DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

October 30, 2006

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

Facility Name: **Edmos Corporation**
Facility Address: Garvies Point Road, Glen Cove, NY
Facility EPA ID #: **NYD047648472**

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

__X__ If yes - check here and continue with #2 below.
_____ If no - re-evaluate existing data, or
_____ if data are not available, skip to #8 and enter"IN" (more information needed) status code.

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

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

Definition of "Migration of Contaminated Groundwater Under Control" EI

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

Relationship of EI to Final Remedies

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

Duration / Applicability of EI Determinations

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

Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)

2. Is **groundwater** known or reasonably suspected to be A**contaminated**@[1] above appropriately protective Alevels@ (i.e., applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action, anywhere at, or from, the facility?

__x__ If yes - continue after identifying key contaminants, citing appropriate Alevels,@ and referencing supporting documentation.

_____ If no - skip to #8 and enter AYE@ status code, after citing appropriate Alevels,@ and referencing supporting documentation to demonstrate that groundwater is not Acontaminated.@

_____ If unknown - skip to #8 and enter AIN@ status code.

Rationale and Reference(s): The source of the groundwater contamination is understood to be Mattiace, the adjacent facility. An active groundwater pump & treat system is located at Mattiace.

Site Description: This former hazardous waste management facility is located on Garvies Point Road, in Glen Cove, Nassau County, New York (Figures 1 and 2). Adjacent to the east of Edmos is the Mattiace Petro Chemicals Superfund Site, and to the north of Edmos is the Garvies Point Preserve (a nature preserve). Beyond the Preserve, approximately ¼ mile from Edmos, are semi-attached housing units as well as the Landing Elementary School. To the south of Edmos (on the other side of Garvies Point Road) is Glen Cover Creek, which empties into Hempstead Harbor, a few hundred feet west of the former Edmos facility. The downtown area of Glen Cove is approximately four-tenths of a mile west of the facility

The Edmos facility occupied part of a 1-story brick building and parking lot area, approximately one acre in size. Edmos manufactured textiles and stored and treated hazardous wastes. The facility had one 15,000 gallon above-ground storage tank for flammable solvent storage. The facility also had a 48,000 gallon per day treatment unit. The facility closed in the mid-1980s. The Edmos property currently is occupied by several small industrial tenants, including Circle Lubricants.

The direction of regional groundwater flow varies, but is generally from north to south within the regional area. A groundwater divide exists on the southern portion of the adjacent Mattiace site. Groundwater south of the divide flows in a southern direction toward Glen Cove Creek. According to groundwater flow mapping (Figures 3 and 4), the direction of flow at the Edmos site is influenced to some extent by the pumping of several contaminant extraction wells on the Mattiace property, as well as the localized groundwater divide. However, the flow is generally toward the south.

Edmos is not considered to be the source of the groundwater contamination. However, the

groundwater under the Edmos property is contaminated, allegedly due to the heavy groundwater contamination from the adjacent Mattiace property, which was the source of the contamination. Groundwater at the Mattiace Property is contaminated with volatile organic compounds, primarily solvents. Before the groundwater remedy was implemented, highest concentrations of contaminants of concern north of the divide at Mattiace included methylene chloride (750,000 ug/l), chloroform (81,000 ug/l), TCE (230, 000 ug/l), ethylbenzene (370,000 ug/l), and dichlorofidluoromethane (620,000 ug/l). Contaminant concentrations in the groundwater below the Edmos parking lot, before the Mattiace remediation was in place, included methylene chloride (170,000 ug/l in well point MW-5S, and 600,000 ug/l in well point MW-5D), and TCE (81,000 ug/l in well point MW-5S, and 55,000 ug/l in well point MW-5D). As discussed in #3, below, these numbers have decreased since the implementation of the on-going groundwater remediation program for the adjacent Mattiace site, and migration of contamination is under control.

There is no known soil contamination. On October 24, 1990, a 12 foot concrete retaining wall at the adjacent Mattiace facility collapsed, allowing contaminated soils to spill onto a paved parking lot at the Edmos property. Any soil spillage from Mattiace onto the Edmos parking lot was subsequently removed.

