800	17000	4900	1800	5200	9000	1600	665	908	569	1750	1400	2600	3300
1,1-Dichloroethene	560						100		35.1				110	
1,2,4-Trimethylbenzene													310	280
1,2-Dichloroethane	100						180							
1,3,5-Trimethylbenzene														
<u>1,4-Dichlorobenzene</u>	540		1											
2-Butanone														
4-Isopropyltoluene														
Acetone														
<u>Benzene</u>														
Bromomethane										85.9				
Carbon disulfide														
Chloroethane														
Chloroform		630												
<u>cis-1,2-Dichloroethene</u>	1900	2900	4100	1100		15000	1600	853	734	720	1820	1100	1600	2000
<u>Cyclohexane</u>														
<u>Ethylbenzene</u>														
Naphthalene														
<u>Tetrachloroethene</u>	3700	2900		100	3300									
<u>Toluene</u>		29												
<u>trans-1,2-Dichloroethene</u>														
<u>Trichloroethene</u>	1200		4400	840		990	610		37.1				200	220
Vinyl chloride									164	111	452	330	200	280
<u>m,p-Xylene</u>	100													
<u>o-Xylene</u>	140													
Total Xylenes		81												
Total VOCs, µg/l	27,440	42,180	27,402	5,240	8,500	40,990	6,530	2,027	2,442	2,174	6,372	3,830	6,920	9,280

italic = found in tank contents

<u>underlined</u> = <u>found in soil</u>

CMS REMEDIATION SITE MW-1				post IRM								
Volatile Organic Compound	9/26/04	5/22/05	1/31/06	6/9/06	9/29/06	12/17/06	3/27/07	3/18/08	10/7/08	4/10/09	9/4/09	2/25/10
Detection limit			10									
1,1,1-Trichloroethane	2200	2300		2600	1800	4600	1100	2200	2300	2700	1100	3100
1,1,2,2-Tetrachloroethane												
1,1,2-Trichloro-1,2,2-trifluoroethane												
1,1,2-Trichloroethane												
1,1-Dichloroethane	6000	4500		4800	2300	2100	1400	2300	1700	2000	1100	2600
1,1-Dichloroethene												
1,2,4-Trimethylbenzene		250	40				110		410			
1,2-Dichloroethane												
1,3,5-Trimethylbenzene			27									
1,4-Dichlorobenzene												
2-Butanone												
4-Isopropyltoluene												
Acetone												
Benzene			39									
Bromomethane												
Carbon disulfide												
Chloroethane	270											
Chloroform	960											
cis-1,2-Dichloroethene	2300	1900		1900	780	3800	580	1800	740	1400	380	930
Cyclohexane												
Ethylbenzene			21									
Naphthalene			16									
Tetrachloroethene												
Toluene			110			210						
trans-1,2-Dichloroethene												
Trichloroethene						240						
Vinyl chloride	1300	590		640	620	430	200	350	820	440	330	510
m,p-Xylene			150									
o-Xylene			50									
Total Xylenes												
Total VOCs, µg/l	13,030	9,540	453	9,940	5,500	11,380	3,390	6,650	5,970	6,540	2,910	7,140

italic = found in tank contents

underlined = found in soil

CMS REMEDIATION SITE MW-1	post extraction well rebuild =>											
Volatile Organic Compound	4/13/10	10/29/10	4/16/11	10/18/11	1/31/12	3/22/12	6/30/12	10/2/12	12/18/12	4/5/13	7/24/14	12/4/14
Detection limit			100	125-2500	0.5 - 10	12 - 500	25 - 500	1 - 20	25 - 50	5 - 100	1 - 2	10 - 20
1,1,1-Trichloroethane	2000	1000	970	855	14.9	606	1070	2.1	970	106		918
1,1,2,2-Tetrachloroethane												
1,1,2-Trichloro-1,2,2-trifluoroethane					0.14	10	6		5	2		3
1,1,2-Trichloroethane												
1,1-Dichloroethane	4600	2700	2500	3790	16.4	1480	1450	8.4	2290	311		1330
1,1-Dichloroethene					0.32	39.8	13.5		29	2		11
1,2,4-Trimethylbenzene			70	112	0.48	69.2	49	1.78	43.5	5.7		
1,2-Dichloroethane												
1,3,5-Trimethylbenzene			50		0.11	17.8	10.5	0.44	11	1.9		
1,4-Dichlorobenzene												
2-Butanone								80		14.7		
4-Isopropyltoluene						8.5						
Acetone					3.75L		176L	10		12.8		
Benzene												
Bromomethane												
Carbon disulfide					0.11		56					
Chloroethane			60	290		38.2	27	6.42	49.5	9.7		14.4
Chloroform			20									
cis-1,2-Dichloroethene	1600	660	1000	473	5.54	411	326	0.68	482	38.9		294
Cyclohexane						7.25				1.1		
Ethylbenzene						2.75						
Naphthalene												
Tetrachloroethene												4.2
Toluene						9		0.22	5	1.2		2.4
trans-1,2-Dichloroethene						2.5	5.5					2.2
Trichloroethene			40	42.5	1.47	36.5	12		37	3.2		23
Vinyl chloride	530	710	280	555	3.99	156	236	0.86	318	44.7		144
m,p-Xylene						13.2						
o-Xylene						19			5	1.2		
Total Xylenes											nd	
Total VOCs, µg/l	8,730	5,070	4,990	6,118	43	2926.7	3261.5	110.9	4245	556.1		2746.2
				w/ J values	w/ Js	w/ Js	w/ Js	w/ Js	w/ Js	w/ Js	w/ Js	w/ Js

italic = found in tank contents

underlined = found in soil

CMS REMEDIATION SITE MW-2							<= pre IRM	post IRM =>				
Volatile Organic Compound	5/15/96	6/15/96	10/9/96	10/30/96	3/20/97	1/7/98	2/11/98	8/12/98	10/12/98	2/10/99	5/28/99	6/25/99
Detection limit	500			3-10,000	5000							
1,1,1-Trichloroethane	45000	84000	82000	81000	84000	2700	230	1500	12000	1600	6200	21000
1,1,2,2-Tetrachloroethane		1700										
1,1,2-Trichloro-1,2,2-trifluoroethane												
1,1,2-Trichloroethane												
1,1-Dichloroethane	32000	26000	31000	30000	19000	2700	130	650	4400	4800	2400	5200
1,1-Dichloroethene	1200											
1,2,3-Trichloropropane												
1,2,4-Trimethylbenzene												
1,2-Dichloroethane	650											
1,3,5-Trimethylbenzene												
1,3-Dichloro-2-propanol												
Acetone												
Allyl chloride												
Bromomethane												
Chloroethane												
Chloroform		1200										
Chloromethane												
cis-1,2-Dichloroethene	1800	1900	3600	4300		670	33	200	1700	620	870	1900
Cyclohexane												
Ethylbenzene		80			81							
Isopropylbenzene												
Methylene chloride												
Naphthalene												
n-Propylbenzene												
sec-Butylbenzene												
Tetrachloroethene	12000	11000	14000	14000	14000		17	190				
Toluene		290			230							
trans-1,2-Dichloroethene												
trans-1,3-dichloropropene												
Trichloroethene	1300	3300				760	47	1200	12000	1900	2800	4900
Vinyl chloride												
m,p-Xylene												
m-Xylene												
o-Xylene												
Total Xylenes		600			550							
Total VOCs, µg/l	94560	130070	130600	153300	117861	6830	457	3740	30100	8920	12270	33000

italic = found in tank contents

underlined = found in soil

sample re-run with lower limits

CMS REMEDIATION SITE MW-2	system down 12/12/99 to 4/6/00		post IRM									
Volatile Organic Compound	10/22/99	6/13/00	11/1/01	9/25/02	6/30/03	8/9/03	11/7/03	3/31/04	5/28/04	9/26/04	5/22/05	1/31/06
Detection limit												
1,1,1-Trichloroethane	9400	320	625	1040	1460	143	3300	1200	560	3200	1300	1400
1,1,2,2-Tetrachloroethane												
1,1,2-Trichloro-1,2,2-trifluoroethane												
1,1,2-Trichloroethane												
1,1-Dichloroethane	4500		616	854	1280	85	2600	1100	400	2900	1300	2000
1,1-Dichloroethene												
1,2,3-Trichloropropane												
1,2,4-Trimethylbenzene											110	
1,2-Dichloroethane												
1,3,5-Trimethylbenzene												
1,3-Dichloro-2-propanol												
Acetone												
Allyl chloride												
Bromomethane						**17.9**						
Chloroethane												
Chloroform										230		
Chloromethane												
cis-1,2-Dichloroethene	9800		865	1930	2250	112	3000	1600	610	2700	2200	1000
Cyclohexane												
Ethylbenzene												
Isopropylbenzene												
Methylene chloride										400		170
Naphthalene												
n-Propylbenzene												
sec-Butylbenzene												
Tetrachloroethene		59										
Toluene												
trans-1,2-Dichloroethene												
trans-1,3-dichloropropene												
Trichloroethene	4700		46.4	119				380	54			
Vinyl chloride					91.4	17.4				510	150	290
m,p-Xylene												
m-Xylene												
o-Xylene												
Total Xylenes												
Total VOCs, µg/l	28400	379	2152.4	3943	5081.4	375.3	8900	4280	1624	9940	5060	4860

italic = found in tank contents

underlined = found in soil

w/ J values

CMS REMEDIATION SITE MW-2										post extraction well rebuild =>			
Volatile Organic Compound	6/9/06	9/29/06	12/17/06	3/27/07	3/18/08	10/7/08	4/10/09	9/4/09	2/25/10	4/13/10	10/29/10	2/3/11	4/16/11
Detection limit												500	100
1,1,1-Trichloroethane	1000	1000	1800	770	1800	1700	3800	1600	5600	7600	610	5900	190
1,1,2,2-Tetrachloroethane													
1,1,2-Trichloro-1,2,2-trifluoroethane													
1,1,2-Trichloroethane													
1,1-Dichloroethane	990	1100	1400	710	1200	1700	2200	1300	4100	5300	680	7400	260
1,1-Dichloroethene													
1,2,3-Trichloropropane													
1,2,4-Trimethylbenzene				60		420					68		
1,2-Dichloroethane										560			
1,3,5-Trimethylbenzene													
1,3-Dichloro-2-propanol													
Acetone													
Allyl chloride													
Bromomethane													
Chloroethane				71									20
Chloroform													20
Chloromethane													
cis-1,2-Dichloroethene	760	1100	1500	1100	1500	1500	2600	1500	3900	2000	570	5600	410
Cyclohexane													
Ethylbenzene													
Isopropylbenzene													
Methylene chloride							340			600			
Naphthalene													
n-Propylbenzene													
sec-Butylbenzene													
Tetrachloroethene													
Toluene													
trans-1,2-Dichloroethene													
trans-1,3-dichloropropene													
Trichloroethene		81		52									
Vinyl chloride	86	400	220	150	130	700				730	180	660	20
m,p-Xylene													
m-Xylene													
o-Xylene													
Total Xylenes								380	370				
Total VOCs, µg/l	2836	3681	4920	2913	4630	6020	8940	4780	13970	16790	2108	19560	920

italic = found in tank contents

underlined = found in soil

CMS REMEDIATION SITE MW-2	post extraction well rebuild								
Volatile Organic Compound	10/18/11	1/31/12	3/22/12	6/30/12	10/2/12	12/18/12	4/5/13	7/24/14	12/4/14
Detection limit	25-499		25 - 200	25 - 500	25 - 500	10 - 40	25 - 50	2.50 - 50	1 - 20
1,1,1-Trichloroethane	1010	698	1730	1080	128	162	784	49.9	67.2
1,1,2,2-Tetrachloroethane									0.64
1,1,2-Trichloro-1,2,2-trifluoroethane	26.5	13	36	21.5	7		9	8.2	
1,1,2-Trichloroethane									
1,1-Dichloroethane	1490	1130	1570	1400	1180	363	1170	26.2	127
1,1-Dichloroethene	35.5	14.5	68.5	27.5		3.6	18	1	0.9
1,2,3-Trichloropropane									
1,2,4-Trimethylbenzene	109	25.5	89	92	40	5.8	33.5	4.65	36.8
1,2-Dichloroethane	20.5			8.5		4.4			3.54
1,3,5-Trimethylbenzene	18.5	5.5	27	16.5	7		6.5		5.52
1,3-Dichloro-2-propanol									
Acetone				154				28	4.46
Allyl chloride									
Bromomethane									
Chloroethane	53.5	36.5	69	122	17.5		32	3.65	3.36
Chloroform									
Chloromethane									
cis-1,2-Dichloroethene	1390	508	1130	332	26.5	294	783	7.2	73.4
Cyclohexane									
Ethylbenzene	5.5		5						1.44
Isopropylbenzene									1.02
Methylene chloride			22	41.5L	25L	8.2L	14L		0.98
Naphthalene									2.04
n-Propylbenzene	9.5							0.7	3.7
sec-Butylbenzene								0.85	2.2
Tetrachloroethene	5.5								0.46
Toluene	11	6	19.5	12.5			9.5	0.5	1.18
trans-1,2-Dichloroethene	11		6	6	5				0.6
trans-1,3-dichloropropene									
Trichloroethene	39	14	62	9.5		8	14	1.9	5.74
Vinyl chloride	366	435	202	366	218	24.4	167	27.1	21.3
m,p-Xylene			23.5	24					3.94
m-Xylene									
o-Xylene	14		36	10.5			5.5	0.55	5.96
Total Xylenes									
Total VOCs, µg/l	4615	2886	5095.5	3741.5	1758	865.2	3032	186.2	377.1
italic = found in tank contents	w/ Js	w/ Js	w/ Js	w/ Js	w/ Js	w/ Js	w/ Js	w/ Js	w/ Js

underlined = found in soil

CMS REMEDIATION SITE MW-3				<= pre IRM	post IRM =>			system down 12/12/99 - 4/6/00			
Volatile Organic Compound	5/16/96	6/15/96	10/9/96	3/20/97	10/12/98	2/10/99	2/11/99	10/22/99	6/13/00	11/1/01	9/25/02
Detection limit											
1,1,1-Trichloroethane	7,300	22,000	23,000	16,000	4,200	8,000		11,000	16,000	1,720	1,710
1,1,2-Trichloro-1,2,2-trifluoroethane											
1,1-Dichloroethane	8,200	22,000	26,000	10,000	2,800	2,700	5,400	6,200	5,200	1,700	1,190
1,1-Dichloroethene	310										
1,2,4-Trimethylbenzene											
1,2-Dichloroethane	120										
1,2-Dichloropropane											
1,3,5-Trimethylbenzene											
1,4-Dichlorobenzene	100										
2-Butanone											
(p-) 4-Isopropyltoluene											
Acetone											
Carbon disulfide											
Chloroethane											
Chloroform		570									
cis-1,2-Dichloroethene	1,000	3,000	6,700	1,900		1,300		10,000	3,500	3,370	2,550
Cyclohexane											
Ethylbenzene		17		16							
Isopropylbenzene											
Methylene chloride											
n-Propylbenzene											
sec-Butylbenzene											
Tetrachloroethene	1,700	1,600									
Toluene		70		46							
trans-1,2-Dichloroethene											
Trichloroethene	400			1,100	3600	2300	5200	1200	4700	324	171
Vinyl chloride											
m,p-Xylene											
o-Xylene											
Total Xylenes		130		72							
Total VOCs, µg/l	19130	49387	55700	29134	10600	14300	10600	28400	29400	7114	5621

italic = found in tank contents

underlined = found in soil

CMS REMEDIATION SITE MW-3	<= post IRM =>										
Volatile Organic Compound	6/30/03	8/9/03	11/7/03	4/1/04	5/28/04	9/26/04	5/22/05	1/31/06	6/9/06	9/29/06	12/17/06
Detection limit											
1,1,1-Trichloroethane	7,470	2,250	5,800	6,700	4,000	15,000	6,300	4,400	3,500	1,300	1,500
1,1,2-Trichloro-1,2,2-trifluoroethane											
1,1-Dichloroethane	3,110	1,010	5,800	1,800	1,200	6,500	2,100	1,600	3,600	1,200	1,700
1,1-Dichloroethene											
1,2,4-Trimethylbenzene											
1,2-Dichloroethane											
1,2-Dichloropropane											
1,3,5-Trimethylbenzene											
1,4-Dichlorobenzene											
2-Butanone											
(p-) 4-Isopropyltoluene											
Acetone											
Carbon disulfide											
Chloroethane											
Chloroform						1500					
cis-1,2-Dichloroethene	6,570	2,630	5,700	4,700	2,900	8,400	4,200	2,600	3,500	1,800	730
Cyclohexane											
Ethylbenzene											
Isopropylbenzene											
Methylene chloride			1200			2700		410			
n-Propylbenzene											
sec-Butylbenzene											
Tetrachloroethene											
Toluene	35.6										
trans-1,2-Dichloroethene											
Trichloroethene	732			1400	530		650	510			
Vinyl chloride								280		510	310
m,p-Xylene											
o-Xylene											
Total Xylenes											
Total VOCs, µg/l	17917.6	5890	18500	14600	8630	34100	13250	9800	10600	4810	4240

italic = found in tank contents w/ J values

underlined = found in soil

CMS REMEDIATION SITE MW-3							post extraction well rebuild =>			
Volatile Organic Compound	3/27/07	3/18/08	10/8/08	4/10/09	9/4/09	2/25/10	4/13/10	10/29/10	2/3/11	4/16/11
Detection limit									200	100
<u>1,1,1-Trichloroethane</u>	3,800	2,400	1,400	1,700	870	760	660	490	3,700	2,000
1,1,2-Trichloro-1,2,2-trifluoroethane										
<u>1,1-Dichloroethane</u>	1,900	1,400	1,400	600	840	190	500	530	1,500	1,000
1,1-Dichloroethene										30
1,2,4-Trimethylbenzene			380			98	66	130	250	80
1,2-Dichloroethane										
1,2-Dichloropropane										
1,3,5-Trimethylbenzene										50
<u>1,4-Dichlorobenzene</u>										
2-Butanone										
(p-) 4-Isopropyltoluene										
Acetone										
Carbon disulfide										
Chloroethane			240							60
Chloroform										
<u>cis-1,2-Dichloroethene</u>	2,400	2,700	3,400	1,700	1,600	220	880	420	2,700	1,700
Cyclohexane										
<u>Ethylbenzene</u>										
Isopropylbenzene										
<u>Methylene chloride</u>				410			64			
n-Propylbenzene										
sec-Butylbenzene										
<u>Tetrachloroethene</u>										
<u>Toluene</u>										
trans-1,2-Dichloroethene										
<u>Trichloroethene</u>	220									70
Vinyl chloride	260	200	1200	190	650			400	260	140
<u>m,p-Xylene</u>			340						200	
<u>o-Xylene</u>			320							
Total Xylenes										
Total VOCs, µg/l	8580	6700	8680	4600	3960	1268	2170	1970	8610	5130

