Deluxe Corporation

ONONDAGA COUNTY, NEW YORK

Site Management Plan

NYSDEC Site Number: V00339-7

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Revisions to Final Approved Site Management Plan:

Revision #	Submitted Date	Summary of Revision	DEC Approval Date

OCTOBER, 2012

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SITE MANAGEMENT PLAN

1.0 INTRODUCTION AND DESCRIPTION OF REMEDIAL PROGRAM

1.1 INTRODUCTION

This document is required as an element of the remedial program at Former Deluxe Check Printing Facility (hereinafter referred to as the "Site") under the New York State (NYS) Voluntary Cleanup Program (VCP) administered by New York State Department of Environmental Conservation (NYSDEC). The site was remediated in accordance with Voluntary Cleanup Agreement (VCA) #A7-0419-0005, Site # V00339, which was executed on November 27, 2000.

1.1.1 General

Deluxe Corporation entered into a VCA with the NYSDEC to remediate the Site, a 4.59 acre property located in Onondaga County, New York. This VCA required the Remedial Party, Deluxe Corporation, to investigate and remediate contaminated media at the Site. A figure showing the site location and boundaries of this 4.59 acre Site is provided in Figure 1. The boundaries of the Site are more fully described in the metes and bounds site description that is part of the Declaration of Covenants and Restrictions for the Site which is attached as Appendix A (the Declaration).

After completion of the remedial work described in the Remedial Action Work Plan, some contaminants were left in the groundwater at this Site, which is hereafter referred to as "remaining contamination." This Site Management Plan (SMP) was prepared to manage this remaining contamination at the Site until the Declaration is extinguished in accordance with ECL Article 71, Title 36. All reports associated with the Site can be viewed by contacting the NYSDEC or its successor agency managing environmental issues in New York State.

This SMP was prepared by Leggette, Brashears & Graham, Inc., on behalf of Deluxe Corporation, in accordance with the requirements in NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation, and the guidelines provided by NYSDEC. This SMP addresses the means for implementing the Institutional Controls (ICs) and Engineering Controls (ECs) that are required by the Declaration for the Site.

1.1.2 Purpose

The groundwater at the Site contains remaining contamination left after completion of the remedial action. Institutional and Engineering Controls have been incorporated into the site remedy to control exposure to remaining contamination during the use of the Site to ensure protection of public health and the environment. The Declaration recorded with the Onondaga County Clerk's office and enforceable by NYSDEC will require compliance with this SMP and all ECs and ICs placed on the Site. The ICs place restrictions on site use, and mandate maintenance, monitoring and reporting measures for all ECs and ICs. This SMP specifies the methods necessary to ensure compliance with all ECs and ICs required by the Declaration for contamination that remains at the Site. This plan has been approved by the NYSDEC, and compliance with this plan is required by the Declaration for the site owner and its successors and assigns. This SMP may only be revised with the approval of the NYSDEC.

This SMP provides a detailed description of all procedures required to manage remaining contamination at the Site during and after completion of remedial action (monitored natural attenuation of groundwater contamination), which may include: (1) implementation and management of all Engineering and Institutional Controls; (2) media monitoring; (3) performance of periodic inspections, certification of results, and submittal of Periodic Review Reports; and (4) defining criteria for termination of Engineering and Institutional Controls.

To address these needs, this SMP includes two plans: (1) an Engineering and Institutional Control Plan for implementation and management of EC/ICs; and (2) a Site Monitoring Plan for implementation and maintenance of the Site monitoring system.

This SMP also includes a description of Periodic Review Reports for the periodic submittal of data, information, recommendations, and certifications to NYSDEC.

It is important to note that:

- This SMP details the site-specific implementation procedures that are required by the Declaration. Failure to properly implement the SMP is a violation of the Declaration, which is grounds for revocation of the Certificate of Completion (COC);
- Failure to comply with this SMP may also be a violation of Environmental Conservation Law, 6NYCRR Part 375 and the VCA (Index #A7-0419-0005; Site #V00339-7) for the Site, and may be subject to penalties.

1.1.3 Revisions

Revisions to this SMP will be proposed in writing to the NYSDEC's project manager. In accordance with the Declaration for the Site, the NYSDEC will provide a notice of any approved changes to the SMP, and append these notices to the SMP that is retained in its files.

1.2 SITE BACKGROUND

1.2.1 Site Location and Description

The Site is located at 4707 Dey Road in Liverpool, New York and is identified as Block 2, Lot 17 and Section 95 on the Onondaga County Tax Map. The Site is an approximately 4.59 acre area bounded by Pioneer Warehousing and Distribution to the north, Dey Road to the south, a commercial office building to the east, and Edgecomb Road to the west. The boundaries of the Site are more fully described in Appendix A – Metes and Bounds of the Declaration.

1.2.2 Site History

Deluxe constructed a check printing facility on the property in 1968. According to Deluxe representatives, the Site was undeveloped prior to 1968. In 1997, Deluxe retained Braun Intertec Corporation of Mendota Heights, Minnesota to conduct a Phase I Environmental Site Assessment. According to this report, a search of Sanborn Fire Insurance Company (Sanborn) atlases for the Site revealed that there were no Sanborn atlases for the subject location. Additionally, this report indicated that a review of city directories was conducted at the Syracuse Public Library dated 1936, 1942, 1947, 1951, 1954, 1960, 1967, 1972, 1976, 1980, 1987, 1988, 1989, 1990, 1992 and 1996. No listing

of the Site was noted in the 1936 to 1987 city directories. The 1989 through 1993 directories listed Deluxe Check Printers at the site address.

During the Deluxe ownership and operation of the Site, the following substances had been used for the manufacture of checks: ink, oil, toner, conversion solution, mineral spirits and tetrachloroethylene (PCE). The printing substances were located in the solvent room inside the building. Two chemicals, mineral spirits and PCE, were contained in two 280-gallon underground storage tanks (USTs) located along the outside of the east wall of the northeastern corner of the building from 1968 to 1989 at which time the USTs were removed. The solvent room was located inside the building immediately to the west of the former USTs. A description of past site operations follows.

Plate-Making Process

DCOP: During this process, liquid toner, paper plates and conversion solution were combined to develop printing plates for printing. The process creates waste toner which is hazardous. The waste was collected daily at the platesetters, and taken to the solvent room for collection into the appropriate waste stream for offsite disposal.

The conversion solution created nonhazardous waste which was collected as necessary from the units. The waste was taken to the solvent room for collection into the appropriate waste stream for offsite disposal.

Number Machine Cleaning

During this process, numbering units were cleaned and re-lubricated. The cleaning process used a cleaning solution called Kwik Dri 66. The units were immersed in a shallow pan of Kwik Dri 66 to soak. After soaking they were cleaned with a brush and blown off in a blow off box. Waste Kwik Dri 66 was collected, taken to the solvent room, and put in the appropriate waste stream for offsite disposal.

Printing Process

During this process, paper check stock, ink and fountain solutions were applied to the plate, and the inked image printed from the plate onto a rubber blanket, which in turn printed on the paper. The printing process created waste ink which is nonhazardous. This waste was taken to the solvent room for collection in the appropriate waste stream for offsite disposal.

Fountain solutions were used to keep the plate clean and free of ink for the non-print areas. A fountain solution is a slightly acidic water solution. In the past, isopropanol and water were used as a fountain solution. Blanket wash solution was used to clean the rubber blanket. All fountain solutions and blanket washes were collected daily from the presses, taken to the solvent room, and put into the appropriate waste stream for offsite disposal.

