

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF: )  
)  
PETITION OF JOHNS MANVILLE )  
FOR AN ADJUSTED STANDARD FROM )  
35 ILL.ADM. CODE PART 814, §§ 811.310, )  
811.311, 811.318, 811.320 )  
)  
)

AS 04-04  
(Adjusted Standard-Land)

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STATE OF ILLINOIS  
Pollution Control Board

NOTICE OF FILING

To: Attached Service List

Please take notice that on September 30, 2004, Johns Manville has filed the attached amended petition for an adjusted standard with the Illinois Pollution Control Board, a copy of which is hereby served upon you.

Johns Manville,  
Petitioner.

By: Edward P. Kenney  
One of Its Attorneys

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**PETITIONER JOHNS MANVILLE'S AMENDED PETITION FOR AN ADJUSTED STANDARD FOR CERTAIN PROVISIONS OF 35 ILL.ADM.CODE, PARTS 814 AND 811**

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**INTRODUCTION**

Johns Manville ("JM"), a Delaware corporation, comes by its attorneys, and pursuant to Section 28.1 of the Illinois Environmental Protection Act ("the Act"), 415 ILCS 5/28.1 and 35 Ill.Adm.Code §§ 104.400 et seq., seeks an adjusted standard to certain requirements of the Pollution Control Board's regulations governing on-site landfills, as will be described below. JM owns a facility in Waukegan, Illinois located on a 350 acre tract on the shore of Lake Michigan (See Figure 1).

JM previously filed a petition with the Board on June 30, 2004. By Order dated August 5, 2004, the Board found that petition to be deficient because the factors contained in

Section 814.402(b)(3) had not been addressed. The Board directed petitioner to address the information requirements of Section 28.1 of the Act (415 ILCS 5/28.1) and Section 104.406 of the Board's rules in an amended petition. After consulting with the Board's staff attorneys, JM is submitting this amended petition. The caption has changed slightly to reflect an additional related regulatory provision for which an adjusted standard is sought. Since the filing of the original petition, JM has had additional discussions with the Illinois Environmental Protection Agency concerning this proposed adjusted standard and is requesting the Agency's concurrence in this amended petition.

JM filed a public notice in a local newspaper shortly after filing the original petition. Because the language of the proposed adjusted standard requested in this amended petition is somewhat different from that in the original petition, JM intends to file a new public notice in accordance with 35 Ill. Adm. Code § 104.408.

**Statement Describing Standards From Which Adjusted Standard is Sought, Pursuant to 35 Ill. Adm. Code § 104.406**

JM is seeking an adjusted standard to requirements contained in 35 Ill. Adm. Code Part 814, which incorporates specific requirements of 35 Ill. Adm. Code §§ 811.310, 811.311, 811.318, and 811.320 concerning its onsite landfill, which consists of two units: 1) the miscellaneous disposal pit; and 2) a portion of the collection basin. These units are depicted in Figure 2 (General Property Map and On-Site Landfill Location). The relevant rules became effective September 18, 1990.

### **Statutory Section 28.1(c) Factors**

The regulations which are the subject of this adjusted standard petition were adopted by the Pollution Control Board In the Matter of: Development of Operating and Reporting Requirements for Non-Hazardous Waste Landfills, R88-7, and were effective on September 8, 1990. A review of the rulemaking record in that proceeding indicates that the Board was attempting to update and expand its existing regulations governing sanitary landfills (Previously Chapter 7 of the Pollution Control Board's regulations) to incorporate more modern approaches for addressing a variety of industrial and municipal non-hazardous waste landfills.

In this rulemaking, the Board adopted different standards for landfills which were going to remain open for short periods of time, landfills that would remain open for longer duration, and for existing and new landfills. The Board also adopted differing standards for inert waste landfills (no leachate collection, no landfill gas collection, minimal cover, and no groundwater monitoring requirements) than for landfills where chemical and putrescible waste would be managed (leachate collection, more substantial final cover, gas collection and monitoring, and groundwater monitoring) due to the greater likelihood that groundwater quality could be adversely impacted by the latter category of landfill. The regulations were designed to accommodate both permitted landfills and onsite landfills which were exempt from permit requirements.

The JM landfill is different from the landfills considered by the Board in a couple of respects. First, much of the waste in the landfill is virtually inert, being composed primarily of calcium silicate and fiber glass-based roofing materials. Although some of the waste in the landfill may not meet the technical requirements in the inert waste regulations, JM's landfill differs from chemical and putrescible landfill in that very little landfill gas is generated. The

second major difference is that, unlike most landfills in Illinois, the JM site was under intense federal and state oversight since before the adoption of the Pollution Control Board's solid waste landfill regulations as a result of its inclusion on the Superfund National Priority List in 1983. There is nothing in the rulemaking record indicating that the Board considered situations similar to that of the JM facility, where the facility as a whole was subject to a Superfund consent decree which required the construction of cover to isolate asbestos that had been historically disposed of on-site. See the federal consent decree entered by the United States District Court for the Northern District of Illinois in United States v. Manville Sales Corporation, C.A. No. 88C 630. At the time the rules were adopted in 1990, JM was well into the construction of remedial measures to isolate the asbestos on the site, and was subject to a federal consent decree which described in detail how these landfills were to be constructed and maintained, under the close oversight of the USEPA and IEPA.

After the adoption of the Board's solid waste regulations, JM submitted an initial facility report for the units (collection basin and miscellaneous disposal pit) which the consent decree authorized to remain open. In September 1992, JM submitted an Initial Facility Report to IEPA for these units. Due to the nature of the waste, JM managed the landfills as inert waste landfills. Subsequent testing has verified that, despite the presence of small amounts of putrescible material, very little landfill gas is generated by decomposition of the wastes in the miscellaneous disposal pit and the collection basin, as is the case with inert waste landfills. (Gas generation data is included as Exhibit 1.) As a result, the gas collection and monitoring requirements for chemical and putrescible landfills do not fit the JM landfill. Similarly, percolation of stormwater through the collection basin and miscellaneous disposal pit has not resulted in the generation of much leachate.

Strict compliance with the Board's solid waste regulations governing landfill gas collection and monitoring and groundwater monitoring in this instance would involve drilling gas collection wells and groundwater monitoring wells through the closed Superfund cells. This presents the potential for disturbing the underlying Superfund waste, and also breaching the Superfund cover. There is no evidence in the rulemaking record that the Board addressed or even considered a similar situation.

The JM landfill also differs from the landfills considered by the Board in adopting the rules in that the units subject to the groundwater monitoring requirements are surrounded by units that were constructed pursuant to a federal consent decree under federal and state oversight. The operating and maintenance requirements imposed on JM through that decree restricts JM's ability to drill groundwater monitoring wells or gas wells through engineered covers which isolate asbestos. Without obtaining the concurrence of the USEPA and IEPA, JM is not as able to place groundwater monitoring wells where required by the Pollution Control Board's rules as would be a landfill that does not have a remediated Superfund site surrounding the units to be monitored.

In accordance with Section 28.1(c)(2), the existence of these different factors justifies the issuance of the adjusted standard that JM is requesting. JM is requesting an adjusted standard to the landfill gas monitoring and frequency requirements. Because the JM landfill is different from the more typical chemical and putrescible landfills at which the Board's solid waste landfill regulations were directed, in that much less gas is generated at the JM landfill, the landfill gas collection and monitoring program described in this adjusted standard petition is better tailored to this situation than the one otherwise required by the regulations.

Likewise, the risks associated with drilling groundwater monitoring wells through Superfund cover and the underlying asbestos wastes are different from the landfills addressed by the regulations, and justify the groundwater monitoring program that JM is proposing. JM's proposed program would minimize the amount of disturbance to the Superfund remediated areas, while providing for a protective monitoring program that will allow timely action in the event that either of the Part 814 regulated landfill units adversely affects groundwater.

The requested adjusted standards will not result in environmental or health effects that are substantially and significantly more adverse than the effects the Board considered in adopting the rules of general applicability. In adopting the rules, the Board was trying to provide for landfills in which waste would be isolated, and operated in such a way that migration of gas or leachate to groundwater or to ambient air would not be a problem. To the extent that landfill gas would be generated, the Board's regulations provided for it to be monitored and collected. To the extent that a chemical and putrescible waste landfill (or later, a municipal solid waste landfill) would present a potential adverse impact on groundwater, the regulations provided for implementation of a groundwater monitoring program that would provide for detection, assessment and potentially corrective action if a regulated unit is adversely affecting the groundwater. The groundwater monitoring program presented in this adjusted standard petition will similarly provide for detection of potential issues in a timely fashioned, allowing officials to make decisions as to how to protect the groundwater.

**Statement That Regulation of General Applicability Was Not Promulgated to Implement Federal Requirements Pursuant to 35 Ill.Adm.Code § 104.406(b)**

The regulations of general applicability that are the subject of this adjusted standard petition were not promulgated to implement the requirements of the Clean Water Act,

Safe Drinking Water Act, Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), Clean Air Act, or the State programs concerning RCRA, UIC, or NPDES. The regulations in question implement State, not federal requirements. According to 35 Ill. Adm. Code §§ 807.101, 811.101, the Board relied upon Sections 5, 21.1, 22, 22.17, 28.1 and 27 of the Illinois Environmental Protection Act in adopting the regulations from which the adjusted standards are sought.

**Level of Justification 35 Ill. Adm. Code § 104.406(c)**

The regulations for which the adjusted standards are sought do not contain specified levels of justification, so the factors set forth in Section 28.1(c) of the Act apply to this petition. Those factors are discussed above. As will be described in more detail below, JM can establish that: the factors relating to its onsite landfill are substantially different from the factors relied upon by the Board in adopting the regulations of general applicability; the existence of these different factors justifies an adjusted standard; the requested standard will not result in environmental health effects more adverse than the effects considered by the Board in adopting the rules of general applicability; and, the adjusted standard is consistent with applicable federal law.

**BACKGROUND OF JOHNS MANVILLE'S ONSITE LANDFILL**

**Description of Petitioner's Activities 35 Ill. Adm. Code § 104.406(d)**

**JM Facility Background and Regulatory History**

JM owns a facility in Waukegan, Illinois in Lake County at which JM previously manufactured building materials, including roofing and insulation products. The facility is located on a tract consisting of approximately 350 acres on the shore of Lake Michigan. (See Figure 1). The facility began operations *ca.* 1920, and employed several thousand employees at



its peak. Historically, asbestos-containing building materials were manufactured at the plant, but all such manufacture of asbestos-containing building materials ceased in 1985. After a gradual phaseout, all of the remaining manufacturing operations at the facility completely ceased in 1998, and the manufacturing buildings (which represented over 1,700,000 square feet under roof) were demolished in 2000-2001. At present, only a few contract employees associated with maintaining the site are located at the facility.

In 1983, relying on its authority in Section 105 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 USC § 9605, the United States Environmental Protection Agency (USEPA) placed a portion of the facility (consisting of approximately 120 acres) on the National Priorities List (NPL), which is set forth in 40 CFR Part 300, Appendix B, by publication at 48 Fed.Reg. 40658 (September 8, 1983). On June 14, 1984, JM and USEPA executed an Administrative Order on Consent, under which JM conducted a Remedial Investigation /Feasibility Study (RI/FS), pursuant to 40 CFR § 300.68. The Remedial Investigation Report was submitted on July 3, 1985, and the Feasibility Study Report was submitted to USEPA in December 1986. USEPA adopted an Addendum to the Feasibility Study Report on January 28, 1987. After notice and public hearing, on June 30, 1987 USEPA issued a Record of Decision (ROD) in which the State of Illinois concurred. The ROD provided for the placement of cover over a number of areas at which asbestos containing waste materials had been disposed of at the JM facility. JM, USEPA and the State of Illinois executed a consent decree that implemented the ROD, and that consent decree was entered by the United States District Court for the Northern District of Illinois on or about March 18, 1988, in United States v. Manville Sales Corporation, C.A. No. 88C 630.

In addition to providing for cover of historical disposal areas, the Consent Decree contemplated that ongoing non-asbestos manufacturing operations at the JM site would continue. The Consent Decree therefore provided for ongoing operation of both the wastewater treatment system, which consisted of a number of settling and retention basins, as well as the onsite landfill. JM conducted substantial remedial actions at the facility, placing cover over the historic areas where asbestos containing waste materials had been disposed. JM's remedial activities were largely completed in 1991.

USEPA issued two Explanations of Significant Differences (ESD), the first on February 9, 1993, and the second on September 22, 2000. The first ESD addressed primarily the differences between the remedial action as described in the June 1987 ROD and the remedial action actually constructed as necessitated by field conditions. The second ESD provided, in light of cessation of manufacturing operations at the facility, for closure of both the wastewater treatment system and the on-site landfill which is the subject of this petition. This adjusted standard and a amended federal consent decree (lodged in the United States District Court for the Northern District of Illinois and likely to be entered in the near future) are intended to implement the second ESD.

The On-Site Landfill at issue in this petition is physically located on the tract identified on the NPL, and it is located on and surrounded by units that were remediated under CERCLA. The On-Site Landfill at issue in this proceeding began operations in 1992 and was not used to dispose of asbestos-containing materials. The Illinois Attorney General's Office and Illinois Environmental Protection Agency have acknowledged that the landfill that is subject to this petition is an "existing landfill" and therefore subject to 35 Ill.Adm.Code Part 814. Specific

requirements contained in 35 Ill. Adm. Code Part 811, including the provisions for which the adjusted standards are sought, are incorporated by 35 Ill. Adm. Code § 814.302.

As Figure 2 shows, the On-Site Landfill is located within the areal limits of the former Disposal Area landfill that was previously closed (completed in 1992) pursuant to CERCLA through placement of a two-foot engineered cover over both topographically flat areas, as well as the steeply sloping sides of the original miscellaneous disposal pit. Figure 3 is a Site Plan of the On-Site Landfill; Figures 4, 5, and 6 are cross sections showing the vertical and horizontal relationship between the On Site Landfill and the underlying "CERCLA" landfill.

**Description of Nature of Efforts Necessary to Comply With Regulations of General Applicability, 35 Ill. Adm. Code § 104.406(e)**

Because the onsite landfill is located in the midst of the CERCLA NPL site, any activities relating to it must be coordinated with both USEPA and IEPA. The United States Department of Justice, USEPA, Illinois Attorney General's Office, IEPA, and JM signed an amended federal consent decree which was lodged with the United States District Court for the Northern District of Illinois on February 11, 2004 (Notice of that lodging was published at 69 Fed. Reg. 7982 (February 20, 2004)). Comments have been filed, and a responsiveness summary was filed on or about July 16, 2004. JM anticipates the federal amended consent decree will be entered by the Court in the near future. The Illinois Attorney General's Office, IEPA and JM have also signed a consent order that addresses the landfill units that are the subject of this petition. This consent order was submitted to the Lake County Circuit Court for approval, and is being evaluated by the Court. It also allows for the filing of this petition.

Both the federal amended consent decree and the State consent order provide for final closure of the landfill that is subject of this petition, and this adjusted standard petition should result in final closure in the most effective and expeditious manner. JM advised the

agencies of the probable need for this adjusted standard in the negotiations which resulted in the federal amended consent decree, and the State Consent Order, and each of these documents specifically provides for the filing of an adjusted standards petition. Therefore, this adjusted standard proceeding will not be contrary to either document when and if they are entered; it will in fact, assist in implementation of these documents.

### **JM's On-site Landfill**

JM's on-site landfill has always operated pursuant to the statutory permit exception contained in Section 21(d) of the Act, 415 ILCS 5/21(d); since JM has used the onsite landfill to dispose of only that waste generated by its own activities at this location, JM has neither received nor been required to hold an IEPA solid waste operating permit. Pursuant to 35 Ill. Adm. Code § 815.200 *et seq.*, JM submitted its initial facility report to IEPA in September 1992. As described in the initial facility report and as operated, the onsite landfill consisted of two areas: 1) the miscellaneous disposal pit, that was constructed on top of clean fill that had been placed during CERCLA remedial activities and 2) a portion of the collection basin. These units are depicted in Figure 2 (Site Plan).

The initial facility report filed in 1992 indicated JM's intention to operate the onsite landfill as an inert waste landfill, based on leachate data for the wastes that were intended to be placed in the onsite landfill. During its operating history from 1992 to 1998, the predominant waste that was placed in the landfill was calcium silicate, an inert, nonhazardous material used by JM to produce T-12, a high temperature calcium silicate block insulation material.

JM also disposed of lesser quantities of fiber glass-based roofing materials, wood pallets, paper, and cardboard packaging, materials that IEPA considers to be putrescible wastes.

Because the onsite landfill arguably meets the definition of “existing facility or existing unit” contained in 35 Ill.Adm.Code § 810.103, the Onsite Landfill is subject to the standards for existing landfills and units, set forth in 35 Ill.Adm.Code Part 814, pursuant to 35 Ill.Adm.Code § 814.101.

In order to accomplish the most efficient final closure that considers the landfill contents and the landfill’s location on units previously remediated under CERCLA, JM is seeking an adjusted standard for (i) the Monitoring Frequency for Landfill Gas Monitoring (35 Ill.Adm.Code § 811.310(c)(1)), (ii) the requirements for implementing a Landfill Gas Management System, specifically, the provisions relating to detection distance for implementing such a system (35 Ill.Adm.Code § 811.311(a)(1)), and (iii) the Standards for the Location of Monitoring Points found in 35 Ill.Adm.Code §§ 811.318(b)(3), and 811.320, specifically, the requirement that monitoring wells shall be located within half the distance from the edge of the potential discharge source to the edge of the zone of attenuation.<sup>1</sup>

**Narrative Description of Proposed Adjusted Standard, 35 Ill.Adm.Code § 104.406(f)**

**PROPOSED ADJUSTED STANDARD FOR LANDFILL GAS MONITORING  
FREQUENCY REQUIREMENTS**

In adopting its comprehensive regulations governing nonhazardous waste landfills, the Pollution Control Board specifically addressed two broad types of landfills: landfills for inert waste, and landfills for chemical and putrescible wastes.<sup>2</sup> The Board later

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<sup>1</sup> The costs of complying with the regulations are very difficult to quantify because, as described below, compliance with the regulations as adopted would involve drilling gas monitoring devices and groundwater monitoring wells through engineered cover that was built pursuant to the Superfund remedial activities at the site. The motivation for this adjusted standard is not to provide for lower costs, but to prevent the adverse effects that could result from installing the gas monitoring and groundwater wells in locations that would damage the cover of the remediated areas and potentially create pathways for migration of contaminants.

<sup>2</sup> The Pollution Control Board has also adopted special requirements for other types of landfills, (e.g., landfills used for certain wastes from iron and steel manufacturing facilities and foundries

adopted requirements for municipal solid waste landfills in order to ensure that the state regulations met the requirements for the Resource Conservation and Recovery Act (RCRA) Subpart D program. Because the landfill in question here is not a municipal solid waste landfill (and is therefore not addressed in the federal program), granting the petition sought here will in no way be inconsistent with federal requirements<sup>3</sup>. There are also no federal procedural requirements that would apply to this petition.

As discussed above, JM originally contended that its on-site landfill was properly characterized as an inert waste landfill, because the wastes placed in the landfill were primarily inert (calcium silicate materials, concrete, fiber glass, and similar materials)<sup>4</sup>. However, IEPA advised that the presence of materials like wood, cardboard and paper in the landfill *in any amount* meant that the landfill should be more properly characterized as a chemical and putrescible waste landfill.

The requirements in 35 Ill. Adm. Code § 811.310(c)(1) (applicable to chemical and putrescible landfills but not to inert waste landfills) specify that landfill gas monitoring devices shall be operated to obtain samples on a monthly basis for the entire operating period and for a

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(see 35 Ill. Adm. Code Part 817)). These regulations contain three classes of waste, and wastes which present more potential to generate potentially harmful leachate are subject to more stringent requirements.

<sup>3</sup> Moreover, both the federal amended consent decree and the State consent order described above contemplate final closure of the landfill that is the subject of this petition.

<sup>4</sup> The requirements for inert waste landfills are considerably less stringent than those for chemical and putrescible and municipal solid waste landfills, due to significant differences between the types of materials disposed of in each type of landfill. Unlike chemical or putrescible landfills and municipal solid waste landfills, inert waste landfills need not have gas collection systems, groundwater monitoring systems or leachate collection systems, on the theory that the leachate generated by inert waste landfills is so innocuous in terms of quantity and constituents that such systems are not warranted. Final cover for inert waste landfills consists of a minimum three foot thick layer of soil capable of supporting vegetation. In contrast, final cover for chemical and putrescible landfills and municipal solid waste landfills must consist of a low permeability layer with a thickness of at least three feet (or equivalent) overlain by a protective layer with a thickness of at least three feet.

minimum of five years after closure. Given the nature of the wastes disposed in the On-Site Landfill, studies were undertaken to determine the general physical properties within the landfill and whether landfill gas was currently present within or outside the landfill limits in quantities that might warrant the required level of monitoring.