References

- *Final Remedial Investigation Report, Mattiace Petrochemical Site, Operable Unit One*, Ebasco Services Incorporated, April 1991;
- ROD for Mattiace Petrochemical Co., Inc., EPA Regional Administrator Constantine Sidamon-Eristoff (1991);
- Pollution Report (POLREP) for Mattiace Petrochemical Site, prepared by Dwayne Harrington, EPA On-Scene Coordinator, March 31, 1992.
- *Effectiveness/Environmental Monitoring Data Report for Operable Units 3 and 4, Mattiace Petrochemical Superfund Site,* TRC Companies, Inc., May 2004.
- *Effectiveness/ Environmental Monitoring Data Report for Operable Units 3 and 4, Mattiace Petrochemical Site, Glen Cove, Nassau County, New York*, TRC Companies, Inc., June 2005.
- 09/15/06 e-mail message from Ed Als, EPA Remedial Project Manager for Mattiace, to Carol Stein, EPA RCRA Project Manager for Edmos.

Footnotes:

[1] "Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriate "levels"

(appropriate for the protection of the groundwater resource and its beneficial uses).

Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750).

3. Has the **migration** of contaminated groundwater **stabilized** (such that contaminated groundwater is expected to remain within Aexisting area of contaminated groundwater@[2] as defined by the monitoring locations designated at the time of this determination)?

__x__ If yes - continue, after presenting or referencing the physical evidence (e.g., groundwater sampling/measurement/migration barrier data) and rationale why contaminated groundwater is expected to remain within the (horizontal or vertical) dimensions of the Aexisting area of groundwater contamination@[2]).

_____ If no (contaminated groundwater is observed or expected to migrate beyond the designated locations defining the Aexisting area of groundwater contamination@[2]) - skip to #8 and enter ANO@ status code, after providing an explanation.

_____ If unknown - skip to #8 and enter AIN@ status code.

Rationale and Reference(s): A groundwater remediation system went on line at the adjacent Mattiace property in September 1999, and continues to operate. This groundwater remediation system consists of nine extraction points and a treatment scheme which includes clarification/flocculation to prevent fouling of subsequent treatment equipment, air stripping, and discharge to the Glen Cove POTW. The extraction points are designed to extract groundwater from the most contaminated areas of the plume on the Mattiace property, and also to manage its migration. Recent data indicates that contaminant concentrations have decreased significantly since initiation of Mattiace's groundwater control system.

Concentrations of contaminants at the monitoring wells on the Edmos property have decreased noticeably since startup of the operation of Mattiace's groundwater remediation system. For example, in November 2004, concentrations of methylene chloride were below 250 ug/l in well point MW-5S (vs. 170,000 ug/l in 1991) and 1300 ug/l in well point MW-5D (vs. 600,000 ug/l in 1991). Although the above-mentioned wells remain contaminated at orders of magnitude higher than the remediation goals of 5 ug/l for most volatile compounds, the groundwater monitoring data indicates that the downgradient migration of this contamination is under control.

The isopleth maps of several VOC compounds that were sampled during the November 2004 sampling event (see Figure 5), indicate that groundwater concentrations are decreasing significantly as the groundwater flows in a southerly direction. The highest concentrations of VOCs are just north of the treatment plant at Mattiace (well DVE-02). The lowest

concentrations of VOCs are toward the south, and include MW-RD-02 (at the Edmos building) and MW-01 (at the access road to the Mattiace property).

Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)

Specifically, it should be noted that well MW-RD-02 which is adjacent to the building formerly occupied by Edmos, has concentrations of contaminants ranging from slightly above to considerably below the remediation goals for these volatile contamination. The November 2004 data for well MW-RD-02 indicated concentrations of methylene chloride at 0.2 ug/l; TCE at 0.2 ug/l; tetrachloroethene at <0.5 ug/l; and ethylbenzene at 6 ug/l. This indicates that migration of contaminated groundwater is currently stabilized.

There are two discrete aquifers in the Glen Cove region – the Upper Glacial and Lloyd Aquifers. To demonstrate the vertical control of groundwater migration between the aquifers, the "Five-Year Review Report for Mattiace Superfund Site" (September 2005) indicates that the clay portions of the Raritan Formation and the Port Washington unit form an effective confining unit which separates the Lloyd Aquifer (potable water supply) from the Upper Glacial Aquifer in the Glen Cove Region. As Glen Cove's municipal water supply system taps the deeper Lloyd aquifer in excess of 250 feet below mean sea level (MSL), the geologic information indicates that it is protected from the contamination in the Upper Glacial aquifer.