Machine Maintenance

Waste hydraulic oil that was generated during occasional machinery maintenance was collected and sent offsite for recycling.

Solvent Room

The solvent room was used as the center for storage of all waste-handling activity. Wastes were stored in 55-gallon drums for collection and disposal by either Ashland Chemical or Van Waters and Rogers.

A subsurface investigation was conducted in the vicinity of the former USTs in October 1998. The results of laboratory analysis indicated the presence of PCE and mineral spirits in soil samples collected from within the former UST area. Consequently, the NYSDEC was notified and Spill Number 98-10669 was assigned to the Site. Bedrock had been encountered at approximately 10 ft bg (feet below grade) and there was no groundwater observed during the subsurface investigation.

In April 1999, 33 cubic yards (46.2 tons) of impacted soil from the former UST area was excavated and disposed. Confirmation soil samples were collected and analyzed by a New York State Certificated laboratory and a comprehensive report entitled: "Deluxe Corporation, Former Check Printing Facility, 4707 Dey Road, Liverpool, New York" prepared by Leggette, Brashears & Graham, Inc. (LBG) was submitted to NYSDEC. A letter from NYSDEC dated November 8, 1999 indicated that No Further Action was required by the Department for Spill Number 98-10669.

A property sale occurred in December 1999 and Deluxe no longer owns the property. The property is currently owned by M. S. Kennedy Corp. of Cicero, New York. They conduct microelectronics manufacture and design onsite.

Prior to the sale, M. S. Kennedy Corp. retained an independent environmental firm to install a monitoring well within the bedrock beneath the Site in the vicinity of the former UST area. The results of laboratory analysis of the groundwater sample collected from this well indicated the presence of dissolved PCE at a concentration of 440 ug/l (micrograms per liter). Several other degradation compounds were detected at similar concentrations. This well was abandoned shortly after the sampling event. The details of the investigation were presented to NYSDEC in a letter dated December 16, 1999. As a result, Deluxe entered into the VCA to address the groundwater contamination.

1.2.3 Geologic Conditions

Drilling during the 2001 investigation encountered bedrock from 11 ft bg to 13 ft bg at Well Clusters 1, 2 and 4 and 20 ft bg at Well Cluster 3, with overburden above the bedrock consisting primarily of silt and clay.

Drilling during the 2003 investigation encountered bedrock at depths of 11, 6, 12 and 14 ft bg at the locations of 1D, Cluster 5, Cluster 6 and Cluster 7, respectively. Based on drill cuttings, the bedrock consists of a fractured shale to 110 ft bg. The shallow shale bedrock encountered was green/gray in color. This color changed to pink at varying depths (20 ft bg at 5D, 60 ft bg at 6D and 7D and 39 ft bg at 1D). This pink shale transitioned back to another green/gray shale at 100 to 110 ft bg in all "D" wells.

The elevation to groundwater in the 7 shallow "A" wells (1A, 2A, 3A, 4A, 5A, 6A and 7A) ranged from 84.98 feet above the site datum, to 74.54 feet on September 24, 2003. The elevation of groundwater in the "B" wells ranged between 59.02 feet and 57.75 feet on the same date. The elevation of groundwater in the "C" wells ranged from 48.04 feet to 46.87 feet and in the "D" wells from 49.04 feet to -9.95 feet on the same date. Historic depth and elevations of groundwater in the monitor wells are summarized on tables 1.1, 1.2, 1.3 and 1.4.

Groundwater flow through a bedrock aquifer is primarily through fractures, joints and bedding-plane partings. Flow direction is governed not only by differences in potentiometric surface elevation within the aquifer but also the orientation and general character of the macroscopic flow paths (fractures, joints, etc.) over a local and regional scale. The groundwater flow patterns beneath the Site must be discussed with these factors in mind.

Lateral Groundwater Flow Gradients

Groundwater elevations calculated for the shallow "A" wells indicated a horizontal gradient to the north (see table 1.1). The groundwater elevation in 5A was the lowest of all "A" wells on September 24, 2003 and was 7.60 feet lower than groundwater in the contamination source area (1A) 110 feet away. Groundwater in the shallow "A" zone flows to the north through weathered bedrock. A groundwater elevation contour map for the September 24, 2003 measurements from "A" monitor wells is shown on Figure 2.

The gradient between bedrock Wells 1B and 4B (groundwater in 4B is 1.27 feet lower in elevation) is also northerly in this intermediate zone (see table 1.2).

Groundwater elevations calculated for the "C" wells indicate a horizontal gradient to the south and southwest (see table 1.3).

Wells 1D and 7D appear to have intersected a greater number of water-bearing fractures in comparison to 5D and 6D. This is indicated by the difference in static elevation. The static elevation in 1D and 7D on September 24 was 49.04 and 46.15 while 5D and 6D were -9.95 and -5.55 (see table 1.4). Wells 5D and 6D appear to be not well con-

nected with the bedrock aquifer. The gradient between 1D and 7D is toward the southwest. Groundwater in "B", "C" and "D" wells flows through bedrock fractures, thus, flow patterns are not governed by traditional equations describing flow through a porous media. A groundwater elevation contour map would not be valid in the strictest sense. Figure 3 depicts the general groundwater flow direction for the different bedrock intervals.

Vertical Groundwater Flow Gradients

The most direct evidence that the groundwater flow regime beneath the Site has a vertical component is the distribution of volatile organic compounds (VOCs) in groundwater sampled from wells of various depths. Wells lateral to the source area such as Clusters 2, 3 and 4 contain deep groundwater (below the unconsolidated "A" zone) with chlorinated VOCs. Details are discussed in a following section.

Another indication of vertical groundwater flow is the differences in head between wells of different borehole intervals. In September 2003, groundwater in "A" wells was approximately 25 feet higher in elevation than in "B" wells. Similarly, groundwater in "B" wells was approximately 11 feet higher than in "C" wells. This head difference likely produces a vertical flow gradient in the bedrock.

1.3 SUMMARY OF REMEDIAL INVESTIGATION FINDINGS

A Remedial Investigation (RI) was performed to characterize the nature and extent of contamination at the Site. The results of the RI are described in detail in the following reports:

- Subsurface Investigation Report, March 2002;
- Supplemental Subsurface Investigation, April 2004; and,
- Soil Vapor Intrusion Investigation, May 2009.

Soil

The soil beneath the Site in the vicinity of the former USTs consists of brown silt with trace amounts of fine grained sand and gravel. Weathered bedrock underlies the silt and is approximately two feet in thickness. Competent bedrock was reached 11 to 12 ft bg and consists of a horizontally bedded green shale. Two to four feet of fill composed mainly of medium grained gravel, silt and sand overlies the primary silt unit referenced above. The locations of the soil borings completed in 1999 (B-1, B-2 and B-3) are shown on Figure 4. A geologic cross section through Soil Boring B-1 and B-2 is shown on Figure 5 and depicts all of the above-referenced sediment and bedrock units. Geologic logs for Borings B-1, B-2 and B-3 are included in the Appendix.

The laboratory analysis of soil samples that were taken before the excavation of contaminated soils indicated that Soil Boring B-1 at 4 to 6 ft bg adjacent to the former USTs contained PCE at a concentration of 3,000 ug/kg (micrograms per kilogram). This sample also contained trichloroethylene, fluoranthene and pyrene at concentrations of 49 ug/kg, 410 ug/kg and 720 ug/kg, respectively. The other two pre-excavation soil samples (B-2 [10'-12'] and B-3 [10'-12']) did not contain any compounds above the laboratory method detection limits.