italic = found in tank contents

<u>underlined</u> = <u>found in soil</u>

CMS REMEDIATION SITE MW-3	<= post extraction well rebuild =>									
Volatile Organic Compound	10/18/11	12/12/11	1/31/12	3/22/12	6/30/12	10/2/12	12/18/12	4/5/13	7/24/14	12/4/14
Detection limit	25 - 500	0.5 - 25	5 - 100	5 - 100	5 - 100	0.5 - 10	1.0	5 - 10	5.0	5 - 10
1,1,1-Trichloroethane	14.6	24.7	798	1730	1090	28.1	41.4	160	164	49.7
1,1,2-Trichloro-1,2,2-trifluoroethane	0.9	2.16	13	36	25	1.85	3.52	7.8	4	
1,1-Dichloroethane	20.1	82.2	380	1570	454	54.6	86.4	312	196	99.6
1,1-Dichloroethene	0.24	0.85	16.5	68.5	31.2	0.41	0.64	9.7		
1,2,4-Trimethylbenzene		10.4	13.1	89	112	2.7	19.6	29	13.5	
1,2-Dichloroethane		0.24						8.1		
1,2-Dichloropropane		0.30								
1,3,5-Trimethylbenzene		0.29	1.3	27	20.2	2.54	1.78	2.7	2.1	
1,4-Dichlorobenzene										
2-Butanone		2.22			31	1.37				
(p-) 4-Isopropyltoluene		0.16		14.5						
Acetone	1.5L	2.08L			94.8L	3	4.62			
Carbon disulfide		0.62					5.86			1.5
Chloroethane		0.82	8.4	69.0	34			21.2		
Chloroform										
cis-1,2-Dichloroethene	6.6	30	435	1130	494	19.4	24.1	236	46.5	50.3
Cyclohexane		0.30				0.15	0.4			
Ethylbenzene		0.53	1.3	5.0	6.75	0.15	0.68	2	1.1	
Isopropylbenzene		0.57					0.32			
Methylene chloride				22L	29.5L	0.24L	0.48L	2.9L	9.7	3.5
n-Propylbenzene		1.36	1.0		4		0.96	2.1		
sec-Butylbenzene		0.98					0.8	1.6		
Tetrachloroethene	0.2	0.37	1.4		3	0.29	0.92	3.9		
Toluene		0.61		19.5	23	0.45	0.92	3.8	1.6	
trans-1,2-Dichloroethene	0.25	0.38	2.1	6	4.5	0.22	0.46	1.4	1	
Trichloroethene	0.86	1.78	17.9	62	29.2	1.47	3.64	10.4	3.2	1.7
Vinyl chloride	2.57	29.9	59.8	202	179	14.1	12.4	103	10.3	16.8
m,p-Xylene			2.0	23.5	16.5	0.54	0.78	3.2		
o-Xylene		1.05	2.2	36	20	1.81	3.44	4.4	1.5	
Total Xylenes										
Total VOCs, µg/l	46.32	192.79	1753	5088	2577.35	133.15	213.64	922.3	454.5	223.1
italic = found in tank contents	w/ J values	w/ Js	w/ Js	w/ Js	w/ Js	w/ Js	w/ Js	w/ Js	w/ Js	w/ Js
underlined = found in soil										

CMS REMEDIATION SITE MW-4				<= pre IRM		system down 12/12/99 - 4/6/00		post IRM =>					
Volatile Organic Compound	5/29/96	6/5/96	6/15/96	10/9/96	3/20/97	6/25/99	11/1/01	8/9/03	11/7/03	3/31/04	5/28/04	9/28/04	5/22/05
Detection limit													
1,1,1-Trichloroethane	20,000					3							
1,1-Dichloroethane	400	15	3.5			6	5.84						1.2
1,1-Dichloroethene	570												
1,2,4-Trimethylbenzene									4				
1,2-Dichlorobenzene								3.32					
1,3,5-Trimethylbenzene													
1,4-Dichlorobenzene								**0.625**					
2-Butanone													
4-Isopropyltoluene													
Benzene		14	39	110	120		117	1.29	4	11	28	19	4.8
Carbon disulfide													
Chloroform													
cis-1,2-Dichloroethene		1											
Cyclohexane													
Ethylbenzene		6	20	23	21		21.7	9.13	3				
Isopropylbenzene													
Methyl tert-butyl ether								5.38					
Naphthalene													
n-Propylbenzene													
Styrene										2			
Tetrachloroethene						2							
Toluene		37	160	240	230					5	6.3	3.5	
Trichlorofluoromethane						5							
m,p-Xylene		48		180					3	4	2.2		1.8
o-Xylene		17		67									
Total Xylenes			220		229		81.2	11.8					
Total VOCs, µg/l	20,970	138	443	620	600	16	226	32	14	22	37	23	8
		w/o B						w/J values					

(method blank contaminated)

italic = found in tank contents

underlined = found in soil

CMS REMEDIATION SITE MW-4	<= post IRM =>									post extraction well rebuild =>				
Volatile Organic Compound	1/31/06	6/9/06	9/29/06	12/17/06	3/27/07	3/17/08	4/10/09	9/4/09	2/25/10	4/13/10	10/29/10	2/3/11	4/15/11	10/18/11
Detection limit												10	1	0.5-2
1,1,1-Trichloroethane														
1,1-Dichloroethane														**0.41**
1,1-Dichloroethene														
1,2,4-Trimethylbenzene		23			1.1	6.5		6.2	18	15	11		0.5	0.92
1,2-Dichlorobenzene														
1,3,5-Trimethylbenzene													1	**0.26**
1,4-Dichlorobenzene														
2-Butanone														
4-Isopropyltoluene													0.6	
Benzene		30		0.67	0.59	26		28			15			**13.5**
Carbon disulfide														**0.19**
Chloroform														
cis-1,2-Dichloroethene														
Cyclohexane														1.68
Ethylbenzene		7.9				3.3	4.4		10	11			2	0.97
Isopropylbenzene					1.2								1	
Methyl tert-butyl ether													1.3	2.18
Naphthalene					1.4								1.1	
n-Propylbenzene													0.6	
Styrene														
Tetrachloroethene														
Toluene		11				16		6.8						4.96
Trichlorofluoromethane														
m,p-Xylene		14						11	16	23	17	14		1.83
o-Xylene		3.3				4.7								1.23
Total Xylenes														
Total VOCs, µg/l	0	89	0	1	4	57	4	52	44	49	43	14	8	28

w/J values

italic = found in tank contents

underlined = found in soil

CMS REMEDIATION SITE MW-4	<= post extraction well rebuild =>							
Volatile Organic Compound	1/31/12	3/22/12	6/30/12	10/2/12	12/18/12	4/5/13	7/24/14	12/4/14
Detection limit	0.5 - 10	0.5 - 10	0.5 - 10	0.5 - 2	0.5 - 10	0.5 - 1	25	0.5 - 1
1,1,1-Trichloroethane								
1,1-Dichloroethane	**0.3**	**0.24**	**0.11**					
1,1-Dichloroethene								
1,2,4-Trimethylbenzene		2.43				1.07	1.57	
1,2-Dichlorobenzene								
1,3,5-Trimethylbenzene		0.58		**0.28**	**0.18**	**0.19**	**0.32**	**0.11**
1,4-Dichlorobenzene								
2-Butanone			**1.31**		**4.85**		**2.99**	
4-Isopropyltoluene								
Benzene	3.81	13.1	0.87	**0.41**			16.4	14.7
Carbon disulfide								
Chloroform		**0.2**		**0.22**				
cis-1,2-Dichloroethene								**0.12**
Cyclohexane	**0.26**	3.49	0.56	5.15	1.6	1.46	3.41	1.99
Ethylbenzene	0.72	1.49		2.17	1.36	0.19	1.27	0.53
Isopropylbenzene				**0.35**	**0.2**	**0.14**	**0.18**	**0.12**
Methyl tert-butyl ether	1.49	**0.98**	**0.18**	**0.16**				
Naphthalene								**0.79**
n-Propylbenzene				**0.21**	**0.3**		**0.19**	**0.13**
Styrene								
Tetrachloroethene								
Toluene	1.01	4.9					1.34	1.23
Trichlorofluoromethane								
m,p-Xylene		3.63		1.04		**0.46**	1.21	**0.93**
o-Xylene	0.82	1.79		0.65			**0.46**	**0.64**
Total Xylenes								
Total VOCs, µg/l	8	33	3.03	12.2	20.39	26.61	54.04	21.29
	w/ Js	w/ Js	w/ Js	**w/ Js**	**w/ Js**	**w/ Js**	**w/ Js**	**w/ Js**

italic = found in tank contents

underlined = found in soil

CMS REMEDIATION SITE MW-5						<= pre IRM	system down 12/12/99 to 4/6/00				post IRM =>	
Volatile Organic Compound	5/29/96	6/5/96	6/15/96	10/9/96	3/20/97	2/11/98	8/12/98	6/25/99	11/1/01	9/25/02	6/29/03	8/9/03
Detection limit					200							
1,1,1-Trichloroethane	8900	120	120				110	320				
1,1,2-Trichloroethane		2										
1,1-Dichloroethane	3300	2500	2000	3000	3500	4400	2700	3800	2380	1870	2020	1460
1,1-Dichloroethene		89	59									
1,2-Dichloroethane		31										
Benzene		2	1.2									
Chloroethane												
Chloroform												
cis-1,2-Dichloroethene	790	740	960	1200	1300	1100	820	920	110	206	552	122
Cyclohexane												
Ethylbenzene		2										
Tetrachloroethene		200	260	240								
Toluene		5	4									
trans-1,2-Dichloroethene												
Trichloroethene					270	270						
Vinyl chloride		320	320	790	730	930	450		141	386	605	158
o-Xylene		6										
Total Xylenes			2.4									
Total VOCs, µg/l	12990	4028	3726.6	5230	5800	6700	4080	5040	2631	2462	3177	1740

italic = found in tank contents

underlined = found in soil

CMS REMEDIATION SITE MW-5	<= post IRM =>										
Volatile Organic Compound	11/7/03	3/31/04	5/28/04	9/28/04	5/22/05	1/31/06	6/9/06	9/29/06	12/17/06	3/27/07	3/17/08
Detection limit											
1,1,1-Trichloroethane											
1,1,2-Trichloroethane											
1,1-Dichloroethane	2100	850	1800	2200	1800	2200	1400	1500	1800	950	1400
1,1-Dichloroethene											
1,2-Dichloroethane											
Benzene	54										
Chloroethane	100									93	
Chloroform								170			
cis-1,2-Dichloroethene	430	240	530	380	390	160	100		430		430
Cyclohexane											
Ethylbenzene											
Tetrachloroethene											
Toluene											
trans-1,2-Dichloroethene											
Trichloroethene	110	210	170		120					110	
Vinyl chloride	640	190	720	820	500	430	200	100	780	290	700
o-Xylene											
Total Xylenes											
Total VOCs, µg/l	3434	1490	3220	3400	2810	2790	1700	1770	3010	1443	2530

originally mislabeled mw-6 in field/lab report

italic = found in tank contents

underlined = found in soil

CMS REMEDIATION SITE MW-5					post extraction well rebuild =>							
Volatile Organic Compound	10/2/08	4/10/09	9/4/09	2/25/10	4/13/10	10/29/10	4/15/11	6/8/11	7/21/11	10/18/11	1/31/12	3/22/12
Detection limit							10	50	50	6 - 125	5 - 100	12 - 125
1,1,1-Trichloroethane											7.2	
1,1,2-Trichloroethane												
1,1-Dichloroethane	1900	780	880	590	1200	1000	81	310	560	268	265	716
1,1-Dichloroethene											6.2	25.5
1,2-Dichloroethane										4.25	4.8	9.5
Benzene												
Chloroethane										8.38	59.4	41.2
Chloroform												
cis-1,2-Dichloroethene	500	300	620	200	400	260	26	86	150	44.1	57.8	125
Cyclohexane											1.6	6.5
Ethylbenzene												
Tetrachloroethene				130								
Toluene												
trans-1,2-Dichloroethene										1.38	2.1	2.5
Trichloroethene							3	20	20	4	12.7	25.5
Vinyl chloride	890	290	710	330	360	520	26	140	220	24.6	120	244
o-Xylene												
Total Xylenes												
Total VOCs, µg/l	3290	1370	2210	1250	1960	1780	136	556	950	354.71	536.8	1195.7
							w/ J values	w/ Js	w/ Js	w/ Js	w/ Js	w/ Js

italic = found in tank contents

underlined = found in soil

CMS REMEDIATION SITE MW-5	<= post extraction well rebuild =>					
Volatile Organic Compound	6/30/12	10/2/12	12/18/12	4/5/13	7/24/14	12/4/14
Detection limit	12 - 250	12.5 - 50	25 - 100	25 - 50	25 - 50	25 - 50
1,1,1-Trichloroethane						
1,1,2-Trichloroethane						
1,1-Dichloroethane	870	902	1410	1170	758	919
1,1-Dichloroethene	11	6.75	10	22		
1,2-Dichloroethane	12.5	12.8	17.5	13	9	
Benzene	4.25					
Chloroethane	104	32.5	91.5	24	37	
Chloroform						
cis-1,2-Dichloroethene	149			281		81.5
Cyclohexane	6	6		7.5	5	
Ethylbenzene						
Tetrachloroethene						
Toluene						
trans-1,2-Dichloroethene	4.25	3.25		6		
Trichloroethene	4.25	495	9	28		
Vinyl chloride	408		664	590	374	524
o-Xylene						
Total Xylenes						
Total VOCs, µg/l	1573.25	1458.3	2202	2154	1264.5	1537
	w/ Js	w/ Js	w/ Js	w/ Js	w/ Js	w/ Js

italic = found in tank contents

underlined = found in soil

CMS REMEDIATION SITE MW-6	<= pre IRM					system down 12/12/99 to 4/6/00	post IRM =>				
Volatile Organic Compound	5/31/96	6/15/96	10/9/96	3/20/97	2/11/98	6/25/99	11/1/01	9/25/02	6/29/03	8/9/03	5/28/04
Detection limit											
1,1,2-Trichloro-1,2,2-trifluoroethane											
1,1-Dichloroethane	10	27	31	28	66	32	10.3	1.63	8.55	19.2	7.9
1,2,4-Trimethylbenzene											
1,2-Dichloroethane											
Acetone											
Benzene			10	8					5.26	2.02	
Bromomethane						15			2.05		
Chloroethane								8.72		0.626	11
Chloroform		2.5									
Chloromethane										1.79	
cis-1,2-Dichloroethene		76	60	24	40	55	10.8	3.36	4.06	6.93	22
Cyclohexane											
Ethylbenzene		1.3	11	2							
Methylene chloride											
Styrene											
Tetrachloroethene		5.2									
Toluene	21	4.3	34	1					0.408	0.908	
Trichloroethene		9.9	6	3	5						
Vinyl chloride		9.7					1.69	9.39			28
m,p-Xylene											
m-Xylene	17		32								
o-Xylene											
p-Xylene	38		93								
Total Xylenes		11		34							
Total VOCs	86	147	277	100	111	102	23	23	20	31	69

italic = found in tank contents

underlined = found in soil

w/ J values

CMS REMEDIATION SITE MW-6	<= post IRM =>											
Volatile Organic Compound	9/28/04	5/22/05	1/31/06	6/9/06	9/29/06	12/17/06	3/27/07	3/17/08	10/2/08	4/10/09	9/4/09	2/25/10
Detection limit												
1,1,2-Trichloro-1,2,2-trifluoroethane												
1,1-Dichloroethane	17	35	23	16	23	16	21	17	19	17	22	15
1,2,4-Trimethylbenzene												
1,2-Dichloroethane												
Acetone												
Benzene			1.8	2.5		0.66	0.81	3.9		21		
Bromomethane												
Chloroethane	21											
Chloroform												
Chloromethane												
cis-1,2-Dichloroethene	17	15	6	7	7.4	4.6	6.6	3.8	6.6	2.7	4	4.4
Cyclohexane												
Ethylbenzene										1.7		
Methylene chloride												1.5
Styrene												
Tetrachloroethene												
Toluene												
Trichloroethene												
Vinyl chloride	14		2.2	1.6								
m,p-Xylene												
m-Xylene												
o-Xylene												
p-Xylene												
Total Xylenes												
Total VOCs	69	50	33	27	30	21	28	25	26	42	26	21

italic = found in tank contents
underlined = found in soil

mislabeled mw-5
in field/lab report

CMS REMEDIATION SITE MW-6	post extraction well rebuild =>												
Volatile Organic Compound	4/13/10	10/29/10	2/3/11	4/15/11	10/18/11	1/31/12	3/22/12	6/30/12	10/2/12	12/18/12	4/5/13	7/24/14	12/4/14
Detection limit				5	0.5 - 10	0.5-10	0.5 - 10	0.5 - 10	0.5 - 2	0.5 - 1	0.5 - 1	1.0	0.5
1,1,2-Trichloro-1,2,2-trifluoroethane											16	0.9	
1,1-Dichloroethane	25	48	23	26	21.9	30.2	24.6	20.4	18.1	8.99	77.9	38.2	25
1,2,4-Trimethylbenzene								0.93	0.19				
1,2-Dichloroethane					0.47	0.22	0.16				0.4		0.71
Acetone						4.56L					1.59		
Benzene		2.6	3.1		4.85		8.67	16.1	18.7	1.17	0.46	1.16	4.37
Bromomethane													
Chloroethane					1.88	1.18	0.53						0.37
Chloroform								0.14	0.17				
Chloromethane								2.12	3.08				
cis-1,2-Dichloroethene	12	19	8.2	13	14.6	13.6	9.29	7.46	5.26	3.12	14.1	11.8	15.8
Cyclohexane					0.58	0.63	0.75	2.18	3.41		0.15	0.94	0.68
Ethylbenzene					0.22		0.54	1.39					0.31
Methylene chloride	1.5							0.26L	0.18L			3.34	1.15
Styrene					0.72								
Tetrachloroethene											1.28	0.48	0.16
Toluene								0.14					
Trichloroethene					0.34	0.5	0.37	0.39	0.31		0.46	0.42	0.19
Vinyl chloride					1.28						0.61		2.54
m,p-Xylene								1.3	0.24				
m-Xylene													
o-Xylene								2.19	2.27				0.17
p-Xylene													
Total Xylenes													
Total VOCs	39	70	34	39	47	46.33	44.91	54.84	51.73	13.57	192.65	75.94	55.41
					w/ J values	w/ J s	w/ J s	w/ J s	w/ J s	w/ J s	w/ J s	w/ J s	w/ J s

italic = found in tank contents

underlined = found in soil

CMS REMEDIATION SITE MW-7		<= pre IRM				system down 12/12/99 to		post IRM =>					
Volatile Organic Compound	10/9/96	3/20/97	2/11/98	8/12/98	6/25/99	11/1/01	9/25/02	6/29/03	8/9/03	11/7/03	3/31/04	5/28/04	9/28/04
Detection limit													
1,1,2-Trichloro-1,2,2-trifluoroethane													
1,1-Dichloroethane	1500	1900	2000	690	1100	1890	210	743	676	1300	700	610	720
1,1-Dichloroethene													
1,2-Dichloroethane		100		61		52.5		45.6		100	51		
Benzene													
Chloroethane							31.3						
Chloroform											53		
cis-1,2-Dichloroethene													
Cyclohexane													
Methylene chloride						149							
Trichloroethene								34.1					
Trichlorofluoromethane								31.5					
Vinyl chloride								16					62
Total VOCs, µg/l	1500	2000	2000	751	1100	2091.5	241.3	870.2	676	1400	804	610	782