Previous investigations of the On-Site Landfill gas determined that methane generation was more consistent with an inert waste landfill, rather than a typical chemical and putrescible landfill. Specifically, the following observations were made:

- Measured landfill gas temperatures (approximately 50°F) were not typical of landfill gas temperatures in a solid waste landfill, which typically ranges from 100 to 130 °F during substantial anaerobic activity and between 130 and 160 °F during substantial aerobic activity.
- The vegetative grass cover over the landfill was intact, growing and healthy, and showed no signs of burn-out, which is indicative of methane release to the landfill surface. Moreover, there are no buildings, structures or utilities on or around the landfill that could serve as a conduit for relieving methane pressures.
- Landfill gas pressures measured in monitoring wells were typically extremely low (less than 0.01" of water). This indicates negligible gas generation.
- No malodors were noted within the landfill at any time, indicating little or no landfill gas generation.
- The carbon dioxide levels in the On-Site Landfill were measured to be less than 1%. This is not consistent with an active chemical and putrescible landfill, where the levels of carbon dioxide typically range from 40-48%.
- No methane was present above regulatory criteria (50% of the Lower Explosive Level (LEL)) outside the limits of the waste boundary, despite the lack of any landfill gas collection system. Given that wastes have not been added to the On-Site Landfill for almost six years, and that very little additional wastes, if any, are expected to be added in the future, it is unlikely that the landfill gas generation rate would increase, thereby resulting in an increased potential to detect migrating landfill gas.

Copies of the July, August and September 2004 landfill gas monitoring reports are included as an Exhibit 1 to this Amended Petition. These results, which confirm previous observations were not particularly surprising, in light of the relatively low percentage of organic material disposed in the landfill, and the relatively small size of the units. While the On-Site

Landfill may technically meet the requirements for chemical and putrescible waste landfills, the above-described data confirm that the landfill is actually more similar to the inert waste landfills considered by the Board in adopting the regulations. As a result, the frequency of landfill gas monitoring as technically required by 35 Ill. Adm. Code § 811.310(c)(1) is not necessary and would not provide any additional degree of protection to human health or the environment as compared to the proposed adjusted standard.

For all of these reasons, JM is proposing the following adjusted standard:

**“In lieu of compliance with 35 Ill. Adm. Code § 811.310(c)(1) as applied to the On-Site Landfill at its facility in Waukegan, Illinois, Johns Manville shall operate all gas monitoring devices, including the ambient air monitors, such that samples will be collected on a semi-annual basis for a period of five years following approval of this adjusted standard. If, at the end of five years, the requirements for implementing a Landfill Gas Collection System (35 Ill. Adm. Code § 811.311) are not met, no further monitoring will be conducted.**

Based on the data collected, compliance with the proposed adjusted standard will not have a more adverse effect on the environment than would compliance with the regulations.

### **PROPOSED ADJUSTED STANDARD FOR IMPLEMENTATION OF A LANDFILL GAS MANAGEMENT SYSTEM**

The regulations governing implementation of a Landfill Gas Collection System (35 Ill. Adm. Code § 811.311(a)(1)) contemplate detection of elevated methane levels below the “ground surface” at a distance of 100 feet outside the edge of the unit, or at the property boundary, whichever is closer. As the property boundary is further away, the distance of 100 feet from the edge of the unit would appear to apply. However, at this distance (100 feet) from the edge of the On-Site Landfill, the subsurface monitoring locations would fall within the area where CERCLA wastes were covered. Within the area adjacent to Miscellaneous Disposal Pit (also called Fill Area #1), the lateral limits of waste material are substantially defined by the toe



of the steep side slopes of the CERCLA landfill. Adjacent to the Collectin Basin (also called Fill Area # 2), seven soil borings were advanced in the area located between the eastern limit of the On-Site Landfill (Fill Area # 2) and the perimeter road. Figure 7 shows these boring locations; the subsurface logs for these borings are also attached, as Exhibit 2. As the logs indicate, waste materials (roofing, transite, and white granular materials) are present within the subsurface in this area. Based upon the history of the site, these waste materials are likely not present beneath the surface in the area east of the perimeter road.

Landfill gas monitoring within these areas (west of the perimeter road) would require installation of wells through the engineered cover placed for closure of the CERCLA landfill and into the underlying waste materials. Installation, monitoring, and maintenance of wells installed in these locations not only compromises the integrity of the CERCLA cover and thereby triggers maintenance obligations not otherwise required, it also potentially exposes the now-covered asbestos-containing waste materials to personnel collecting the air samples and/or cause the release of asbestos fibers to ambient air. Furthermore, it is not clear whether monitoring for On-Site Landfill gas beneath the cover of an adjacent landfill meets the intention of "ground surface," in that the goal is to detect whether elevated levels of methane generated within the On-Site Landfill are migrating away from that unit. As a result, locating the landfill gas monitoring devices at a distance of 100 feet from the On-Site Landfill as technically required by 35 Ill.Adm.Code § 811.311(a)(1) would be very burdensome, potentially harmful to the CERCLA remedy, and due to the extremely low levels of gas being generated, would not provide any additional degree of protection to human health or the environment.

For all of these reasons, JM is proposing the following adjusted standard:

**"In lieu of compliance with 35 Ill.Adm.Code § 811.311(a)(1) as applied to the On-Site Landfill at its facility in Waukegan, Illinois, Johns Manville shall**

**install a gas management system if a methane concentration greater than 50 percent of the lower explosive limit in air, is detected below the ground surface by a monitoring device or is detected by an ambient air monitor located as close as possible to, but outside the boundary line shown on Figure 7 or the property line, whichever is less.”**

Based on the data collected, compliance with the adjusted standard proposed will not have a more adverse effect on the environment than would compliance with the regulations.

### **PROPOSED ADJUSTED STANDARD FOR THE LOCATIONS OF GROUNDWATER MONITORING WELLS**

The regulation governing the Design, Construction, and Operation of Groundwater Monitoring Systems (35 Ill. Adm. Code § 811.318(b)(3)) contemplates locating monitoring points for the On-Site Landfill (as Maximum Allowable Predicted Concentration or “MAPC” wells) within one-half the distance from the edge of the potential source of the discharge to the edge of the zone of attenuation downgradient, with respect to groundwater flow, from the source. Additionally, at least one monitoring well (as an Applicable Groundwater Quality Standard or “AGQS” well) is required at the downgradient limit of the Zone of Attenuation (35 Ill. Adm. Code § 811.318(b)(5)). However, at these distances from the edge of the On-Site Landfill (50 feet for “MAPC” wells and 100 feet for “AGQS” wells), the monitoring locations would fall within the areal limits of where subsurface waste materials are present as part of the now-closed CERCLA landfill. JM is therefore proposing to move the Zone of Attenuation a short distance (maximum of 115 feet) in the southeast corner of the Miscellaneous Disposal Pit (Fill Area # 1) (See Figure 8). In most cases, the distance will be approximately 50 feet beyond the regulatory limits.

Groundwater monitoring at these locations would require installation of wells either (i) on the steeply sloping sides of the CERCLA landfill (Fill Area #1), (ii) through the engineered cover placed for closure of the CERCLA landfill (Fill Areas #1 and #2) and/or (iii)

into and through the underlying "CERCLA" waste materials, prior to penetrating the underlying groundwater-bearing zone (Fill Areas #1 and #2). Installation, monitoring, and maintenance of wells installed in these locations is not desirable for the following reasons:

- Drilling through waste materials prior to installing a monitoring well within the underlying groundwater increases the risk of cross-contamination of that groundwater either through (i) carrying contaminants vertically downward during the drilling process and/or (ii) providing a conduit for ongoing vertical migration of waste material leachate down an inefficient annular seal within the borehole. It is acknowledged that the final landfill cover is intended to minimize leachate generation and that the use of various drilling techniques and grouts are available to minimize the possibility of cross contamination. However, these methods and their intended application are not without risk and thus, their use is not consistent with good environmental management practices, provided that the applicable data may be obtained without substantial compromise.
- In the case of Fill Area #1, ongoing and repetitive operations for many years on the steeply sloping, more erosion-prone sides of the CERCLA landfill increases both the cover maintenance obligations (as solely a cost-related issue) and the risk of ambient release of asbestos fiber and subsequent exposure to surrounding populations from incremental erosion events or catastrophic slope failure (e.g., due to drilling operations using heavy equipment).
- As specified in the Operating and Maintenance Manual governing closure of the CERCLA landfill, activities that may result in penetration or damage to the existing CERCLA cover must (i) be pre-approved by U.S. EPA and IEPA, and (ii) must adhere to Health and Safety protocols designed to limit exposure to asbestos.

As a result, locating groundwater monitoring wells at a distance of 50 feet from Unit #1, as technically required by 35 Ill.Adm.Code § 811.318(b)(3) would be very burdensome, would increase the risk of contaminating underlying groundwater, would increase the risk of ambient release and human exposure to asbestos fiber through inadvertent and potentially catastrophic failure of the CERCLA remedy, and would not provide any additional degree of protection to human health or the environment.

For all of these reasons, JM is proposing adjusted standards to those regulations governing the definition of the Zone of Attenuation and the location of monitoring points, as follows:

**“In lieu of compliance with 35 Ill. Adm. Code § 811.320(c)(1) as applied to the On-Site Landfill at its facility in Waukegan, Illinois, the Zone of Attenuation, within which concentrations of constituents in leachate discharged from the unit may exceed the applicable groundwater quality standard of this Section, is a volume bounded by a vertical plane located as shown on Figure 8, extending from the ground surface to the bottom of the uppermost aquifer and excluding the volume occupied by the waste.”**

**“In lieu of compliance with 35 Ill. Adm. Code § 811.318(b)(3) as applied to the On-Site Landfill at its facility in Waukegan, Illinois, Johns Manville shall install groundwater monitoring wells at the locations specified on the attached Figure 8. Those monitoring wells located along the proposed Zone of Attenuation boundary shall be considered Applicable Groundwater Quality Standards or “AGQS” wells consistent with the requirements of 35 Ill. Adm. Code § 811.318(b)(5)”**

The following additional clarifications to potentially applicable regulations are offered, based on discussions with the IEPA:

The location of the bottom of the uppermost aquifer shall be determined in a manner consistent with the requirements of 35 Ill. Adm. Code § 811.311(c)(2)(B).

Compliance with 35 Ill. Adm. Code § 811.317(b) shall be assessed by modeling all applicable Zone of Attenuation distances, as shown on Figure 8.

It is recognized that no Maximum Allowable Predicted Concentration or “MAPC” wells are being proposed; all monitoring points are considered Applicable Groundwater Quality Standards or “AGQS” locations. As such, the obligations described in 35 Ill. Adm. Code § 811.319(b)(3) immediately apply, if the concentration of one or more constituents monitored at or beyond the Zone of Attenuation, as shown on Figure 8, is above the applicable groundwater quality standards of Section 811.320 and is attributable to the On-Site Landfill.

These proposed adjusted standards are designed to implement the applicable regulations in a manner that is consistent with maximizing protection of the environment without increasing the potential accidental harm that might be caused inadvertently.

In reviewing any petition related to groundwater standards and the Zone of Attenuation, the Board may adjust the compliance boundary based on a consideration of the factors listed in 814.402(b)(3), as long as the alternative compliance boundary will not result in

contamination of groundwater that is or may be needed for human consumption. In its August 5, 2004 Order, the Board directed JM to address these factors, and JM addresses the applicable factors below. In this Amended Petition, JM has requested an adjusted standard to Section 811.320(c)(1) by explaining that compliance with the applicable regulations may result in (i) inadvertent impacts to underlying groundwater (814.402(b)(3)(F)) and (ii) exposure to asbestos fiber present beneath the CERCLA cap, thus potentially impacting public safety (814.402(b)(3)(G)). Any adjustments to the compliance boundary would not impact groundwater that is or may be used for human consumption, because there are no existing groundwater users in the immediate area, and because there will be prohibitions on the use of groundwater on the JM property pursuant to the amended federal consent decree. The proximity of the facility to Lake Michigan makes it very unlikely that any adjacent properties would attempt to use groundwater for human consumption. Moreover, the following factors also serve to show that compliance with the adjusted standards proposed will not have a more adverse effect on the environment than would compliance with the regulations:

- Native soils at the site consist of moderately sorted sand from the surface to approximately 40 feet below grade (see attached well log for LMW-11). Below this unit is a dry, lean clay that, based upon water production logs from the 1920s, is approximately 45 to 75 feet in thickness (see attached well logs for JM Wells 1, 2, 3, and 4). Confirmation of the thickness of the underlying clay will be conducted pursuant to the requirements of 811.315(c)(2)(b). The consistency in the soil type and the lack of intervening clay layers in the uppermost aquifer serves to minimize the number of potential migration pathways that contaminants might seek. Therefore, extending the Zone of Attenuation laterally (by a maximum of 115 feet) will not result in masking contaminants in the uppermost aquifer due to alternate migration pathways.
- Figure 8 also depicts the April 2004 groundwater flow contours in the vicinity of the On-Site Landfill. As would be expected, the flow direction is towards Lake Michigan, at an average gradient of 0.004 feet per foot. Figures 9, 10, 11, and 12 depict the groundwater elevations for April 2003, July 2003, December 2003, and April 2004, respectively. As can be seen, the groundwater flow direction and gradient is very

consistent during these 4 quarters of data. Therefore, moving the Zone of Attenuation laterally will not result in masking contaminant transport due to an unexpected change in the groundwater flow characteristics.

- The proposed lateral adjustment to the location of the Zone of Attenuation (maximum of 115 feet in the southwest corner of Fill Area #1) is further mitigated by the deed restriction requirement contained with the First Amended Consent Decree currently lodged in District Court prohibiting use of the groundwater on the Johns Manville property. As the proposed Zone of Attenuation boundary is still located on the JM property, this will not result in any further limitations on the use of groundwater that might be impacted within the Zone of Attenuation.

**Description of Impact of Compliance With General Standard As Compared to Proposed Adjusted Standard, and Justification, 35 Ill. Adm. Code §§ 104.4-6(g)-(h)**

As has been described above, because of the presence of the adjacent remediated Superfund cells, strict compliance with the regulations could result in drilling through engineered cover and waste, compromising the Superfund remedy. On the other hand, compliance with the proposed adjusted standard should meet the goals of the Board's Solid Waste Regulations with respect to gas control and groundwater monitoring. JM's proposed adjusted standard should provide sufficient information with respect to gas generation and groundwater impact so that future action can be taken, if necessary, under other provisions of the Board's solid waste regulations. Compliance with the Proposed Adjusted Standard will be, at a minimum, equally protective of the environment as would compliance with the regulations of general applicability. JM believes that granting the adjusted standard would be justified for the reasons set forth above, and would create a lesser risk of damage to the remediated areas at the Superfund site.

**The Board May Grant Adjusted Standard Consistent With Federal Law, 35 Ill. Adm. Code § 104.406(i)**

As described above, if the Board were to grant the adjusted standard, it would in no way be contrary to federal statutory or regulatory requirements. Moreover, the federal consent decree described above, expressly contemplated that an adjusted standard petition could

be filed, so granting the adjusted standard would not be inconsistent with any federal judicial order or consent decree.

#### **Hearing Requested 35 Ill.Adm.Code 104.406(j)**

JM has discussed these proposed adjusted standards with the Illinois Environmental Protection Agency(IEPA), and is requesting the Agency's concurrence. If Agency concurs with this petition, it may not be necessary to have a hearing (assuming that members of the public do not request one. If the IEPA concurs with the petition, and there are no requests for a hearing from the public or other interested parties, JM can waive its request for a hearing.

#### **Documentation to Be Relied Upon, 35 Ill.Adm.Code § 104.406(k)-(l)**

JM has attached a number of documents, including gas generation data and chart showing the locations of Superfund remediated areas in support of this petition. Due to the site's Superfund history, there is voluminous data and numerous reports concerning the conditions of the site prior to remedial activities, and the construction of the cap over the cells. This data can be provided to the Board or to the IEPA in the event that additional information is required.

#### **CONCLUSION**

For the reasons set forth above, JM respectfully requests that the Pollution Control Board grant the adjusted standards to 35 Ill.Adm.Code Part 814, incorporating 35 Ill.Adm.Code §§ 811.310, 811.311, and 811.318 as described in this petition, and as set forth below:

**“In lieu of compliance with 35 Ill.Adm.Code § 811.310(c)(1) as applied to the On-Site Landfill at its facility in Waukegan, Illinois, Johns Manville shall operate all gas monitoring devices, including the ambient air monitors, such that samples will be collected on a semi-annual basis for a period of five years following approval of this adjusted standard. If, at the end of five years, the requirements for implementing a Landfill Gas Collection System (35**

**Ill. Adm. Code § 811.311) are not met, no further monitoring will be conducted.”**

**“In lieu of compliance with 35 Ill. Adm. Code § 811.311(a)(1) as applied to the On-Site Landfill at its facility in Waukegan, Illinois, Johns Manville shall install a gas management system if a methane concentration greater than 50 percent of the lower explosive limit in air, is detected below the ground surface by a monitoring device or is detected by an ambient air monitor located as close as possible to the boundary line shown on Figure 7 or the property line, whichever is less.”**

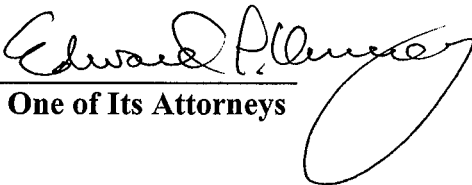
**“In lieu of compliance with 35 Ill. Adm. Code § 811.320(c)(1) as applied to the On-Site Landfill at its facility in Waukegan, Illinois, the Zone of Attenuation, within which concentrations of constituents in leachate discharged from the unit may exceed the applicable groundwater quality standard of this Section, is a volume bounded by a vertical plane located as shown on Figure 8, extending from the ground surface to the bottom of the uppermost aquifer and excluding the volume occupied by the waste.”**

**“In lieu of compliance with 35 Ill. Adm. Code § 811.318(b)(3) as applied to the On-Site Landfill at its facility in Waukegan, Illinois, Johns Manville shall install groundwater monitoring wells at the locations specified on the attached Figure 8. Those monitoring wells located along the proposed Zone of Attenuation boundary shall be considered Applicable Groundwater Quality Standards or “AGQS” wells consistent with the requirements of 35 Ill. Adm. Code § 811.318(b)(5)”**