After the excavation of contaminated soil from the former UST area, samples of the remaining soil in the sidewalls of the excavated area all tested below the method detection limits for all VOCs analyzed. A sample of the remaining soil in the bottom of the excavation did yield detections of several VOCs, but all of the detections were at one or more orders of magnitude less than NYSDEC's unrestricted use soil cleanup objectives (SCOs).

A summary of laboratory results is presented on Table 4 and includes all the compounds which were detected by laboratory analyses and several other selected compounds which were not detected.

Site-Related Groundwater

Well Cluster #1 (Former Underground Storage Tank Area)

Monitor Well Cluster #1 is in the former UST area (Figure 1). Groundwater collected from these wells is the most severely impacted by PCE and its degradation byproducts. Laboratory analysis of groundwater samples collected from

MW-1A and MW-1B on October 16, 2003 indicated PCE concentrations exceeding NYSDEC Groundwater Quality Standards (GWQS). PCE concentrations were 360 ug/l, 280 ug/l and 2 ug/l in MW-1A, MW-1B and MW-1C, respectively.

Other compounds detected above GWQS were 1,1,1-trichloroethane, 1,2-dichloroethylene and trichloroethylene (TCE). The historic concentrations of PCE and its degradation products decreases with depth below grade at the Well Cluster #1 location. No VOCs were detected in MW-1D (the deepest #1 cluster well) in September 2003. Table 2.1 summarizes groundwater quality in Well Cluster #1.

Well Clusters #2, 3, 4

Well Clusters #2, 3 and 4 are the clusters closest to Well Cluster #1 and the former UST area (50 to 60 feet away). Groundwater from Cluster #2 (east of the former UST area) did not contain VOCs above GWQS during the most recent sampling event. During five sampling events conducted from 2001 through 2003, GWQS were exceeded for only one compound on one date in Cluster #2 (7 ug/l, 1,1-dichloroethane, MW-2C, April 30, 2003). That detection was followed by a GWQS-compliant sample taken from the same well five months later (2 ug/l, 1,1-dichloroethane, MW-2C, September 25, 2003). Table 2.2 summarizes groundwater quality in Monitor Well Cluster #2. Other observed compounds detected below GWQS in the #2 well cluster are 1,1,1-trichloroethane, 1,1-dichloroethane and 1,1-dichloroethylene (MW-2C) and methyl tertiary-butyl ether (MTBE) (MW-2A).

Groundwater quality from Well Cluster #3 (northeast of the former UST area) had no VOCs exceeding GWQS. Table 2.3 summarizes Cluster #3 groundwater quality.

Groundwater from Well Cluster #4 (north of the former UST area) contains the greatest VOC concentration lateral to Well Cluster #1. With the exception of vinyl chloride (not detected in #4 cluster), compounds detected in Clus-

ter #4 are the same as those in Cluster #1. On the most recent sampling date (September 25, 2003), groundwater samples collected from Cluster #4 contained PCE at concentrations between 130 ug/l (MW-4A) and <1 ug/l (MW-4C). On the same date, TCE concentrations ranged between 9 ug/l (MW-4A) and <1 ug/l (MW-4C). Similar to Well Cluster #1, the greatest VOC concentration in the groundwater from Cluster #4 was in the shallow overburden. Monitor Wells MW-4A and MW-4B contained groundwater with VOCs exceeding GWQS. Table 2.4 summarizes groundwater quality in Well Cluster #4.

Well Clusters #5, 6 and 7

The newest monitor wells (Clusters #5, 6 and 7) were drilled to define the groundwater quality near the perimeter of the Site. Well Cluster Well #5 is located along a northward extension of a line joining the #1 and #4 clusters. This location was based on groundwater analysis and contour maps which indicate that the groundwater flows toward the north. The newest wells have been sampled once (September 25, 2003). On this date, the MW-5A groundwater sample was the only sample from Clusters 5, 6 and 7 found to contain a VOC at a concentration above the GWQS. PCE was detected at 21 ug/l in the MW-5A sample. Table 2.5 summarizes the groundwater quality in Well Clusters 5, 6 and 7.

The RI determined that dissolved VOC concentrations in the groundwater beneath the former UST area (Well Cluster #1) decrease with depth. Monitor Well 1C (open rock borehole from 50 to 60 ft bg is the deepest well to contain VOCs above GWQS. Monitor Well 1D (110 ft bg) contained no VOCs above the GWQS indicating that contamination is vertically defined in this area.

Lateral migration of contaminants is primarily toward the north as shown by groundwater quality from Clusters #4 and #5. There is approximately a 5 fold decrease in PCE concentration between the #1 and #4 well clusters, a distance of 60 feet. Similarly, PCE concentration decreases another 5 fold between Clusters #4 and #5. Cluster #5 is 45 feet from #4 and 105 feet from #1. The limit of northward lateral migration is de-

fined for all VOCs except PCE by Cluster #5, and in 2003 there was only 21 ug/l PCE in Cluster #5.

There is evidence of a minor lateral migration component to the east as shown by degradation products found in groundwater from MW-2C. However, no PCE or TCE has been detected in the #2 well cluster so this eastward flow component is not considered as significant as the northern component. There is no analytical evidence for groundwater flow toward the west or southwest (Clusters 6 and 7).

Shallow contamination in the unconsolidated overburden and shallow weathered bedrock is distributed to the north from the former UST area towards Wells MW-4A and MW-5A. The contaminants are dissolved in groundwater flowing along the interface between the soil/weathered bedrock and the less fractured bedrock below. This appears to be the principal pathways of lateral contaminant distribution.

Groundwater flow through deeper bedrock is also primarily toward the north as shown by laboratory results of groundwater samples from MW-4B and MW-4C. This likely is the result of contaminants "leaking" downward from the soil zone at the #4 cluster. A secondary distribution mechanism is horizontal flow along bedding planes from similar depths at the former UST area. The lack of water in the site's "B" wells seems to indicate a poor hydrologic connection between the shallow zone and the deeper, more competent bedrock. The vertical limit of contaminant migration is less than 80 ft bg as shown by the absence of detectable VOCs in all "D" wells.

In a letter to Deluxe dated November 10, 2009, NYSDEC concluded that the lateral and vertical extent of groundwater contamination beneath the Site has been defined sufficiently to accept the recommendation of monitored natural attenuation (MNA) as the remedial approach.

Site-Related Soil Vapor Intrusion

A Soil Vapor Intrusion Investigation was conducted in accordance with the NYSDEC approved Soil Vapor Investigation Work Plan prepared by LBG dated September 2008. The purpose of the investigation was to determine whether PCE or any of its daughter products such as TCE or vinyl chloride exist within the soil vapor beneath the current building or within the ambient air inside the building. The investigation in-

cluded the installation of four permanent Sub-Slab Vapor Sampling points, the collection and analysis of sub-slab vapor samples and ambient indoor and outdoor samples, and the interpretation of the laboratory data in accordance with the Decision Matrices listed in the New York State Department of Health (NYSDOH) Guidance for Evaluating Soil Vapor Intrusion in the State of New York, October 2006.