italic = found in tank contents

underlined = found in soil

CMS REMEDIATION SITE MW-7	<= post IRM =>										
Volatile Organic Compound	5/22/05	1/31/06	6/9/06	9/29/06	12/17/06	3/27/07	3/17/08	10/2/08	4/10/09	9/4/09	2/25/10
Detection limit											
1,1,2-Trichloro-1,2,2-trifluoroethane											
1,1-Dichloroethane	850	910	680	800	1300	530	1300	810	1500	540	1200
1,1-Dichloroethene											
1,2-Dichloroethane				64		34		100			
Benzene											
Chloroethane											
Chloroform				54							
cis-1,2-Dichloroethene											
Cyclohexane											
Methylene chloride		74		60	120						
Trichloroethene											
Trichlorofluoromethane											
Vinyl chloride				100		32					
Total VOCs, µg/l	850	984	680	1078	1420	596	1300	910	1500	540	1200

italic = found in tank contents

underlined = found in soil

CMS REMEDIATION SITE MW-7	post extraction well rebuild =>												
Volatile Organic Compound	4/13/10	10/29/10	2/3/11	4/15/11	12/12/11	1/31/12	3/22/12	6/30/12	10/2/12	12/18/12	4/5/13	7/24/14	12/4/14
Detection limit				100	12 - 250	12.5	12.5	10 - 200	10 - 40	25 - 50	10 - 20	10 - 20	5 - 10
1,1,2-Trichloro-1,2,2-trifluoroethane						8.00	2.75	2.6					1.9
1,1-Dichloroethane	1000	580	740	1500	684		1080	449	260	761	1100	472	165
1,1-Dichloroethene							20				5.2		
1,2-Dichloroethane				80	49	41.8	67.2	21	6.8	34.5		24	8.1
Benzene					12.8	6.25		3.4					
Chloroethane					8.75			13.8			8.6	15	6.4
Chloroform													
cis-1,2-Dichloroethene				30	25.5	23.2		11.8	6.4	16	27.4	23	5.3
Cyclohexane							34.8	2.6					
Methylene chloride	300						24.2L	11L	9.6L	22.5L	4.6		
Trichloroethene				40	4.25	10.2	39.2	16.6		12	32	14.8	1.7
Trichlorofluoromethane													
Vinyl chloride				50	35.5	35.8	47.2	20.6	16	22.5	48.4	22.2	7.1
Total VOCs, µg/l	1300	580	740	1700	819.8	125.25	1291.15	587.4	292.4	846	1226.2	571	195.5
					w/J s	w/J s	w/J s	w/J s	w/J s	w/J s	w/J s	w/J s	w/J s

italic = found in tank contents

underlined = found in soil

CMS REMEDIATION SITE MW-8	<= pre IRM		system down 12/12/99 to 4/6/00	post IRM =>									
Volatile Organic Compound	10/9/96	3/20/97	6/25/99	11/1/01	9/25/02	8/9/03	11/7/03	3/31/04	5/28/04	5/22/05	1/31/06	6/9/06	9/29/06
Detection limit		2											
1,1,1-Trichloroethane													
1,1,2-Trichloro-1,2,2-trifluoroethane													
1,1-Dichloroethane	120	34	76	34.4	72.3	67.3	61	28	45	38	16	39	36
1,1-Dichloroethene													
1,2-Dichloroethane					1.13								
Benzene				4.55									
Bromomethane			76										
Chlorobenzene													
Chloromethane													
cis-1,2-Dichloroethene	110	30	130	33	60.2	72.4	54	35	57	42	4.3	45	21
cis-1,3-dichloropropene													
Cyclohexane													
Methyl tert-butyl ether					1.61								
Methylene chloride													
Styrene													
trans-1,2-Dichloroethene													
Trichloroethene	9	8			2.75	1.88			5.1	3.7	1.4	2.9	
Vinyl chloride	10			2.31					4.4	2.3		7.6	
Total VOCs, µg/l	249	72	282	74.26	137.99	141.58	115	63	111.5	86	21.7	94.5	57
						w/ J values							

italic = found in tank contents

underlined = found in soil

CMS REMEDIATION SITE MW-8	<= post IRM =>							post extraction well rebuild =>				
Volatile Organic Compound	12/17/06	3/27/07	3/17/08	10/2/08	4/10/09	9/4/09	3/24/10	4/13/10	10/29/10	4/15/11	10/18/11	1/31/12
Detection limit									5	5	0.5 - 5	0.5 - 5
1,1,1-Trichloroethane												
1,1,2-Trichloro-1,2,2-trifluoroethane												
1,1-Dichloroethane	31	25	17	28	27	30	30	18	82	11	61.9	43.8
1,1-Dichloroethene											1.24	0.54
1,2-Dichloroethane											1.43	0.48
Benzene	1.6				0.86						4.41	0.78
Bromomethane												
Chlorobenzene											0.1	
Chloromethane												
cis-1,2-Dichloroethene	33	25	26	34	31	38	34	19	75	12	65.7	32.2
cis-1,3-dichloropropene											0.96	
Cyclohexane												1.2
Methyl tert-butyl ether											0.37	0.19
Methylene chloride								12				
Styrene											0.29	
trans-1,2-Dichloroethene											0.47	
Trichloroethene			1.6		1						0.69	0.52
Vinyl chloride	2.4		2.5						12	12	8.45	1.18
Total VOCs, µg/l	68	50	47.1	62	59.86	68	64	49	169	35	146.01	80.89
											w/ Js	w/ Js

italic = found in tank contents

underlined = found in soil

CMS REMEDIATION SITE MW-8	<= post extraction well rebuild =>						
Volatile Organic Compound	3/22/12	6/30/12	10/2/12	12/18/12	4/5/13	7/24/14	12/4/14
Detection limit	0.5 - 1	0.5 - 2	0.5 - 2	25 - 50	1 - 2	1 - 2	1 - 2
1,1,1-Trichloroethane					7.92		
1,1,2-Trichloro-1,2,2-trifluoroethane					2.92		
1,1-Dichloroethane	29.2	58.4	80.2	198	32.9	50.9	44.4
1,1-Dichloroethene		1.71	1.69		0.4	1.28	0.6
1,2-Dichloroethane	0.49	1.19	1.72			1.02	0.78
Benzene	0.17	0.85	2.62		0.58	0.96	1.9
Bromomethane							
Chlorobenzene							
Chloromethane					0.82		1.34
cis-1,2-Dichloroethene	30.2	52.6	63.8	120	15.8		34
cis-1,3-dichloropropene						51.5	
Cyclohexane	0.42	0.65	1.91		1.74	2.54	2.02
Methyl tert-butyl ether	0.52		0.26				
Methylene chloride		0.26L	0.18L	21L		2.88	0.94
Styrene							
trans-1,2-Dichloroethene	0.24	0.47	0.43			0.38	
Trichloroethene	0.68	0.62	0.52		0.32	0.56	0.28
Vinyl chloride	5.19	17.3	21.1	41	2.8	17.5	6.96
Total VOCs, µg/l	67.11	134.41	174.64	359	66.2	129.52	93.22
	w/ Js	w/ Js	w/ Js	w/ Js	w/ Js	w/ Js	w/ Js

italic = found in tank contents
underlined = found in soil

CMS REMEDIATION SITE MW-9		<= pre IRM		system down 12/12/99 to 4/6/00				post IRM =>						
Analyte	10/12/98	5/28/99	10/22/99	6/13/00	11/1/01	9/25/02	6/30/03	8/9/03	11/7/03	3/31/04	5/28/04	9/26/04	5/22/05	1/31/06
1,1,1-Trichloroethane	11000	1200	2500	1400	3200	1730	4330	1070	1300	470	410	1200		210
1,1,2-Trichloro-1,2,2-trifluoroethane														
1,1,2-Trichloroethane														
1,1-Dichloroethane	8900	1100	4300	1600	2480	3840	3060	1280	3300	590	440	1900	2500	460
1,1-Dichloroethene				110		183								
1,2,4-Trimethylbenzene														
1,2-Dichloroethane				180		27.1								
Bromomethane							412							
Chloroethane														
Chloroform														
cis-1,2-Dichloroethene	4300	580	2200	930	1500	3190	4310	1410	2400	410	640	2200	1100	250
Cyclohexane														
Methylene chloride									520					32
n-Propylbenzene														
Tetrachloroethene		330												
Toluene														
trans-1,2-Dichloroethene														
Trichloroethene	5600		1100	1000	835	312	563	105	670	100	170	490	120	52
Vinyl chloride			390			531	226	60.5	510	56	55	790	260	88
o-Xylene														
p-Xylene							83.1							
Total VOCs	29800	3210	10490	5220	8015	9813.1	12984	3926	8700	1626	1715	6580	3980	1092
italic = found in tank contents							w/ Js	w/ Js						
underlined = found in soil														

CMS REMEDIATION SITE MW-9				<= post IRM =>						post extraction well rebuild =>				
Analyte	6/9/06	9/29/06	12/17/06	3/27/07	3/18/08	10/7/08	4/10/09	9/4/09	2/25/10	4/13/10	10/29/10	2/3/11	4/16/11	10/18/11
1,1,1-Trichloroethane	950	620	400	490	470	1400	1000	810	210	360	210	620	33	830
1,1,2-Trichloro-1,2,2-trifluoroethane														
1,1,2-Trichloroethane														
1,1-Dichloroethane	2000	1800	690	1100	870	2700	3100	2700	190	390	690	850	76	5860
1,1-Dichloroethene		150												
1,2,4-Trimethylbenzene										57			7	
1,2-Dichloroethane										510				
Bromomethane														
Chloroethane													5	
Chloroform		130												
cis-1,2-Dichloroethene	1400	1800	860	350	540	1900	820	1100	270		260	1200	88	960
Cyclohexane														
Methylene chloride							160	230						
n-Propylbenzene														
Tetrachloroethene					200									
Toluene														
trans-1,2-Dichloroethene														
Trichloroethene	230	680	110	56	78						90		8	70
Vinyl chloride	460	880	140	160	120	1600	500	750		120	230	240	21	615
o-Xylene														
p-Xylene														
Total VOCs	5040	6060	2200	2156	2278	7600	5580	5590	670	1437	1480	2910	238	8335
italic = found in tank contents														w/ Js
underlined = found in soil														

CMS REMEDIATION SITE MW-9				<= post extraction well rebuild =>					
Analyte	1/31/12	3/22/12	6/30/12	10/2/12	12/18/12	4/5/13	7/24/14	12/4/14	
1,1,1-Trichloroethane	229	138	189	15.4	106	258	170	77.7	
1,1,2-Trichloro-1,2,2-trifluoroethane	3.75		10.2			7	8.1	3.9	
1,1,2-Trichloroethane							1.8		
1,1-Dichloroethane	581	516	690	139	943	365	833	228	
1,1-Dichloroethene	16.2	24.5	13.2	2.85	22	8.6	41.8	17.9	
1,2,4-Trimethylbenzene		13	6.25			9.4	2		
1,2-Dichloroethane		4	5	2.6		4.8	6.6	3.3	
Bromomethane									
Chloroethane							20.1	7.2	
Chloroform									
cis-1,2-Dichloroethene	324	242	211	75.8	398	323	606	157	
Cyclohexane			6						
Methylene chloride			28L	2.47L	24	5.4		3	
n-Propylbenzene							1		
Tetrachloroethene	5.25	5		0.75	8			3.9	
Toluene		6.5	5.25			6	1.8		
trans-1,2-Dichloroethene			9	0.6		2.8	9.1	3	
Trichloroethene	92.8	114	56.8	28	241	39.4	223	189	
Vinyl chloride	143	72.8	192	18.3	118	153	270	165	
o-Xylene			4.25			4	1.2		
p-Xylene									
Total VOCs	1395	1135.8	1495.2	283.85	1860	1213.2	2202.8	860.7	
italic = *found in tank contents*	w/ Js	w/ Js	w/ Js	w/ Js	w/ Js	w/ Js	w/ Js	w/ Js	
underlined = found in soil									

CMS REMEDIATION SITE MW-10	<= Post IRM =>												
Volatile Organic Compound	1/13/99	6/25/99	11/1/01	9/25/02	6/29/03	8/9/03	5/28/04	5/22/05	1/31/06	6/9/06	9/29/06	10/2/08	4/10/09
1,1,2-Trichloro-1,2,2-trifluoroethane	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethane													
Acetone	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzene													
Chloroform													
Cyclohexane	--	--	--	--	--	--	--	--	--	--	--	--	--
Methylene chloride		5.0 B											
Total VOCs	0	0	0	0	0	0	0	0	0	0	0	0	0
italic = found in tank contents	6 ug in method blank			0.174 in method blank									u
underlined = found in soil													

CMS REMEDIATION SITE MW-10	<= post extraction well rebuild									
Volatile Organic Compound	4/13/10	4/15/11	10/18/11	3/22/12	6/30/12	10/2/12	12/18/12	4/5/13	7/24/14	12/4/14
1,1,2-Trichloro-1,2,2-trifluoroethane	--	--					0.14	0.18		
1,1-Dichloroethane						0.12			0.16	
Acetone	--	--	1.0		3.99L	5.12L	2.69L	2.84L	5.05L	5.21L
Benzene						0.17	0.24			
Chloroform										0.58
Cyclohexane	--	--								
Methylene chloride	1.4 M				0.21L	0.22L				
Total VOCs	0	0	1.04	0	0	0.29	0.38	0.18	0.16	0.58
italic = found in tank contents	li lab cont.		w/ Js		w/ Js	w/ Js	w/ Js	w/ Js	w/ Js	w/ Js
underlined = found in soil										

CMS REMEDIATION SITE MW-11	<= post IRM =>												
Volatile Organic Compounds	1/13/99	6/25/99	11/1/01	9/25/02	6/29/03	8/9/03	5/28/04	5/22/05	1/31/06	6/9/06	9/29/06	10/2/08	4/10/09
1,1,1-Trichloroethane													
1,1,2-Trichloro-1,2,2-trifluoroethane	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethane													
1,1-Dichloroethene													
1,2,4-Trimethylbenzene													
1,3,5-Trimethylbenzene													
Acetone	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon disulfide	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloroethane													
cis-1,2-Dichloroethene													
Cyclohexane	--	--	--	--	--	--	--	--	--	--	--	--	--
Methylene chloride													
n-Propylbenzene													
Tetrachloroethene													
Trichloroethene													
Total VOCs	0	0	0	0	0	0	0	0	0	0	0	0	0

italic = found in tank contents

underlined = found in soil

CMS REMEDIATION SITE MW-11	<= post extraction well rebuild									
Volatile Organic Compounds	4/13/10	4/15/11	10/18/11	3/22/12	6/30/12	10/2/12	12/18/12	4/5/13	7/24/14	12/4/14
1,1,1-Trichloroethane								17.7		
1,1,2-Trichloro-1,2,2-trifluoroethane	--	--						14.3		
1,1-Dichloroethane								19.3	0.54	0.48
1,1-Dichloroethene								0.41		
1,2,4-Trimethylbenzene				0.47						
1,3,5-Trimethylbenzene				0.36						
Acetone	--	--	1.13L		2.74L	2.57L	2.02L	2.25L		
Carbon disulfide	--	--					0.13			
Chloroethane										0.11
cis-1,2-Dichloroethene								0.41		
Cyclohexane	--	--		0.46	0.26	0.35	0.2		0.25	
Methylene chloride					.29L	.18L				
n-Propylbenzene	1.4 B									
Tetrachloroethene								0.41		
Trichloroethene								0.1		
Total VOCs	0	0	0	1.29	0.26	0.35	0.33	*	0.79	0.59
italic = found in tank contents	1.45 in		w/ Js	w/ Js	w/ Js	w/ Js	w/ Js	w/ Js	w/ Js	w/ Js
underlined = found in soil	method blank							* field mis-ID or contaminated		

CMS REMEDIATION SITE MW-12	post IRM		post extraction well rebuild =>											
Volatile Organic Compound	11/20/10	2/3/11	4/15/11	6/10/11	7/21/11	10/18/11	1/31/12	3/22/12	6/30/12	10/2/12	12/18/12	4/5/13	7/24/14	12/4/14
1,1-Dichloroethane	120	90	190	270	140	178	175	168	66	134	160	74.4	24.5	81.8
1,2-Dichloroethane			4			5	4.1	4.2	3.35	4.1	4.65	3.4	1.7	4
Acetone									14					
Benzene						1.5								
Chloroethane	16		4			37.6	19.4	32	90.8	21.6	29.2	48.8	8.5	9.48
cis-1,2-Dichloroethene		9.4	26	30	10	9.38	20.3	23.5	9.05	15.9	20.6	9.35	2.05	18.9
Cyclohexane						2.38		2.2	1.7			1.4	0.75	0.36
Methylene chloride								11.8L	4.5L	2.25L	2.65	0.95		1.34
Trichloroethene											0.75			
Vinyl chloride		27	88	260	47	43.2	119	128	53.6	71.4	107	77	26.4	109
Total VOCs	136	126	312	560	197	277.06	337.8	357.9	238.5	247	324.85	215.3	63.9	225.48
italic = found in tank contents	w/ Js		w/ Js		w/ Js	w/ Js	w/ Js	w/ Js	w/ Js	w/ Js	w/ Js	w/ Js	w/ Js	w/ Js
underlined = found in soil														