Respectfully submitted,

**JOHNS MANVILLE,**  
**Petitioner,**

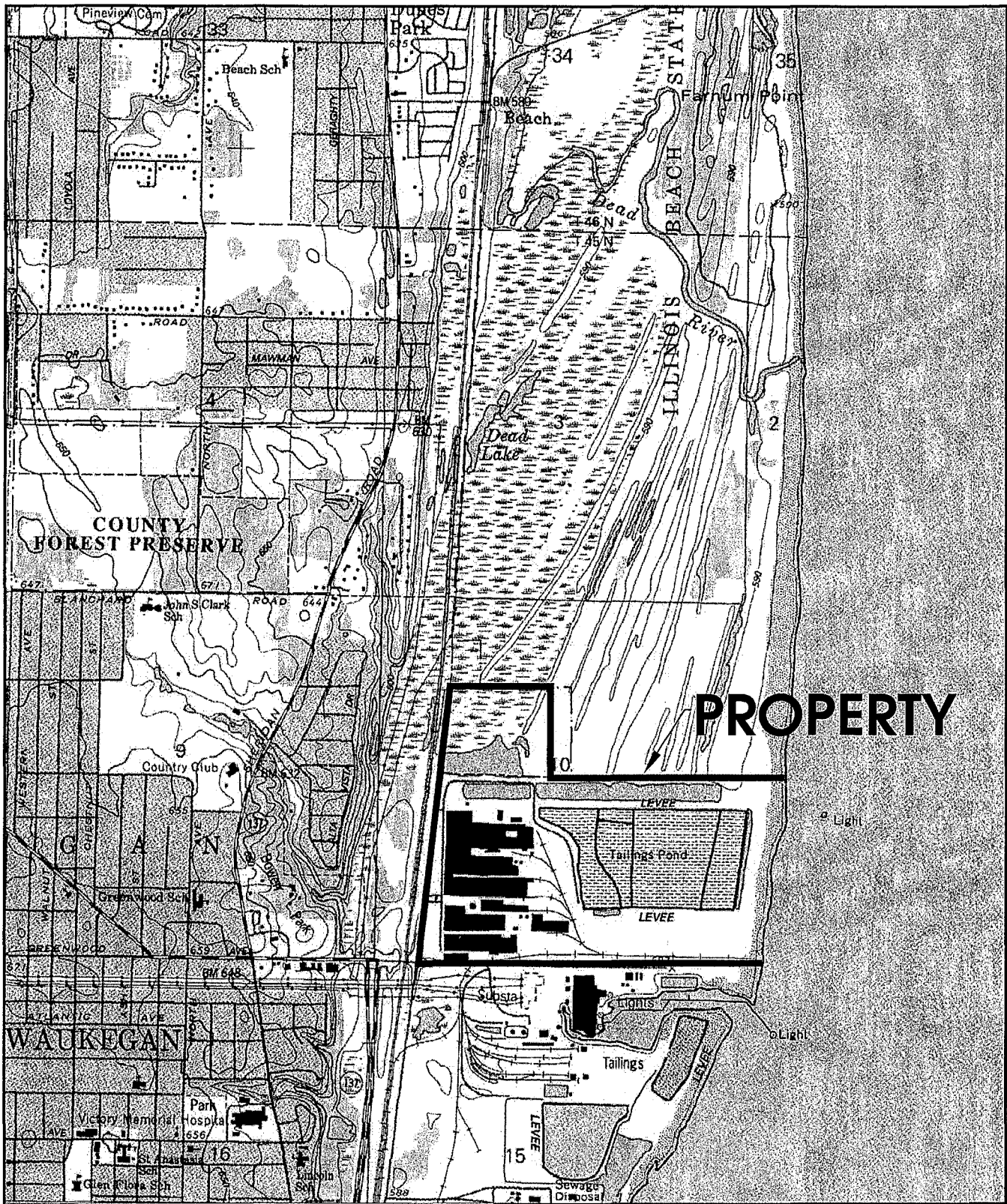
By:   
**One of Its Attorneys**

Edward P. Kenney  
Sidley, Austin, Brown & Wood LLP  
10 South Dearborn Street  
BankOne Plaza  
Chicago, Illinois 60603  
(312)853-2062

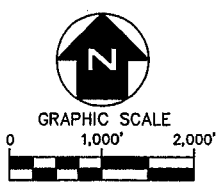
## FIGURES AND EXHIBITS

|           |                                                                                              |
|-----------|----------------------------------------------------------------------------------------------|
| Figure 1  | Property Location Map                                                                        |
| Figure 2  | General Property Map and On-Site Landfill Location                                           |
| Figure 3  | On-Site Landfill Site Plan and Location of Cross Sections                                    |
| Figure 4  | On-Site Landfill West-East Cross Section, April 2003                                         |
| Figure 5  | On-Site Landfill, South-North Cross Section, April 2003                                      |
| Figure 6  | On-Site Landfill, West-East Cross Section, April 2003                                        |
| Figure 7  | On-Site Landfill, Soil Boring Locations and Proposed Landfill Gas Monitoring Boundary        |
| Figure 8  | On-Site Landfill, Existing and Proposed GW Monitoring Wells and Proposed Zone of Attenuation |
| Figure 9  | Groundwater Levels, Data Date April 2003                                                     |
| Figure 10 | Groundwater Levels, Data Date July 2003                                                      |
| Figure 11 | Groundwater Levels, Data Date December 2003                                                  |
| Figure 12 | Groundwater Levels Data Date April 2004                                                      |
| Exhibit 1 | On-Site Landfill Gas Monitoring Forms                                                        |
| Exhibit 2 | Boring Logs Showing Waste Encountered on Site                                                |

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**PROPERTY**



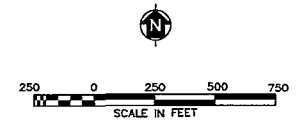
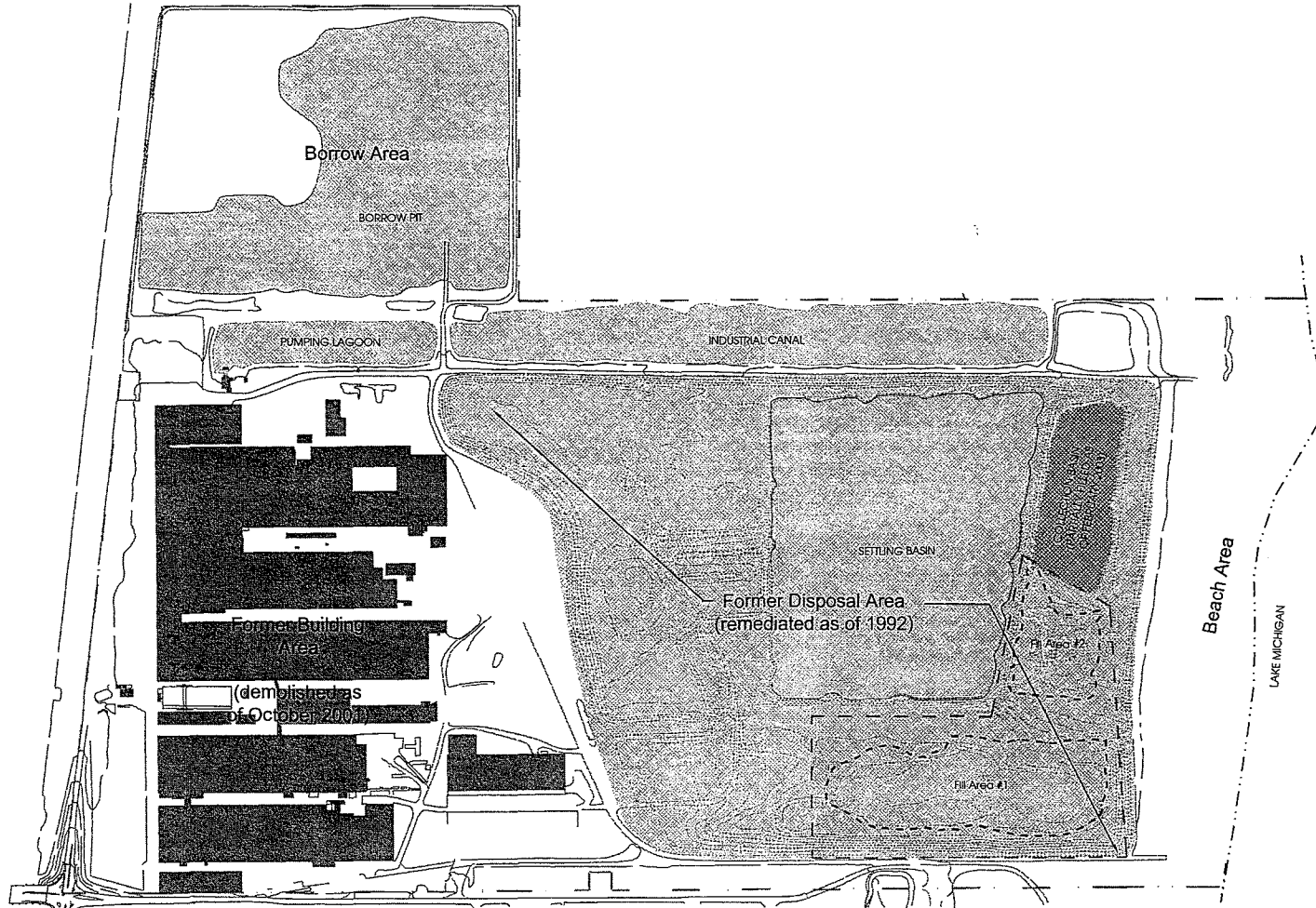
Source:  
 Zion, Illinois (1993) USGS  
 7.5 Minute Series  
 Quadrangle Map

Property Location Map  
**Johns Manville**  
 1871 North Pershing Road  
 Waukegan, Illinois



Figure 1

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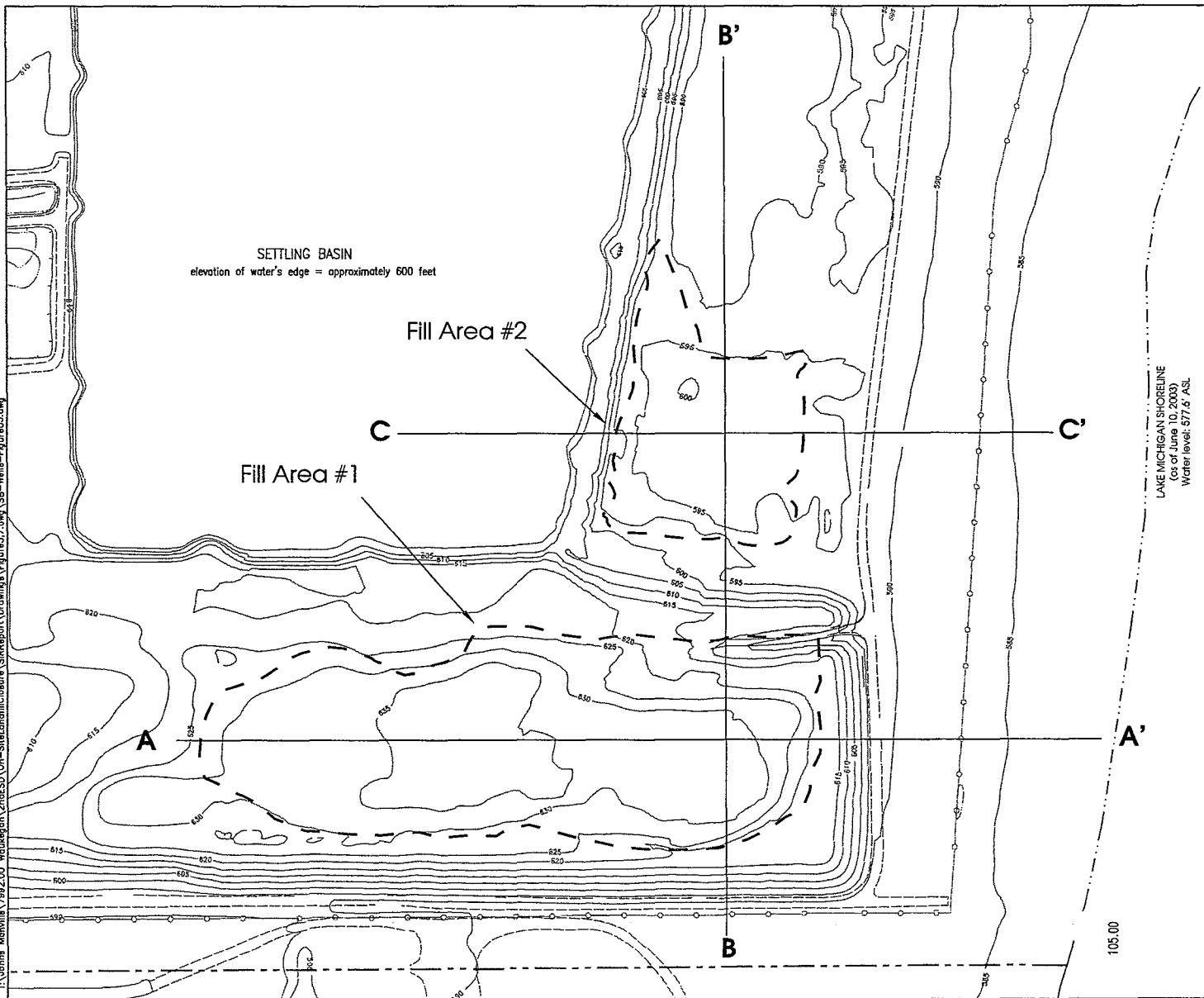
- - - Property Line
- . - . On-Site Landfill Area

JOHNS MANVILLE, WAUKEGAN, ILLINOIS  
**General Property Map  
and On-Site Landfill Location**



Figure 2

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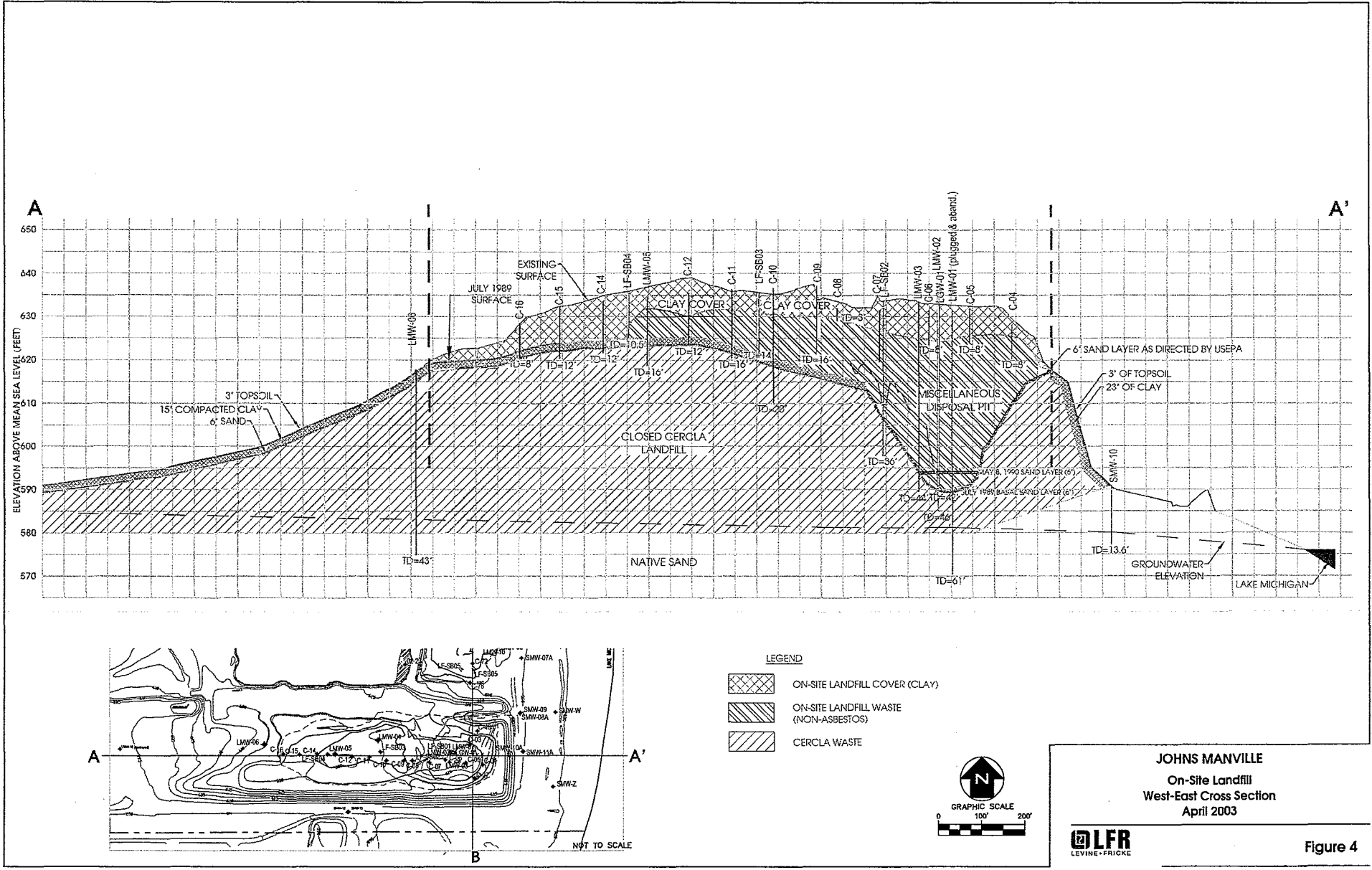
Note:  
Figure adapted from Aerial Survey dated 1998, generated by Harrington Associates.

JOHNS MANVILLE  
**On Site Landfill  
Site Plan and  
Location of Cross Sections**

**LFR**  
LEVINE-FRITCKE

Figure 3

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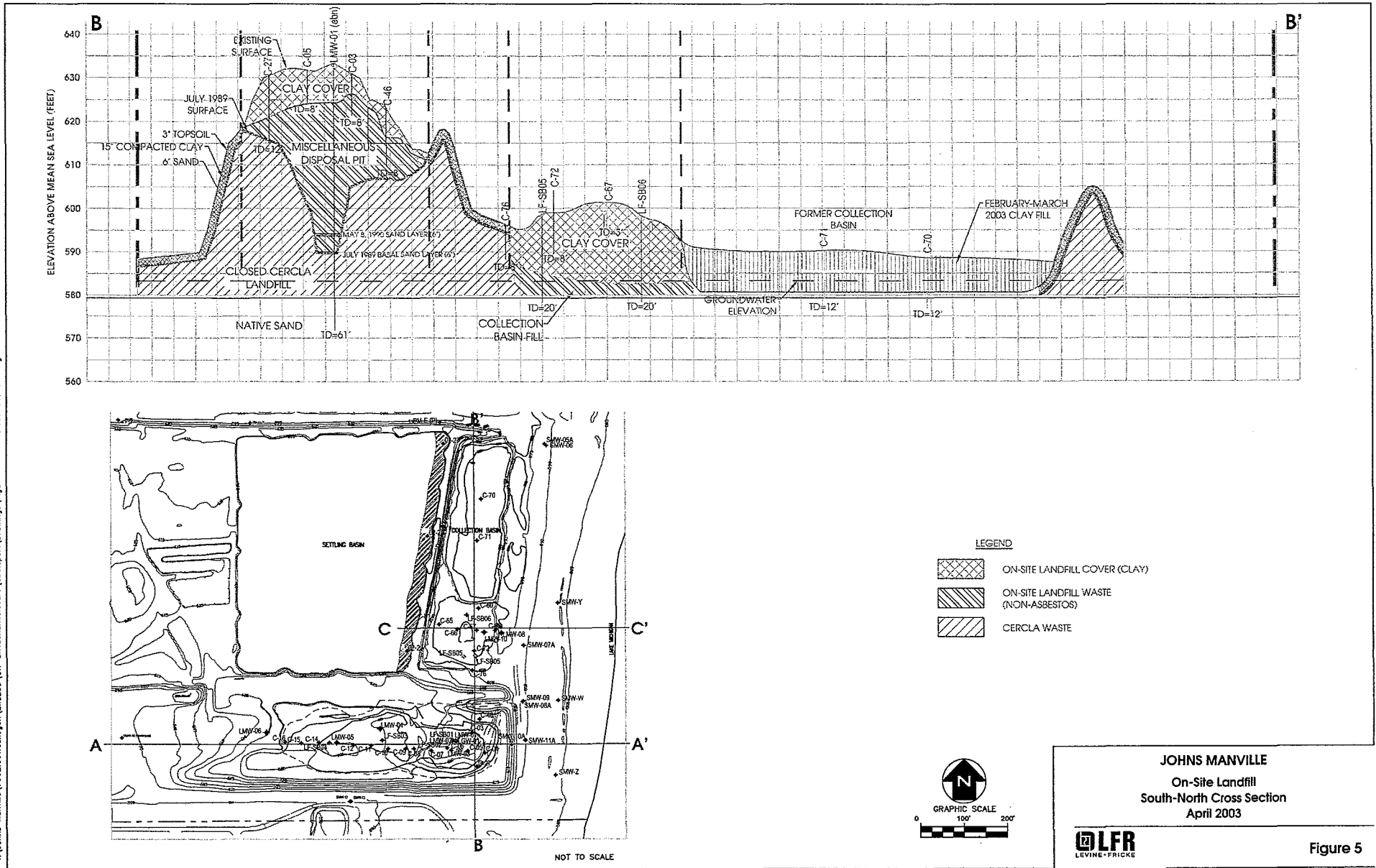