Installation of Sub-Slab Vapor Points

On December 16 and 17, 2008, LBG personnel installed four permanent sub-slab vapor points beneath the floor of the building. The sub-slab vapor points were labeled SS-1 through SS-4 and their locations are shown on Figure 6. Each of the sub-slab vapor points was installed as follows:

1. A 6-inch diameter core drill was utilized to remove a section of floor down to the sub-slab aggregate material.
2. A tile probe was then utilized to drill a one-half inch diameter hole approximately 2 inches into the sub-slab aggregate material.
3. A quarter-inch diameter stainless steel tube was inserted into the hole from its bottom to approximately 3 inches below the top of the floor slab.
4. An airtight surface seal composed of hydraulic cement was placed around the tube from approximately 4 inches below the top of the floor slab to the sub-slab aggregate.
5. A 5-inch diameter well cover was installed within the slab and finished flush with the floor.

Collection of Sub-Slab Vapor Samples

On January 28, 2009, LBG collected sub-slab vapor samples from each of the sub-slab vapor sampling points. The sampling was performed in accordance with the Soil Vapor Investigation Work Plan and utilized the protocols described in the NYSDOH Investigation Guidance for Evaluating Soil Vapor Intrusion in

the State of New York, October 2006. Prior to sample collection each stainless steel tube was purged of 3 volumes of air at a rate of less than 0.2 l/min (liter per minute) using a peristaltic pump and dedicated polyethylene tubing. A laboratory certified 6-liter Summa canister and flow controller where then utilized to collect a sub-slab vapor sample at each of the four locations, SS-1, SS-2, SS-3 and SS-4. The flow controllers were calibrated at the laboratory to fill the Summa canisters during a 30-minute period at a rate of 0.2 l/min. After sample collection, the valve was closed and each canister was placed in a shipping container.

The Summa canisters were shipped under chain-of-custody to Lancaster Laboratories (Lancaster) of Lancaster, Pennsylvania, a NYSDOH Environmental Laboratory Approval Program (ELAP) certified laboratory. All of the sub-slab vapor samples were analyzed for the presence of VOCs by EPA Method TO-15 and results were reported with ASP Category B deliverable package.

Indoor Ambient Air Sampling

Indoor ambient air sampling was conducted concurrently with the sub-slab vapor sampling on January 28, 2009. The indoor air sample was collected in a main hallway of the building. A 6-liter Summa canister was placed approximately 3 feet above the floor and fitted with laboratory calibrated flow controller set to 0.75 l/hr (liter per hour) over an 8-hour time period.

The Summa canister was shipped under chain-of-custody to Lancaster for analysis of VOCs by EPA Method TO-15 and results were reported with Category B deliverables. In addition, a Secondary Ion Mass Spectrometry (SIM) analysis was performed for the following compounds: vinyl chloride, cis-1-2-dichloroethene, 1,1,1-trichloroethane, carbon tetrachloride, TCE and PCE. The purpose of the SIM analysis was to obtain a lower analytical detection limit on the aforementioned compounds.

Outdoor Ambient Air Sampling

The outdoor ambient air sample was collected concurrently with the sub-slab vapor sampling and indoor ambient air sampling on January 28, 2009. The outdoor ambient air sample was collected in the parking lot area adjacent to the building. A 6-liter Summa canister was placed approximately 3 feet above the ground surface and fitted with laboratory calibrated flow controllers set to 0.75 l/hr over an 8-hour time period.

The Summa canister was shipped under chain-of-custody to Lancaster for analysis of VOCs by EPA Method TO-15 and results were reported with Category B deliverables.

Results of the Sub-Slab Vapor Investigation

The results of laboratory analysis indicate that there were several of the target analytes of the TO-15 analysis detected in each of the sub-slab vapor samples. The majority of the detections were at such a low concentration that the laboratory could only quantify them as estimated values (listed in the laboratory report as a J value). The target compounds of this investigation were PCE and its daughter products. PCE was detected in each of the sub-slab vapor samples at concentrations ranging from 1.7 ug/m^3 (micrograms per cubic meter) J to 27 ug/m^3. TCE was detected in each of the samples at concentrations ranging from 1.1 ug/m^3 J to 1.8 ug/m^3 J. Vinyl chloride was not detected in any of the sub-slab vapor samples. The highest concentration of a target analyte was dichlorodifluoromethane detected at a concentration of 4,800 ug/m^3 in the SS-4 vapor sample. This compound is more commonly known as Freon-12 and is not the focus of this investigation. All of the laboratory results are summarized on table 3.

Indoor Air Sample

The results of laboratory analysis indicate that several of the target analytes of the TO-15 analysis were detected in the indoor air sample. Seven compounds on the target list were analyzed using a SIM analysis in order to achieve a lower detection limit. Out of all of the compounds detected, none were detected at a concentration in excess of

NYSDOH Indoor Air Guidance Values or the Building Assessment and Survey Evaluation (BASE) – 90th Percentile, EPA 2001 with the exception of acetone detected at 170 ug/m^3. There is no NYSDOH Indoor Air Guidance Value for acetone and the BASE 90th Percentile concentration is 98.9 ug/m^3. All of the laboratory results are summarized on table 3.

Outdoor Air Sample

The results of laboratory analysis indicated that several of the target analytes of the TO-15 analysis were detected in the outdoor air sample; however, neither PCE nor any of its daughter compounds were detected. All of the laboratory results are summarized on table 3.

1.4 SUMMARY OF REMEDIAL ACTIONS

The following is a summary of the Remedial Actions performed at the Site:

1. Removal of contaminated soil/fill exceeding the Track 1 (unrestricted use) Soil Cleanup Objectives (SCOs) from the former UST area.

2. Execution and recording the Declaration to restrict land use and prevent future exposure to the remaining contamination at the Site.

3. Development and implementation of this SMP for long term management of remaining contamination as required by the Declaration, which includes plans for: the following institutional and engineering controls; (1) monitoring of the natural attenuation of groundwater contamination, (2) maintenance of groundwater monitoring wells, (3) limiting the Site to industrial and commercial uses, (4) restricting the use of Site groundwater, and (5) reporting to NYSDEC on compliance with the aforementioned institutional and engineering controls.

1.4.1 Removal of Contaminated Materials from the Site

On April 27 and April 28, 1999, LBG personnel supervised the excavation of soil in the former UST area. The excavation activities were conducted by American Environmental Assessment Corporation of Farmingdale, New York. The excavation dimensions were extended vertically and horizontally until photoionization detector (PID) readings for VOC vapors approached 0.0 ppm or until bedrock was encountered. A one-foot thick concrete slab located at 5 ft bg was also removed as part of the excavation activities. The final dimensions of the excavation were 21 feet (length) by 12 feet (width) by 10 feet (depth).

Soil samples were collected from all available sidewalls of the completed excavation at 7 ft bg. A soil sample was not collected from the south sidewall because it consisted of the concrete building foundation and footing to the pedestrian concrete ramp. A soil sample was also collected from the bottom of the completed excavation which was at the weathered bedrock surface (10 ft bg). All of the post-excavation soil sample locations are shown on Figure 7.

As a result of excavation activities, approximately 30 cubic yards of contaminated soil was stockpiled on top of and beneath polyethylene sheeting.

On May 19, 1999, all 30 cubic yards, a total of 46.20 tons, of soil was transported by Allied Waste Services, Inc. of Merrick, New York to Michigan Disposal Waste Treatment Plant of Belleville, Michigan for treatment and disposal.

1.4.2 Site-Related Treatment Systems

No long-term treatment systems were installed as part of the Site remedy. MNA of residual groundwater contamination was implemented in lieu of an installed treatment remedy.