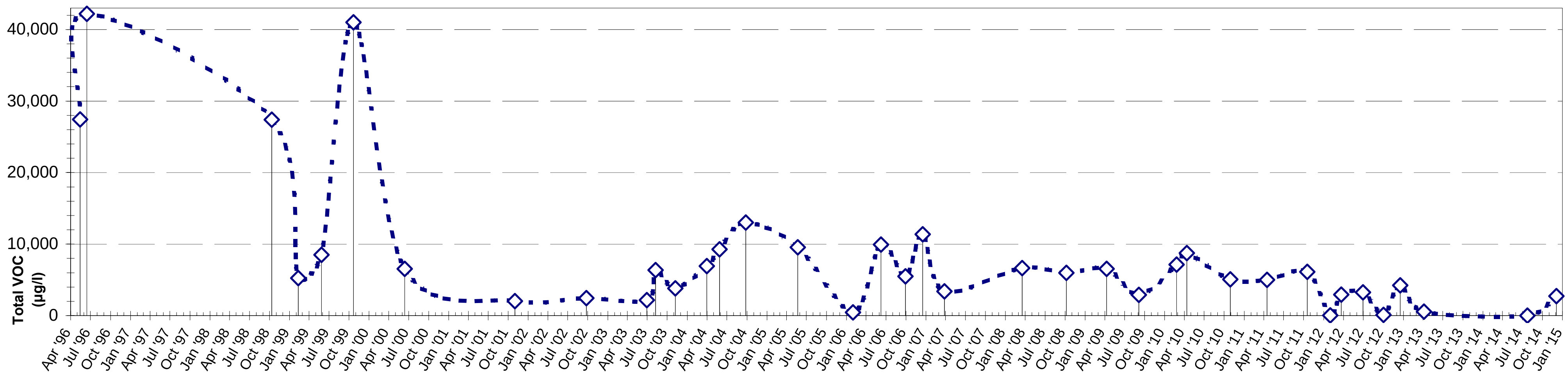
CMS REMEDIATION SITE MW-13	post extraction well rebuild =>													
Volatile Organic Compound	11/20/10	2/3/11	4/15/11	6/8/11	7/21/11	10/18/11	1/31/12	3/22/12	6/30/12	10/2/12	12/18/12	4/5/13	7/24/14	12/4/14
1,1,2-Trichloroethane										1.94				
1,1-Dichloroethane			4	0.2			0.19		0.22	0.29	0.23	0.19	0.2	0.16
1,2,4-Trimethylbenzene			0.4	0.6	4.5	16.2		1.4	0.48	0.18		1.18	0.13	
1,3,5-Trimethylbenzene	5.3	1.7	0.5	0.6	5.6	13.2		1.56	0.33	0.61	0.22	0.17		
(p) 4-Isopropyltoluene					0.4	0.59		0.58						
Acetone							1.85L		4.57L					
Benzene		1.1		0.3		0.3				0.22				
Carbon disulfide						0.89			1.58					
Chloromethane		2.6												
Cyclohexane						34.50	0.13	2.6	0.89	2.31	0.37	0.27	0.15	0.35
Ethylbenzene					0.6	2.61						0.17		
Isopropylbenzene				0.6	0.6	1.70						0.48		
Methylene chloride								1.5	0.27L	.2L				
Naphthalene					1.2	1.64								
n-Propylbenzene				0.5	0.7	2.39						0.64		
sec-Butylbenzene				0.5	0.3	0.66						0.3		
Styrene					0.4	0.57								
Tetrachloroethene					0.2									
Toluene					0.3	0.48								
m,p-Xylene					1.0	7.6		1.34	0.58			0.37		
o-Xylene					0.5	2.6		1.42	0.11	0.22	0.1			
Total VOCs	5.30	5.40	4.90	3.30	16.30	85.92	0.32	10.40	4.19	5.77	0.92	3.77	0.48	0.51
italic = found in tank contents	w/ Js		w/ Js	w/ Js	w/ Js	w/ Js	w/ Js	w/ Js	w/ Js	w/ Js	w/ Js	w/ Js	w/ Js	w/ Js
underlined = found in soil														

CMS REMEDIATION SITE MW-14	post extraction well modifications											
Volatile Organic Compound	4/15/11	6/8/11	7/21/11	10/18/11	1/31/12	3/22/12	6/24/12	10/2/12	12/18/12	4/5/13	7/24/14	12/4/14
Detection limit	100	1000	500	100-2000	50-1000	100-2000	100-2000	50 - 200		25 - 50	0.5 - 5.0	25 - 50
1,1,1-Trichloroethane	1700	2100	540	1970	3390	4190	3380	5660	1920	1860	15.7	3500
1,1,2-Trichloro-1,2,2-trifluoroethane				644	2580		618	2030	725	1330	12.5	1220
1,1-Dichloroethane	3400	1400	1300	2390	1970	3100	2610	3900	2010	1650	23.8	2670
1,1-Dichloroethene	50			62	74	170	66	119	46	55.5	0.72	59
1,2,4-Trimethylbenzene				32				17		33.5	0.85	
1,3,5-Trimethylbenzene	50									11.5	0.26	5.5
Acetone				1040			530					
Benzene	30			38	16		20	19	10	15	0.64	26.5
Carbon disulfide							234					
Chloroform		500										
cis-1,2-Dichloroethene	40			60	114	206	134	236	75	81	0.89	134
Cyclohexane				90	71	56	56	105	29	91.5	2.54	118
Ethylbenzene	40									7.5	0.28	8.5
Methylene chloride		500	1800			146	176L	53L	43L	11		
Tetrachloroethene				30			114	375	82	61.5	0.95	132
Toluene	40			68	31	54	32	29	20	21	0.36	21
Vinyl chloride					33							35.5
m,p-Xylene				52	29			25		35.5	0.53	11
m-Xylene	30											
o-Xylene				22				11		13	0.5	11.5
Total VOCs	5380	4500	3640	6498	8308	7922	7794	12548	4955	5308	60.7	8005.5
italic = found in tank contents	v/ J values	w/ Js	w/ Js	w/ Js	w/ Js	w/ Js	w/ Js	w/ Js	w/ Js	w/ Js	w/ Js	w/ Js
underlined = found in soil												

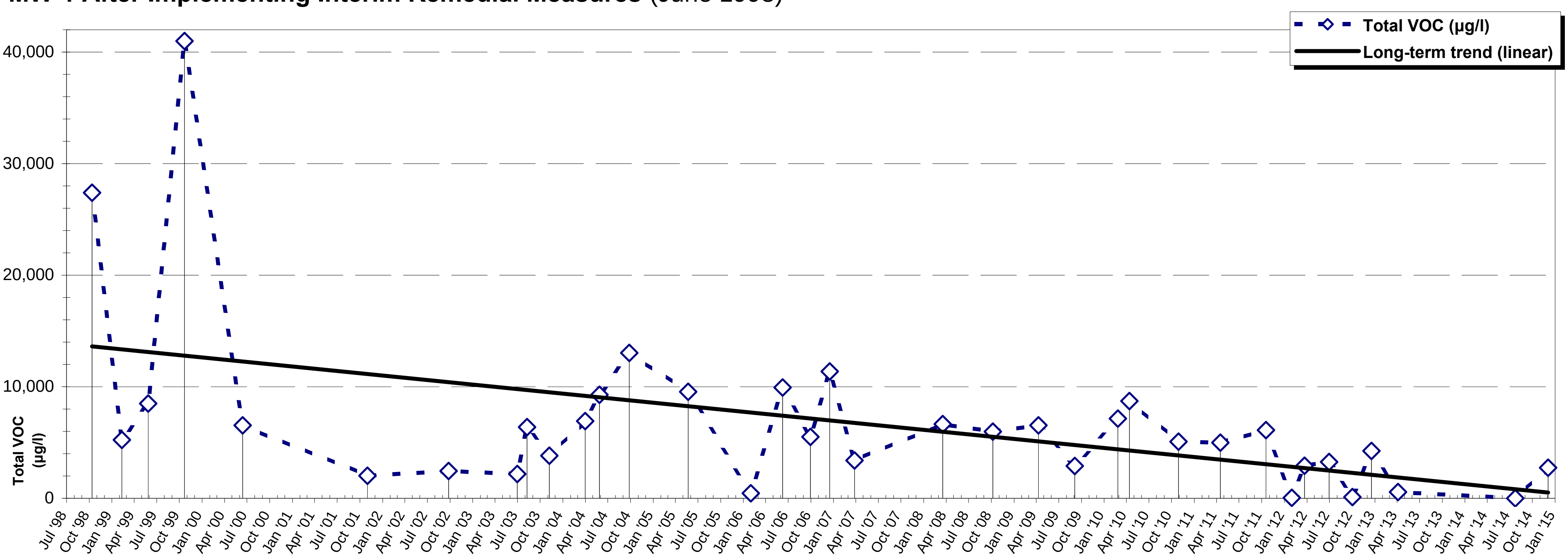
APPENDIX C

Graphical Representation of Groundwater Quality Monitoring through December 2014

CMS Associates Remediation Site West Extraction Well MW-1

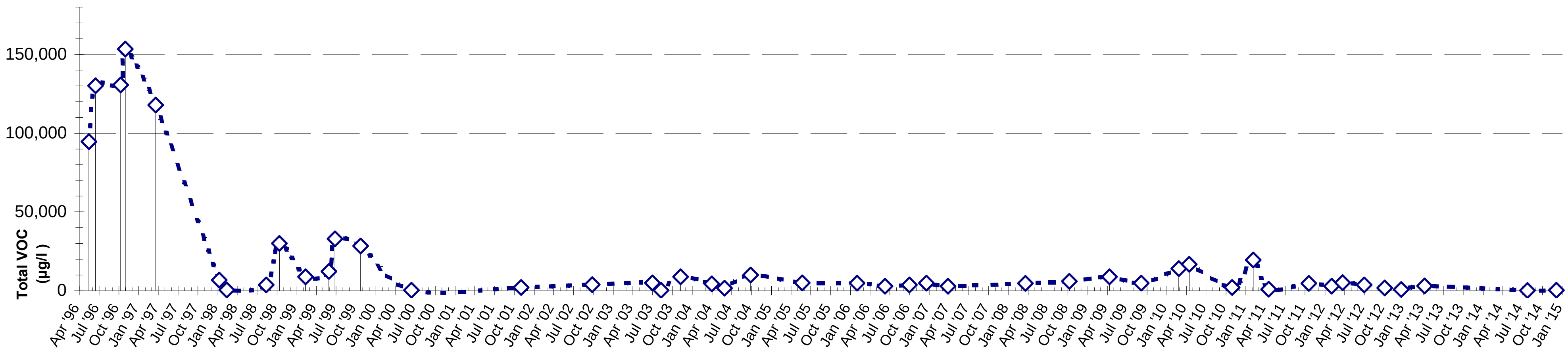


MW-1 After Implementing Interim Remedial Measures (June 1998)

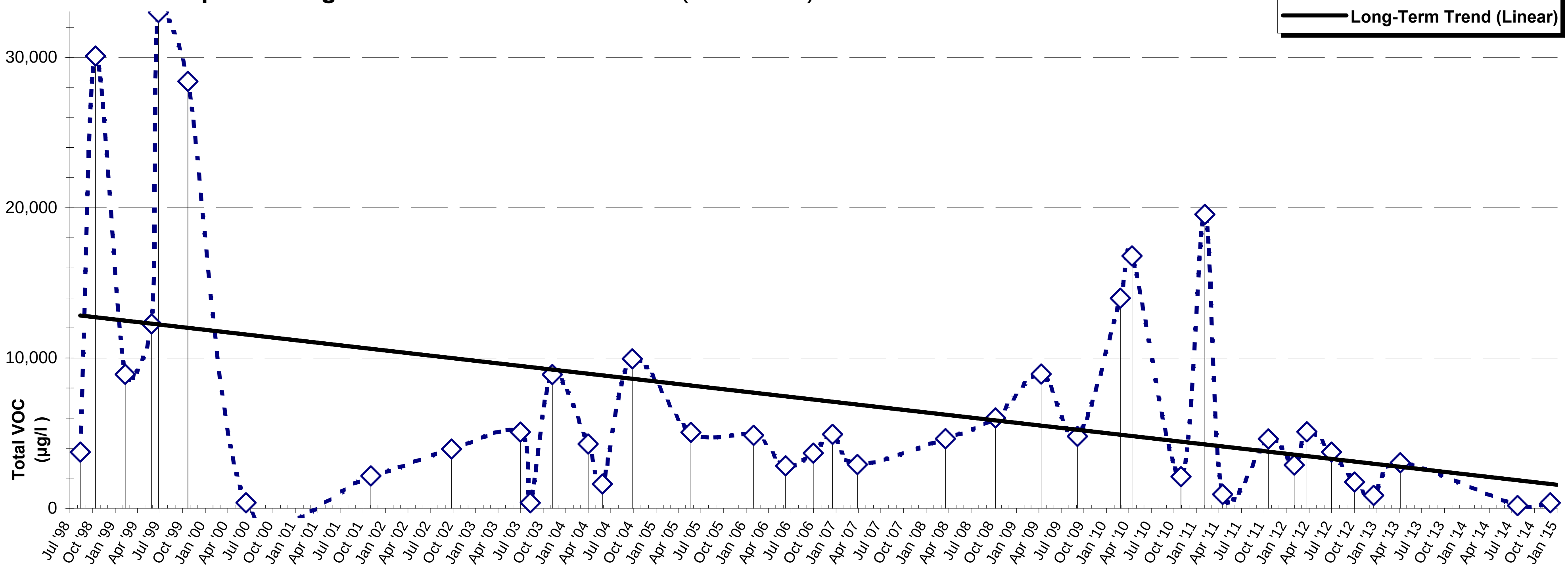


Date	Nov '03	Mar '04	May '04	Sep '04	May '05	Jan '06	Jun '06	Sep '06	Dec '06	Mar '07	Mar '08	Oct '08	Apr '09	Sep '09	Feb '10	Apr '10	Oct '10	Apr '11	Oct '11	Jan '12	Mar '12	Jun '12	Oct '12	Dec '12	Apr '13	Jul '14	Dec '14
VOCs	3,830	6,920	9,280	13,030	9,540	453	9,940	5,500	11,380	3,390	6,650	5,970	6,540	2,910	7,140	8,730	5,070	4,990	6,118	43	2,927	3,262	111	4,245	556	nd	2,746

CMS Associates Remediation Site — South Extraction Well MW-2

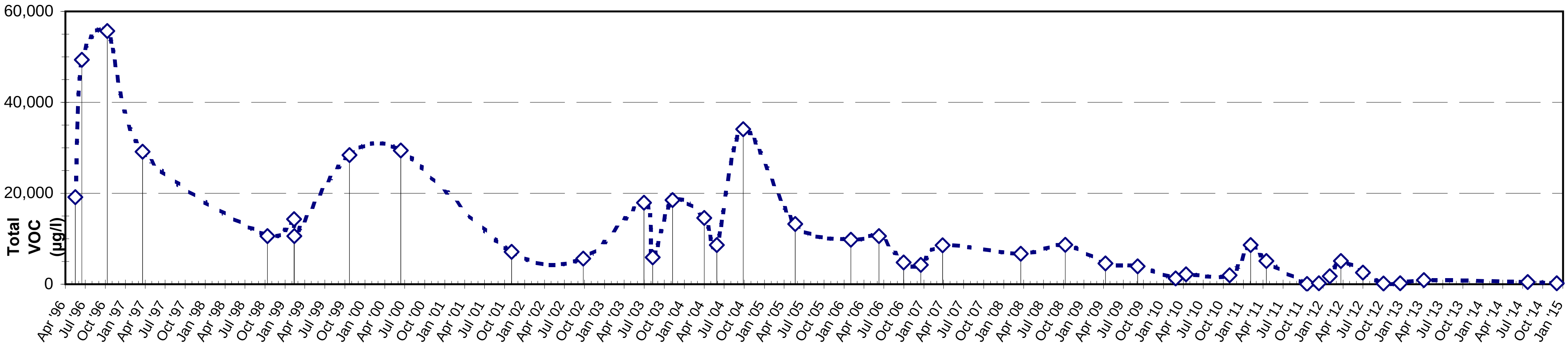


MW-2 After Implementing Interim Remedial Measures (June 1998)

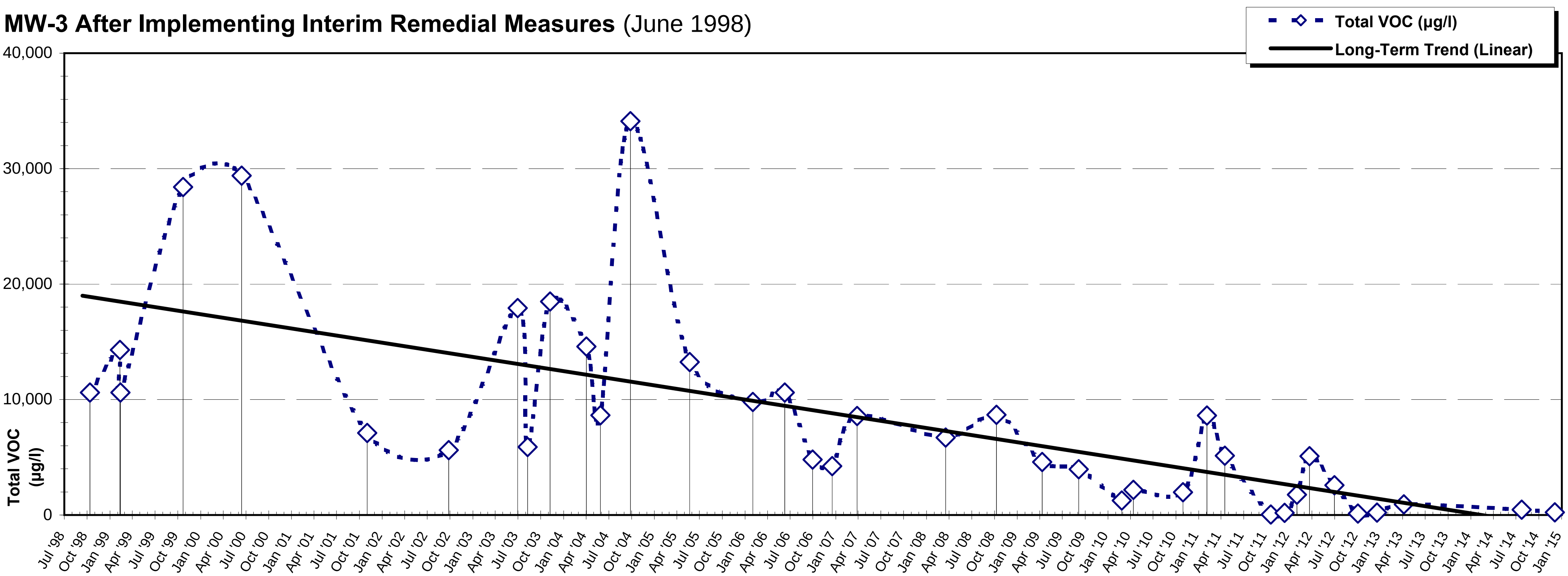


Date	Mar '04	May '04	Sep '04	May '05	Jan '06	Jun '06	Sep '06	Dec '06	Mar '07	Mar '08	Oct '08	Apr '09	Sep '09	Feb '10	Apr '10	Oct '10	Feb '11	Apr '11	Oct '11	Jan '12	Mar '12	Jun '12	Oct '12	Dec '12	Apr '13	Jul '14	Dec '14
VOCs	4,280	1,624	9,940	5,060	4,860	2,836	3,681	4,920	2,913	4,630	6,020	8,940	4,780	13,970	16,790	2,108	19,560	920	4,615	2,886	5,096	3,742	1,758	865	3,032	186	377