**JOHNS MANVILLE**  
 On-Site Landfill  
 West-East Cross Section  
 April 2003

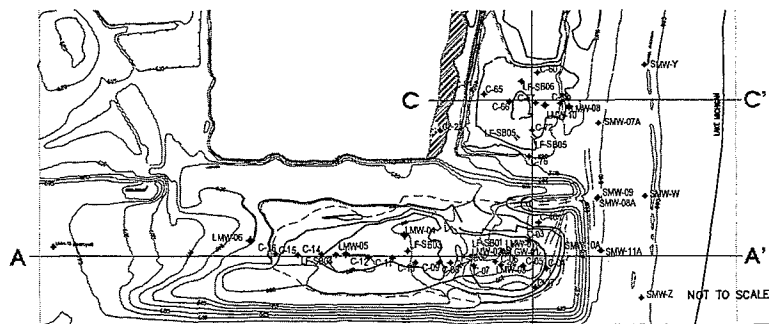
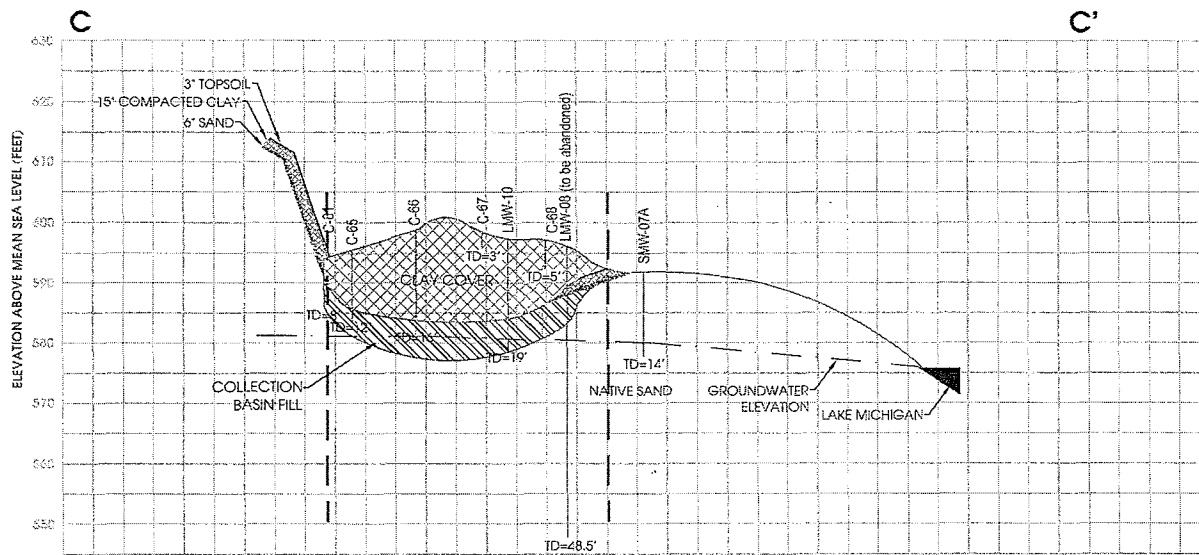


Figure 4

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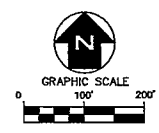


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**LEGEND**

- ON-SITE LANDFILL COVER (CLAY)
- ON-SITE LANDFILL WASTE (NON-ASBESTOS)
- CERCLA WASTE



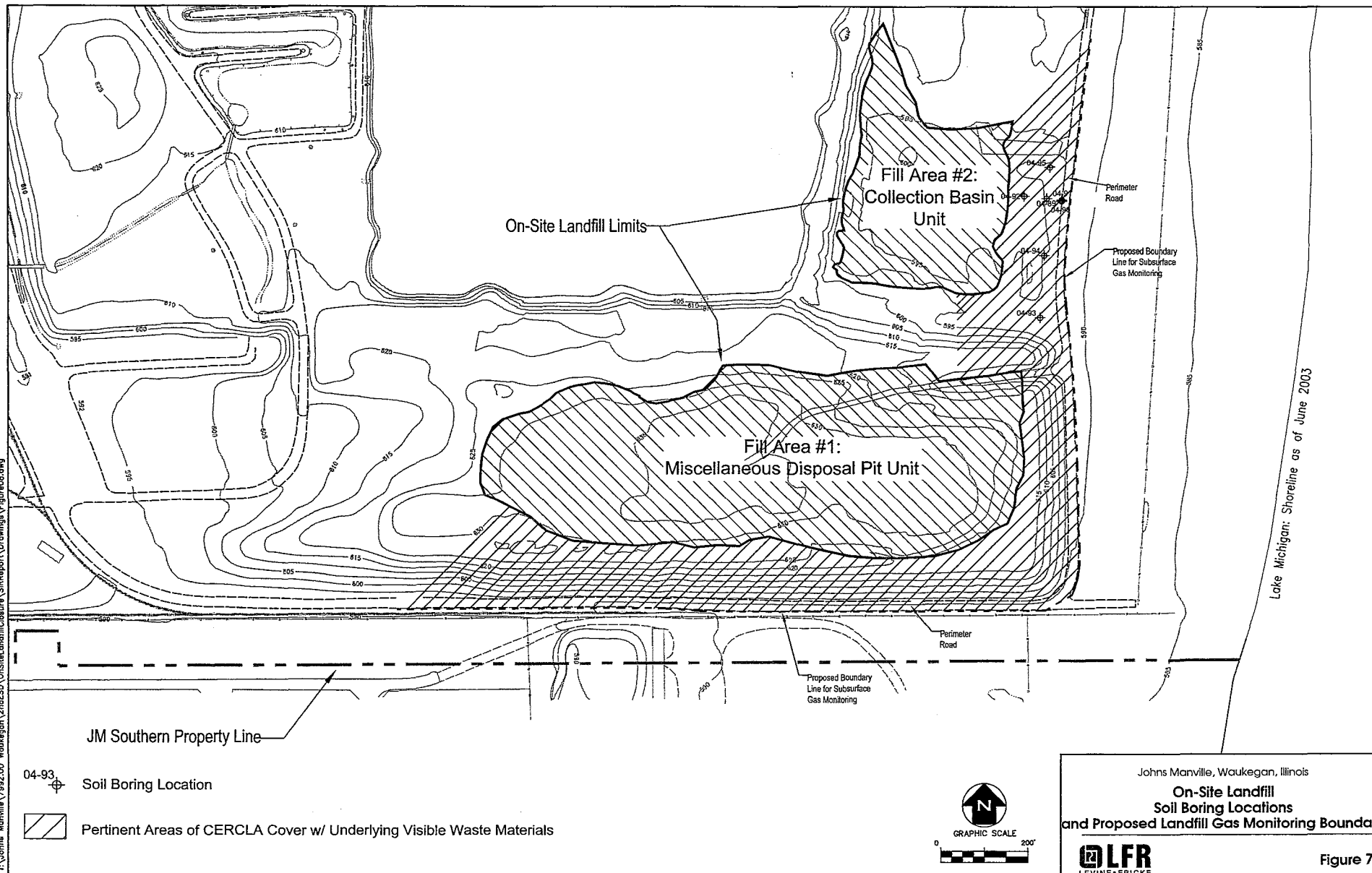
**JOHNS MANVILLE**  
**On-Site Landfill**  
**West-East Cross Section**  
**April 2003**


**LFR**  
 LEVINE-FRICKE

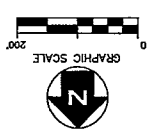
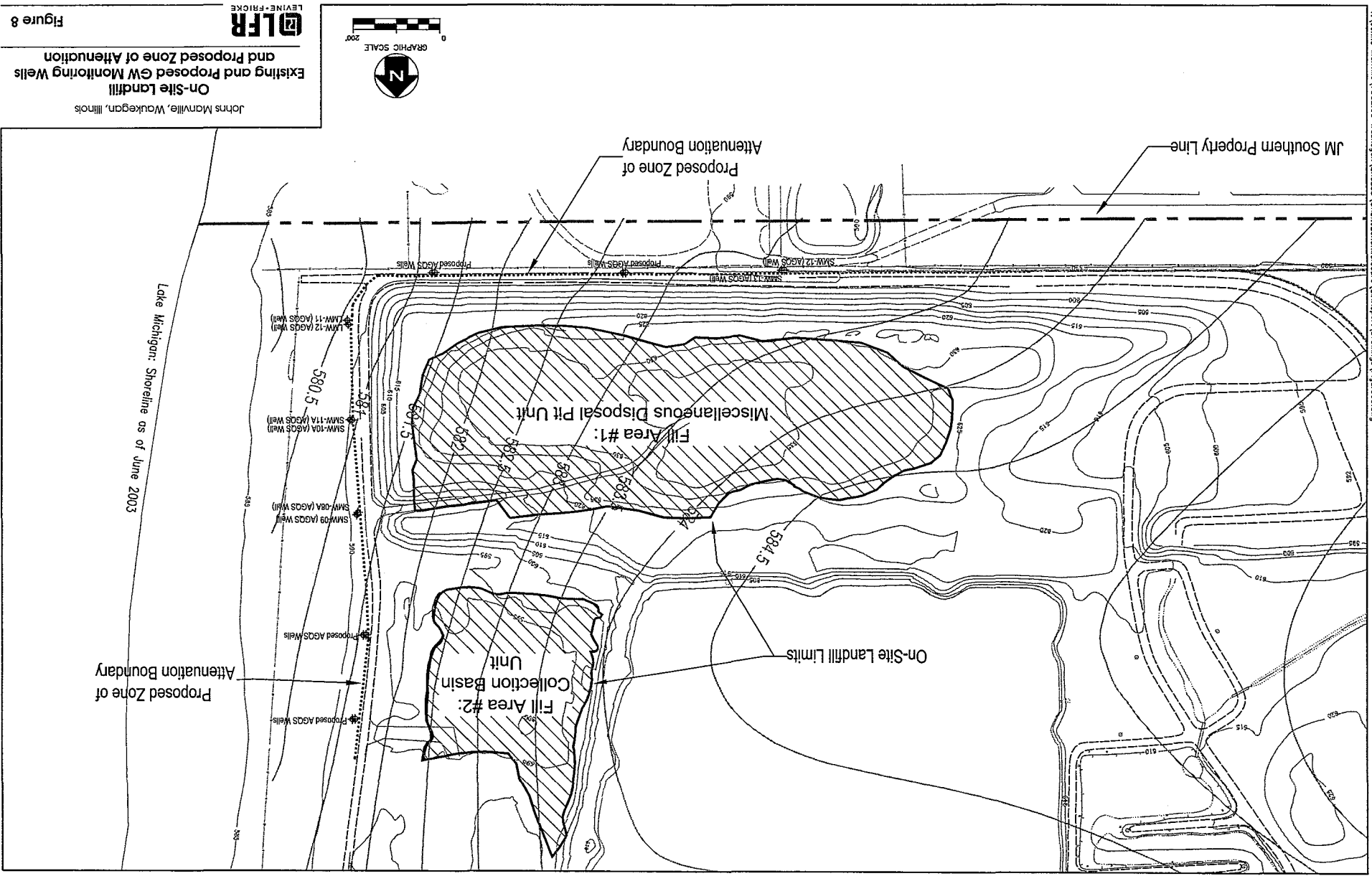
Figure 6



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Johns Manville, Waukegan, Illinois  
**On-Site Landfill  
 Soil Boring Locations  
 and Proposed Landfill Gas Monitoring Boundary**  
  
 Figure 7

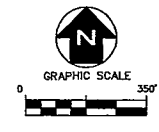
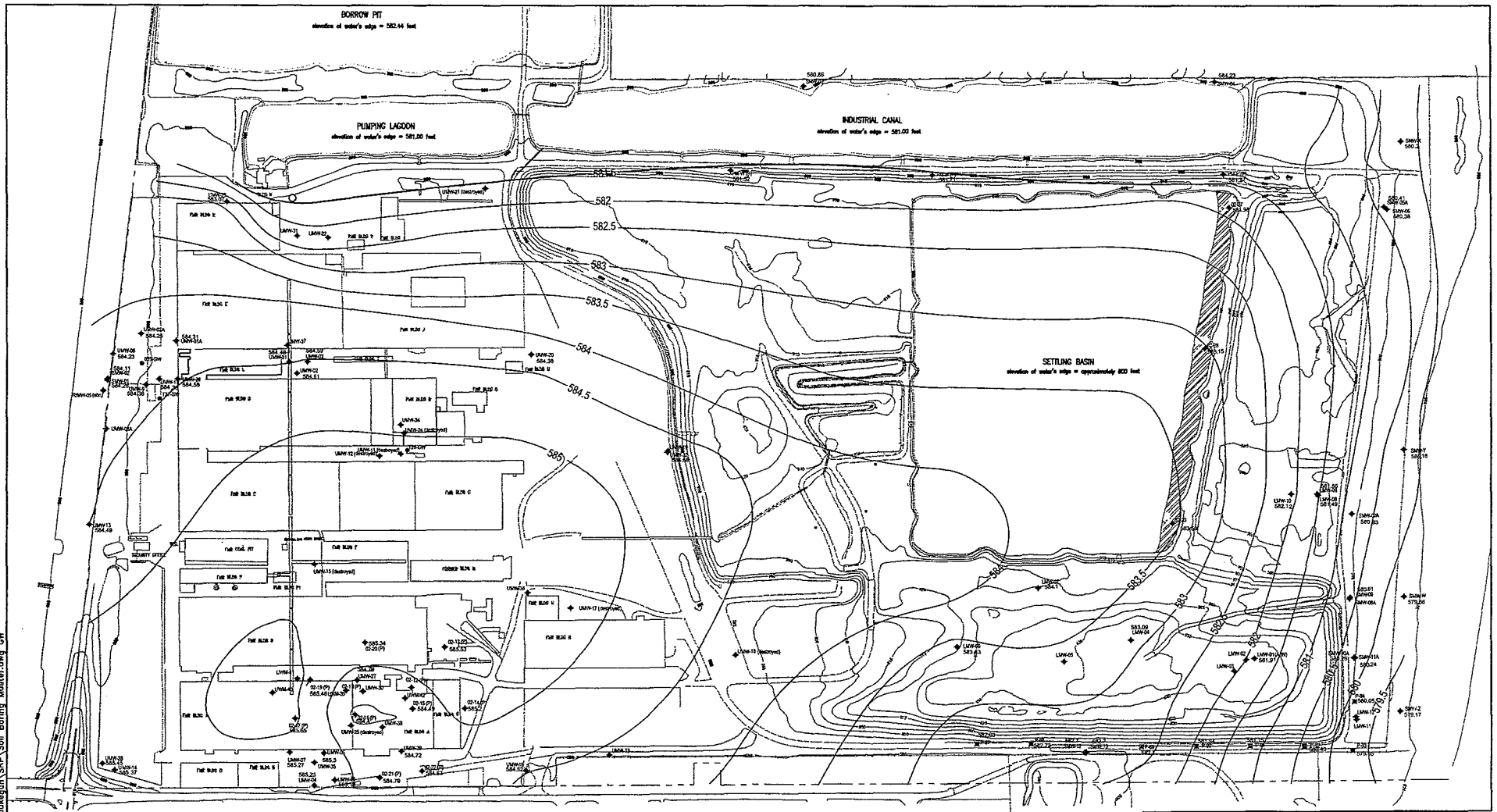