1.4.3 Remaining Contamination

A summary of laboratory results for soil is presented on Table 4 and includes all the compounds which were detected by laboratory analyses and several other selected

compounds which were not detected. The results of laboratory analyses of the post excavation soil samples indicate that none of the sidewall soil samples contained any compounds in concentrations which exceed the Track 1 (unrestricted use) SCOs and, thus, soil is not an environmental medium of concern.

In its report on the soil vapor investigation dated May 2009, based on the data and on the decision materials set forth in the NYSDOH regulatory guidance, LBG recommended that no further vapor intrusion investigation, monitoring or mitigation activities be required. In a letter to Deluxe dated November 10, 2009, NYSDEC agreed that no additional investigation or remedial measures were needed for sol vapor. Therefore, soil vapor is not a medium of concern.

In a letter to Deluxe dated November 10, 2009, NYSDEC concluded that the lateral and vertical extent of groundwater contamination beneath the Site had been well established and it accepted the recommendation of MNA as a viable remedial approach with groundwater sampling to be conducted every third quarter. In addition, NYSDEC directed that groundwater and land use restrictions be placed on the Site via a Declaration in accordance with the VCA.

2.0 ENGINEERING AND INSTITUTIONAL CONTROL PLAN

2.1 INTRODUCTION

2.1.1 General

Since there is remaining contamination, comprised solely of groundwater contamination beneath the Site, Engineering Controls and Institutional Controls (EC/ICs) are required to protect human health and the environment. This Engineering and Institutional Control Plan describes the procedures for the implementation and management of all EC/ICs at the Site. The EC/IC Plan is one component of the SMP and is subject to revision by NYSDEC.

2.1.2 Purpose

This plan provides:

- a description of all EC/ICs on the Site;
- the basic implementation and intended role of each EC/IC;
- a description of the key components of the ICs set forth in the Declaration;
- a description of the features to be evaluated during each required inspection and periodic review;
- a description of plans and procedures to be followed for implementation of EC/ICs; and,
- any other provisions necessary to identify or establish methods for implementing the EC/ICs required by the SMP, as determined by the NYSDEC.

2.2 ENGINEERING CONTROLS

2.2.1 Criteria for Completion of Remediation/Termination of Remedial Systems

Generally, remedial processes, such as the selected MNA, are considered completed when effectiveness monitoring indicates that the remedy has achieved the remedial action objectives identified by the decision document. The framework for determining when remedial processes are complete is provided in Sections 6.4 and 6.5 of NYSDEC DER-10.

2.2.2 Monitored Natural Attenuation

In a letter to Deluxe dated November 10, 2009, NYSDEC concluded that the lateral and vertical extent of groundwater contamination beneath the Site has been well established and it accepted the recommendation of MNA as the remedial approach. Groundwater monitoring activities to assess natural attenuation will continue, as determined by the NYSDEC, until residual groundwater concentrations are found to be consistently below NYSDEC GWQS or have become asymptotic at an acceptable level for a sufficient period of time as provided in Section 6.4 of NYSDEC DER-10. Monitoring will continue until permission to discontinue is granted in writing by the NYSDEC. If

groundwater contaminant levels become asymptotic at a level that is not acceptable to the NYSDEC, additional source removal, treatment and/or control measures will be evaluated.

2.3 INSTITUTIONAL CONTROLS

A series of Institutional Controls is required by the VCA and NYSDEC's November 10, 2009 letter. Adherence to these Institutional Controls on the Site is required by the Declaration, which refers to the Site as the "Property", and will be implemented under this SMP. These Institutional Controls are:

- Compliance with the Declaration and this SMP by Deluxe, the site owner, and their respective successors and assigns;
- Limiting the use and development of the Site to Commercial/Industrial uses only and restricting the use of Site groundwater;
- Groundwater monitoring must be performed as defined in this SMP;
- Data and information pertinent to the SMP for the Property must be reported at the frequency and in a manner defined in this SMP;

Institutional Controls identified in the Declaration may not be discontinued without an amendment to or extinguishment of the Declaration.

The Site has a series of Institutional Controls in the form of Site restrictions. Adherence to these Institutional Controls is required by the Declaration. Site restrictions that apply to the Site (i.e., the Property) are:

- the owner of the Property shall prohibit the Property from ever being used for purposes other than for Commercial or Industrial use without the express written waiver of such prohibition by NYSDEC or its successor agency;
- unless prior written approval by NYSDEC or its successor agency is first obtained, where contamination remains at the Property subject to the provisions of the SMP, there shall be no construction, use or occupancy of the Property that results in the disturbance or excavation of the Property which threatens the integrity of the engineering controls or which results in unacceptable human exposure to contaminated groundwater;

- the owner of the Property shall prohibit the use of the groundwater underlying the Property without treatment rendering it safe for drinking water or industrial purposes, as appropriate, unless the user first obtains permission to do so from NYSDEC or its successor agency;
- The remedial party will submit to NYSDEC a written statement that certifies, under penalty of perjury, that: (1) controls employed at the Property are unchanged from the previous certification or that any changes to the controls were approved by the NYSDEC; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitutes a violation or failure to comply with the SMP. NYSDEC retains the right to access such Property at any time in order to evaluate the continued maintenance of any and all controls. This certification shall be submitted annually, or an alternate period of time that NYSDEC may allow and will be made by an engineer or environmental professional that the NYSDEC finds acceptable.

2.4 INSPECTIONS AND NOTIFICATIONS

2.4.1 Inspections

Inspections of all remedial components installed at the Site will be conducted at the frequency specified in the SMP Monitoring Plan schedule. A comprehensive site-wide inspection will be conducted annually, regardless of the frequency of the Periodic Review Report. The inspections will determine and document the following:

- Compliance with requirements of this SMP and the Declaration;
- Sampling and analysis of appropriate media during monitoring events;
- If relevant Site records are complete and up to date; and
- Changes, or needed changes, to the remedial or monitoring system.

Inspections will be conducted in accordance with the procedures set forth in the Monitoring Plan of this SMP (Section 3). The reporting requirements are outlined in the Periodic Review Reporting section of this plan (Section 5).

If an emergency, such as a natural disaster or an unforeseen failure of any of the ECs (i.e., the groundwater monitor wells) occurs, an inspection of the Site will be con-

ducted within 5 days of the event to verify the effectiveness of the ECs implemented at the Site by a qualified environmental professional as determined by NYSDEC.

2.4.2 Notifications

Notifications will be submitted by the remedial party to the NYSDEC as needed for the following reasons:

- 60-day advance notice of any proposed changes in Site use that are required under the terms of the Voluntary Cleanup Agreement (VCA) #A7-0419-0005, 6NYCRR Part 375, and/or Environmental Conservation Law.

Any change in the ownership of the Site or the responsibility for implementing this SMP will include the following notifications:

- At least 60 days prior to the change, the NYSDEC will be notified in writing of the proposed change. This will include a certification that the prospective purchaser has been provided with a copy of the VCA, and all approved work plans and reports, including this SMP
- Within 15 days after the transfer of all or part of the Site, the new owner's name, contact representative, and contact information will be confirmed in writing.

2.4.3 Emergency Telephone Numbers

In the event of any environmentally related situation or unplanned occurrence requiring assistance, Deluxe, the Owner or their representative(s) should contact the appropriate party from the contact list below. For emergencies, appropriate emergency response personnel should be contacted. Prompt contact should also be made to Leggette, Brashears & Graham, Inc. These emergency contact lists must be maintained in an easily accessible location at the Site.