Reference: Five-Year Review Report for Mattiace Superfund Site Glen Cove, Nassau County, New York, US Environmental Protection Agency Region II, September 2005.

---

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

4. Does Acontaminated@ groundwater **discharge** into **surface water** bodies?

____ If yes - continue after identifying potentially affected surface water bodies.
__x___ If no - skip to #7 (and enter a AYE@ status code in #8, if #7 = yes) after providing an explanation and/or referencing documentation supporting that groundwater Acontamination@ does not enter surface water bodies.
_____ If unknown - skip to #8 and enter AIN@ status code.

Rationale and Reference(s):
Although the groundwater underlying the Edmos property may be flowing in the direction of nearby surface water bodies, the ongoing groundwater remediation system for the adjacent Mattiace facility reduces and controls the flow of contaminated groundwater. It is anticipated

that only insignificant concentrations, if any, would be entering Glen Cove Creek. EPA periodically tests the Creek; sampling data from the Creek have not indicated significant contamination from the chemicals found in the groundwater at Edmos and Mattiace.

Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750).

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

____ If yes - skip to #7 (and enter AYE@ status code in #8 if #7 = yes), after documenting: 1) the maximum known or reasonably suspected concentration[3] of <u>key</u> contaminants discharged above their groundwater Alevel,@ the value of the appropriate Alevel(s),@ and if there is evidence that the concentrations are increasing; and 2) provide a statement of professional judgment/explanation (or reference documentation) supporting that the discharge of groundwater contaminants into the surface water is not anticipated to have unacceptable impacts to the receiving surface water, sediments, or eco-system.

___ If no - (the discharge of Acontaminated@ groundwater into surface water is potentially significant) - continue after documenting: 1) the maximum known or reasonably suspected concentration[3] of <u>each</u> contaminant discharged above its groundwater Alevel,@ the value of the appropriate Alevel(s),@ and if there is evidence that the concentrations are increasing; and 2) for any contaminants discharging into surface water in concentrations[3] greater than 100 times their appropriate groundwater Alevels,@ the estimated total amount (mass in kg/yr) of each of these contaminants that are being discharged (loaded) into the surface water body (at the time of the determination), and identify if there is evidence that the amount of discharging contaminants is increasing.

_____ If unknown - enter AIN@ status code in #8.

Rationale and Reference(s):

_____

[3] As measured in groundwater prior to entry to the groundwater-surface water/sediment interaction (e.g., hyporheic) zone.

6. Can the **discharge** of Acontaminated@ groundwater into surface water be shown to be **Acurrently acceptable@** (i.e., not cause impacts to surface water, sediments or eco-systems that should not be allowed to continue until a final remedy decision can be made and implemented[4])?

____ If yes - continue after either: 1) identifying the Final Remedy decision incorporating these conditions, or other site-specific criteria (developed for the protection of the site=s surface water, sediments, and eco-systems), and referencing supporting documentation demonstrating that these criteria are not exceeded by the discharging groundwater; OR 2) providing or referencing an interim-assessment,[5] appropriate to the potential for impact, that shows the discharge of groundwater contaminants into the surface water is (in the

opinion of a trained specialists, including ecologist) adequately protective of receiving surface water, sediments, and eco-systems, until such time when a full assessment and final remedy decision can be made. Factors which should be considered in the interim-assessment (where appropriate to help identify the impact associated with discharging

groundwater) include: surface water body size, flow, use/classification/habitats and contaminant loading limits, other sources of surface water/sediment contamination, surface water and sediment sample results and comparisons to available and appropriate surface water and sediment Alevels,@ as well as any other factors, such as effects on ecological receptors (e.g., via bio-assays/benthic surveys or site-specific ecological Risk Assessments), that the overseeing regulatory agency would deem appropriate for making the EI determination.

_____ If no - (the discharge of Acontaminated@ groundwater can not be shown to be **Acurrently acceptable@**) - skip to #8 and enter ANO@ status code, after documenting the currently unacceptable impacts to the surface water body, sediments, and/or eco-systems.

_____ If unknown - skip to 8 and enter AIN@ status code.

Rationale and Reference(s): N/A

References: N/A

---

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

[5] The understanding of the impacts of contaminated groundwater discharges into surface water bodies is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration to be reasonably certain that discharges are not causing currently unacceptable impacts to the surface waters, sediments or eco-systems.