On-Site Landfill  
Johns Manville, Waukegan, Illinois

Existing and Proposed GW Monitoring Wells  
and Proposed Zone of Attenuation

LFBR  
LEVINE-FRICKLE

Figure 8



JOHNS MANVILLE  
Groundwater Levels  
Data Date: April 2003

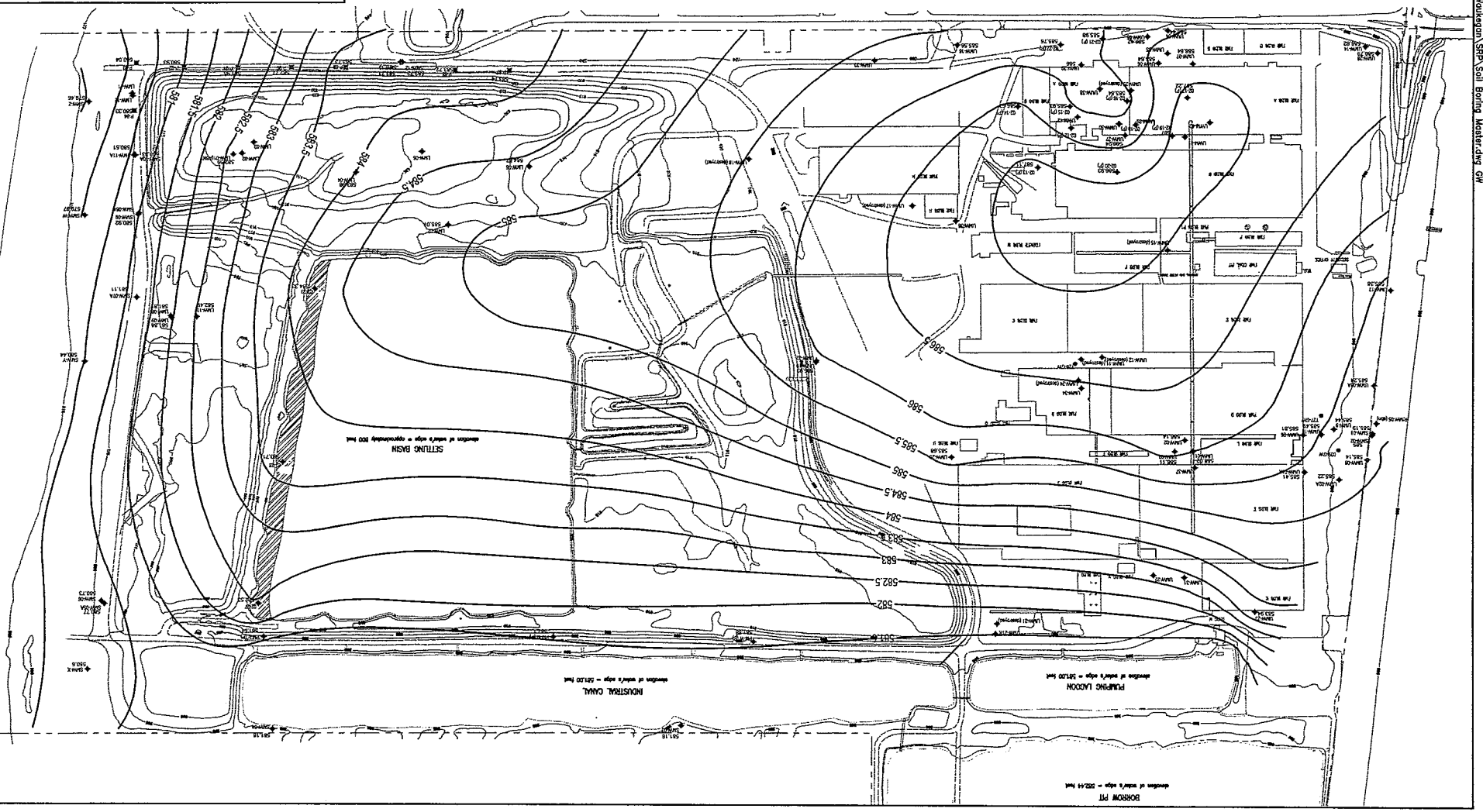


Figure 9

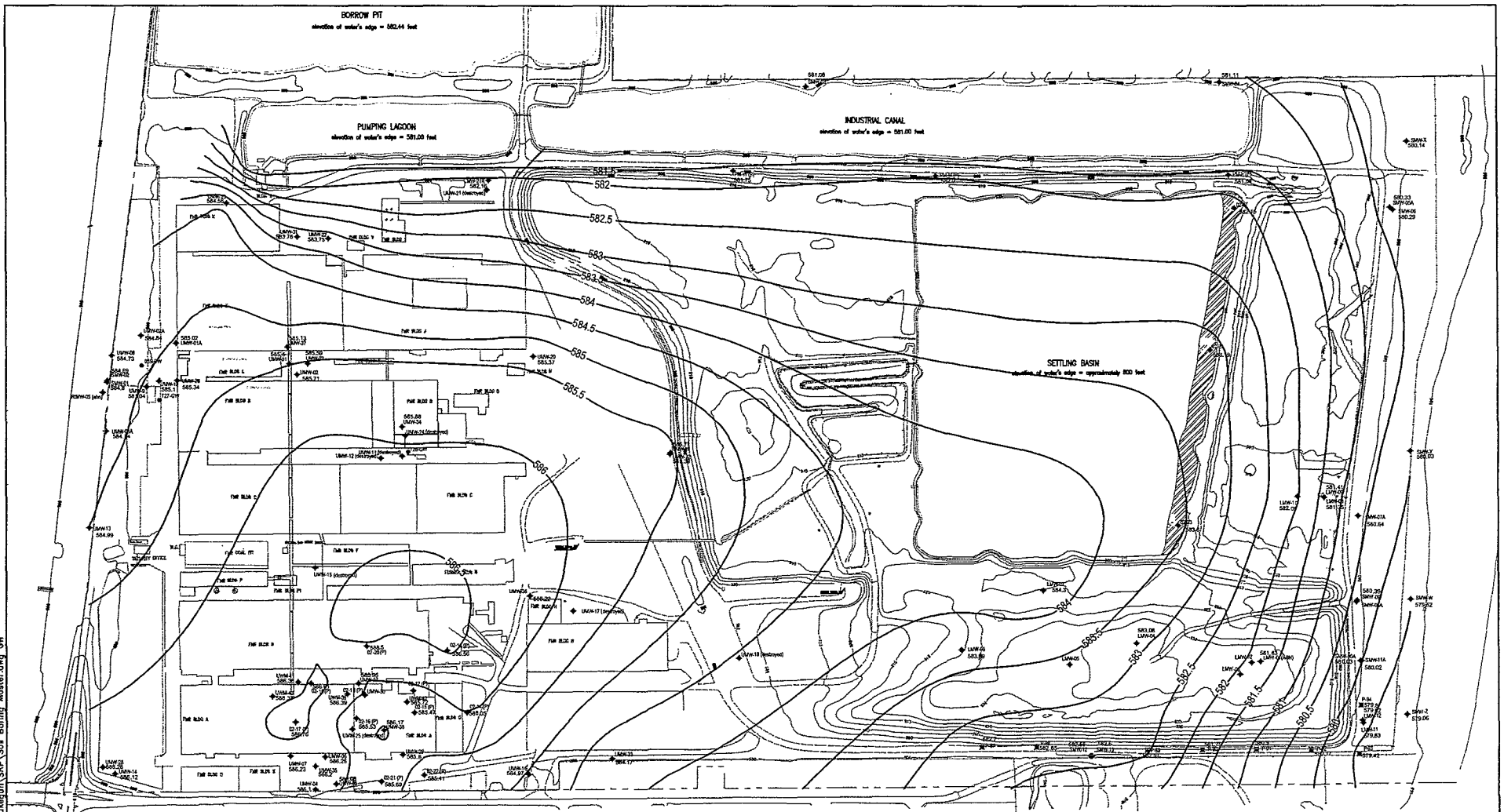
Figure 10

LEVINE-FRICKLE  
**DLFR**

Johns Manville, Waukegan, Illinois  
Groundwater Levels  
Data Date: July 2003



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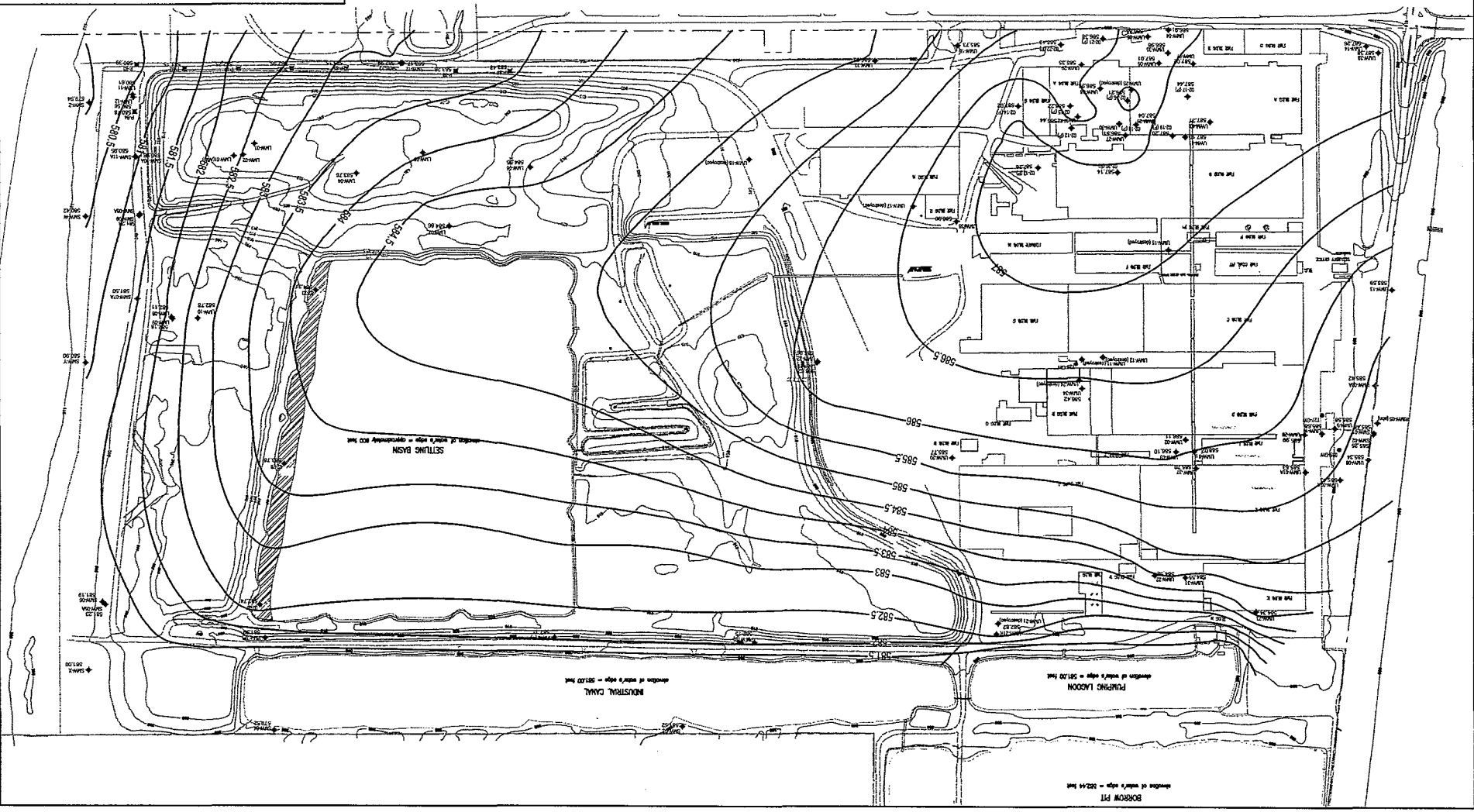


Johns Manville, Waukegan, Illinois  
Groundwater Levels  
Data Date: December 2003

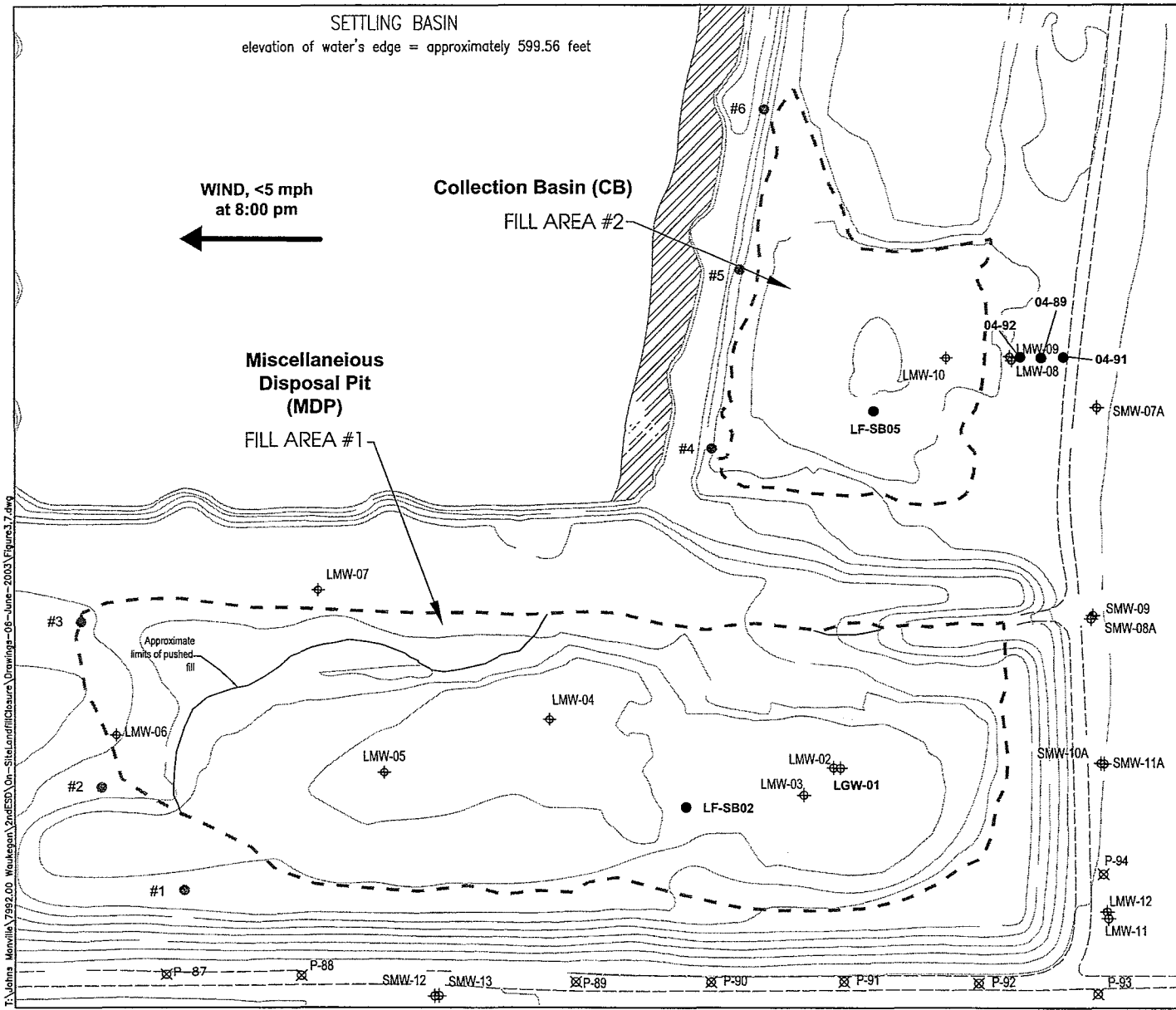


Figure 11

Johns Manville, Waukegan, Illinois  
 Groundwater Levels  
 Data Date: April 2004  
 LEVINE-FRICKLE  
 LFR



# **EXHIBIT 1**

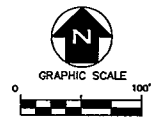


Mark ambient air methane monitoring locations on this drawing and indicate the wind direction by drawing an arrow on this map.

Monitoring Date: 07/12/04

Personnel: David Peterson

- Location 1 Methane Level: 0%
- Location 2 Methane Level: 0%
- Location 3 Methane Level: 0%
- Location 4 Methane Level: 0%
- Location 5 Methane Level: 0%
- Location 6 Methane Level: 0%



**LEGEND**

|       |                        |
|-------|------------------------|
| ---   | PROPERTY LINE          |
| - - - | BOUNDARY OF CLAY COVER |
| ⊕     | MONITORING WELL        |
| ⊕     | SOIL BORING            |
| ⊗     | PIEZOMETER             |

Note:  
Figure adapted from Aerial Survey dated 1998, generated by Harrington Associates.

JOHNS MANVILLE  
**Site Plan**  
**On-Site Landfill**  
**Soil Borings and Well Locations**

**LFR**  
 LEVINE • FRICKE

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## Johns Manville – Waukegan Plant On-Site Landfill Gas Monitoring Form

|                      |             |                          |                                            |
|----------------------|-------------|--------------------------|--------------------------------------------|
| Date:                | 7/14/04     | Personnel:               | David Peterson                             |
| Ambient Temperature: | 76 deg. F   | Landfill Gas Instrument: | Landtec GA-90 (Rented from F.E.I.)         |
| Barometric Pressure: | 29.87 in Hg | Pressure Instrument:     | Magnehelic Gauges (0-1 and 0-10 in. water) |
| Wind Speed:          | 9 mph       | Water Level Instrument:  | Solonist                                   |
| Wind Direction:      | From the NW | Weather Conditions:      | Partly Sunny                               |

| Monitoring Location | Subsurface Pressure (in. water) | CH <sub>4</sub> Level (%) | CO <sub>2</sub> Level (%) | O <sub>2</sub> Level (%) | Depth to Water below TOC (ft) | TOS below Top of Casing (TOC) (ft) | Top of Screen (TOS) Elev. (ft) | Bottom of Screen Elev. (ft) | Screen Interval Description                   |
|---------------------|---------------------------------|---------------------------|---------------------------|--------------------------|-------------------------------|------------------------------------|--------------------------------|-----------------------------|-----------------------------------------------|
| LGW-01              | 0                               | 55                        | 0                         | 0.6                      | 38.03<br>Dry                  | 11.00                              | 622.67                         | 597.67                      | In MDP waste                                  |
| LMW-05              | 0                               | 12.3                      | 0                         | 0.1                      | 9.22<br>Dry                   | 2.00                               | 635.22                         | 628.22                      | In MDP waste                                  |
| LMW-06              | 0                               | 0                         | 0.1                       | 19.8                     | 34.71                         | 37.50                              | 582.99                         | 577.99                      | West of MDP                                   |
| LMW-07              | 0.18                            | 0                         | 0                         | 20.8                     | 36.96                         | 44.00                              | 579.01                         | 574.01                      | North of MDP                                  |
| LMW-12              | 0                               | 0                         | 6.8                       | 9.4                      | 10.19                         | 5.00                               | 586.28                         | 576.28                      | East of MDP                                   |
| SMW-8A              | 0                               | 0                         | 0.1                       | 20.1                     | 11.20                         | 8.30                               | 584.97                         | 579.97                      | East of MDP                                   |
| SMW-10A             | 0                               | 0                         | 0                         | 20.6                     | 10.88                         | 8.60                               | 583.87                         | 578.87                      | East of MDP                                   |
| SMW-12              | 0                               | 0                         | 0                         | 20.8                     | 7.38                          | 8.40                               | 583.07                         | 578.57                      | South of MDP                                  |
| LMW-9               | 0                               | 2.4                       | 2.8                       | 0.3                      | 17.67                         | 12.00                              | 588.92                         | 578.92                      | East of CB,<br>below asbestos<br>landfill cap |
| LMW-10              | 0                               | 3.2                       | 0                         | 15.6                     | 16.89                         | 13.50                              | 587.38                         | 582.38                      | In CB waste                                   |
|                     |                                 |                           |                           |                          |                               |                                    |                                |                             |                                               |

| Ambient Location | CH <sub>4</sub> Level (%) | Sample Location Description                                             |
|------------------|---------------------------|-------------------------------------------------------------------------|
| 1                | 0                         | MDP - Sampled 07/12/04 at 8:00 pm, west side of landfill, south sample  |
| 2                | 0                         | MDP - Sampled 07/12/04 at 8:00 pm, west side of landfill, middle sample |
| 3                | 0                         | MDP - Sampled 07/12/04 at 8:00 pm, west side of landfill, north sample  |
| 4                | 0                         | CB - Sampled 07/12/04 at 8:10 pm, west side of landfill, south sample   |
| 5                | 0                         | CB - Sampled 07/12/04 at 8:10 pm, west side of landfill, middle sample  |
| 6                | 0                         | CB - Sampled 07/12/04 at 8:10 pm, west side of landfill, north sample   |

Note: Surface methane levels measured with a MSA Microgard O2/LEL meter calibrated to 50% pentane, corrected for methane using a response factor of 0.5.  
Water levels collected on July 12, 2004

**Johns Manville – Waukegan Plant  
On-Site Landfill Gas Monitoring Form  
Optional Additional Data**

|                                         |                                                                        |
|-----------------------------------------|------------------------------------------------------------------------|
| Date: <u>7/14/04</u>                    | Personnel: <u>David Peterson</u>                                       |
| Ambient Temperature: <u>76</u> deg. F   | Landfill Gas Instrument: <u>Landtec GA-90 (Rented from F.E.I.)</u>     |
| Barometric Pressure: <u>29.87</u> in Hg | Pressure Instrument: <u>Magnehelic Gauges (0-1 and 0-10 in. water)</u> |
| Wind Speed: <u>9</u> mph                | Water Level Instrument: <u>Solonist</u>                                |
| Wind Direction: <u>From the NW</u>      | Weather Conditions: <u>Partly Sunny</u>                                |

| Monitoring Location | Subsurface Pressure (in. water) | CH <sub>4</sub> Level (%) | CO <sub>2</sub> Level (%) | O <sub>2</sub> Level (%) | Depth to Water below TOC (ft) | TOS below Top of Casing (TOC) (ft) | Top of Screen (TOS) Elev. (ft) | Bottom of Screen Elev. (ft) | Screen Interval Description |
|---------------------|---------------------------------|---------------------------|---------------------------|--------------------------|-------------------------------|------------------------------------|--------------------------------|-----------------------------|-----------------------------|
| LMW-02              | 0                               | 2.6                       | 0                         | 19.6                     | 39.51                         | 38.00                              | 595.48                         | 590.48                      | In MDP waste                |
| LMW-03              | -0.18                           | 15.4                      | 2.2                       | 9.1                      | 44.87<br>Dry                  | 38.00                              | 596.37                         | 591.37                      | In MDP waste                |
| LMW-04              | 0.50                            | 0.1                       | 0.2                       | 19.0                     | 56.39                         | 59.00                              | 582.22                         | 577.22                      | Beneath MDP                 |
| P-87                | 0.52                            | 0                         | 0                         | 20.9                     | 10.05                         | 6.00                               | 588.62                         | 583.62                      | South of MDP                |
| P-88                | NM                              | 0                         | 0                         | 20.8                     | 10.37                         | 5.50                               | 589.17                         | 584.17                      | South of MDP                |
| P-89                | 0.60                            | 0                         | 0                         | 20.7                     | 9.65                          | 5.75                               | 587.89                         | 582.89                      | South of MDP                |
| P-90                | 0.72                            | 0                         | 0                         | 20.8                     | 10.09                         | 6.50                               | 586.83                         | 581.83                      | South of MDP                |
| P-91                | 0.20                            | 0                         | 0                         | 20.8                     | 10.11                         | 6.50                               | 586.24                         | 581.24                      | South of MDP                |
| P-92                | 0.20                            | 0                         | 0.2                       | 20.7                     | 10.20                         | 6.80                               | 585.04                         | 580.04                      | South of MDP                |
| P-93                | 0                               | 0                         | 0.2                       | 19.7                     | 10.33                         | 6.50                               | 584.69                         | 579.69                      | South of MDP                |
| P-94                | NM                              | 0                         | 0                         | 20.6                     | 13.45                         | 9.00                               | 585.76                         | 580.76                      | South of MDP                |
| 04-92               | 0                               | 0                         | 3.6                       | 16.6                     | 5.98                          | 4.80                               | 0.8 ft BGS                     | 3.8 ft BGS                  | 50 ft E. of CB              |
| 04-89               | NM                              | NM                        | NM                        | NM                       | Dry at 6.60                   | 4.75                               | 0.75 ft BGS                    | 3.75 ft BGS                 | 100 ft E. of CB             |
| 04-91               | NM                              | NM                        | NM                        | NM                       | Dry at 6.35                   | 4.64                               | 0.1 ft BGS                     | 2.6 ft BGS                  | 140 ft E. of CB             |
| LF-SB02             | 0                               | 15                        | 0.7                       | 11.7                     | 22.90                         | 35.50                              | 32 ft BGS                      | 37 ft BGS                   | In MDP waste                |
| LF-SB05             | NM                              | 0                         | 9.8                       | 0.3                      | 8.00                          | 9.50                               | 7.5 ft BGS                     | 12.5 ft BGS                 | In CB waste                 |