Emergency Contact Numbers

Medical, Fire, and Police:	911
One Call Center:	(800) 272-4480 (3 day notice required for utility markout)
Poison Control Center:	(800) 222-1222

Pollution Toxic Chemical Oil Spills:	(800) 424-8802
NYSDEC Spills Hotline	(800) 457-7362

Contact Numbers

Jon Robertson, Deluxe	(651) 490-8654
Jorma Weber, LBG	(914) 694-5711

* Note: Contact numbers subject to change and should be updated as necessary

3.0 SITE MONITORING PLAN

3.1 INTRODUCTION

3.1.1 General

The Monitoring Plan describes the measures for evaluating the performance and effectiveness of the MNA remedy to reduce or mitigate remaining contamination at the Site, and the affected Site media identified below. This Monitoring Plan may only be revised with the approval of NYSDEC.

3.1.2 Purpose and Schedule

This Monitoring Plan describes the methods to be used for:

- sampling and analysis of groundwater;
- assessing compliance with applicable NYSDEC standards, criteria and guidance, particularly GWQS;
- assessing achievement of the remedial performance criteria.
- evaluating Site information periodically to confirm that the remedy continues to be effective in protecting public health and the environment; and,

- preparing the necessary reports for the various monitoring activities.

To adequately address these issues, this Monitoring Plan provides information on:

- sampling locations, protocol, and frequency;
- information on all designed monitoring systems (e.g., well logs);
- analytical sampling program requirements;
- reporting requirements;
- Quality Assurance/Quality Control (QA/QC) requirements;
- inspection and maintenance requirements for monitoring wells;
- monitoring well decommissioning procedures; and,
- annual inspection and periodic certification.

Annual monitoring of the performance of the MNA remedy and overall reduction in remaining contamination on-site will be conducted for the first 5 years. The frequency thereafter will be determined by NYSDEC. Trends in contaminant levels in the affected areas, will be evaluated to determine if the remedy continues to be effective in achieving remedial goals.

Monitoring/Inspection Schedule

Monitoring Program	Frequency*	Matrix	Analysis
Natural Attenuation	Every 9 months	Groundwater	EPA Method 8260
Site Inspection	Annually	NA	NYSDEC Format

* The frequency of events will be conducted as specified until otherwise approved by NYSDEC and NYSDOH

3.2 MEDIA MONITORING PROGRAM

3.2.1 Groundwater Monitoring

Groundwater monitoring will be performed on a periodic basis to assess the performance of the remedy. There is a network of 19 monitor wells located onsite. They are set as seven distinct clusters onsite. Each well cluster contains two to four individual monitor wells set with well screen at a specific depth. The well locations are shown on Figure 1 and monitor well construction diagrams are included in Appendix B.

All of the "A" monitor wells (MW-1A, MW-2A, MW-3A and MW-4A) have well screens set from 5 ft bg to 20 ft bg. Three of the four "A" wells intersect bedrock at depths ranging from 11 ft bg (MW-4A) to 13 ft bg (MW-1A and MW-2A). Monitor Well MW-2A does not intersect bedrock because bedrock is encountered at 20 ft bg at that location.

All of the "B" monitor wells (MW-1B, MW-2B, MW-3B and MW-4B) have well screens set from 30 ft bg to 40 ft bg. These wells are screened completely in bedrock and are constructed with outer steel casings set from grade to 30 ft bg.

All of the "C" monitor wells (MW-1C, MW-2C, MW-3C and MW-4C) have well screens set from 50 ft bg to 60 ft bg. These wells are screened completely in bedrock and are constructed with outer steel casings set from grade to 50 ft bg.

All of the "D" monitor wells are open rock boreholes from 80 to 110 ft bg. The monitor well construction diagrams are included in Appendix B.

Groundwater samples will be collected from these monitor wells every 9 months for a period of 5 years. The purpose of sampling every 9 months rather than 12 months is to ensure data collection during every season.

The sampling frequency may be modified with the approval of NYSDEC. The SMP will be modified to reflect changes in sampling plans approved by NYSDEC.

Deliverables for the groundwater monitoring program are specified below.

3.2.1.1 Sampling Protocol

All monitoring well sampling activities will be recorded in a field book and a groundwater-sampling log presented in Appendix C. Other observations (e.g., well integrity, etc.) will be noted on the well sampling log. The well sampling log will serve as the inspection form for the groundwater monitoring well network.

The purpose of sampling every 9 months rather than annually is to ensure the collection of groundwater samples seasonally. The first sampling event is scheduled for April 2013.

Prior to sampling, the depth to water and total depth of each of the nineteen wells will be measured with an electric water-level indicator and weighted steel tape, respectively. The depth to water and total depth will be measured to 0.01-foot precision and each well will be checked for the presence of free-phase non-aqueous phase liquid using an interface probe. All of the measuring equipment will be decontaminated between measurement locations using Alconox and water.

Groundwater samples will be collected from each of the wells using dedicated disposable polyethylene bailers. Prior to sampling, at least three volumes of groundwater will be evacuated from each well using a submersible pump set approximately 2 feet below the pumping water level. The pump will be operated at a flow rate less than 1 gpm and dedicated polyethylene discharge tubing will be used at each well location. All of the evacuated groundwater will be stored in 55-gallon steel drums which will be transported offsite for disposal.

After three volumes of groundwater have been evacuated from each well, groundwater samples will be collected with the dedicated disposable polyethylene bailers and transferred to the laboratory supplied containers. Each sample container will be labeled, stored in a chilled cooler and shipped via overnight courier to a NYSDOH ELAP certified laboratory and will provide NYSDEC ASP Category B Deliverables such as York Analytical Laboratories (York) of Stratford, Connecticut for analysis.

A total of nineteen groundwater samples (one sample from each of the nineteen wells), a field blank, a trip blank, a matrix spike and a matrix spike duplicate will be analyzed for VOCs by EPA Method 8260. The data reporting level will be the Method Detection Limit (MDL) of the analysis and the Quality Assurance/Quality Control (QA/QC) plan for the collection of groundwater samples will be followed which is in Appendix F along with a Health and Safety Plan in Appendix D.

3.2.1.2 Monitoring Well Repairs, Replacement And Decommissioning

If biofouling or silt accumulation occurs in the on-site and/or off-site monitoring wells, the wells will be physically agitated/surged and redeveloped. Additionally, monitoring wells will be properly decommissioned and replaced (as per the Monitoring Plan), if an event renders the wells unusable.

Repairs and/or replacement of wells in the monitoring well network will be performed based on assessments of structural integrity and overall performance.

The NYSDEC will be notified prior to any repair or decommissioning of monitoring wells for the purpose of replacement, and the repair or decommissioning and replacement process will be documented in the subsequent periodic report. Well decommissioning without replacement will be done only with the prior approval of NYSDEC. Well abandonment will be performed in accordance with NYSDEC's "Groundwater Monitoring Well Decommissioning Procedures." Monitoring wells that are decommissioned because they have been rendered unusable will be reinstalled in the nearest available location, unless otherwise approved by the NYSDEC.

3.3 SITE-WIDE INSPECTION

Site-wide inspections will be performed on a regular schedule at a minimum of once a year. Site-wide inspections will also be performed after all severe weather conditions that may affect Engineering Controls or monitoring devices. During these inspections, an inspection form will be completed (Appendix E). The form will compile sufficient information to assess the following:

- Compliance with all ICs, including Site usage;
- An evaluation of the condition and continued effectiveness of ECs;
- General Site conditions at the time of the inspection;
- The Site management activities being conducted including, where appropriate, confirmation sampling and a health and safety inspection;
- Compliance with schedules included in the MNA Monitoring Plan; and

- Confirm that Site records are up to date.