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

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

_____ If no - enter ANO@ status code in #8.

_____ If unknown - enter AIN@ status code in #8.

Rationale and Reference(s): This monitoring is being implemented for the adjacent Mattiace Petrochemical facility, which was the source of the groundwater contamination. A 5-year review of Mattiace's localized groundwater extraction system was conducted by EPA in

September 2005. It is anticipated that the localized groundwater pump and treat system will continue to operate in its current configuration until EPA's next 5-year review (in the year 2010), at which time it will be re-evaluated to determine whether it should continue as it currently operates. Currently, fourteen wells are monitored annually, three of which are on the former Edmos property.

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

__X__ YE - Yes, AMigration of Contaminated Groundwater Under Control@ has been verified. Based on a review of the information contained in this EI determination, it has been determined that the AMigration of Contaminated Groundwater@ is AUnder Control@ at the former Edmos facility , EPA ID # NYD047648472, located at 20 Garvies Point Road, Glen Cove, New York. Specifically, this determination indicates that the migration of Acontaminated@ groundwater is under control, and that monitoring will be conducted to confirm that contaminated groundwater remains within the Aexisting area of contaminated groundwater@ This determination will be re-evaluated when the Agency becomes aware of significant changes at the facility.

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

_____ IN - More information is needed to make a determination.

Completed by: _____ Date:_____

Carol Stein, P.E.
Project Manager
RCRA Programs Branch
EPA Region 2

Section Chief: _____ Date: _____

James Reidy, P.E.
Chief
New York Section
RCRA Programs Branch
EPA Region 2

Branch Chief: Original signed by: _____ Date: December 8, 2006

Adolph Everett, P.E.
Chief
RCRA Programs Branch
EPA Region 2

Locations where References may be found:

EPA Region 2 RCRA Record Center 290 Broadway,15th Floor New York, NY 10007-1866

EPA Region 2 Superfund Records Center 290 Broadway,18th Floor New York, NY 10007-1866

Contact telephone number and e-mail address:

Carol Stein, P.E., RCRA Project Manager
EPA Region 2, RCRA Programs Branch
(212) 637-4181
stein.carol@epa.gov