CMS Associates Remediation Site Center Extraction Well MW-3

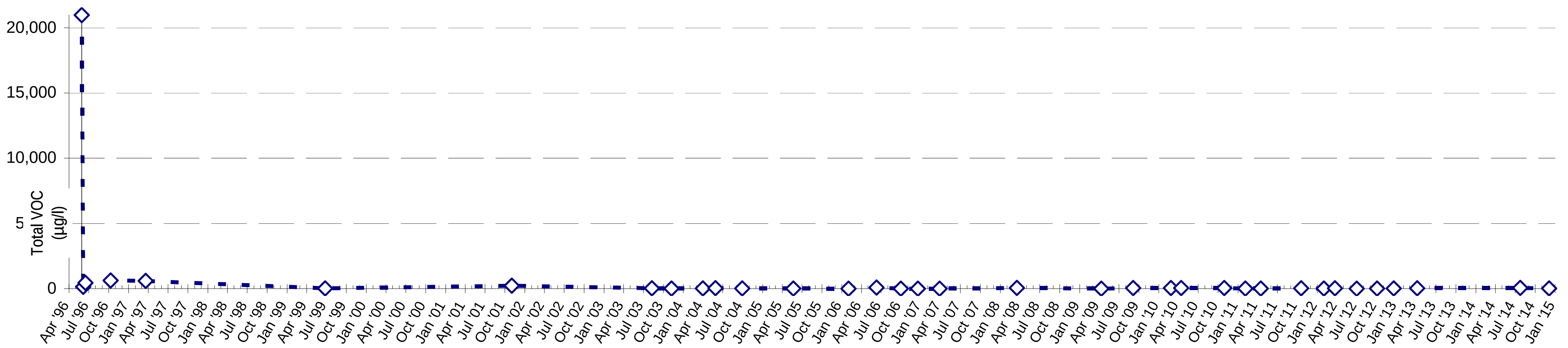


MW-3 After Implementing Interim Remedial Measures (June 1998)

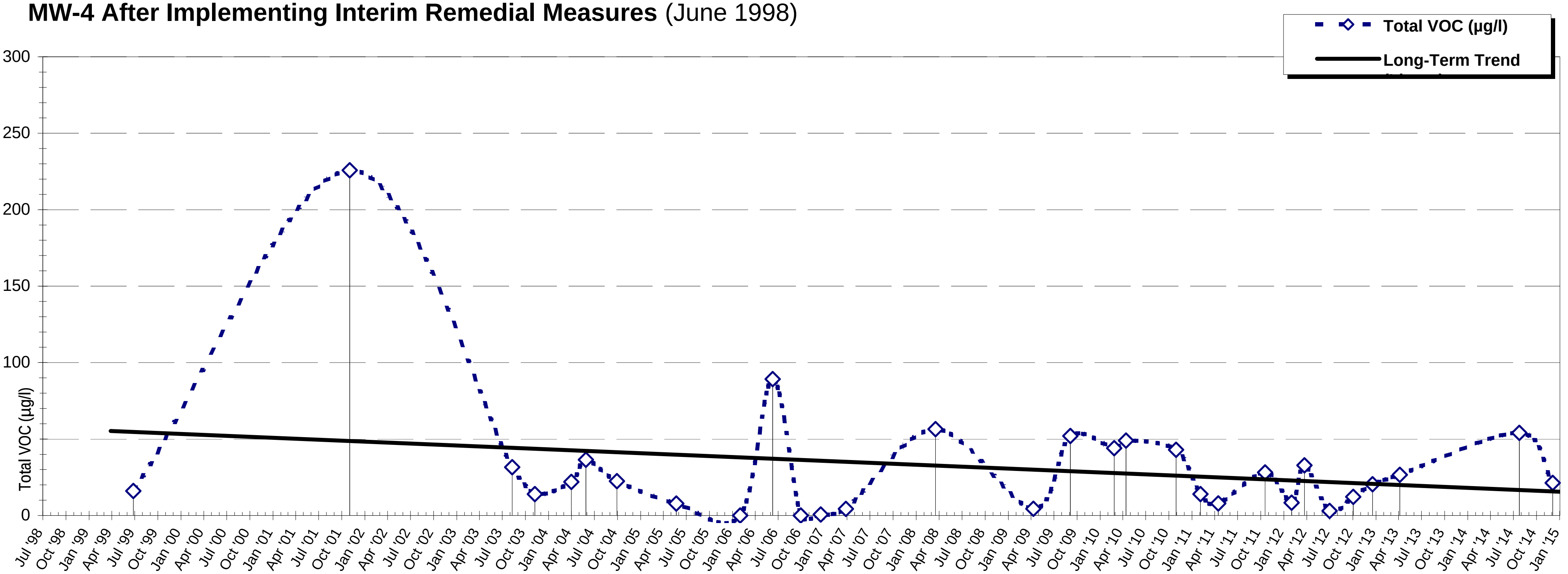


Date	May '04	Sep '04	May '05	Jan '06	Jun '06	Sep '06	Dec '06	Mar '07	Mar '08	Oct '08	Apr '09	Sep '09	Feb '10	Apr '10	Oct '10	Feb '11	Apr '11	Oct '11	Dec '11	Jan '12	Mar '12	Jun '12	Oct '12	Dec '12	Apr '13	Jul '14	Dec '14	
VOCs	8,630	34,100	13,250	9,800	10,600	4,810	4,240	8,580	6,700	8,680	4,600	3,960	1,268	2,170	1,970	8,610	5,130	46	193	1,753	5,088	2,577	133	214	922	455	223	

CMS Associates Remediation Site West Perimeter Monitoring Well MW-4

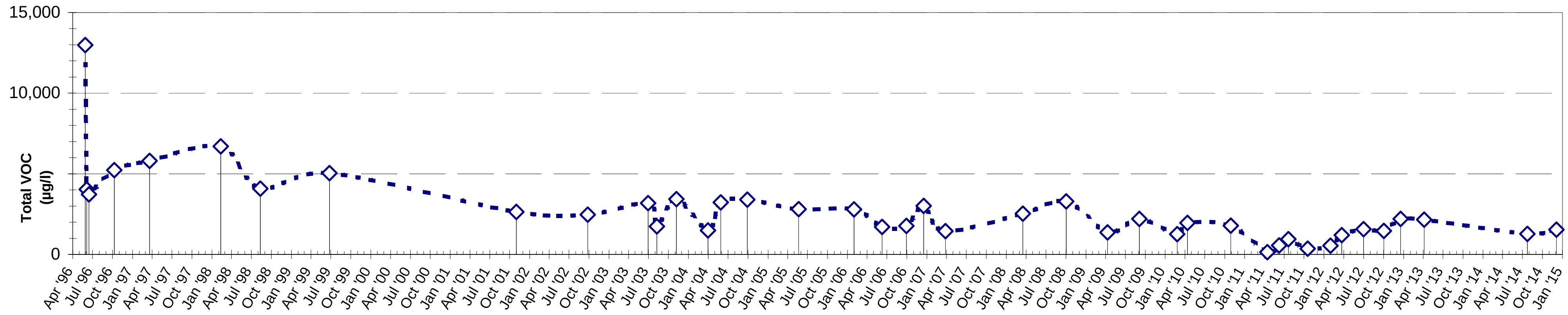


MW-4 After Implementing Interim Remedial Measures (June 1998)

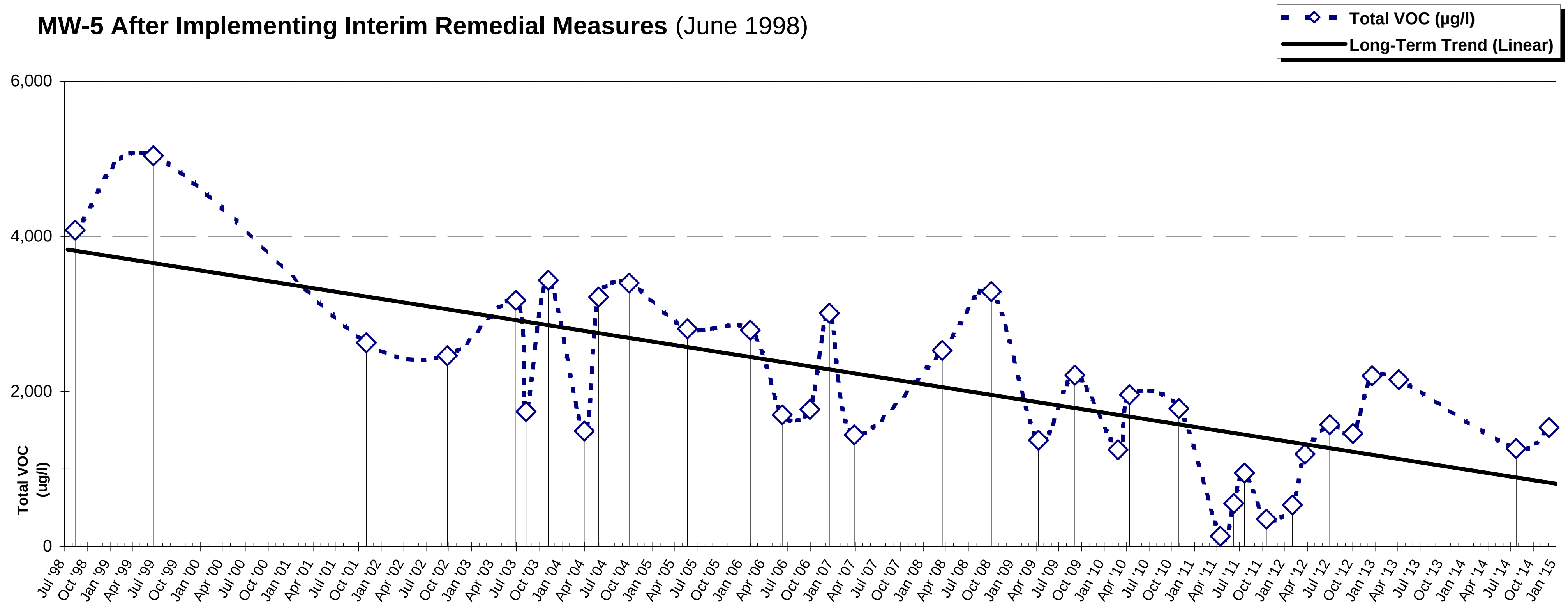


Date	Aug '03	Nov '03	Mar '04	May '04	Sep '04	May '05	Jan '06	Jun '06	Sep '06	Dec '06	Mar '07	Mar '08	Apr '09	Sep '09	Feb '10	Apr '10	Oct '10	Feb '11	Apr '11	Oct '11	Jan '12	Mar '12	Jun '12	Oct '12	Dec '12	Apr '13	Jul '14	Dec '14
VOCs	32	14	22	37	23	8	0	89	0	1	4	57	4	52	44	49	43	14	8	28	8	33	3	12	20	27	54	21

CMS Associates Remediation Site **Northwest Perimeter Monitoring Well MW-5**

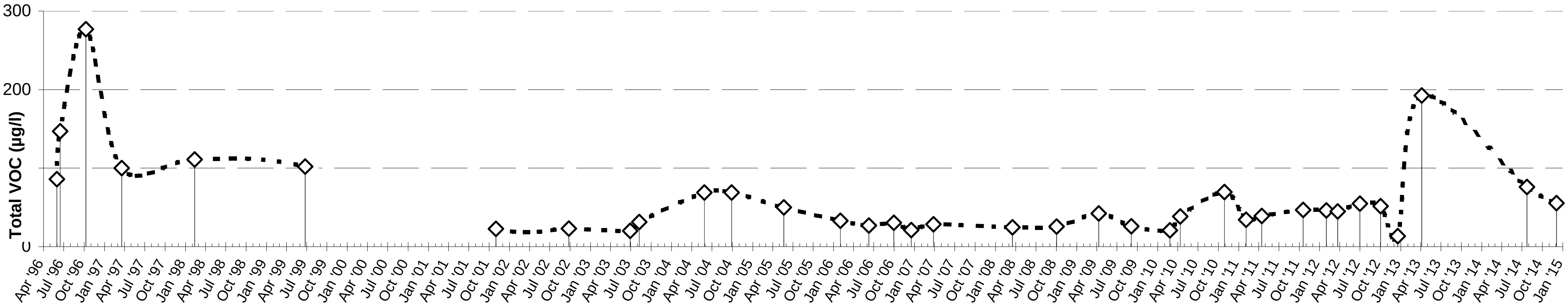


MW-5 After Implementing Interim Remedial Measures (June 1998)

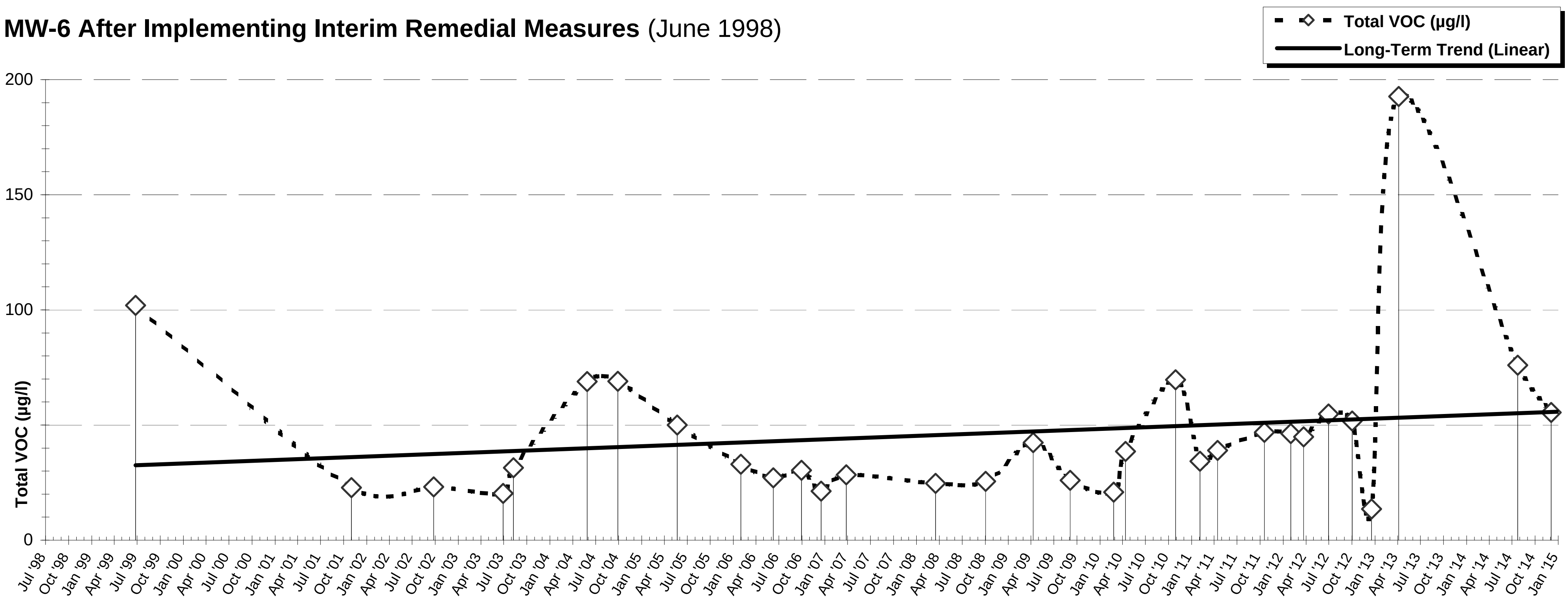


Date	May '04	Sep '04	May '05	Jan '06	Jun '06	Sep '06	Dec '06	Mar '07	Mar '08	Oct '08	Apr '09	Sep '09	Feb '10	Apr '10	Oct '10	Apr '11	Jun '11	Jul '11	Oct '11	Jan '12	Mar '12	Jun '12	Oct '12	Dec '12	Apr '13	Jul '14	Dec '14	
VOCs	3,220	3,400	2,810	2,790	1,700	1,770	3,010	1,443	2,530	3,290	1,370	2,210	1,250	1,960	1,780	136	556	950	355	537	1,196	1,573	1,458	2,202	2,154	1,265	1,537	

CMS Associates Remediation Site North Perimeter Monitoring Well MW-6

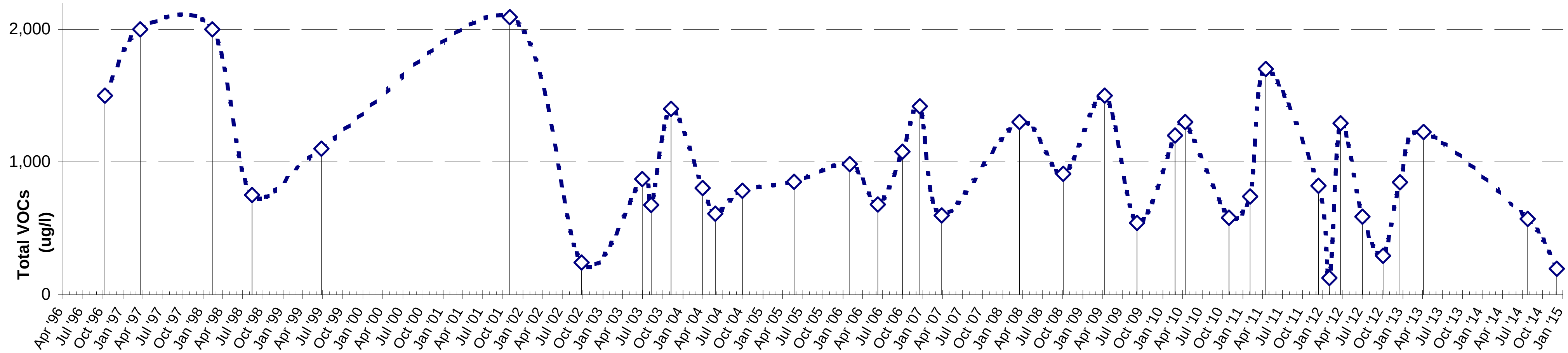


MW-6 After Implementing Interim Remedial Measures (June 1998)

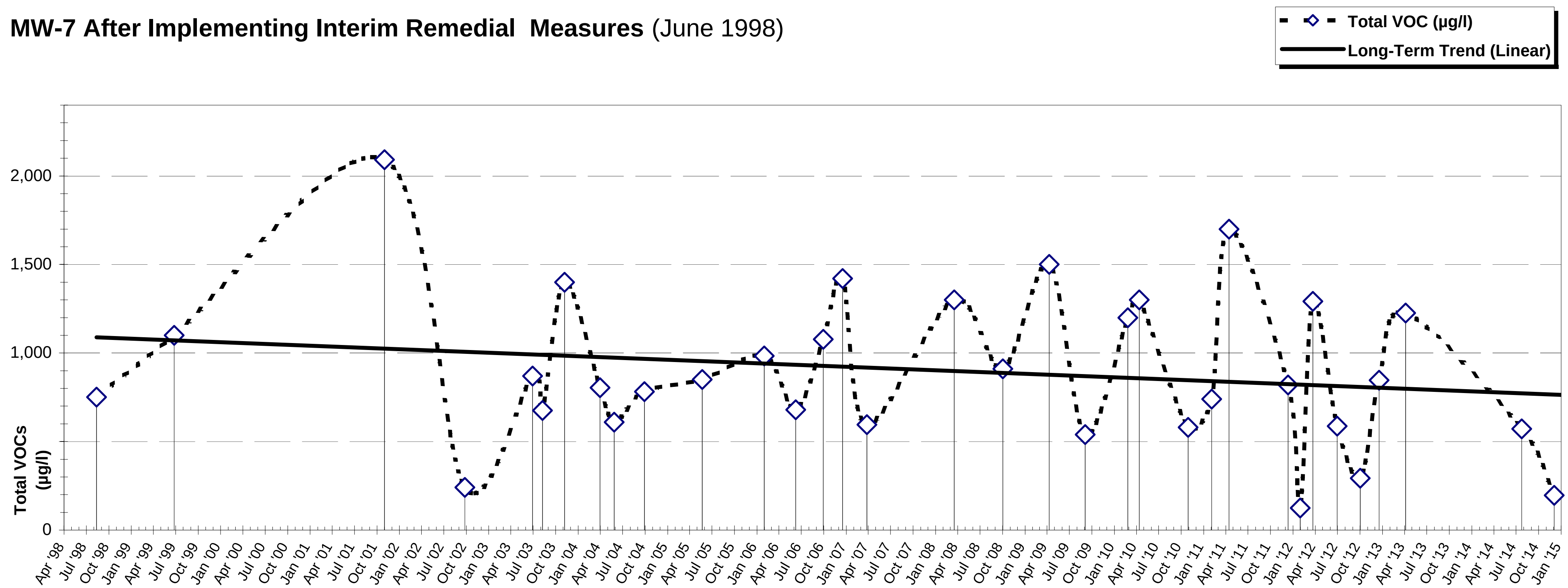


Date	Aug '03	May '04	Sep '04	May '05	Jan '06	Jun '06	Sep '06	Dec '06	Mar '07	Mar '08	Oct '08	Apr '09	Sep '09	Feb '10	Apr '10	Oct '10	Feb '11	Apr '11	Oct '11	Jan '12	Mar '12	Jun '12	Oct '12	Dec '12	Apr '13	Jul '14	Dec '14	
VOCs	31	69	69	50	33	27	30	21	28	25	26	42	26	21	39	70	34	39	47	46	45	55	52	14	193	76	55	