3.4 MONITORING QUALITY ASSURANCE/QUALITY CONTROL

All sampling and analyses will be performed in accordance with the requirements of the Quality Assurance Project Plan (QAPP) prepared for the Site (Appendix F). Main Components of the QAPP include:

- QA/QC Objectives for Data Measurement;
- Sampling Program:
    - Sample containers will be properly washed, decontaminated, and appropriate preservative will be added (if applicable) prior to their use by the analytical laboratory. Containers with preservative will be tagged as such.
    - Sample holding times will be in accordance with the NYSDEC ASP requirements.
    - Field QC samples (e.g., trip blanks, coded field duplicates, and matrix spike/matrix spike duplicates) will be collected as necessary.
- Sample Tracking and Custody;
- Calibration Procedures:
    - All field analytical equipment will be calibrated immediately prior to each day's use. Calibration procedures will conform to manufacturer's standard instructions.
    - The laboratory will follow all calibration procedures and schedules as specified in USEPA SW-846 and subsequent updates that apply to the instruments used for the analytical methods.
- Analytical Procedures;
- Preparation of a Data Usability Summary Report (DUSR), which will present the results of data validation, including a summary assessment of laboratory data packages, sample preservation and chain of custody procedures, and a summary assessment of precision, accuracy, representativeness, comparability, and completeness for each analytical method.
- Internal QC and Checks;

- QA Performance and System Audits;
- Preventative Maintenance Procedures and Schedules;
- Corrective Action Measures.

3.5 MONITORING REPORTING REQUIREMENTS

Forms and any other information generated during regular monitoring events and inspections will be kept on file on-site. All forms, and other relevant reporting formats used during the monitoring/inspection events, will be (1) subject to approval by NYSDEC and (2) submitted at the time of the Periodic Review Report, as specified in the Reporting Plan of this SMP.

All monitoring results will be reported to NYSDEC on a periodic basis in the Periodic Review Report. A letter report will also be prepared [if required by NYSDEC], subsequent to each sampling event. The report (or letter) will include, at a minimum:

- Date of event;
- Personnel conducting sampling;
- Description of the activities performed;
- Type of samples collected (e.g., groundwater);
- Copies of all field forms completed (e.g., well sampling logs, chain-of-custody documentation, etc.);
- Sampling results in comparison to appropriate standards/criteria;
- A figure illustrating sample type and sampling locations;
- Copies of all laboratory data sheets and the required laboratory data deliverables required for all points sampled (o be submitted electronically in the NYSDEC-identified format);
- Any observations, conclusions, or recommendations; and
- A determination as to whether groundwater conditions have changed since the last reporting event.

Data will be reported in hard copy or digital format as determined by NYSDEC. A summary of the monitoring program deliverables are summarized below.

Schedule of Monitoring/Inspection Reports

Task	Reporting Frequency*
Groundwater Sampling Report	Every 9 months

* The frequency of events will be conducted as specified until otherwise approved by NYSDEC

4.0 OPERATION AND MAINTENANCE PLAN

4.1 INTRODUCTION

The Site remedy does not rely on any mechanical systems, such as sub-slab depressurization systems or air sparge/soil vapor extraction systems to protect public health and the environment. Therefore, the operation and maintenance of such components is not included in this SMP.

A plan for the maintenance, repair, replacement and decommissioning of the network of groundwater monitoring wells is set forth in Section 3.3 (Media Monitoring Plan) of this SMP.

5.0 INSPECTIONS, REPORTING AND CERTIFICATIONS

5.1 SITE INSPECTIONS

5.1.1 Inspection Frequency

All inspections will be conducted at the frequency specified in the schedules provided in Section 3 Monitoring Plan of this SMP. At a minimum, a site-wide inspection will be conducted annually. Inspections of remedial components will also be conducted when a breakdown of any remedial system component (i.e., groundwater monitoring

wells) has occurred or whenever a severe condition has taken place, such as an erosion or flooding event that may affect the ECs.

5.1.2 Inspection Forms, Sampling Data, and Maintenance Reports

All inspections and monitoring events will be recorded on the appropriate forms. Additionally, a general site-wide inspection form will be completed during the site-wide inspection (see Appendix E). These forms are subject to NYSDEC revision.

All applicable inspection forms and other records, including all media sampling data and system maintenance reports, generated for the Site during the reporting period will be provided in electronic format in the Periodic Review Report.

5.1.3 Evaluation of Records and Reporting

The results of the inspection and Site monitoring data will be evaluated as part of the EC/IC certification to confirm that the:

- EC/ICs are in place, are performing properly, and remain effective;
- The Monitoring Plan is being implemented;
- Maintenance activities are being conducted properly; and, based on the above items,
- The Site remedy continues to be protective of public health and the environment and is performing as designed this SMP and as intended by NYSDEC when, by letter dated November 10, 2009, it approved implementation of a MNA remedy for the remaining groundwater contamination, directed groundwater and land use restrictions to be placed on the Site, and determined that no additional investigation or remedial measures are needed to address the soil vapor intrusion exposure pathway.

5.2 CERTIFICATION OF ENGINEERING AND INSTITUTIONAL CONTROLS

After the last inspection of the reporting period, a qualified environmental professional or Professional Engineer licensed to practice in New York State (depending on the need to evaluate engineering systems) will prepare the following certification:

For each institutional or engineering control identified for the Site, I certify that all of the following statements are true:

- The inspection of the Site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under my direction;
- The control employed is unchanged from the date the control was put in place, or last approved by the Department;
- Nothing has occurred that would impair the ability of the control to protect the public health and environment;
- Nothing has occurred that would constitute a violation or failure to comply with any site management plan for this control;
- Access to the Site will continue to be provided to the NYSDEC to evaluate the remedy, including access to evaluate the continued maintenance of this control;
- Use of the Site is compliant with the Declaration;
- The engineering control systems are performing as designed and are effective;
- To the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the Site remedial program and generally accepted engineering practices; and
- The information presented in this report is accurate and complete.
- I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law. I, Jorma Weber, of LBG, 110 Corporate Park Drive, White Plains, New York, 10604, am certifying as Deluxe's Designated Site Representative for the Site.
- No new information has come to my attention, including groundwater monitoring data from wells located at the Site boundary, if any, to indicate that the assumptions made in the qualitative exposure assessment of off-site contamination are no longer valid; and

Every five years the following certification will be added:

- The assumptions made in the qualitative exposure assessment remain valid.

The signed certification will be included in the Periodic Review Report described below.