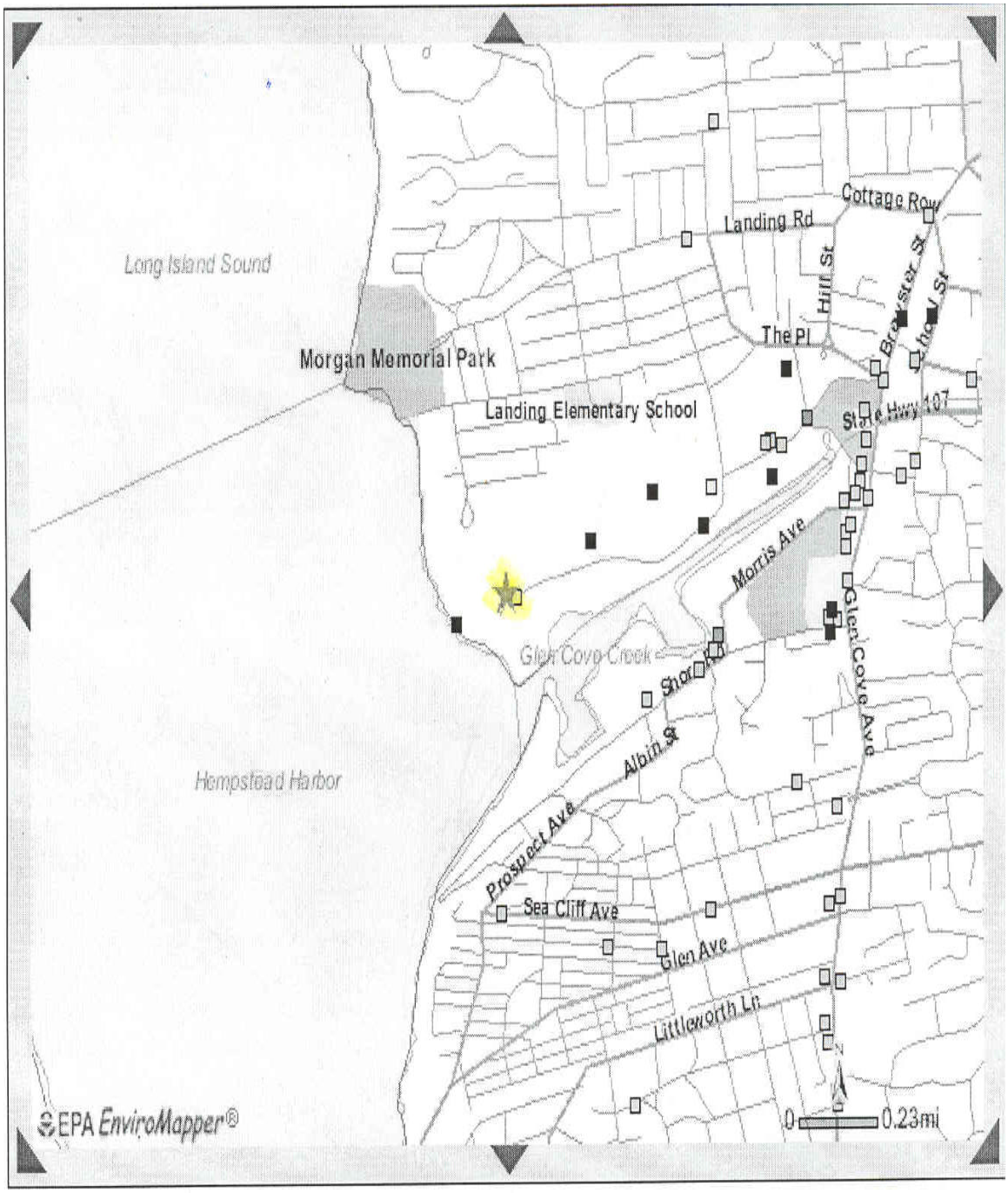


Figure 1 – Edmos Corp. - General Site Area