CMS Associates Remediation Site East Perimeter Monitoring Well MW-7

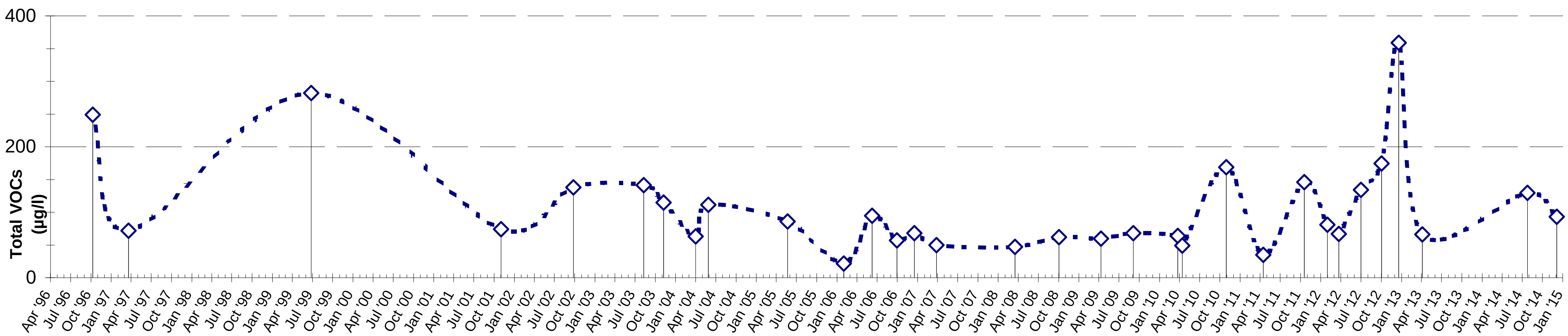


MW-7 After Implementing Interim Remedial Measures (June 1998)

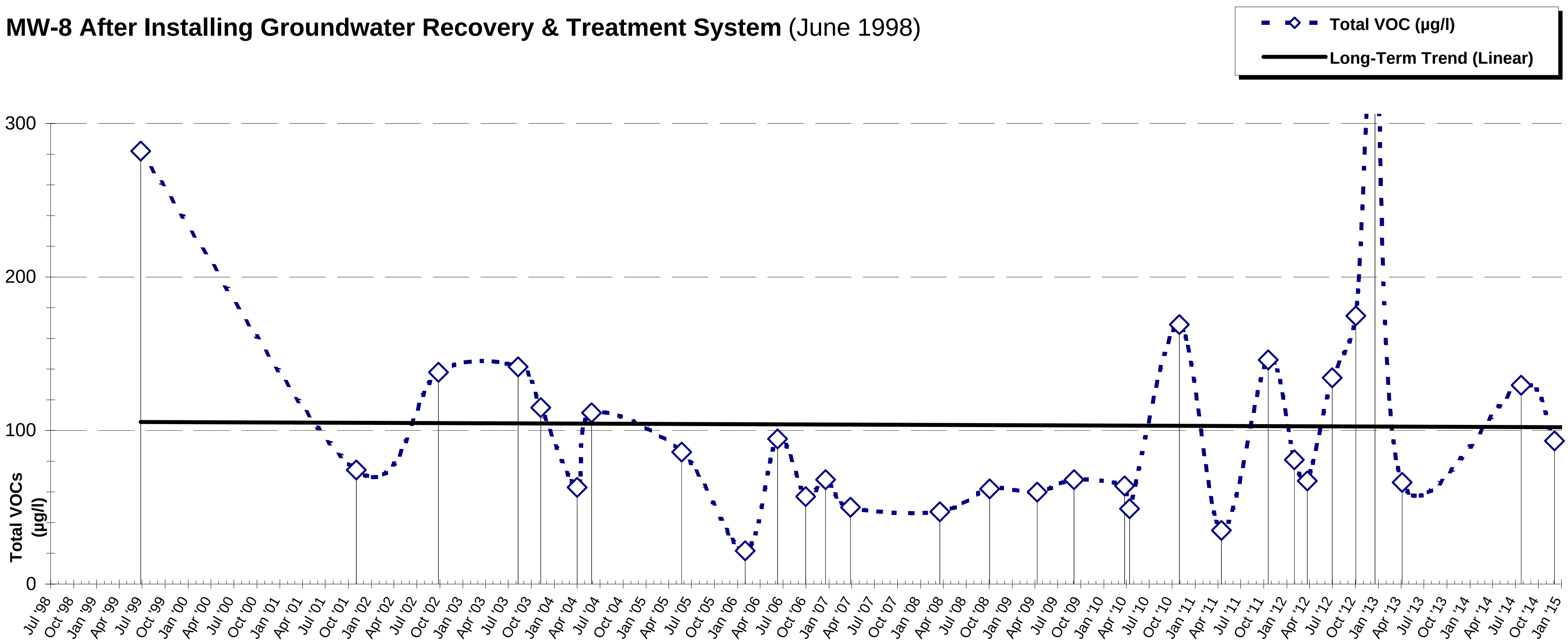


Date	Mar '04	May '04	Sep '04	May '05	Jan '06	Jun '06	Sep '06	Dec '06	Mar '07	Mar '08	Oct '08	Apr '09	Sep '09	Feb '10	Apr '10	Oct '10	Feb '11	Apr '11	Dec '11	Jan '12	Mar '12	Jun '12	Oct '12	Dec '12	Apr '13	Jul '14	Dec '14
VOCs	804	610	782	850	984	680	1,078	1,420	596	1,300	910	1,500	540	1,200	1,300	580	740	1,700	820	125	1,291	587	292	846	1,226	571	196

CMS Associates Remediation Site — South-Center Perimeter Monitoring Well MW-8



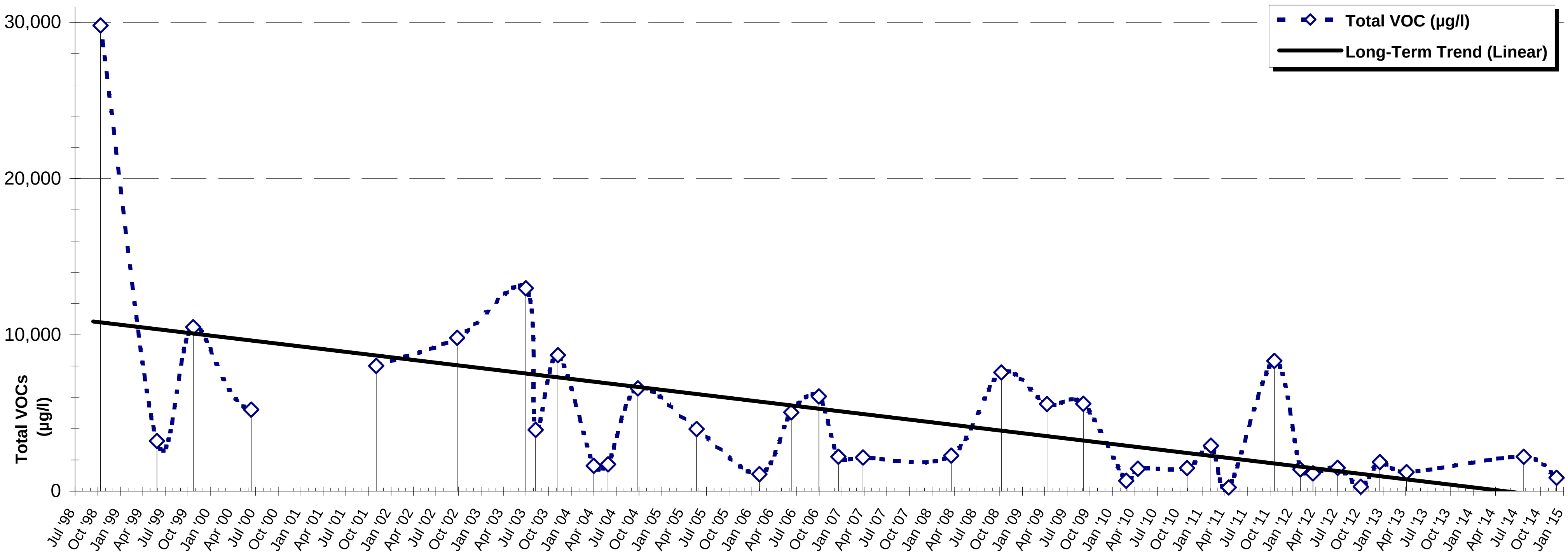
MW-8 After Installing Groundwater Recovery & Treatment System (June 1998)



Date	Aug '03	Nov '03	Mar '04	May '04	May '05	Jan '06	Jun '06	Sep '06	Dec '06	Mar '07	Mar '08	Oct '08	Apr '09	Sep '09	Mar '10	Apr '10	Oct '10	Apr '11	Oct '11	Jan '12	Mar '12	Jun '12	Oct '12	Dec '12	Apr '13	Jul '14	Dec '14
VOCs	142	115	63	112	86	22	95	57	68	50	47	62	60	68	64	49	169	35	146	81	67	134	175	359	66	130	93

CMS Associates Remediation Site **North Extraction Well MW-9**

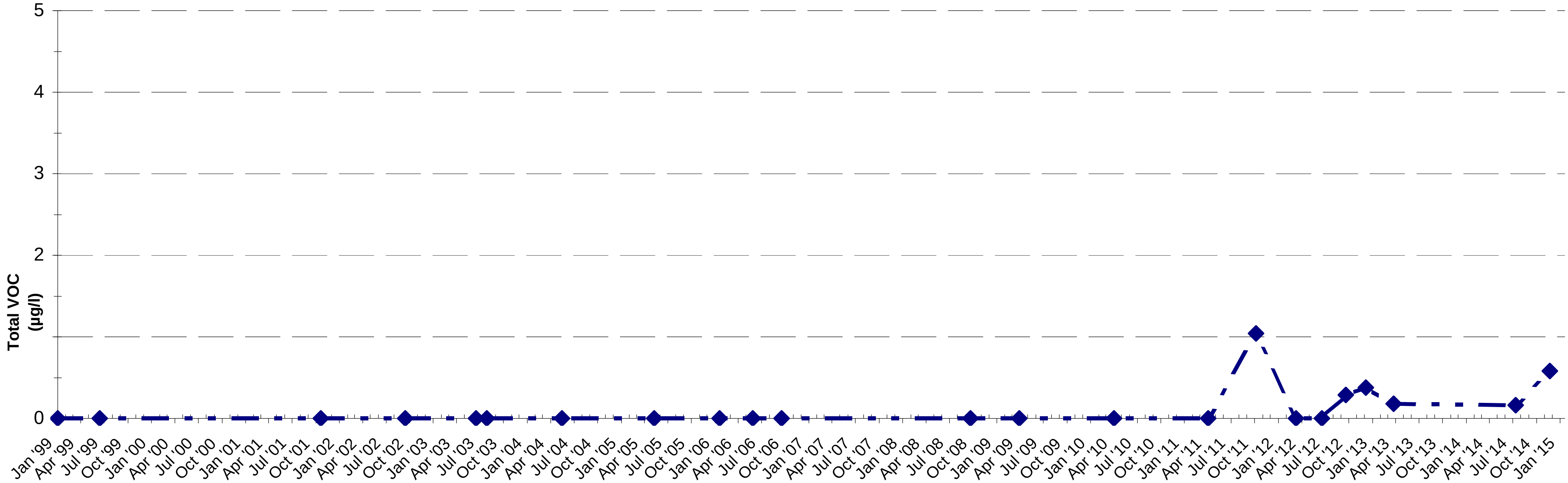
MW-9 After Implementing Interim Remedial Measures (June 1998)



Date	Mar '04	May '04	Sep '04	May '05	Jan '06	Jun '06	Sep '06	Dec '06	Mar '07	Mar '08	Oct '08	Apr '09	Sep '09	Feb '10	Apr '10	Oct '10	Feb '11	Apr '11	Oct '11	Jan '12	Mar '12	Jun '12	Oct '12	Dec '12	Apr '13	Jul '14	Dec '14	
VOCs	1,626	1,715	6,580	3,980	1,092	5,040	6,060	2,200	2,156	2,278	7,600	5,580	5,590	670	1,437	1,480	2,910	238	8,335	1,395	1,136	1,495	284	1,860	1,213	2,203	861	

CMS Associates Remediation Site **Northeast Off-site Monitoring Well MW-10**

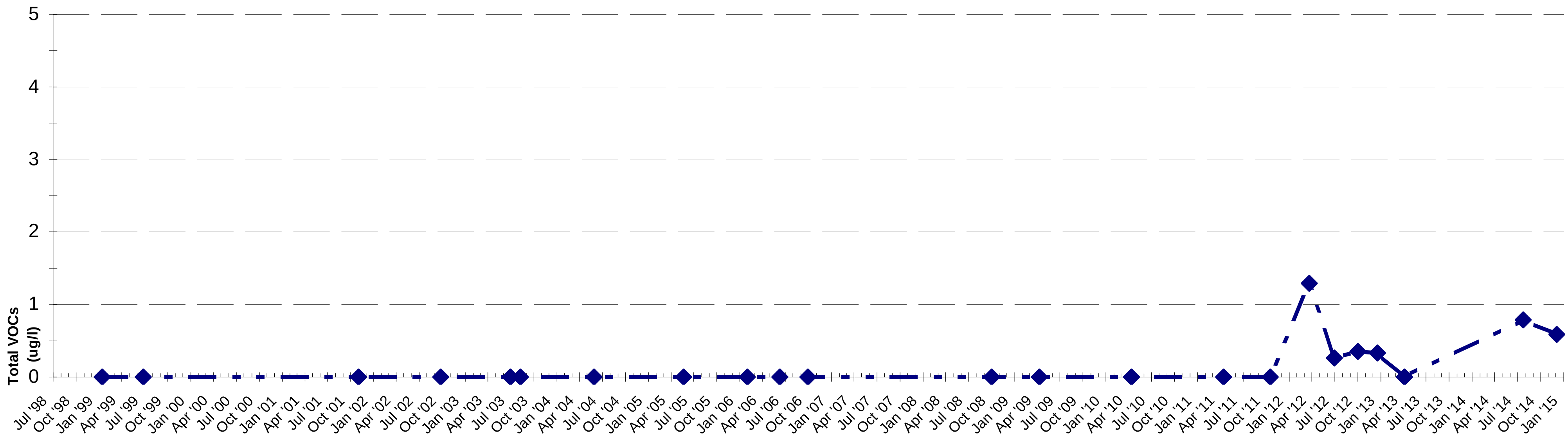
MW-10 After Implementing Interim Remedial Measures (June 1998)



Date	Jan '99	Jun '99	Nov '01	Sep '02	Jun '03	Aug '03	May '04	May '05	Jan '06	Jun '06	Sep '06	Oct '08	Apr '09	Apr '10	Apr '11	Oct '11	Mar '12	Jun '12	Oct '12	Dec '12	Apr '13	Jul '14	Dec '14				
VOCs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.04	0	0	0.29	0.38	0.18	0.16	0.58				

CMS Associates Remediation Site **North Off-site Monitoring Well MW-11**

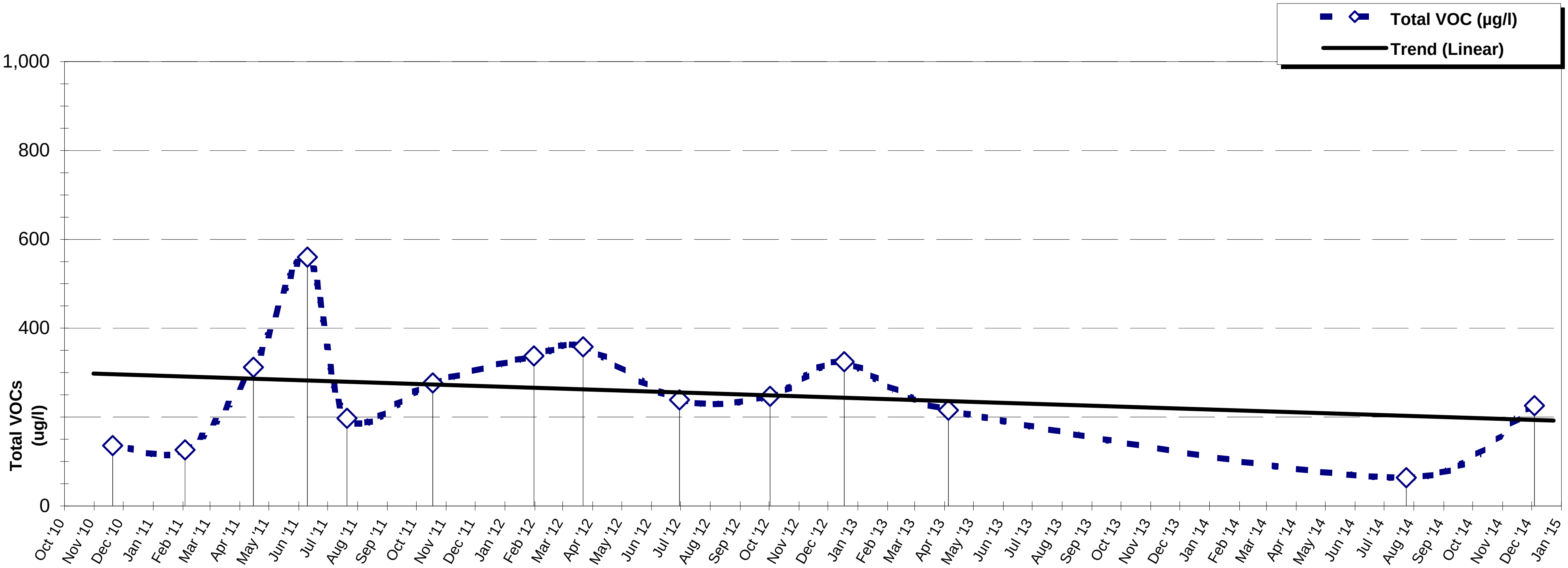
MW-11 After Implementing Interim Remedial Measures (June 1998)