Note: NM = not measured.  
Water levels collected on July 12, 2004

## Johns Manville – Waukegan Plant On-Site Landfill Gas Monitoring Form

|                                         |                                                                        |
|-----------------------------------------|------------------------------------------------------------------------|
| Date: <u>8/31/04</u>                    | Personnel: <u>David Peterson</u>                                       |
| Ambient Temperature: <u>70</u> deg. F   | Landfill Gas Instrument: <u>Landtec GA-90 (Rented from F.E.I.)</u>     |
| Barometric Pressure: <u>30.24</u> in Hg | Pressure Instrument: <u>Magnehelic Gauges (0-1 and 0-10 in. water)</u> |
| Wind Speed: <u>4</u> Mph                | Water Level Instrument: <u>Heron (Rented from F.E.I.)</u>              |
| Wind Direction: <u>From the NE</u>      | Weather Conditions: <u>Sunny and clear</u>                             |

| Monitoring Location | Subsurface Pressure (in. water) | CH <sub>4</sub> Level (%) | CO <sub>2</sub> Level (%) | O <sub>2</sub> Level (%) | Depth to Water below TOC (ft) | TOS below Top of Casing (TOC) (ft) | Top of Screen (TOS) Elev. (ft) | Bottom of Screen Elev. (ft) | Screen Interval Description             |
|---------------------|---------------------------------|---------------------------|---------------------------|--------------------------|-------------------------------|------------------------------------|--------------------------------|-----------------------------|-----------------------------------------|
| LGW-01              | -0.02                           | 55                        | 0.5                       | 0.8                      | Dry                           | 11.00                              | 622.67                         | 597.67                      | In MDP waste                            |
| LMW-05              | 0                               | 0.3                       | 0.5                       | 5.9                      | Dry                           | 2.00                               | 635.22                         | 628.22                      | In MDP waste                            |
| LMW-06              | 0                               | 0                         | 0.1                       | 20.1                     | 36.15                         | 37.50                              | 582.99                         | 577.99                      | West of MDP                             |
| LMW-07              | -1.0                            | 0                         | 0                         | 20.5                     | 38.20                         | 44.00                              | 579.01                         | 574.01                      | North of MDP                            |
| LMW-12              | 0                               | 0                         | 0                         | 20.7                     | 10.66                         | 5.00                               | 586.28                         | 576.28                      | East of MDP                             |
| SMW-8A              | 0                               | 0                         | 1.1                       | 18.4                     | Dry                           | 8.30                               | 584.97                         | 579.97                      | East of MDP                             |
| SMW-10A             | 0                               | 0                         | 0                         | 20.6                     | 11.51                         | 8.60                               | 583.87                         | 578.87                      | East of MDP                             |
| SMW-12              | -0.04                           | 0                         | 0                         | 20.5                     | 8.52                          | 8.40                               | 583.07                         | 578.57                      | South of MDP                            |
| LMW-9               | 0                               | 0.7                       | 3.2                       | 0.4                      | 18.88                         | 12.00                              | 588.92                         | 578.92                      | East of CB, below asbestos landfill cap |
| LMW-10              | 0                               | 27.0                      | 1.9                       | 2.3                      | 17.70                         | 13.50                              | 587.38                         | 582.38                      | In CB waste                             |
|                     |                                 |                           |                           |                          |                               |                                    |                                |                             |                                         |

| Ambient Location | CH <sub>4</sub> Level (%) | Sample Location Description                 |
|------------------|---------------------------|---------------------------------------------|
| 1                | 0                         | MDP - south side of landfill, east sample   |
| 2                | 0                         | MDP - south side of landfill, middle sample |
| 3                | 0                         | MDP - south side of landfill, west sample   |
| 4                | 0                         | CB - south side of landfill, east sample    |
| 5                | 0                         | CB - south side of landfill, middle sample  |
| 6                | 0                         | CB - south side of landfill, west sample    |

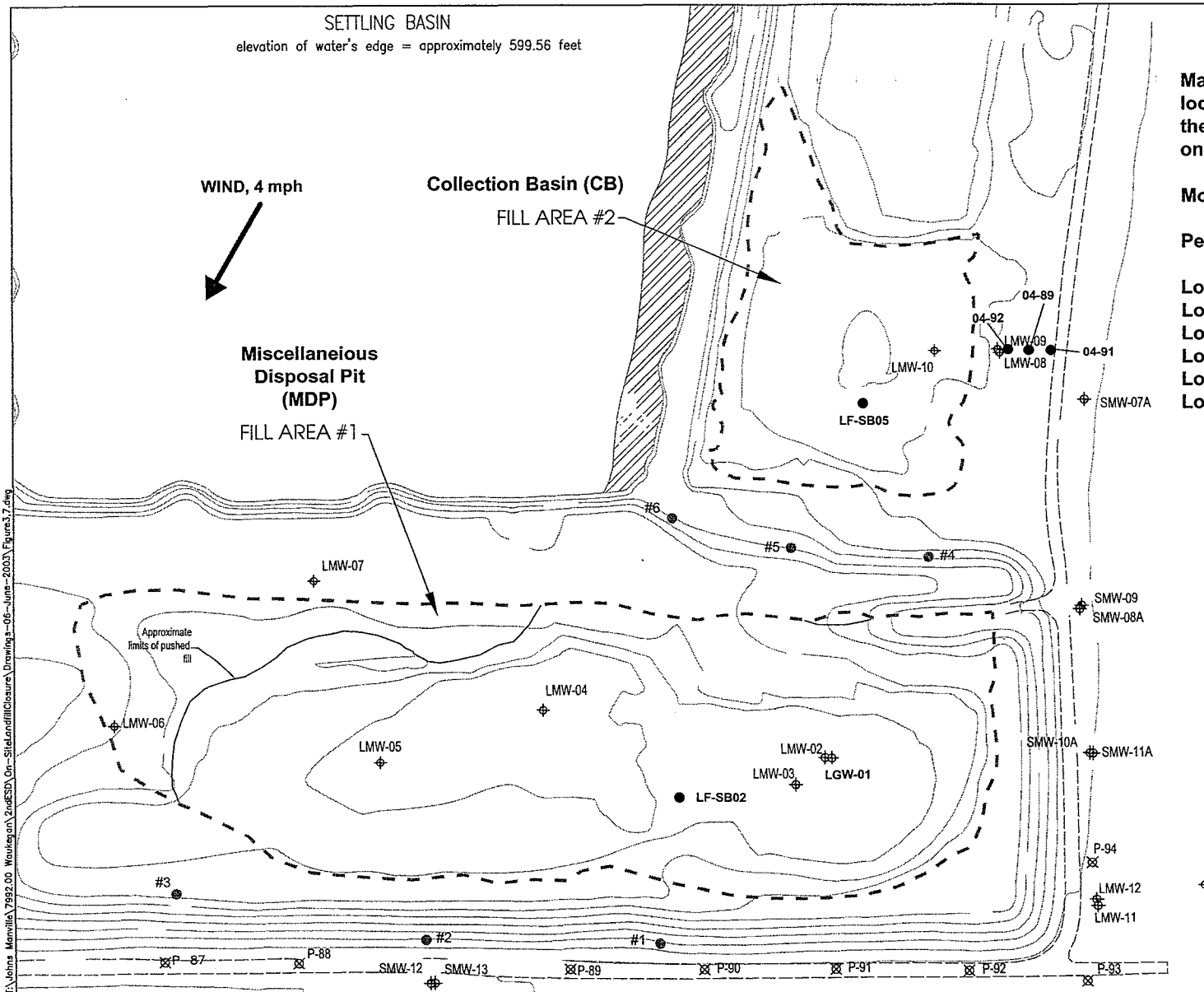
Note: Surface methane levels measured with a Landtec GA-90.

**Johns Manville – Waukegan Plant  
On-Site Landfill Gas Monitoring Form  
Optional Additional Data**

|                                         |                                                                        |
|-----------------------------------------|------------------------------------------------------------------------|
| Date: <u>8/31/04</u>                    | Personnel: <u>David Peterson</u>                                       |
| Ambient Temperature: <u>70</u> deg. F   | Landfill Gas Instrument: <u>Landtec GA-90 (Rented from F.E.I.)</u>     |
| Barometric Pressure: <u>30.24</u> in Hg | Pressure Instrument: <u>Magnehelic Gauges (0-1 and 0-10 in. water)</u> |
| Wind Speed: <u>4</u> mph                | Water Level Instrument: <u>Heron (Rented from F.E.I.)</u>              |
| Wind Direction: <u>From the NE</u>      | Weather Conditions: <u>Sunny and clear</u>                             |

| Monitoring Location | Subsurface Pressure (in. water) | CH <sub>4</sub> Level (%) | CO <sub>2</sub> Level (%) | O <sub>2</sub> Level (%) | Depth to Water below TOC (ft) | TOS below Top of Casing (TOC) (ft) | Top of Screen (TOS) Elev. (ft) | Bottom of Screen Elev. (ft) | Screen Interval Description |
|---------------------|---------------------------------|---------------------------|---------------------------|--------------------------|-------------------------------|------------------------------------|--------------------------------|-----------------------------|-----------------------------|
| LMW-02              | 0.20                            | 2.1                       | 0                         | 19.9                     | 39.56                         | 38.00                              | 595.48                         | 590.48                      | In MDP waste                |
| LMW-03              | -0.25                           | 8.4                       | 1.6                       | 13.0                     | Dry                           | 38.00                              | 596.37                         | 591.37                      | In MDP waste                |
| LMW-04              | -1.2                            | 0.1                       | 0.4                       | 18.6                     | 57.55                         | 59.00                              | 582.22                         | 577.22                      | Beneath MDP                 |
| P-87                | 0                               | 0                         | 7.6                       | 3.9                      | 11.35                         | 6.00                               | 588.62                         | 583.62                      | South of MDP                |
| P-88                | 0                               | 0                         | 6.4                       | 5.1                      | 11.61                         | 5.50                               | 589.17                         | 584.17                      | South of MDP                |
| P-89                | NM                              | 0                         | 1.8                       | 15.2                     | 10.75                         | 5.75                               | 587.89                         | 582.89                      | South of MDP                |
| P-90                | 0                               | 0                         | 4.5                       | 4.9                      | 11.06                         | 6.50                               | 586.83                         | 581.83                      | South of MDP                |
| P-91                | 0                               | 0.4                       | 4.6                       | 0.4                      | 11.13                         | 6.50                               | 586.24                         | 581.24                      | South of MDP                |
| P-92                | 0                               | 0                         | 5.2                       | 1.0                      | 10.85                         | 6.80                               | 585.04                         | 580.04                      | South of MDP                |
| P-93                | 0                               | 0                         | 5.8                       | 11.5                     | 10.68                         | 6.50                               | 584.69                         | 579.69                      | South of MDP                |
| P-94                | 0                               | 0                         | 0                         | 20.7                     | 13.94                         | 9.00                               | 585.76                         | 580.76                      | South of MDP                |
| 04-92               | 0                               | 0                         | 2.5                       | 17.6                     | Dry                           | 4.80                               | 0.8 ft BGS                     | 3.8 ft BGS                  | 50 ft E. of CB              |
| 04-89               | NM                              | NM                        | NM                        | NM                       | Dry                           | 4.75                               | 0.75 ft BGS                    | 3.75 ft BGS                 | 100 ft E. of CB             |
| 04-91               | NM                              | NM                        | NM                        | NM                       | Dry                           | 4.64                               | 0.1 ft BGS                     | 2.6 ft BGS                  | 140 ft E. of CB             |
| LF-SB02             | NM                              | 13                        | 1.0                       | 11.2                     | 23.03                         | 35.50                              | 32 ft BGS                      | 37 ft BGS                   | In MDP waste                |
| LF-SB05             | NM                              | 0                         | 1.1                       | 19.3                     | 12.11                         | 9.50                               | 7.5 ft BGS                     | 12.5 ft BGS                 | In CB waste                 |

Note: NM = not measured.

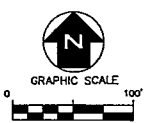


Mark ambient air methane monitoring locations on this drawing and indicate the wind direction by drawing an arrow on this map.

Monitoring Date: 08/31/04

Personnel: David Peterson

- Location 1 Methane Level: 0%
- Location 2 Methane Level: 0%
- Location 3 Methane Level: 0%
- Location 4 Methane Level: 0%
- Location 5 Methane Level: 0%
- Location 6 Methane Level: 0%



- LEGEND
- PROPERTY LINE
  - - - BOUNDARY OF CLAY COVER
  - ⊕ MONITORING WELL
  - ⊕ SOIL BORING
  - ⊗ PIEZOMETER

Note:  
Figure adapted from Aerial Survey dated 1998, generated by Hartington Associates.

JOHNS MANVILLE  
**Site Plan**  
**On-Site Landfill**  
**Soil Borings and Well Locations**

T:\Johns Manville\7992.D0 - Work\en\2ndESD\On-SiteLandfill\Closure\Drawings-06-June-2003\Figures\Figures3,7.dwg

## Johns Manville – Waukegan Plant On-Site Landfill Gas Monitoring Form

|                                         |                                                                        |
|-----------------------------------------|------------------------------------------------------------------------|
| Date: <u>9/01/04</u>                    | Personnel: <u>David Peterson</u>                                       |
| Ambient Temperature: <u>70</u> deg. F   | Landfill Gas Instrument: <u>Landtec GA-90 (Rented from F.E.I.)</u>     |
| Barometric Pressure: <u>30.27</u> in Hg | Pressure Instrument: <u>Magnehelic Gauges (0-1 and 0-10 in. water)</u> |
| Wind Speed: <u>1</u> mph                | Water Level Instrument: <u>Heron (Rented from F.E.I.)</u>              |
| Wind Direction: <u>From the S</u>       | Weather Conditions: <u>Sunny and clear</u>                             |

| Monitoring Location | Subsurface Pressure (in. water) | CH <sub>4</sub> Level (%) | CO <sub>2</sub> Level (%) | O <sub>2</sub> Level (%) | Depth to Water below TOC (ft) | TOS below Top of Casing (TOC) (ft) | Top of Screen (TOS) Elev. (ft) | Bottom of Screen Elev. (ft) | Screen Interval Description             |
|---------------------|---------------------------------|---------------------------|---------------------------|--------------------------|-------------------------------|------------------------------------|--------------------------------|-----------------------------|-----------------------------------------|
| LGW-01              | 0                               | 52.6                      | 0.7                       | 0.8                      | Dry                           | 11.00                              | 622.67                         | 597.67                      | In MDP waste                            |
| LMW-05              | 0                               | 0.2                       | 0.6                       | 4.2                      | Dry                           | 2.00                               | 635.22                         | 628.22                      | In MDP waste                            |
| LMW-06              | 0                               | 0                         | 0.1                       | 20.1                     | 36.15                         | 37.50                              | 582.99                         | 577.99                      | West of MDP                             |
| LMW-07              | 0                               | 0                         | 0                         | 20.6                     | 38.19                         | 44.00                              | 579.01                         | 574.01                      | North of MDP                            |
| LMW-12              | 0                               | 0                         | 4.4                       | 14.8                     | 10.73                         | 5.00                               | 586.28                         | 576.28                      | East of MDP                             |
| SMW-8A              | 0                               | 0                         | 1.2                       | 18.0                     | Dry                           | 8.30                               | 584.97                         | 579.97                      | East of MDP                             |
| SMW-10A             | 0.12                            | 0                         | 0                         | 20.6                     | 11.56                         | 8.60                               | 583.87                         | 578.87                      | East of MDP                             |
| SMW-12              | -0.60                           | 0                         | 0                         | 20.6                     | 8.48                          | 8.40                               | 583.07                         | 578.57                      | South of MDP                            |
| LMW-9               | 0                               | 0.6                       | 3.3                       | 0.4                      | 18.88                         | 12.00                              | 588.92                         | 578.92                      | East of CB, below asbestos landfill cap |
| LMW-10              | 0                               | 26.0                      | 1.3                       | 2.4                      | 17.71                         | 13.50                              | 587.38                         | 582.38                      | In CB waste                             |
|                     |                                 |                           |                           |                          |                               |                                    |                                |                             |                                         |

| Ambient Location | CH <sub>4</sub> Level (%) | Sample Location Description                 |
|------------------|---------------------------|---------------------------------------------|
| 1                | 0                         | MDP - north side of landfill, east sample   |
| 2                | 0                         | MDP - north side of landfill, middle sample |
| 3                | 0                         | MDP - north side of landfill, west sample   |
| 4                | 0                         | CB - north side of landfill, east sample    |
| 5                | 0                         | CB - north side of landfill, middle sample  |
| 6                | 0                         | CB - north side of landfill, west sample    |

Note: Surface methane levels measured with a Landtec GA-90.

**Johns Manville – Waukegan Plant  
On-Site Landfill Gas Monitoring Form  
Optional Additional Data**

Date: 9/01/04 Personnel: David Peterson  
 Ambient Landfill Gas  
 Temperature: 70 deg. F Instrument: Landtec GA-90 (Rented from F.E.I.)  
 Barometric Pressure Instrument: Magnehelic Gauges (0-1 and 0-10 in. water)  
 Pressure: 30.27 in Hg Water Level  
 Wind Speed: 1 Mph Instrument: Heron (Rented from F.E.I.)  
 Wind Weather  
 Direction: From the S Conditions: Sunny and clear


| Monitoring Location | Subsurface Pressure (in. water) | CH <sub>4</sub> Level (%) | CO <sub>2</sub> Level (%) | O <sub>2</sub> Level (%) | Depth to Water below TOC (ft) | TOS below Top of Casing (TOC) (ft) | Top of Screen (TOS) Elev. (ft) | Bottom of Screen Elev. (ft) | Screen Interval Description |
|---------------------|---------------------------------|---------------------------|---------------------------|--------------------------|-------------------------------|------------------------------------|--------------------------------|-----------------------------|-----------------------------|
| LMW-02              | -0.04                           | 1.9                       | 0                         | 20.0                     | 39.51                         | 38.00                              | 595.48                         | 590.48                      | In MDP waste                |
| LMW-03              | -0.1                            | 14.4                      | 2.7                       | 8.9                      | Dry                           | 38.00                              | 596.37                         | 591.37                      | In MDP waste                |
| LMW-04              | 0.60                            | 0                         | 0.2                       | 19.3                     | 57.55                         | 59.00                              | 582.22                         | 577.22                      | Beneath MDP                 |
| P-87                | 0                               | 0                         | 7.3                       | 4.7                      | 11.37                         | 6.00                               | 588.62                         | 583.62                      | South of MDP                |
| P-88                | 0                               | 0                         | 7.2                       | 3.3                      | 11.57                         | 5.50                               | 589.17                         | 584.17                      | South of MDP                |
| P-89                | NM                              | 0                         | 3.8                       | 4.8                      | 10.78                         | 5.75                               | 587.89                         | 582.89                      | South of MDP                |
| P-90                | 0                               | 0                         | 2.4                       | 11.7                     | 11.03                         | 6.50                               | 586.83                         | 581.83                      | South of MDP                |
| P-91                | 0                               | 0.5                       | 2.9                       | 2.6                      | 11.09                         | 6.50                               | 586.24                         | 581.24                      | South of MDP                |
| P-92                | 0                               | 0                         | 4.9                       | 2.3                      | 10.89                         | 6.80                               | 585.04                         | 580.04                      | South of MDP                |
| P-93                | 0                               | 0                         | 5.1                       | 12.4                     | 10.76                         | 6.50                               | 584.69                         | 579.69                      | South of MDP                |
| P-94                | 0                               | 0                         | 0                         | 20.7                     | 14.00                         | 9.00                               | 585.76                         | 580.76                      | South of MDP                |
| 04-92               | 0                               | 0                         | 3.2                       | 17.4                     | Dry                           | 4.80                               | 0.8 ft BGS                     | 3.8 ft BGS                  | 50 ft E. of CB              |
| 04-89               | NM                              | NM                        | NM                        | NM                       | Dry                           | 4.75                               | 0.75 ft BGS                    | 3.75 ft BGS                 | 100 ft E. of CB             |
| 04-91               | NM                              | NM                        | NM                        | NM                       | Dry                           | 4.64                               | 0.1 ft BGS                     | 2.6 ft BGS                  | 140 ft E. of CB             |
| LF-SB02             | NM                              | 5.3                       | 0.4                       | 17.4                     | 23.03                         | 35.50                              | 32 ft BGS                      | 37 ft BGS                   | In MDP waste                |
| LF-SB05             | NM                              | 0                         | 9.2                       | 10.7                     | 12.14                         | 9.50                               | 7.5 ft BGS                     | 12.5 ft BGS                 | In CB waste                 |









Note: NM = not measured.