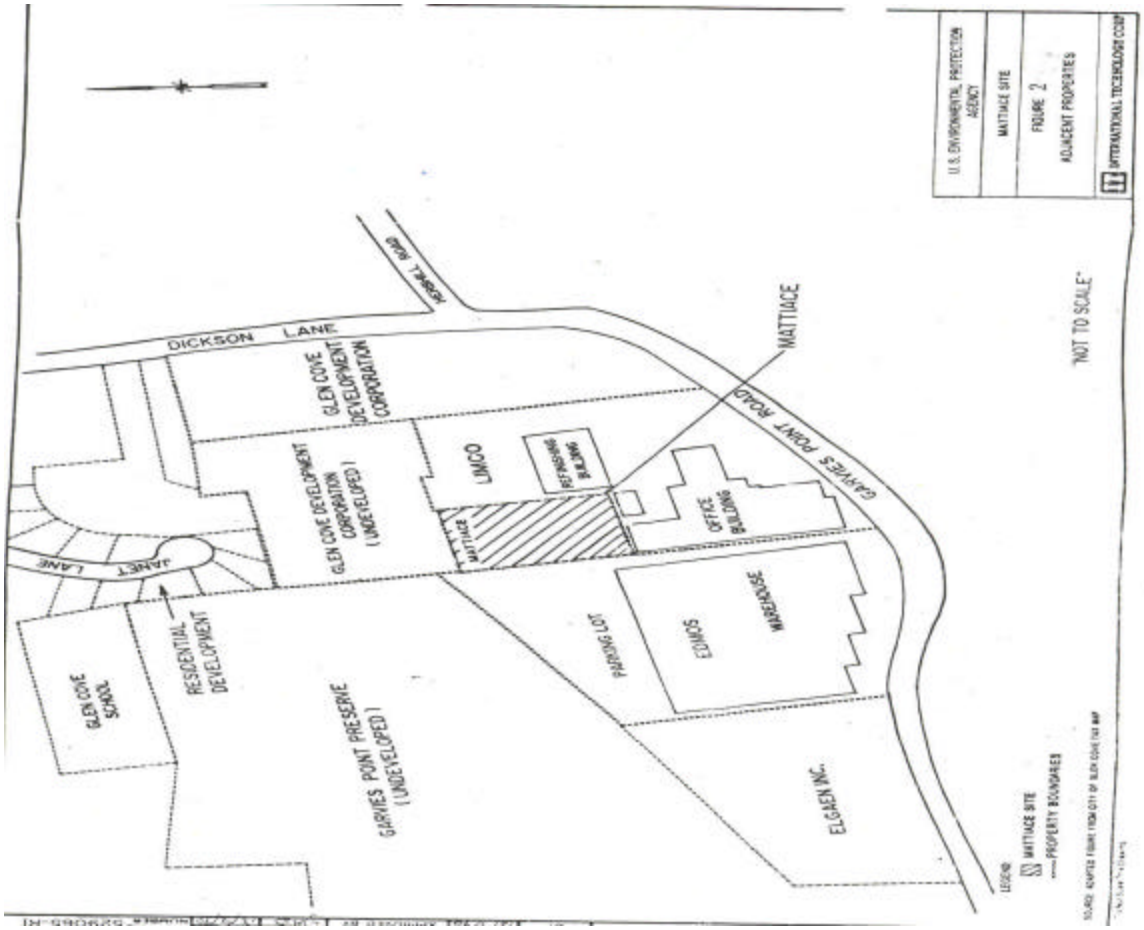


Figure 2- Former Edmos Facility and Vicinity