Date	Jan '99	Jun '99	Nov '01	Sep '02	Jun '03	Aug '03	May '04	May '05	Jan '06	Jun '06	Sep '06	Oct '08	Apr '09	Apr '10	Apr '11	Oct '11	Mar '12	Jun '12	Oct '12	Dec '12	Jul '14	Dec '14
VOCs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.29	0.26	0.35	0.33	0.79	0.59

CMS Associates Remediation Site **Northwest Off-site Monitoring Well MW-12**

MW-12 After Implementing Interim Remedial Measures (June 1998)
Well Installed October 2010

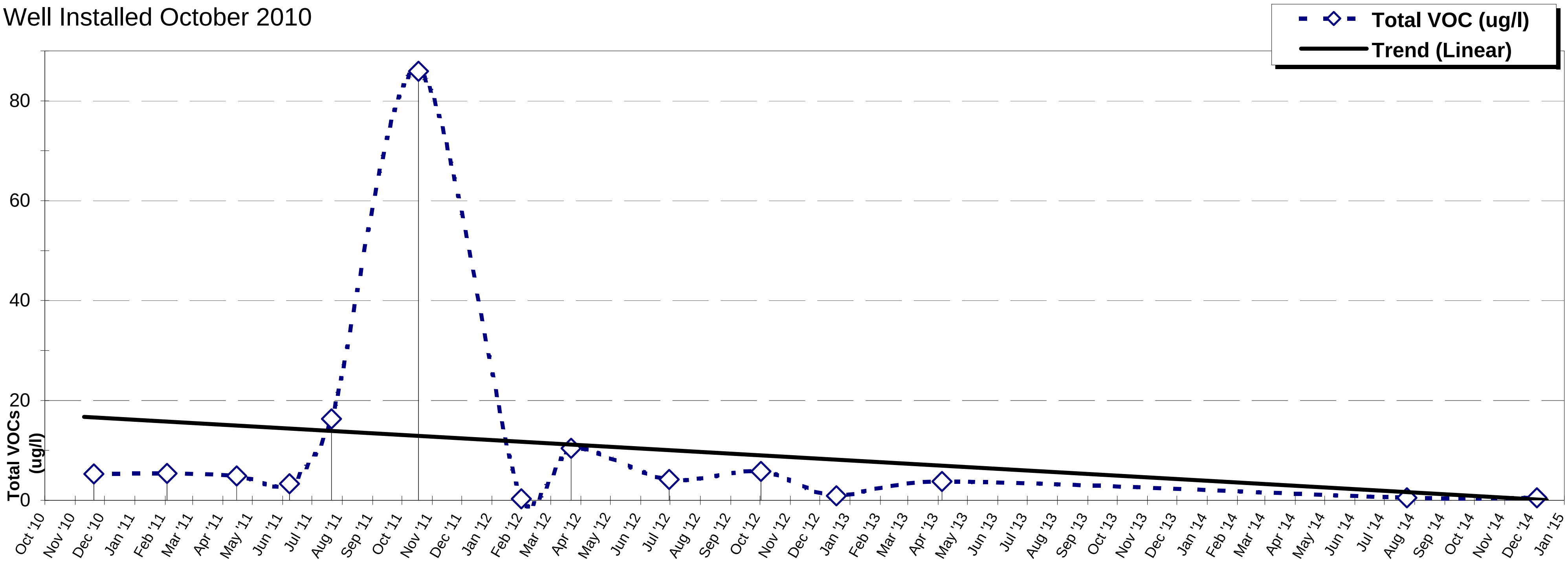


Date	Nov '10	Feb '11	Apr '11	Jun '11	Jul '11	Oct '11	Jan '12	Mar '12	Jun '12	Oct '12	Dec '12	Apr '13	Jul '14	Dec '14
VOCs	136	126	312	560	197	277	338	358	239	247	325	215	64	225

CMS Associates Remediation Site **Northeast Off-site Monitoring Well MW-13**

MW-13 After Implementing Interim Remedial Measures (June 1998)
and Extraction Well Modifications (Fall 2009)

Well Installed October 2010

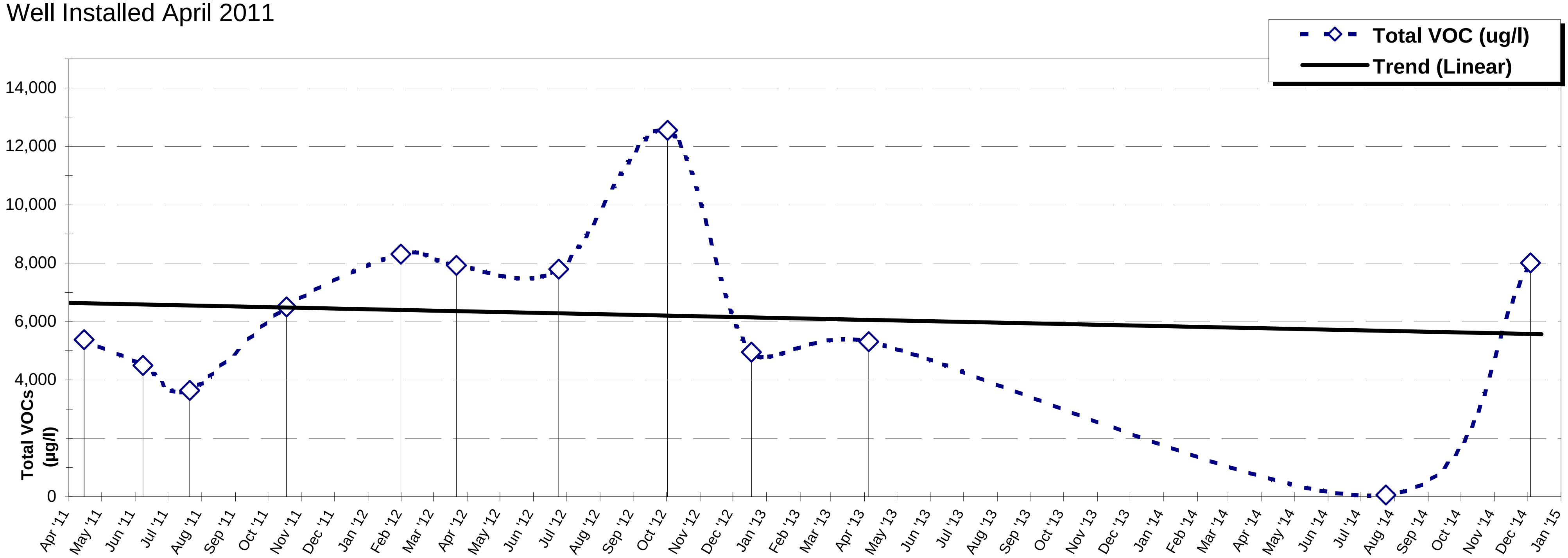


Date	Nov '10	Feb '11	Apr '11	Jun '11	Jul '11	Oct '11	Jan '12	Mar '12	Jun '12	Oct '12	Dec '12	Apr '13	Jul '14	Dec '14
VOCs	5	5	5	3	16	86	0	10	4	6	1	4	0	1

CMS Associates Remediation Site **East-South Perimeter Monitoring Well MW-14**

MW-14 After Implementing Interim Remedial Measures (June 1998)
and Extraction Well Modifications (Fall 2009)

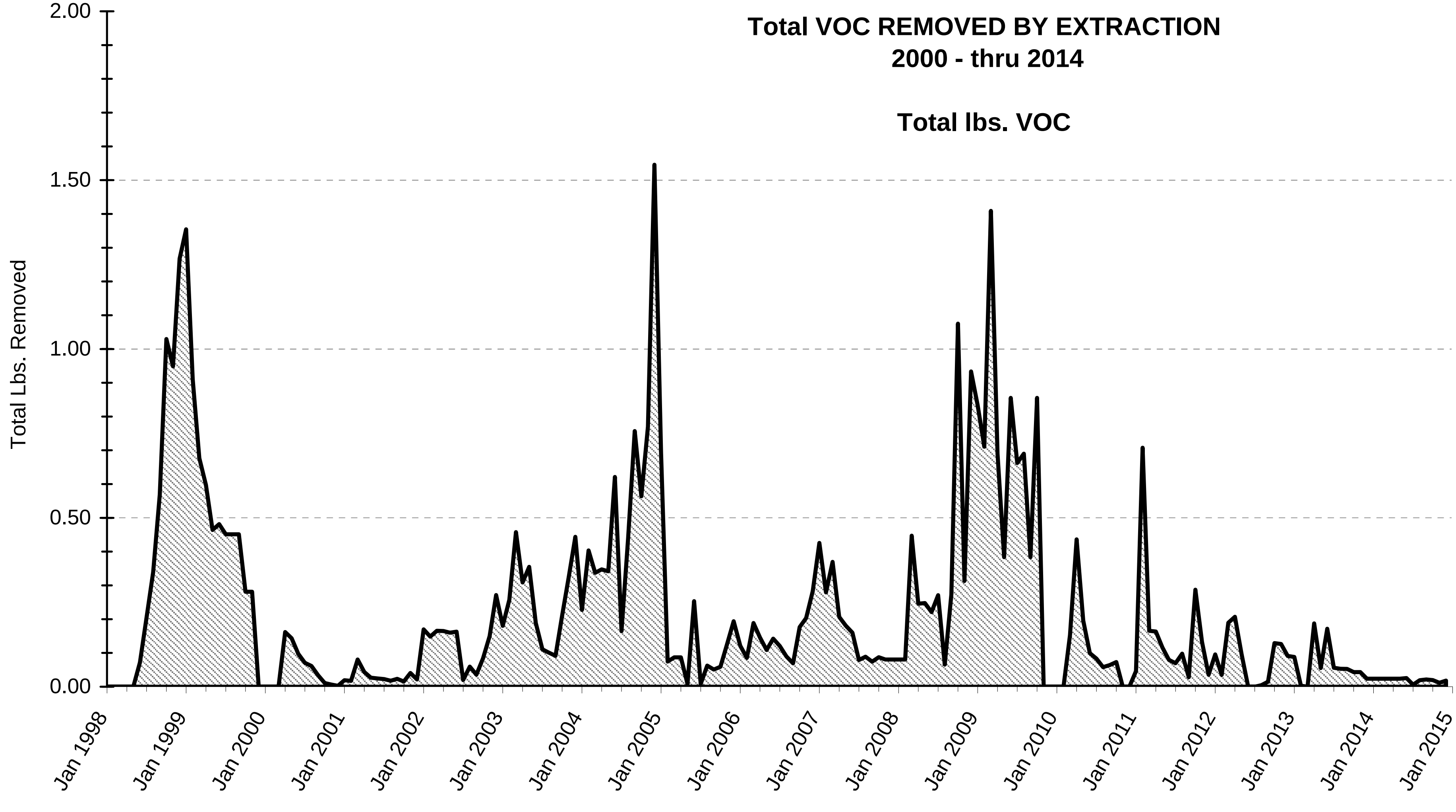
Well Installed April 2011

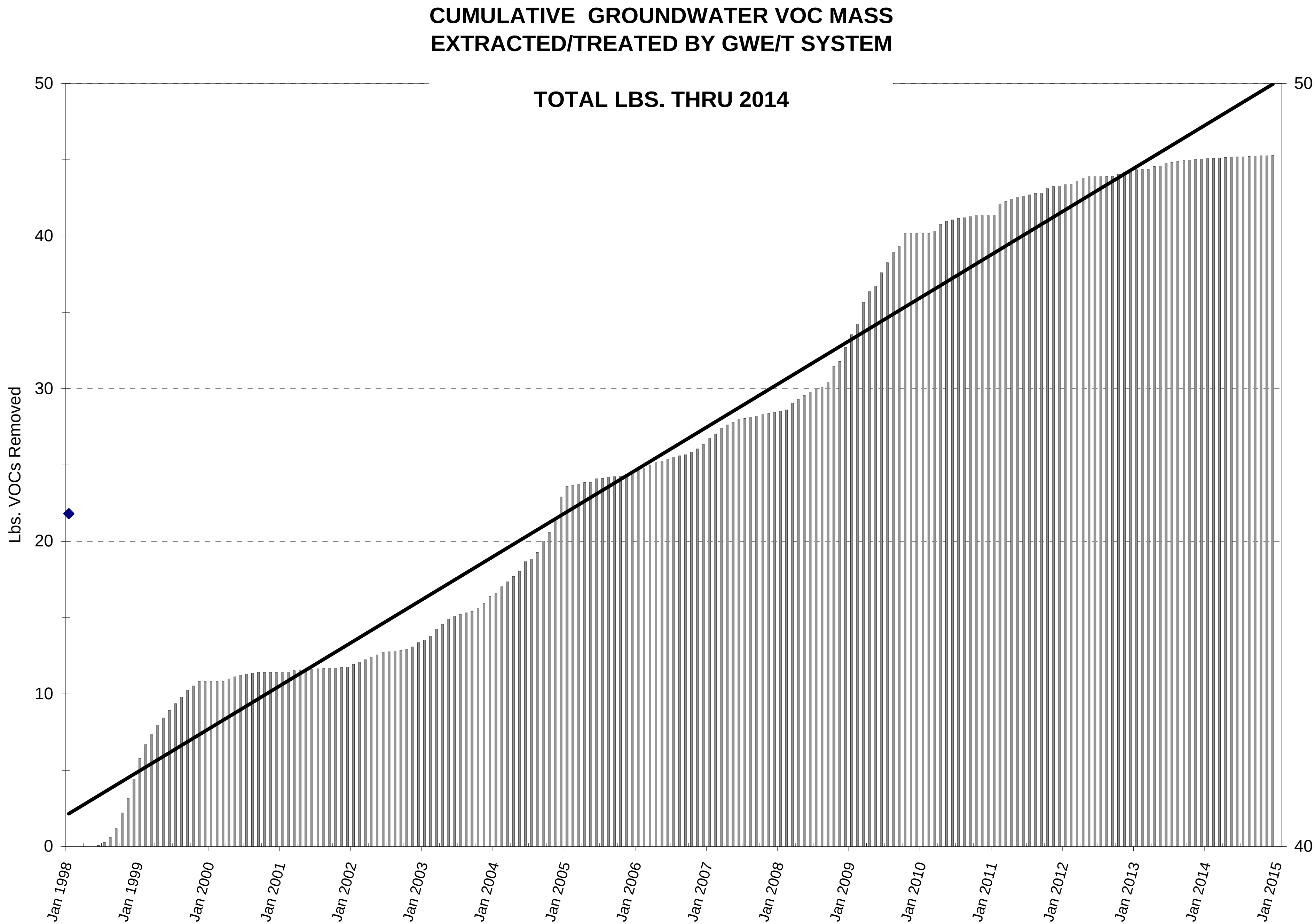


Date	Apr '11	Jun '11	Jul '11	Oct '11	Jan '12	Jun '12	Oct '12	Dec '12	Apr '13	Jul '14	Dec '14
VOCs	5,380	4,500	3,640	6,498	8,308	7,794	12,548	4,955	5,308	61	8,006

APPENDIX D

Monthly Removal of Groundwater VOCs by the GWE/T System


Total VOC REMOVED BY EXTRACTION
2000 - thru 2014
Total lbs. VOC
Total Lbs. Removed
2.00
1.50
1.00
0.50
0.00
Jan 1998
Jan 1999
Jan 2000
Jan 2001
Jan 2002
Jan 2003
Jan 2004
Jan 2005
Jan 2006
Jan 2007
Jan 2008
Jan 2009
Jan 2010
Jan 2011
Jan 2012
Jan 2013
Jan 2014
Jan 2015



CUMULATIVE GROUNDWATER VOC MASS
EXTRACTED/TREATED BY GWE/T SYSTEM
TOTAL LBS. THRU 2014
Lbs. VOCs Removed
0
10
20
30
40
50
40
50
Jan 1998
Jan 1999
Jan 2000
Jan 2001
Jan 2002
Jan 2003
Jan 2004
Jan 2005
Jan 2006
Jan 2007
Jan 2008
Jan 2009
Jan 2010
Jan 2011
Jan 2012
Jan 2013
Jan 2014
Jan 2015

APPENDIX E

List of COCs and 8260 Analyte list with Groundwater SGCs

CMS REMEDIATION SITE

Volatile Organic Compounds Tested For - EPA Method 8260

CAS No.	Compound		Groundwater SCG (µg/l)	Observed in MW-	And
630-20-6	1,1,1,2-Tetrachloroethane		5	--	
71-55-6	1,1,1-Trichloroethane		6	1,2,3,4,5,9,14	UST, soil
79-34-5	1,1,2,2-Tetrachloroethane		5	1,2	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane		5	1,2,3,7,14	
79-00-5	1,1,2-Trichloroethane		1	1,2,5	
75-34-3	1,1-Dichloroethane		5	1,2,3,4,5,6,7,8,9,12,13,14	UST, soil
75-35-4	1,1-Dichloroethene		5	1,2,3,4,5,7,8,9,14	
96-18-4	1,2,3-Trichloropropane		0.04	2	
120-82-1	1,2,4-Trichlorobenzene		5	--	
95-63-6	1,2,4-Trimethylbenzene		5	1,2,3,4,6,9,13,14	UST
96-12-8	1,2-Dibromo-3-chloropropane		0.04	--	
106-93-4	1,2-Dibromoethane	Ethylene dibromide	0.0006	--	
95-50-1	1,2-Dichlorobenzene		3	4	
107-06-2	1,2-Dichloroethane		0.6	1,2,3,5,6,7,8,9,12	
78-87-5	1,2-Dichloropropane		1	3	
108-67-8	1,3,5-Trimethylbenzene		5	1,2,3,4,13,14	
96-23-1	1,3-Dichloro-2-propanol		--	1,2	
541-73-1	1,3-Dichlorobenzene		3	--	
106-46-7	1,4-Dichlorobenzene		3	1,2,3,4	soil
107-07-3	2-Chloroethanol	Ethylene chlorohydrin	50	--	
110-75-8	2-Chloroethyl vinyl ether		--	--	
78-93-3	2-Butanone	Methyl ethyl ketone	50	2,3,4	
106-43-4	4-Chlorotoluene		5	--	
99-87-6	4-Isopropyltoluene		5	1,3,4,13	
67-64-1	Acetone		50	14	
107-05-1	Allyl chloride		5	1	
71-43-2	Benzene		1	1,4,5,6,7,8,12,13,14	soil
100-44-7	Benzyl chloride		--	--	
39638-32-9	Bis(2-chloroisopropyl) ether		--	--	
598-31-2	Bromoacetone		--	--	
108-86-1	Bromobenzene		5	--	
74-97-5	Bromochloromethane		5	--	
75-27-4	Bromodichloromethane		50	--	
75-25-2	Bromoform		50	--	
74-83-9	Bromomethane		5	1,2,6,8,9	
75-15-0	Carbon disulfide		60	1,3,4,13	