# **EXHIBIT 2**



# Log of Borehole: 04-89

|                                                                                   |                                |                   |                               |
|-----------------------------------------------------------------------------------|--------------------------------|-------------------|-------------------------------|
|  | Client: Johns Manville         | Project: Landfill | Project No: 009-07992-00      |
|                                                                                   | Project Location: Waukegan, IL | Total Depth: 12   | Elevation:                    |
| Surface Conditions: Topsoil                                                       |                                |                   | Date Start: 5/10/04           |
| Drilling Contractor: Terra Trace                                                  |                                | Driller: Dennis   | Geologist/Engineer: W. Teskey |

| SAMPLE DATA   |             |               |              |                |                   | SUBSURFACE PROFILE |            |                                                                                     |                                                                                                                            |                                                                                                                         |
|---------------|-------------|---------------|--------------|----------------|-------------------|--------------------|------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| Sample Number | Sample Type | N Value (bpf) | Recovery (%) | PID/FID (ppmv) | Analytical Sample | Well Data          | Depth (ft) | Symbol                                                                              | Soil Description                                                                                                           | Remarks                                                                                                                 |
|               |             |               |              |                |                   |                    | 0          |                                                                                     | Ground Surface                                                                                                             |                                                                                                                         |
| 1             | Tube        | 70            | 0            |                |                   |                    | 0.25       |    | <b>Topsoil-Silty Sand (SM)</b><br>Dark brown; dry; 10% roots                                                               | Boring advanced with a geoprobe using a 4' long by 2" OD macrotube sampler. CERCLA landfill cap encountered at 0.25 ft. |
|               |             |               |              |                |                   |                    | 1          |    | <b>Lean Clay (CL)</b><br>Brown; dry; stiff.                                                                                |                                                                                                                         |
|               |             |               |              |                |                   |                    | 2          |    | <b>Poorly Graded Sand (SP)</b><br>Brown; dry.                                                                              |                                                                                                                         |
|               |             |               |              |                |                   |                    | 3          |    | <b>Lean Clay (CL)</b><br>Gray; dry; stiff; 5% with fibrous material.                                                       |                                                                                                                         |
| 2             | Tube        | 40            | 0.5          |                |                   |                    | 4          |                                                                                     |                                                                                                                            |                                                                                                                         |
|               |             |               |              |                |                   |                    | 5          |                                                                                     |                                                                                                                            |                                                                                                                         |
|               |             |               |              |                |                   |                    | 6          |                                                                                     |                                                                                                                            |                                                                                                                         |
|               |             |               |              |                |                   |                    | 7          |  | dark gray clay grades in; moist.<br><b>Fibrous Material</b><br>Dark gray; white fibers; moist; 15% paper, brown cardboard. |                                                                                                                         |
|               |             |               |              |                |                   |                    | 8          |  | <b>Poorly Graded Sand (SP)</b><br>Black; dry; loose.                                                                       |                                                                                                                         |
| 3             | Tube        | 50            | 0.8          |                |                   |                    | 9          |                                                                                     |                                                                                                                            |                                                                                                                         |
|               |             |               |              |                |                   |                    | 10         |                                                                                     |                                                                                                                            |                                                                                                                         |
|               |             |               |              |                |                   |                    | 11         |  | <b>Roofing Shingles</b><br>Black; dry; dense; fragments.                                                                   | Temporary gas monitoring well installed: 1 inch diameter PVC. Screened from 1.0 to 4.0 ft.                              |
|               |             |               |              |                |                   |                    | 12         |  | <b>Poorly Graded Sand (SP)</b><br>Dark gray; dry; loose.                                                                   |                                                                                                                         |
|               |             |               |              |                |                   |                    | 13         |                                                                                     | End of Borehole                                                                                                            |                                                                                                                         |
|               |             |               |              |                |                   |                    | 14         |                                                                                     |                                                                                                                            |                                                                                                                         |
|               |             |               |              |                |                   |                    | 15         |                                                                                     |                                                                                                                            |                                                                                                                         |

## Log of Borehole: 04-90

|                                            |                                |                   |                          |
|--------------------------------------------|--------------------------------|-------------------|--------------------------|
| <b>LFR</b><br><small>LEVINE-FRICKE</small> | Client: Johns Manville         | Project: Landfill | Project No: 009-07992-00 |
|                                            | Project Location: Waukegan, IL | Total Depth: 8    | Ground Elevation:        |

Surface Conditions: Topsoil Date End: 5/10/04

Drilling Contractor: Terra Trace Driller: Dennis Geologist/Engineer: W. Teskey

| SAMPLE DATA   |             |              |                |                        | SUBSURFACE PROFILE |        |                                                                              |                                                                                                                                |
|---------------|-------------|--------------|----------------|------------------------|--------------------|--------|------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| Sample Number | Sample Type | Recovery (%) | PID/FID (ppmv) | Analytical Soil Sample | Depth (ft)         | Symbol | Soil Description                                                             | Remarks                                                                                                                        |
| 1             | Tube        | 25           | 0              |                        | 0                  | █      | Ground Surface                                                               | Boring advanced with a geoprobe using a 4' long by 2" OD macrotube sampler.<br><br>CERCLA landfill cap encountered at 0.25 ft. |
|               |             |              |                |                        | 0.25               | █      | <b>Topsoil-Silty Sand (SM)</b><br>Brown; dry; 15% roots.                     |                                                                                                                                |
| 2             | Tube        | 60           | 0.4            |                        | 1                  | █      | <b>Lean Clay (CL)</b><br>Brown; dry; stiff.                                  |                                                                                                                                |
|               |             |              |                |                        | 2                  | █      |                                                                              |                                                                                                                                |
|               |             |              |                |                        | 3                  | █      | <b>Poorly Graded Gravel (GP)</b><br>Gray; dry; angular; coarse.              |                                                                                                                                |
|               |             |              |                |                        | 4                  | █      | <b>Roofing</b><br>Black; dry; hard; crushed shingle material.                |                                                                                                                                |
| 2             | Tube        | 60           | 0.4            |                        | 5                  | █      | <b>Roofing Shingles</b><br>Black; dry; dense; fragments.                     |                                                                                                                                |
|               |             |              |                |                        | 6                  | █      |                                                                              |                                                                                                                                |
|               |             |              |                |                        | 7                  | █      |                                                                              |                                                                                                                                |
|               |             |              |                |                        | 8                  | █      | <b>Fine Grained Material</b><br>White; dry; crumbles; trace blue; no fibers. |                                                                                                                                |
|               |             |              |                |                        | 8                  |        | End of Borehole                                                              |                                                                                                                                |
|               |             |              |                |                        | 9                  |        |                                                                              |                                                                                                                                |
|               |             |              |                |                        | 10                 |        |                                                                              |                                                                                                                                |
|               |             |              |                |                        | 11                 |        |                                                                              |                                                                                                                                |
|               |             |              |                |                        | 12                 |        |                                                                              |                                                                                                                                |
|               |             |              |                |                        | 13                 |        |                                                                              |                                                                                                                                |
|               |             |              |                |                        | 14                 |        |                                                                              |                                                                                                                                |
|               |             |              |                |                        | 15                 |        |                                                                              |                                                                                                                                |

## Log of Borehole: 04-91

|                                            |                                |                   |                               |                          |
|--------------------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------|
| <b>LFR</b><br><small>LEVINE-FRICKE</small> | Client: Johns Manville         | Project: Landfill |                               | Project No: 009-07992-00 |
|                                            | Project Location: Waukegan, IL | Total Depth: 3    | Elevation:                    | Date Start: 5/10/04      |
| Surface Conditions: Topsoil                |                                |                   |                               | Date End: 5/10/04        |
| Drilling Contractor: Terra Trace           |                                | Driller: Dennis   | Geologist/Engineer: W. Teskey |                          |


| SAMPLE DATA   |             |               |              |                | SUBSURFACE PROFILE |           |            |        |                                                                   |                                                                                            |
|---------------|-------------|---------------|--------------|----------------|--------------------|-----------|------------|--------|-------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| Sample Number | Sample Type | N Value (bpf) | Recovery (%) | PID/FID (ppmv) | Analytical Sample  | Well Data | Depth (ft) | Symbol | Soil Description                                                  | Remarks                                                                                    |
| 1             | Tube        | 80            | 0.2          |                |                    |           | 0          |        | Ground Surface                                                    |                                                                                            |
|               |             |               |              |                |                    |           | 0.25       |        | <b>Topsoil-Silty Sand (SM)</b><br>Brown; dry; 10% roots           | Boring advanced with a geoprobe using a 4' long by 2" OD macrotube sampler.                |
|               |             |               |              |                |                    |           | 1          |        | <b>Lean Clay (CL)</b><br>Brown; dry; stiff.                       | CERCLA landfill cap encountered at 0.25 ft.                                                |
|               |             |               |              |                |                    |           | 3          |        | <b>Fine Grained Material</b><br>Off white and tan; dry; crumbles. |                                                                                            |
|               |             |               |              |                |                    |           | 4          |        | End of Borehole                                                   | Temporary gas monitoring well installed: 1 inch diameter PVC. Screened from 0.5 to 3.0 ft. |
|               |             |               |              |                |                    |           | 5          |        |                                                                   |                                                                                            |
|               |             |               |              |                |                    |           | 6          |        |                                                                   |                                                                                            |
|               |             |               |              |                |                    |           | 7          |        |                                                                   |                                                                                            |
|               |             |               |              |                |                    |           | 8          |        |                                                                   |                                                                                            |
|               |             |               |              |                |                    |           | 9          |        |                                                                   |                                                                                            |
|               |             |               |              |                |                    |           | 10         |        |                                                                   |                                                                                            |
|               |             |               |              |                |                    |           | 11         |        |                                                                   |                                                                                            |
|               |             |               |              |                |                    |           | 12         |        |                                                                   |                                                                                            |
|               |             |               |              |                |                    |           | 13         |        |                                                                   |                                                                                            |
|               |             |               |              |                |                    |           | 14         |        |                                                                   |                                                                                            |
|               |             |               |              |                |                    |           | 15         |        |                                                                   |                                                                                            |

## Log of Borehole: 04-92


|                                            |                                |                   |                               |
|--------------------------------------------|--------------------------------|-------------------|-------------------------------|
| <b>LFR</b><br><small>LEVINE-FRICKE</small> | Client: Johns Manville         | Project: Landfill | Project No: 009-07992-00      |
|                                            | Project Location: Waukegan, IL | Total Depth: 8    | Elevation:                    |
| Surface Conditions: Topsoil                |                                |                   | Date Start: 5/10/04           |
| Drilling Contractor: Terra Trace           |                                | Driller: Dennis   | Geologist/Engineer: W. Teskey |

| SAMPLE DATA   |             |               |              |                | SUBSURFACE PROFILE |           |            |        |                                                                |                                                                                  |
|---------------|-------------|---------------|--------------|----------------|--------------------|-----------|------------|--------|----------------------------------------------------------------|----------------------------------------------------------------------------------|
| Sample Number | Sample Type | N Value (bpf) | Recovery (%) | PID/FID (ppmv) | Analytical Sample  | Well Data | Depth (ft) | Symbol | Soil Description                                               | Remarks                                                                          |
|               |             |               |              |                |                    |           | 0          |        | Ground Surface                                                 |                                                                                  |
| 1             | Tube        | 95            | 0.1          |                |                    |           | 0          |        | <b>Lean Clay (CL)</b><br>Brown; dry; stiff; 10% fine gravel.   | Boring advanced with a geoprobe using a 4' long by 2" OD macrotube sampler.      |
|               |             |               |              |                |                    |           | 1          |        |                                                                |                                                                                  |
|               |             |               |              |                |                    |           | 2          |        |                                                                |                                                                                  |
|               |             |               |              |                |                    |           | 3          |        |                                                                |                                                                                  |
|               |             |               |              |                |                    |           | 4          |        | dark brown clay grades in.                                     |                                                                                  |
|               |             |               |              |                |                    |           | 4          |        | <b>Lean Clay (CL)</b><br>Dark brown to brown; very stiff; dry. | CERCLA landfill cap encountered at 4 ft.                                         |
|               |             |               |              |                |                    |           | 5          |        |                                                                |                                                                                  |
| 2             | Tube        | 90            | 0.6          |                |                    |           | 6          |        | <b>Sand (SP)</b><br>Brown; dry.                                |                                                                                  |
|               |             |               |              |                |                    |           | 7          |        | <b>Lean Clay (CL)</b><br>Brown; sl. moist.                     |                                                                                  |
|               |             |               |              |                |                    |           | 7          |        | Crushed transite Pieces; gray; dry.                            |                                                                                  |
|               |             |               |              |                |                    |           | 8          |        | <b>Roofing</b><br>Black; dry; hard; full shingles.             | Temporary gas monitoring well: 1-inch diameter PVC. Screened from 1.0 to 4.0 ft. |
|               |             |               |              |                |                    |           | 8          |        | End of Borehole                                                |                                                                                  |
|               |             |               |              |                |                    |           | 9          |        |                                                                |                                                                                  |
|               |             |               |              |                |                    |           | 10         |        |                                                                |                                                                                  |
|               |             |               |              |                |                    |           | 11         |        |                                                                |                                                                                  |
|               |             |               |              |                |                    |           | 12         |        |                                                                |                                                                                  |
|               |             |               |              |                |                    |           | 13         |        |                                                                |                                                                                  |
|               |             |               |              |                |                    |           | 14         |        |                                                                |                                                                                  |
|               |             |               |              |                |                    |           | 15         |        |                                                                |                                                                                  |

## Log of Borehole: 04-93

|  |             | Client: Johns Manville         |                 | Project: Landfill      |                               | Project No: 009-07992-00                                                          |                  |                                                                                                                                |                                                               |
|-----------------------------------------------------------------------------------|-------------|--------------------------------|-----------------|------------------------|-------------------------------|-----------------------------------------------------------------------------------|------------------|--------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|
|                                                                                   |             | Project Location: Waukegan, IL |                 | Total Depth: 8         | Ground Elevation:             | Date Start: 5/10/04                                                               |                  |                                                                                                                                |                                                               |
| Surface Conditions: Topsoil/clay                                                  |             |                                |                 |                        |                               | Date End: 5/10/04                                                                 |                  |                                                                                                                                |                                                               |
| Drilling Contractor: Terra Trace                                                  |             |                                | Driller: Dennis |                        | Geologist/Engineer: W. Teskey |                                                                                   |                  |                                                                                                                                |                                                               |
| SAMPLE DATA                                                                       |             |                                |                 |                        | SUBSURFACE PROFILE            |                                                                                   |                  |                                                                                                                                |                                                               |
| Sample Number                                                                     | Sample Type | Recovery (%)                   | PID/FID (ppmv)  | Analytical Soil Sample | Depth (ft)                    | Symbol                                                                            | Soil Description | Remarks                                                                                                                        |                                                               |
| 1                                                                                 | Tube        | 80                             | 0.5             |                        | 0                             | Ground Surface                                                                    |                  | Boring advanced with a geoprobe using a 4' long by 2" OD macrotube sampler.<br><br>CERCLA landfill cap encountered at surface. |                                                               |
|                                                                                   |             |                                |                 |                        | 1                             | <b>Lean Clay (CL)</b><br>Brown; dry; stiff; 10% roots at surface; 5% fine gravel. | 2                |                                                                                                                                | <b>Poorly Graded Sand (SP)</b><br>Brown; dry; 5% fine gravel. |
| 2                                                                                 | Tube        | 75                             | 0.9             |                        | 2                             | <b>Silty Sand (SP)</b><br>Black; dry.                                             |                  | Boring backfilled to surface with cuttings.                                                                                    |                                                               |
|                                                                                   |             |                                |                 |                        | 3                             | Crushed transite; gray.                                                           | 4                |                                                                                                                                | <b>Roofing</b><br>Black; dry; shingles.                       |
|                                                                                   |             |                                |                 |                        | 5                             | <b>Roofing Granules</b><br>Green and gray; dry; loose.                            | 6                |                                                                                                                                | Crushed transite; gray; dry.                                  |
|                                                                                   |             |                                |                 |                        | 7                             | Wood pulp; brown.                                                                 | 8                |                                                                                                                                | Fine grained material; off white; trace blue.                 |
|                                                                                   |             |                                |                 |                        | 9                             | End of Borehole                                                                   | 10               |                                                                                                                                |                                                               |
|                                                                                   |             |                                |                 |                        | 11                            |                                                                                   | 12               |                                                                                                                                |                                                               |
|                                                                                   |             | 13                             |                 |                        |                               |                                                                                   |                  |                                                                                                                                |                                                               |
|                                                                                   |             | 14                             |                 |                        |                               |                                                                                   |                  |                                                                                                                                |                                                               |
|                                                                                   |             | 15                             |                 |                        |                               |                                                                                   |                  |                                                                                                                                |                                                               |

## Log of Borehole: 04-94

|  |             | Client: Johns Manville         |                | Project: Landfill      |                    | Project No: 009-07992-00      |                                                                                |                                                                                                                                |
|-----------------------------------------------------------------------------------|-------------|--------------------------------|----------------|------------------------|--------------------|-------------------------------|--------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
|                                                                                   |             | Project Location: Waukegan, IL |                | Total Depth: 4         | Ground Elevation:  |                               | Date Start: 5/10/04                                                            |                                                                                                                                |
| Surface Conditions: Clay                                                          |             |                                |                |                        |                    | Date End: 5/10/04             |                                                                                |                                                                                                                                |
| Drilling Contractor: Terra Trace                                                  |             |                                |                | Driller: Dennis        |                    | Geologist/Engineer: W. Teskey |                                                                                |                                                                                                                                |
| SAMPLE DATA                                                                       |             |                                |                |                        | SUBSURFACE PROFILE |                               |                                                                                |                                                                                                                                |
| Sample Number                                                                     | Sample Type | Recovery (%)                   | PID/FID (ppmv) | Analytical Soil Sample | Depth (ft)         | Symbol                        | Soil Description                                                               | Remarks                                                                                                                        |
| 1                                                                                 | Tube        | 90                             | 0.3            |                        | 0                  | [Diagonal Hatching]           | Ground Surface<br><b>Lean Clay (CL)</b><br>Brown; dry; stiff; 10% fine gravel. | Boring advanced with a geoprobe using a 4' long by 2" OD macrotube sampler.<br><br>CERCLA landfill cap encountered at surface. |
|                                                                                   |             |                                |                |                        | 1                  | [Diagonal Hatching]           |                                                                                |                                                                                                                                |
|                                                                                   |             |                                |                |                        | 2                  | [Dotted]                      | <b>Poorly Graded Sand (SP)</b><br>Brown; dry; 5% fine gravel.                  |                                                                                                                                |
|                                                                                   |             |                                |                |                        | 3                  | [Diagonal Hatching]           | <b>Lean Clay (CL)</b><br>Brown; dry; stiff.                                    |                                                                                                                                |
|                                                                                   |             |                                |                |                        | 4                  | [Diagonal Hatching]           | trace fine grained white; fibrous material.                                    | Boring backfilled to surface with cuttings.                                                                                    |
|                                                                                   |             |                                |                |                        | 4                  | [Diagonal Hatching]           | End of Borehole                                                                |                                                                                                                                |
|                                                                                   |             |                                |                |                        | 5                  |                               |                                                                                |                                                                                                                                |
|                                                                                   |             |                                |                |                        | 6                  |                               |                                                                                |                                                                                                                                |
|                                                                                   |             |                                |                |                        | 7                  |                               |                                                                                |                                                                                                                                |
|                                                                                   |             |                                |                |                        | 8                  |                               |                                                                                |                                                                                                                                |
|                                                                                   |             |                                |                |                        | 9                  |                               |                                                                                |                                                                                                                                |
|                                                                                   |             |                                |                |                        | 10                 |                               |                                                                                |                                                                                                                                |
|                                                                                   |             |                                |                |                        | 11                 |                               |                                                                                |                                                                                                                                |
|                                                                                   |             |                                |                |                        | 12                 |                               |                                                                                |                                                                                                                                |
|                                                                                   |             |                                |                |                        | 13                 |                               |                                                                                |                                                                                                                                |
|                                                                                   |             |                                |                |                        | 14                 |                               |                                                                                |                                                                                                                                |
|                                                                                   |             |                                |                |                        | 15                 |                               |                                                                                |                                                                                                                                |

## Log of Borehole: 04-95


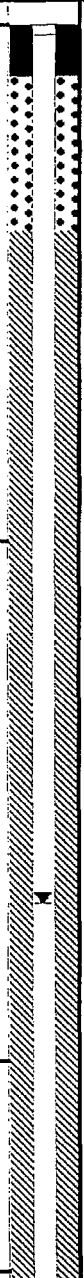
|                                             |                                |                   |                   |                          |
|---------------------------------------------|--------------------------------|-------------------|-------------------|--------------------------|
| <b>DLFR</b><br><small>LEVINE•FRICKE</small> | Client: Johns Manville         | Project: Landfill |                   | Project No: 009-07992-00 |
|                                             | Project Location: Waukegan, IL | Total Depth: 4    | Ground Elevation: | Date Start: 5/10/04      |