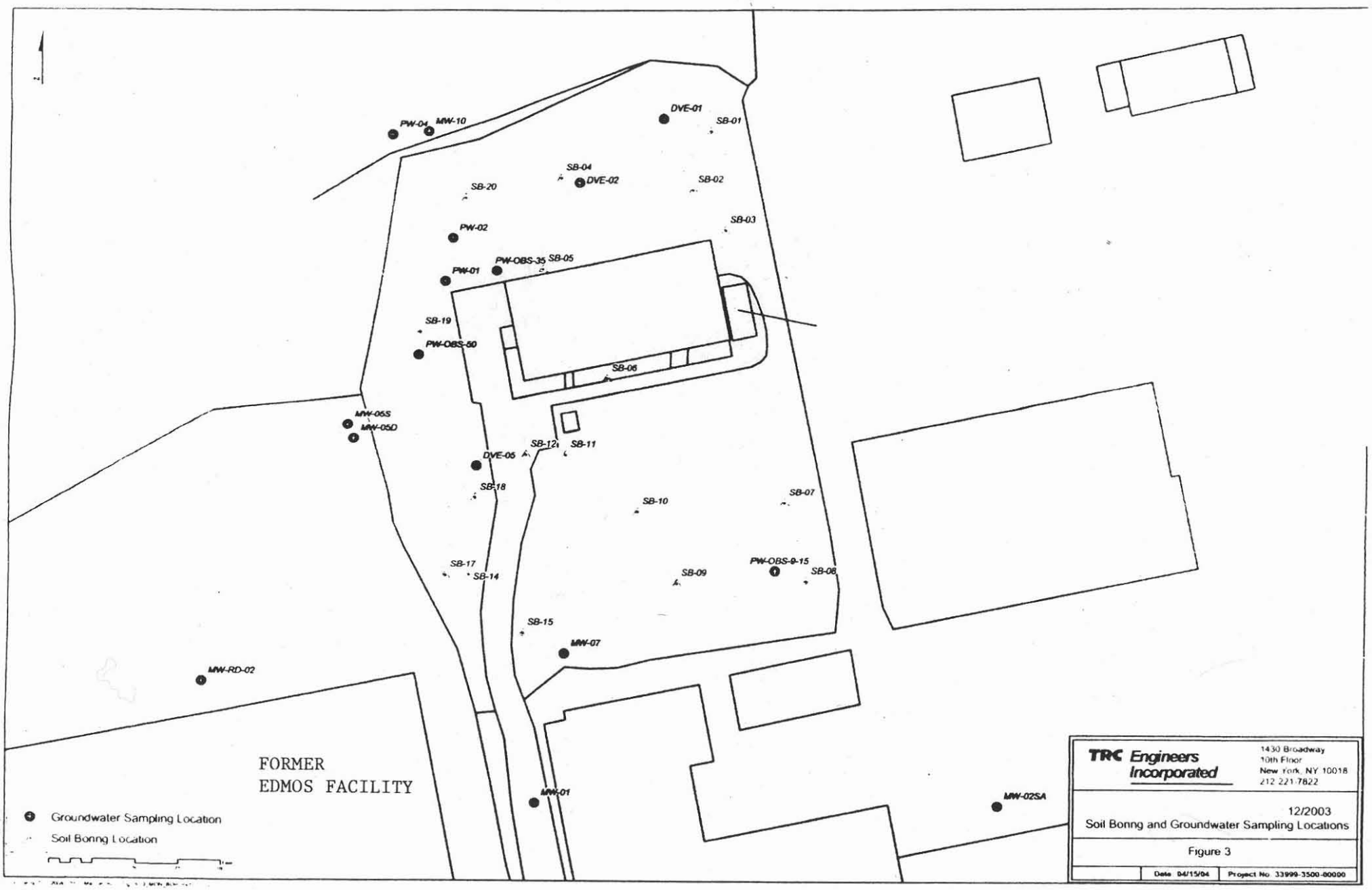
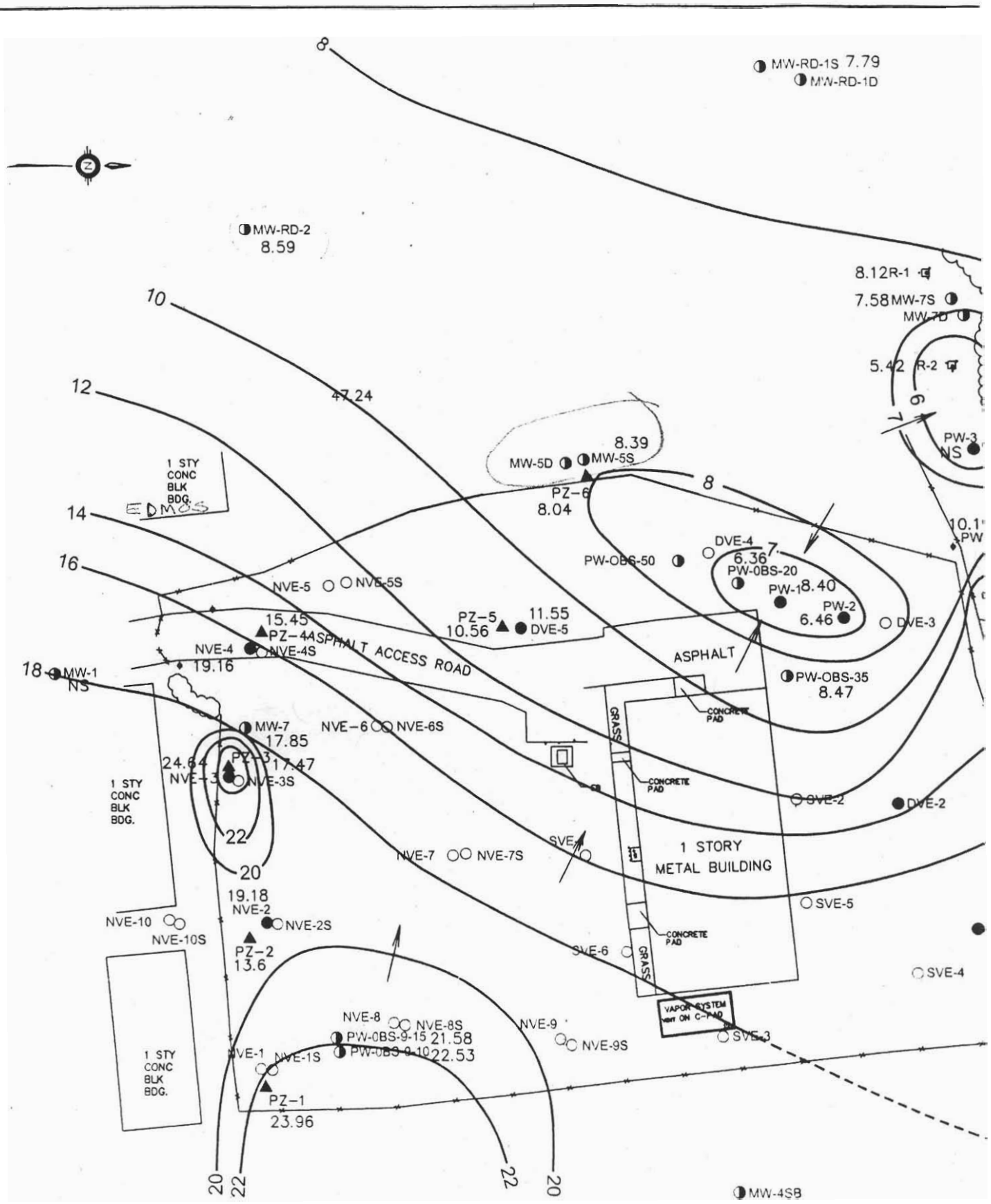