CMS REMEDIATION SITE

Volatile Organic Compounds Tested For - EPA Method 8260

CAS No.	Compound		Groundwater SCG (µg/l)	Observed in MW-	And
56-23-5	Carbon tetrachloride		5	2	
108-90-7	Chlorobenzene		5	8	
124-48-1	Chlorodibromomethane		50	--	
75-00-3	Chloroethane		5	1,2,3,5,6,7,9,12	
67-66-3	Chloroform		7	1,2,3,4,5,6,7,9,14	
74-87-3	Chloromethane	Methyl chloride	5	2,6,13,14	
107-30-2	Chloromethyl methyl ether		5	--	
126-99-8	Chloroprene		5	--	
156-59-2	cis-1,2-Dichloroethene		5	1,2,3,4,5,6,7,8,9,12,14	soil
10061-01-5	cis-1,3-dichloropropene		0.4	8	
110-82-7	Cyclohexane		--	1,2,3,4,5,6,7,12,13,14	
124-48-1	Dibromochloromethane		50	--	
74-95-3	Dibromomethane		5	--	
75-71-8	Dichlorodifluoromethane		5	--	
106-89-8	Epichlorhydrin	Epichlorohydrin	--	--	
100-41-4	Ethylbenzene		5	1,2,3,4,5,6,13,14	soil
87-68-3	Hexachlorobutadiene		0.5	--	
98-82-8	Isopropylbenzene		5	2,3,4,6,13	
1634-04-4	Methyl tert-butyl ether		10	4,8	
75-09-2	Methylene chloride		5	2,3,6,7,8,9,13,14	UST, soil
91-20-3	Naphthalene		10	1,4,13	
103-65-1	n-Propylbenzene		5	2,3,4,13	
135-98-8	sec-Butylbenzene		5	3,13	
100-42-5	Styrene		5	4,6,8,13	
127-18-4	Tetrachloroethene		5	1,2,3,4,5,6,9,13,14	UST, soil
108-88-3	Toluene		5	1,2,3,4,5,6,13,14	soil
156-60-5	trans-1,2-Dichloroethene		5	1,2,3,5,8	
10061-02-6	trans-1,3-dichloropropene		0.4	2	
79-01-6	Trichloroethene		5	1,2,3,5,6,7,8,9	soil
75-69-4	Trichlorofluoromethane		5	7	soil
75-01-4	Vinyl chloride		2	1,2,3,5,6,7,8,9,12,14	
179601-23-1	m,p-Xylene		5	1,2,3,4,6,13,14	soil
1330-20-7	m-Xylene	1,3-Xylene	5	2,6,14	
95-47-6	o-Xylene	1,2-Xylene	5	1,2,3,4,5,6,13,14	soil
106-42-3	p-Xylene	1,4-Xylene	5	6,9	
1330-20-7	Total Xylenes		5	1,2,3,4,5,6	

APPENDIX F

Groundwater Elevations – May 1996 to December 2014

CMS Associates Remediation Site NYSDEC # 9-15-168

210 French Road; Cheektowaga NY — Groundwater Well Observations

	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9	MW-10	MW-11	
ORIGINAL WELLS												
Rim	626.34	627.47	626.82	625.61	623.95	627.12	628.95	627.46	626.00	627.04	624.27	
Ground	626.3	627.5	626.8	625.6	624.0	624.2	627.0	627.5	626.0	627.0	624.7	
Bedrock	622.0	622.2	622.0	?	622.5	?	622.1	621.1	621.2	623.0	621.8	
Top of PVC	626.10	627.24	627.24	625.36	623.75	626.92	628.68	627.16	625.50	626.50	623.99	
Oct 9, 1996	623.2	624.8	624.5	623.0	618.4	618.6	615.9	621.0				
Oct 21, 1996	622.8	625.3	624.3	606.3	618.7	615.5	618.0	619.0				
Oct 31, 1996	623.0	625.2	624.3	607.7	618.7	617.1	617.1	620.0				
Mar 18, 1997	622.8	623.6	625.6	619.0	619.1	618.0	620.1	621.0				
Mar 20, 1997	624.3	623.0	625.6	619.1	619.0	618.2	620.2	621.4				
Aug 22, 1997	623.6	625.1	624.5	611.0	618.2	613.4	618.3	618.6	623.6			
Nov 5, 1998				618.7	617.0	616.4	614.8	620.0		617.4	619.0	
Dec 3, 1998				619.4	617.0	617.3	615.1	620.2		614.4	617.7	
Jan 12, 1999										615.0	618.2	
Feb 10, 1999				619.6	615.6	617.2				619.1	620.8	Snow piles
Mar 1, 1999				624.8	618.2	617.8	617.8	621.0		617.4	619.0	Snow piles
Apr 7, 1999				624.2	617.8	618.8	618.8	621.0		617.8	618.1	
May 11, 1999					617.6	618.5	618.2	621.3		617.4	617.7	
Jun 14, 1999				624.5	618.0	618.0	616.1	621.4		614.8	617.3	
Jul 12, 1999				607.9	617.2	611.3	614.8	620.5		613.9	617.3	
Aug 11, 1999				607.5	617.4	616.3	615.1	620.2		613.8	617.7	
Jun 13, 2000	624.1	624.8	624.9	624.8	618.2	618.5	618.5	622.0	623.6	617.9	619.4	
Oct 31, 2001	624.6											
Sep 25, 2002				620.6	618.2	618.2	614.2	620.0		614.6		MW-4,8 tampered/w, tubing in well
Jun 26, 2003					618.2	612.3	617.6	621.8		616.7	618.2	

CMS Associates Remediation Site NYSDEC # 9-15-168

210 French Road; Cheektowaga NY Groundwater Well Observations

	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9	MW-10	MW-11	
Aug 8, 2003				607.1	618.0	611.3	618.5	621.3		618.4	618.6	MW-8 under pressure
Nov 6, 2003					618.1	611.7	617.4	619.2		617.9	619.3	
Mar 30, 2004	624.5	623.7		617.3	619.7	613.1		620.6	624.6	620.1	617.0	MW-5 under pressure
May 27, 2004	626.1	625.8	625.8	611.2	619.7	614.5	619.5	622.2	625.0	619.1	619.3	MW-4,6,8 pressure, 7 vacuum
Jun 25, 2004				609.1	618.1	612.2	618.1	622.4		617.1	618.9	
Sep 26, 2004	624.8	624.2	624.7	614.8	617.3	614.8	613.7	621.5	622.4	615.8	619.0	MW-4 pressure, 7 dry
May 21, 2005				614.1	617.3	615.5	615.4	621.9		617.3	618.3	MW-4 high pressure
Jan 31, 2006	624.3	626.0	625.8	617.5	617.8	611.4	617.1	621.6	619.0	619.4	620.2	
Dec 14, 2006				613.5	623.8	611.4	615.9	622.4		617.7	619.7	MW-4 pressure, 7 vacuum
Mar 26, 2007	625.3	625.8	625.8	610.6	619.3	613.9	620.6	624.1	624.4	620.4	620.6	Pump had been running
Mar 17, 2008	625.8	626.4	626.3	606.4	619.3	618.3	619.4	622.5	625.4			
Apr 15, 2008				613.3	617.9	609.3	618.9	621.8		619.5	618.9	
May 17, 2008				612.8	617.5	608.8	618.6	621.2		619.2	618.5	
Jun 12, 2008				612.7	617.5	608.8	618.4	621.2		619.1	618.4	
Jul 26, 2008				613.3	617.7	609.0	618.6	621.3		619.2	618.7	
Oct 2, 2008				610.9	618.0	616.3	615.3	621.8		616.5	618.9	System down for tie-in

POST MW-5 TIE-IN (0ct 3, 2008)

Rim	626.34	627.47	626.82	625.61	624.10	627.12	628.95	627.46	626.00	627.04	624.27	
Ground	626.3	627.5	626.8	625.6	624.1	624.2	627.0	627.5	626.0	627.0	624.3	
Top of PVC	626.10	627.24	627.24	625.36	623.88	626.92	628.68	627.16	625.50	626.50	623.99	
	Groundwater Surface Elevations											
Nov 15, 2008	626.1	627.2	616.3	613.1	623.9	609.0	613.8	620.2	625.5	618.7	619.8	
Dec 14, 2008	626.1	627.2	616.2	613.2	623.9	609.0	613.9	617.2	625.5	618.7	619.8	
Feb 26, 2009			616.2	613.1	623.9	609.0	613.8	620.3		618.7	620.2	
Apr 19, 2009				611.0	623.9	612.9	614.7	622.7		620.3	620.8	MW-4,6,7 under pressure

CMS Associates Remediation Site NYSDEC # 9-15-168

210 French Road; Cheektowaga NY — Groundwater Well Observations

	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9	MW-10	MW-11	
May 25, 2009			623.7	613.1	623.9	609.1	617.0	619.6		616.2	617.0	
Jun 26, 2009			621.3	613.5	623.9	611.6	617.1	620.0		617.4	617.3	
Jul 25, 2009			622.2	613.3	623.9	610.0	617.2	620.3		619.8	618.0	
Aug 30, 2009			622.5	607.9	623.9	609.7	618.4	619.8		613.6	617.5	
Sep 29, 2009			622.0	605.4	623.9	609.4	615.4	619.5		612.7	616.1	System down - well repairs started, then manifold found broken

POST EXTRACTION WELL REPAIRS (Nov 8, 2009)

	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9	MW-10	MW-11	
Rim	626.29	627.42	626.84	625.61	624.10	627.12	628.95	627.46	625.93	627.04	624.27	
Ground	626.3	627.4	626.8	625.6	624.1	624.2	627.0	627.5	625.9	627.0	624.3	
Top of PVC	626.10	627.24	626.62	625.36	623.88	626.92	628.68	627.16	625.50	626.50	623.99	
	Groundwater Surface Elevations											
Jan 26, 2010	623.8	625.4	625.3	613.0	619.6	611.9	617.2	621.3	623.3	617.9	616.5	
Feb 24, 2010	624.2	625.1	624.7	617.7	618.3	613.4	618.4	622.9	625.3	618.9	620.4	
Apr 8, 2010	625.0	625.3		609.8		611.6	620.7	622.5	624.9	620.8	620.6	All elevs before retrofits
Apr 13, 2010					619.9							MW-3 closed off

POST EXTRACTION WELL RETROFITS (Apr 14, 2010)

	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9	MW-10	MW-11	MW-12	MW-13	MW-14	
Rim	626.29	627.42	626.84	625.61	624.10	627.12	628.95	627.46	625.93	627.04	624.27	628.49	629.01	631.38	
Ground	626.3	627.4	626.8	625.6	624.1	624.2	627.0	627.5	625.9	627.0	624.3	625.5	626.2	629.2	
Bedrock	622.0	622.2	622.0	?	622.5	620.5	622.1	621.1	621.2	623.0	621.8	620.0	621.4	622.2	
Top of PVC	625.8	627.0	626.5	625.4	623.9	626.9	628.7	627.2	625.5	626.5	624.0	628.2	628.7	631.1	
	Groundwater Surface Elevations														
Jun 7, 2010	620.9	625.5	623.9	608.7	617.1	614.1	620.7	622.7	622.9	620.1	621.4				System up - retrofits completed
Aug 19, 2010	624.6	623.5	624.0	615.5	617.7	616.8	617.4	621.3	623.4	616.3	618.0				
Oct 26, 2010	621.3	623.7	621.9	621.1	618.3	617.8	617.3	621.4	623.6	616.9	618.5				
Jan 31, 2011		623.0	623.8	611.0		616.3	618.2		624.0	618.5	621.1	618.2	624.9		Snow piles, ice, frozen wells
Apr 14, 2011			624.2	610.1	619.6	618.0	620.4	623.2		620.2	621.5	617.6	625.3	617.1	System pumping regularly, readings w/ pump running >2 hrs.
Jun 7, 2011	614.3	618.7	615.7	608.3	616.8	617.6	621.4	623.0	619.6	618.2	616.7	616.5	624.4	623.1	Wilden found w/ no vacuum. Corrected, checked again, ok.
Jul 20, 2011	622.6	622.9	622.6	610.4	616.6	617.5	617.3	621.1	621.7	618.3	617.8	616.6	622.6	622.9	
Jul 21, 2011					616.6							616.4	622.5	619.5	System pumping regularly, readings w/ pump running >2 hrs.
Aug 17, 2011	614.8	615.9	622.2	611.8	617.3	617.4	617.1	621.2	617.2	615.3	618.0	616.7	622.5	621.6	Readings after system shut down 24 hours.

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	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9	MW-10	MW-11				
Aug 18, 2011	621.6	622.4	622.5	611.9	617.4	617.3	dry	621.2	622.7	615.3	617.9	616.9	622.5	621.6	Reading after system running several days
Oct 17, 2011	614.9	620.8	626.0	615.7	616.1	618.1	dry	617.5	621.3	619.1	619.3	618.8	625.4	621.4	
Oct 18, 2011	614.9	624.6	626.0	615.2	616.1	615.9	dry	617.1	615.0	619.1	618.6	618.5	625.1	619.5	System pumping regularly, readings w/ pump running >2 hrs.
Nov 12, 2011	615.5	625.0	622.3	613.8	617.8	615.4	dry	618.5	622.4	617.5	619.3	617.3	624.9	622.9	Sytem running; after heavy rain days
Dec 12, 2011			621.7				617.9								Pumping regularly, readings w/ pump running >1 hrs; mw-1,2,3 closed off
Dec 24, 2011	625.1	626.6	624.7	616.3	616.5	612.6	dry	619.7	616.2	617.7	621.2	616.3	624.8	623.5	Pumping regularly, readings w/ pump running >1 hrs; mw-1,2,3 closed off
Jan 26, 2012	623.4	624.2	625.0	616.6	623.2	618.1	618.9	622.0	611.9	618.8	620.8	617.6	624.8	622.6	Pumping regularly, readings w/ pump running >1 hrs; mw-1,2,3 closed off
Mar 21, 2012	616.6	617.2	623.3	624.7	620.5	10.1	618.6	618.5	616.5	618.9	618.9	617.3	624.5	623.2	Pumping 24/7 for week w/ PV-8 pump @20" Hg; mw-3 closed; mw-4 plug loose so high level (prior reads under pressure?)
Apr 16, 2012	618.8	617.4	614.3	607.5	609.4	610.2	617.7	621.9	617.5	617.9	618.6	617.0	624.1	622.8	Pump 24/7 w/P-8 @ 24" Hg; MW-3 open; MW-4 plug loose.
Apr 26, 2012	615.0	619.3	624.1			610.7			618.7						Pump 24/7; MW-3 open , plug loose;
May 22, 2012	617.2	618.6	623.3	625.0	615.6	611.8	617.4	621.8	615.8	617.4	618.2	617.0	623.7	622.6	Pump 24/7; MW-3 open , plug loose;
Jun 23, 2012	623.6	624.1	623.7	625.2	616.5	612.8	616.9	621.6	623.2	616.9	617.9	616.7	623.3	622.3	Pump down 6/1; MW-3,4 plugs loose;
Jul 28, 2012	623.2	623.9	623.3	607.4	617.2	610.0	615.6	621.3	624.7	615.6	618.2	616.9	622.5	622.0	system down; mw-3 was/left loose; mw-8 was tight/left loose, under slight pressure.
Aug 1, 2012		623.8	623.2	607.4		610.1		621.3	622.7						day after rain; system still down; mw-3 was/left loose; mw-8 was loose/left loose.
Sep 2, 2012			622.1	608.2	616.9	611.2	615.0	621.2		615.0	6.2	616.7	621.6		straws set to test depts,
Oct 1, 2012	623.4		614.5	609.6	616.8	610.0	616.8	621.3	607.8	616.8	618.0	616.8	623.6	622.2	sys running ok
Nov 18, 2012			624.0		616.5	610.1	617.2	621.8		617.5	619.6	616.9	624.5	626.3	sys @ 20"
Dec 17, 2012	620.1	614.8	625.5	625.3	617.2	613.9	618.1	622.3	610.5	618.4	621.2	617.3	625.0	624.9	sys at 25"
Feb 7, 2013	623.7	624.0	624.5	607.1	618.2	613.4	618.4	622.3	624.1	619.0	621.1	617.2	625.0	623.4	sys off;
Apr 5, 2013	624.7	624.6	624.2	621.4	618.2	618.2	619.2	622.2	624.1	619.3	620.9	617.3	624.4	623.1	sys off;
Jun 16, 2013	624.5	614.5	615.0	609.4	618.4	617.9	618.8	622.2	617.4	618.6	619.9	617.4	624.2	622.6	sys on
Jul 17, 2013	623.8	614.3	614.9	609.8	618.3	617.9	618.7	622.0	617.1	618.5	619.5	617.6	624.0	622.5	sys on
Sep 26, 2013	620.8	614.5	614.8	625.0	618.1	617.7	618.6	621.9	617.0	618.4	619.2	617.5	623.7	622.4	sys on;
Oct 15, 2013	622.6	613.5	614.0	609.1	614.3	617.4	615.9	621.6	614.5	615.8	617.9	616.9	623.1	622.3	sys @ 27", MW1 off
Oct 29, 2013	623.6	621.0	617.8	609.6	617.6	617.7	617.8	621.7	624.8	618.2	621.2	617.0	625.0	622.9	sys @ 28, MW1 off
Dec 10, 2013	624.8	613.5	616.4	610.1	617.8	620.8	617.9	622.5	615.1	618.3	621.4	617.3	625.0	623.1	sys 27";

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	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9	MW-10	MW-11				
Dec 20, 2013	624.2	621.2	620.4												sys @ 20"
Feb 2, 2013	624.3	624.7	623.2	609.9	619.8	619.8	619.6	622.7	614.4	619.3	621.3	617.5	624.9	623.2	sys on
Apr 24, 2014	622.8		614.2	625.2	620.7	619.5	620.7	622.2	608.3	620.1	621.1	617.7	624.8	623.3	system manifold operating @ 29" Hg, bailed manholes full of rainwater, note mw-4 at top of well
May 29, 2014		625.7	623.8	625.3	622.5	619.0	619.1	621.9	614.3	618.7	619.7	617.6	624.3	622.6	sys @ 27" Hg; ok. Mhs full of rainwater, pumped down.
Jul 23, 2014	624.3	619.7	623.1	625.3	617.9	618.1	618.0	621.9	617.3	618.0	618.0	617.0	624.2	622.6	sys @ 26" hg; ok. Note mw-4 near top; wells purged for sampling
Sep 30, 2014	622.9	623.6	624.8	607.7	617.6	617.1	616.3	621.4	618.5	10.3	617.8	616.7	622.6	622.2	system @ 25" hg, ok.
Oct 15, 2014	623.8	623.9	624.6	610.4	617.8	617.4	617.6	622.1	622.4	617.4	618.1	616.8	623.6	626.0	
Nov 11, 2004	624.3	624.8	624.1	611.0	618.1	617.6	617.5	622.2	623.4	617.6	618.4	617.1	624.6	626.7	
Dec 1, 2014	613.8	614.0	614.0	611.4	618.9	618.9	619.8	623.5	620.4	621.2	623.0	618.4	625.8	624.1	