Surface Conditions: Clay Date End: 5/10/04



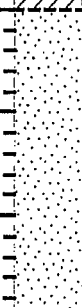


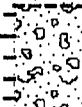

Drilling Contractor: Terra Trace Driller: Dennis Geologist/Engineer: W. Teskey

| SAMPLE DATA   |             |              |                |                        | SUBSURFACE PROFILE |        |                                                                    |                                                                             |
|---------------|-------------|--------------|----------------|------------------------|--------------------|--------|--------------------------------------------------------------------|-----------------------------------------------------------------------------|
| Sample Number | Sample Type | Recovery (%) | PID/FID (ppmv) | Analytical Soil Sample | Depth (ft)         | Symbol | Soil Description                                                   | Remarks                                                                     |
| 1             | Tube        | 90           | 0              |                        | 0                  |        | Ground Surface<br><b>Lean Clay (CL)</b><br>Brown; dry; very stiff. | Boring advanced with a geoprobe using a 4' long by 2" OD macrotube sampler. |
|               |             |              |                |                        | 2                  |        | <b>Poorly Graded Sand (SP)</b><br>Brown; dry.                      | CERCLA landfill cap encountered at surface.                                 |
|               |             |              |                |                        | 3                  |        | <b>Lean Clay (CL)</b><br>Gray; dry; stiff.                         |                                                                             |
|               |             |              |                |                        | 4                  |        | Fibrous roofing; black; moist; trace fine grained gray material.   |                                                                             |
|               |             |              |                |                        | 4                  |        | End of Borehole                                                    | Boring backfilled to surface with cuttings.                                 |
|               |             |              |                |                        | 5                  |        |                                                                    |                                                                             |
|               |             |              |                |                        | 6                  |        |                                                                    |                                                                             |
|               |             |              |                |                        | 7                  |        |                                                                    |                                                                             |
|               |             |              |                |                        | 8                  |        |                                                                    |                                                                             |
|               |             |              |                |                        | 9                  |        |                                                                    |                                                                             |
|               |             |              |                |                        | 10                 |        |                                                                    |                                                                             |
|               |             |              |                |                        | 11                 |        |                                                                    |                                                                             |
|               |             |              |                |                        | 12                 |        |                                                                    |                                                                             |
|               |             |              |                |                        | 13                 |        |                                                                    |                                                                             |
|               |             |              |                |                        | 14                 |        |                                                                    |                                                                             |
|               |             |              |                |                        | 15                 |        |                                                                    |                                                                             |

# Log of Borehole: LMW-11


| <br>LFR<br>LEVINE•FRICKE | Client: Johns Manville         | Project: Landfill Well |                               | Project No: 009-07992 |                                                                                    |
|-----------------------------------------------------------------------------------------------------------|--------------------------------|------------------------|-------------------------------|-----------------------|------------------------------------------------------------------------------------|
|                                                                                                           | Project Location: Waukegan, IL | Total Depth: 41'       | Ground Elev.: 588.22          | Date Start: 5/16/03   |                                                                                    |
| Surface Conditions: Topsoil                                                                               |                                |                        |                               | Date End: 5/16/03     |                                                                                    |
| Drilling Contractor: Mid-America                                                                          |                                | Driller: Brian         | Geologist/Engineer: W. Teskey |                       |                                                                                    |
| SAMPLE DATA                                                                                               |                                |                        |                               |                       |                                                                                    |
| Sample Number                                                                                             | Sample Type                    | Recovery (%)           | N Value                       | Analytical Sample     | Monitoring Well                                                                    |
|                                                                                                           |                                |                        |                               |                       |  |
|                                                                                                           |                                |                        |                               |                       |                                                                                    |
|                                                                                                           |                                |                        |                               |                       |                                                                                    |
| 2                                                                                                         | CME                            | 30                     | NA                            | NA                    |                                                                                    |
| 2                                                                                                         | CME                            | 20                     | NA                            | NA                    |                                                                                    |
| 3                                                                                                         | SS                             | 50                     | NA                            | NA                    |                                                                                    |


| SUBSURFACE PROFILE |                                                                                     |                                                                                              |                                                                                                                                |  |
|--------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|--|
| Depth (ft)         | Symbol                                                                              | Soil Description                                                                             | Remarks                                                                                                                        |  |
| 0                  |                                                                                     | Ground Surface                                                                               |                                                                                                                                |  |
| 0 - 0.5            |    | <b>Lean Clay (CL)</b><br>Dark brown; slightly moist; moderately stiff; 15% rootlets          | Boring advanced using 4.25" ID hollow stem augers. Sampled using 3" diameter by 5' long CME spoons or 2" 2' long split spoons. |  |
| 0.5 - 2.0          |    | Grading brown; dry; very stiff; compacted; 5% fine gravel                                    |                                                                                                                                |  |
| 2.0 - 5.0          |   | <b>Sand (SP)</b><br>Brown; dry; loose; 5-10% fine gravel                                     |                                                                                                                                |  |
| 5.0 - 7.0          |  | Grading black with 5% roofing granules<br>Very moist; 10-15% roofing granules; poor recovery |                                                                                                                                |  |
| 7.0 - 10.0         |  |                                                                                              | Poor recovery: 5-10'. Limestone cobble in shoe of sampler.                                                                     |  |
| 10.0 - 11.0        |  | <b>Sand with Gravel (SP)</b><br>Dark gray; moderately dense; wet; 15% fine gravel            |                                                                                                                                |  |
| 11.0 - 12.0        |  | <b>Sand (SP)</b><br>Dark gray; wet; moderately dense; medium sand; 5% fine gravel            | Heaving sand encountered while drilling.                                                                                       |  |




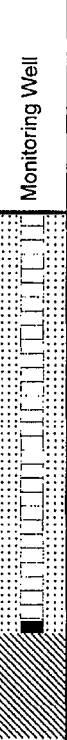


## Log of Borehole: LMW-11

| <br>LFR<br>LEVINE-FRICKE | Client: Johns Manville         | Project: Landfill Well |                               | Project No: 009-07992 |                 |                    |        |                                                                                                                |         |
|-----------------------------------------------------------------------------------------------------------|--------------------------------|------------------------|-------------------------------|-----------------------|-----------------|--------------------|--------|----------------------------------------------------------------------------------------------------------------|---------|
|                                                                                                           | Project Location: Waukegan, IL | Total Depth: 41'       | Ground Elev.:                 | Date Start: 5/16/03   |                 |                    |        |                                                                                                                |         |
| Surface Conditions: Topsoil                                                                               |                                |                        |                               | Date End: 5/16/03     |                 |                    |        |                                                                                                                |         |
| Drilling Contractor: Mid-America                                                                          |                                | Driller: Brian         | Geologist/Engineer: W. Teskey |                       |                 |                    |        |                                                                                                                |         |
| SAMPLE DATA                                                                                               |                                |                        |                               |                       |                 | SUBSURFACE PROFILE |        |                                                                                                                |         |
| Sample Number                                                                                             | Sample Type                    | Recovery (%)           | N Value                       | Analytical Sample     | Monitoring Well | Depth (ft)         | Symbol | Soil Description                                                                                               | Remarks |
| 4                                                                                                         | SS                             | 70                     | NA                            | NA                    |                 | 13                 |        | <b>Sand (SP)</b><br>Dark gray; wet; moderately dense; medium sand; 5% fine gravel<br>Increase to 10-12% gravel | -       |
| 5                                                                                                         | SS                             | 70                     | NA                            | NA                    |                 | 14                 |        |                                                                                                                |         |
| 6                                                                                                         | SS                             | 70                     | NA                            | NA                    |                 | 15                 |        | Grading grayish brown; decrease to 5% gravel                                                                   |         |
| 7                                                                                                         | SS                             | 30                     | NA                            | NA                    |                 | 16                 |        |                                                                                                                |         |
| 8                                                                                                         | SS                             | 70                     | NA                            | NA                    |                 | 17                 |        |                                                                                                                |         |
| 9                                                                                                         | SS                             | 50                     | NA                            | NA                    |                 | 18                 |        |                                                                                                                |         |
|                                                                                                           |                                |                        |                               |                       |                 | 19                 |        |                                                                                                                |         |
|                                                                                                           |                                |                        |                               |                       |                 | 20                 |        |                                                                                                                |         |
|                                                                                                           |                                |                        |                               |                       |                 | 21                 |        |                                                                                                                |         |
|                                                                                                           |                                |                        |                               |                       |                 | 22                 |        | 1/4" layer peat; black; soft<br>1/2" layer silt; gray; dense                                                   |         |
|                                                                                                           |                                |                        |                               |                       |                 | 23                 |        | <b>Sand (SP)</b><br>Dark gray; wet; moderately dense; medium grained sand; 5% fine gravel                      |         |
|                                                                                                           |                                |                        |                               |                       |                 | 24                 |        |                                                                                                                |         |

## Log of Borehole: LMW-11

| <br>LFR<br>LEVINE-FRICKE | Client: Johns Manville         | Project: Landfill Well |                               | Project No: 009-07992 |                    |                       |        |                                                                                           |         |
|-----------------------------------------------------------------------------------------------------------|--------------------------------|------------------------|-------------------------------|-----------------------|--------------------|-----------------------|--------|-------------------------------------------------------------------------------------------|---------|
|                                                                                                           | Project Location: Waukegan, IL | Total Depth: 41'       | Ground Elev.:                 | Date Start: 5/16/03   |                    |                       |        |                                                                                           |         |
| Surface Conditions: Topsoil                                                                               |                                |                        |                               | Date End: 5/16/03     |                    |                       |        |                                                                                           |         |
| Drilling Contractor: Mid-America                                                                          |                                | Driller: Brian         | Geologist/Engineer: W. Teskey |                       |                    |                       |        |                                                                                           |         |
| SAMPLE DATA                                                                                               |                                |                        |                               |                       | SUBSURFACE PROFILE |                       |        |                                                                                           |         |
| Sample Number                                                                                             | Sample Type                    | Recovery (%)           | N Value                       | Analytical Sample     | Monitoring Well    | Depth (ft)            | Symbol | Soil Description                                                                          | Remarks |
| 10                                                                                                        | SS                             | 40                     | NA                            | NA                    |                    | 25                    |        | <b>Sand (SP)</b><br>Dark gray; wet; moderately dense; medium grained sand; 5% fine gravel | -       |
| 11                                                                                                        | SS                             | 80                     | NA                            | NA                    |                    | 26                    |        | Grading brown                                                                             |         |
| 12                                                                                                        | SS                             | 80                     | NA                            | NA                    |                    | 27                    |        | Grading to fine sand                                                                      |         |
|                                                                                                           |                                |                        |                               |                       |                    | 28                    |        |                                                                                           |         |
|                                                                                                           |                                |                        |                               |                       |                    | 29                    |        |                                                                                           |         |
|                                                                                                           |                                |                        |                               |                       | 30                 |                       |        |                                                                                           |         |
|                                                                                                           |                                |                        |                               |                       | 31                 |                       |        |                                                                                           |         |
|                                                                                                           |                                |                        |                               |                       | 32                 |                       |        |                                                                                           |         |
|                                                                                                           |                                |                        |                               |                       | 33                 |                       |        |                                                                                           |         |
|                                                                                                           |                                |                        |                               |                       | 34                 |                       |        |                                                                                           |         |
| 13                                                                                                        | SS                             | 100                    | NA                            | NA                    | 35                 | Grading brownish-gray |        |                                                                                           |         |
|                                                                                                           |                                |                        |                               |                       | 36                 |                       |        |                                                                                           |         |

# Log of Borehole: LMW-11

|  |             | Client: Johns Manville         |         | Project: Landfill Well |                                                                                     | Project No: 009-07992                                                              |                                                    |                                                                                                                                                                                                                                                                                                                                                                    |         |
|-----------------------------------------------------------------------------------|-------------|--------------------------------|---------|------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
|                                                                                   |             | Project Location: Waukegan, IL |         | Total Depth: 41'       |                                                                                     | Ground Elev.:                                                                      |                                                    | Date Start: 5/16/03                                                                                                                                                                                                                                                                                                                                                |         |
| Surface Conditions: Topsoil                                                       |             |                                |         |                        |                                                                                     |                                                                                    | Date End: 5/16/03                                  |                                                                                                                                                                                                                                                                                                                                                                    |         |
| Drilling Contractor: Mid-America                                                  |             |                                |         | Driller: Brian         |                                                                                     | Geologist/Engineer: W. Teskey                                                      |                                                    |                                                                                                                                                                                                                                                                                                                                                                    |         |
| SAMPLE DATA                                                                       |             |                                |         |                        |                                                                                     | SUBSURFACE PROFILE                                                                 |                                                    |                                                                                                                                                                                                                                                                                                                                                                    |         |
| Sample Number                                                                     | Sample Type | Recovery (%)                   | N Value | Analytical Sample      | Monitoring Well                                                                     | Depth (ft)                                                                         | Symbol                                             | Soil Description                                                                                                                                                                                                                                                                                                                                                   | Remarks |
|                                                                                   |             |                                |         |                        |   |  | Grading brownish-gray                              | Monitoring well constructed with stainless steel riser and screen on 5/16/03. Screen (0.010" slot) from 35' to 40'. Silica sand (#5) from 32' to 40'. Cement bentonite grout: 2' to 32'. Bentonite chips from 0.5' to 2'. Concrete pad 0' to 0.5'. Above ground steel protective casing w/ locking cap. Water level on 5/19/03: approximately 8.5 ft. below grade. |         |
| 14                                                                                | SS          | 90                             | NA      | NA                     | 37                                                                                  | 38                                                                                 |                                                    |                                                                                                                                                                                                                                                                                                                                                                    |         |
| 15                                                                                | SS          | 100                            | NA      | NA                     | 39                                                                                  | 40                                                                                 | Lean Clay (CL)<br>Gray; dry; stiff; 5% fine gravel |                                                                                                                                                                                                                                                                                                                                                                    |         |
|                                                                                   |             |                                |         |                        |  | 41                                                                                 | End of Borehole                                    |                                                                                                                                                                                                                                                                                                                                                                    |         |
|                                                                                   |             |                                |         |                        |                                                                                     | 42                                                                                 |                                                    |                                                                                                                                                                                                                                                                                                                                                                    |         |
|                                                                                   |             |                                |         |                        |                                                                                     | 43                                                                                 |                                                    |                                                                                                                                                                                                                                                                                                                                                                    |         |
|                                                                                   |             |                                |         |                        |                                                                                     | 44                                                                                 |                                                    |                                                                                                                                                                                                                                                                                                                                                                    |         |
|                                                                                   |             |                                |         |                        |                                                                                     | 45                                                                                 |                                                    |                                                                                                                                                                                                                                                                                                                                                                    |         |
|                                                                                   |             |                                |         |                        |                                                                                     | 46                                                                                 |                                                    |                                                                                                                                                                                                                                                                                                                                                                    |         |
|                                                                                   |             |                                |         |                        |                                                                                     | 47                                                                                 |                                                    |                                                                                                                                                                                                                                                                                                                                                                    |         |
|                                                                                   |             |                                |         |                        |                                                                                     | 48                                                                                 |                                                    |                                                                                                                                                                                                                                                                                                                                                                    |         |



TOWN TOWNSHIP Waukegan Map No. 8  
 COMPANY No. R. 12 E.  
 FARM Johns-Manville No. 1 T  
 AUTHORITY Supt.  
 ELEVATION 588 45 N. 10  
 COLLECTOR W.D.G. DATE DRILLED 1920  
 CONFIDENTIAL

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SE, SE, SW

| No. | COUNTY NO. <i>1728</i> DATA | Thickness |     | Depth |     |
|-----|-----------------------------|-----------|-----|-------|-----|
|     |                             | Feet      | In. | Feet  | In. |
|     | Sand                        | 30        |     | 30    |     |
|     | Hard pan                    | 25        |     | 55    |     |
|     | Clay, blue                  | 50        |     | 105   |     |
|     | Sand                        | 3         |     | 108   |     |
|     | Rock at 108'                |           |     |       |     |
|     | NO. ENVELOPE                |           |     |       |     |

County LAKE Index No. 0810  
 T.—DRILL RECORD 10-45N-12E  
 (30810-5M-7-31) 2 Illinois Geological Survey, Urbana.

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10-4

TOWN TOWNSHIP **Watkegan** Map No. **8**  
 COMPANY No. **R. 12 E.**  
 FARM **Johns-Manville** No. **2** T  
 AUTHORITY **Supt.**  
 ELEVATION **588** **45 N.**  
 COLLECTOR **W.D.G.** DATE DRILLED **1920**  
 CONFIDENTIAL

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Sec. **10**  
*NW, SE, SW*

| No. | COUNTY NO. <b>1729</b> STRATA | Thickness |     | Depth |     |
|-----|-------------------------------|-----------|-----|-------|-----|
|     |                               | Feet      | In. | Feet  | In. |
|     | Sand                          | 34        |     | 34    |     |
|     | Hard pan                      | 21        |     | 55    |     |
|     | Clay, blue                    | 43        |     | 98    |     |
|     | Sand and gravel               | 14        |     | 112   |     |
|     | Rock                          | 15        |     | 127   |     |
|     | NO ENVELOPE                   |           |     |       |     |

County **LAKE** Index No. **0810**  
 T.—DRILL RECORD **10-45N-12E**  
 (30810-5M-7-34)  2 Illinois Geological Survey, Urbana.

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TOWN

TOWNSHIP



Waukegan

Map No. 8

COMPANY

No.

R. 12 E.

FARM Johns-Manville

No. 3

T

Sec.

AUTHORITY Supt.

ELEVATION 588

45 N.

10

COLLECTOR W.D.G. DATE DRILLED 1920

CONFIDENTIAL

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NW, SE, SW

| No. | COUNTY NO. 1730 DATA | Thickness |     | Depth |     |
|-----|----------------------|-----------|-----|-------|-----|
|     |                      | Feet      | In. | Feet  | In. |
|     | Sand                 | 30        |     | 30    |     |
|     | Hard pan             | 25        |     | 55    |     |
|     | Clay, blue           | 47        |     | 102   |     |
|     | Sand and gravel      | 13        |     | 115   |     |
|     | Rock                 | 17        |     | 132   |     |

NO ENVELOPE

County LAKE

Index No. 0810

T.-DRILL RECORD

10-45N-12E

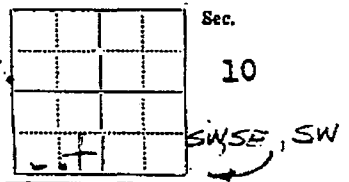
(30810-5M-7-31)



Illinois Geological Survey, Urbana.

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TOWN **Waukegan** TOWNSHIP **Waukegan** Map No. **8** **10-4**  
 COMPANY No. **4** R. **12 E.**  
 FARM **Johns-Manville** No. **4** T. **45 N.** Sec. **10**  
 AUTHORITY **Supt.**  
 ELEVATION **588**  
 COLLECTOR **W.D.G.** DATE DRILLED **1920**  
 CONFIDENTIAL



| No. | COUNTY NO. <b>1731</b> <small>SPR. TA</small> | Thickness |     | Depth |     |
|-----|-----------------------------------------------|-----------|-----|-------|-----|
|     |                                               | Feet      | In. | Feet  | In. |
|     | Sand                                          | 50        |     | 50    |     |
|     | Hard pan                                      | 10        |     | 60    |     |
|     | Clay, blue                                    | 37        |     | 97    |     |
|     | Sand and gravel                               | 18        |     | 115   |     |
|     | Rock                                          | 17        |     | 132   |     |
|     | NO ENVELOPE                                   |           |     |       |     |

County **LAKE** Index No. **0810**  
 T.—DRILL RECORD **10-45N-12E**  
 (30810-5M-7-31) Illinois Geological Survey, Urbana.

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**CERTIFICATE OF SERVICE**


The undersigned, an attorney, hereby certifies that he caused the foregoing notice and amended petition for adjusted standard to be served upon:

Division of Legal Counsel  
Illinois Environmental Protection Agency  
1021 North Grand Avenue East  
P.O. Box 19276  
Springfield, Illinois 62794-9276

Peter Orlinky  
Assistant Counsel, Northern Region  
Illinois Environmental Protection Agency  
9511 West Harrison Street  
Des Plaines, Illinois 60016

Elizabeth Wallace  
Assistant Attorney General, Environmental Law  
188 West Randolph Street, 20<sup>th</sup> Floor  
Chicago, Illinois 60601

by placing the same in the United States mail, first-class postage prepaid, this 30<sup>th</sup> day of September, 2004.

  
\_\_\_\_\_  
Edward P. Kenney