FIGURE 3 - SOIL BONNG AND GROUNDWATER SAMPLING LOCATIONS

Figure 4 - Groundwater Flow in the vicinity of Edmos and Mattiace

Reference: 2002 Operational Performance Evaluation, Foster Wheeler Corp., 3/13/03

CAD FILE NAME: MATFIG 3.DWG DATE: 3/10/03
PLOT SCALE: 1=1 TIME: 10:52 AM



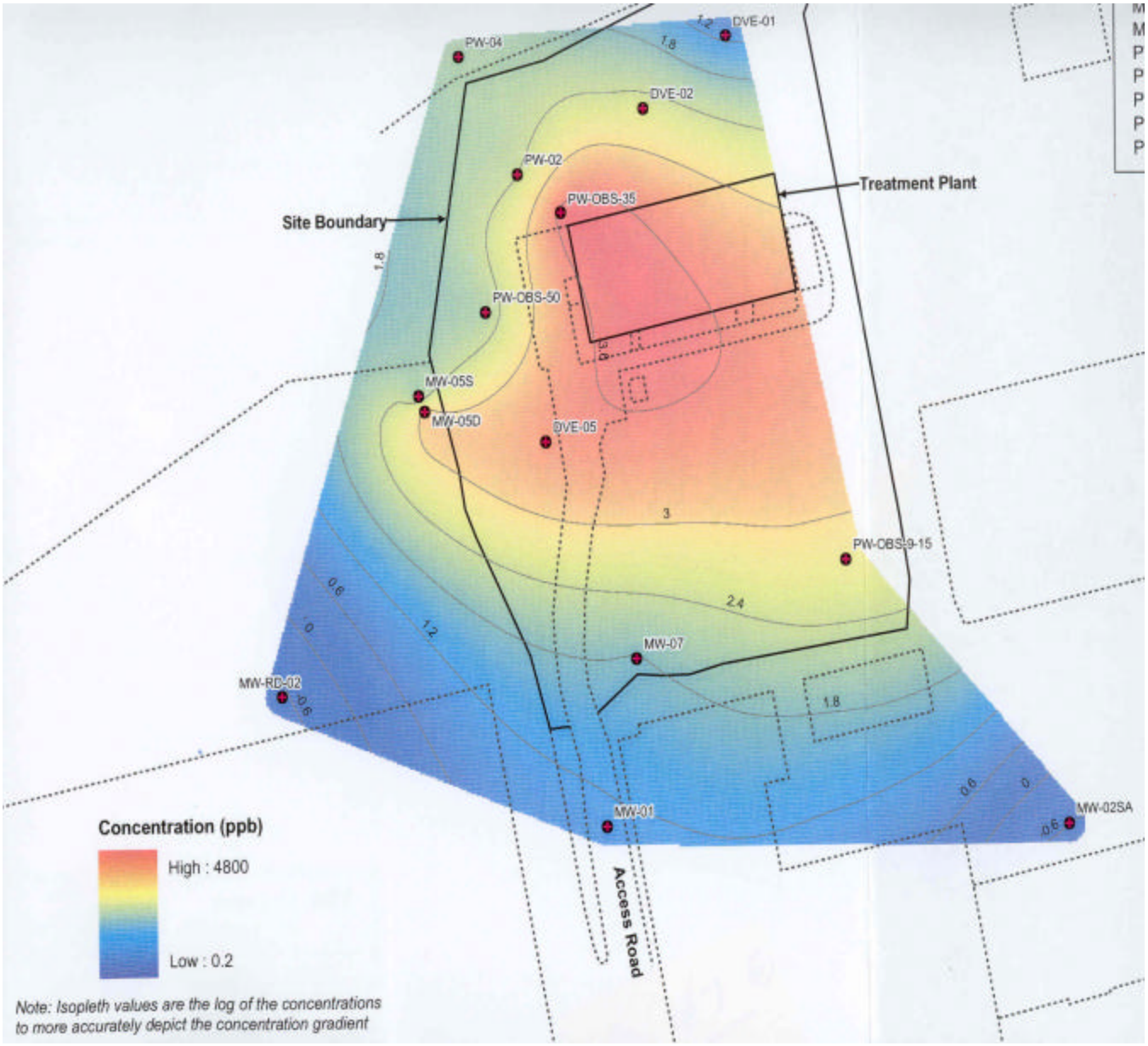


Figure 5 – Isopleth values - Methylene chloride in groundwater (in vicinity of Edmos and Mattiace, Glen Cove, NY)