5.3 PERIODIC REVIEW REPORT

A Periodic Review Report will be submitted to NYSDEC for each annual reporting period (or such longer reporting period as NYSDEC may direct), beginning with the reporting period that commences upon NYSDEC's acceptance of this SMP. In the event that the Site is subdivided into separate parcels with different ownership, a single Periodic Review Report will be prepared that addresses the Site described in Appendix B (Metes and Bounds). The report will be prepared in accordance with NYSDEC DER-10 and submitted within 45 days of the end of each reporting period. Media sampling results will also incorporated into the Periodic Review Report. The report will include:

- Identification, assessment and certification of all ECs/ICs required by the remedy for the Site;
- Results of the required annual site inspections and severe condition inspections, if applicable;
- All applicable inspection forms and other records generated for the Site during the reporting period in electronic format;
- A summary of any discharge monitoring data and/or information generated during the reporting period with comments and conclusions;
- Data summary tables and graphical representations of contaminants of concern by media (groundwater, soil vapor), which include a listing of all compounds analyzed, along with the applicable standards, with all exceedances highlighted. These will include a presentation of past data as part of an evaluation of contaminant concentration trends;
- Results of all analyses, copies of all laboratory data sheets, and the required laboratory data deliverables for all samples collected during the reporting period will be submitted electronically in a NYSDEC-approved format;
- A site evaluation, which includes the following:

- The compliance of the MNA with the requirements of the Declaration, this SMP, and any other applicable Decision Document;
- The operation and the effectiveness of all monitoring units, etc., including identification of any needed repairs or modifications;
- Any new conclusions or observations regarding Site contamination based on inspections or data generated by the Monitoring Plan for the media being monitored;
- Recommendations regarding any necessary changes to the remedy and/or Monitoring Plan; and
- The overall performance and effectiveness of the remedy.

The Periodic Review Report will be submitted, in hard-copy format, to the NYSDEC Central Office and Regional Office in which the Site is located, and in electronic format to NYSDEC Central Office, Regional Office and the NYSDOH Bureau of Environmental Exposure Investigation.

5.4 CORRECTIVE MEASURES PLAN

If any component of the remedy is found to have failed, or if the periodic certification cannot be provided due to the failure of an institutional or engineering control, a corrective measures plan will be submitted to the NYSDEC for approval. This plan will explain the failure and provide the details and schedule for performing work necessary to correct the failure. Unless an emergency condition exists, no work will be performed pursuant to the corrective measures plan until it is approved by the NYSDEC.

TABLES

TABLE 1.1

DELUXE CORPORATION
FORMER CHECK PRINTING FACILITY
4707 DEY ROAD
LIVERPOOL, NEW YORK

Summary of Groundwater Elevations and Field Measurements

Well ID	Date	Top of Casing Elevation (feet)[1/]	Total Depth (feet)	Depth to Water (ft btoc)[2/]	Groundwater Elevation (feet)	Conductivity (S/m)[3/]	Temperature (°C)	pH	Turbidity (NTU)[4/]	Dissolved Oxygen (mg/l)[5/]	ORP[6/] (mV)[7/]
1A	04/05/01	98.78	20.00	12.38	86.40	NA[8/]	NA	NA	NA	NA	NA
	10/15/02			15.25	83.53	0.067	15.2	7.21	72	7.0	76
	01/29/03			13.91	84.87	0.057	8.1	7.21	120	7.3	118
	04/28/03			13.00	85.78	0.14	15.0	7.02	270	8.1	NA
	09/24/03			16.64	82.14	0.050	NA	6.63	NA	NA	NA
	10/16/03			16.02	82.76	NA	NA	NA	NA	NA	NA
2A	04/05/01	98.73	20.08	9.49	89.24	NA	NA	NA	NA	NA	NA
	10/15/02			14.52	84.21	0.21	17.4	6.88	81	5.0	91
	01/29/03			12.55	86.18	0.22	9.31	6.99	90	8.3	91
	04/28/03			10.75	87.98	0.22	12.2	6.79	820	5.8	NA
	09/24/03			15.42	83.31	0.084	NA	6.48	NA	NA	NA
3A	04/05/01	98.31	20.00	8.79	89.52	NA	NA	NA	NA	NA	NA
	10/15/02			14.33	83.98	0.12	17.7	7.58	67	6.2	74
	01/29/03			12.39	85.92	0.12	13.1	7.02	56	4.9	53
	04/28/03			10.65	87.66	0.14	13.2	7.14	150	3.4	NA
	09/24/03			15.12	83.19	0.069	NA	6.82	NA	NA	NA
4A	04/05/01	96.90	20.03	8.91	87.99	NA	NA	NA	NA	NA	NA
	10/15/02			13.19	83.71	0.12	16.0	7.16	97	6.3	82
	01/29/03			11.81	85.09	0.11	10.5	6.85	95	6.7	124
	04/28/03			10.70	86.20	0.10	19.3	6.56	500	5.7	NA
	09/24/03			13.85	83.05	0.053	NA	6.63	NA	NA	NA
5A	09/24/03	96.52	22.48	21.98	74.54	0.016	NA	7.29	NA	NA	NA
6A	09/24/03	102.73	22.50	17.75	84.98	0.016	NA	6.71	NA	NA	NA
7A	09/24/03	106.31	22.52	Dry	—	—	—	—	—	—	—

1/ Elevations referenced to arbitrary datum
2/ Feet below top of casing
3/ Siemens per meter
4/ Nephelometric turbidity units
5/ Milligrams per liter
6/ Oxidation Reduction Potential
7/ Millivolts
8/ Not analyzed

dmd
October 31, 2011
F:\REPORTS\Deluxe\2011\Site Management Plan\SMP Table 1.1

TABLE 1.2

DELUXE CORPORATION
FORMER CHECK PRINTING FACILITY
4707 DEY ROAD
LIVERPOOL, NEW YORK

Summary of Groundwater Elevations and Field Measurements

Well ID	Date	Top of Casing Elevation (feet)[1/]	Total Depth (feet)	Depth to Water (ft btoc)[2/]	Groundwater Elevation (feet)	Conductivity (S/m)[3/]	Temperature (°C)	pH	Turbidity (NTU)[4/]	Dissolved Oxygen (mg/l)[5/]	ORP[6/] (mV)[7/]
1B	04/05/01	98.87	40.20	33.39	65.48	NA[8/]	NA	NA	NA	NA	NA
	10/15/02			39.80	59,07	NA	NA	NA	NA	NA	NA
	01/29/03			Dry	-	-	-	-	-	-	-
	04/28/03			35.55	63.32	0.15	18.6	6.76	180	5.1	NA
	09/24/03			39.85	59.02	NA	NA	NA	NA	NA	NA
2B	04/05/01	98.92	40.18	35.48	63.44	NA	NA	NA	NA	NA	NA
	10/15/02			39.80	59.12	NA	NA	NA	NA	NA	NA
	01/29/03			Dry	-	-	-	-	-	-	-
	04/28/03			36.01	62.91	0.10	16.6	6.87	500	6.0	NA
	09/24/03			39.95	58.97	NA	NA	NA	NA	NA	NA
3B	04/05/01	98.36	40.18	34.30	64.06	NA	NA	NA	NA	NA	NA
	10/15/02			39.86	58.50	NA	NA	NA	NA	NA	NA
	01/29/03			39.17	59.19	0.09	12.8	6.88	72	11.0	151
	04/28/03			35.10	63.26	0.078	19.6	7.10	100	4.5	NA
	09/24/03			39.95	58.41	NA	NA	NA	NA	NA	NA
4B	04/05/01	96.76	40.18	32.85	63.91	NA	NA	NA	NA	NA	NA
	10/15/02			38.78	57.98	NA	NA	NA	NA	NA	NA
	01/29/03			37.99	58.77	0.089	11.1	6.45	87	9.3	174
	04/28/03			33.35	63.41	0.083	17.3	6.78	700	7.0	NA
	09/24/03			39.01	57.75	0.0168	NA	7.14	NA	NA	NA

1/ Elevations referenced to arbitrary datum
2/ Feet below top of casing
3/ Siemens per meter
4/ Nephelometric turbidity units
5/ Milligrams per liter
6/ Oxidation Reduction Potential
7/ Millivolts
8/ Not analyzed

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October 31, 2011
F:\REPORTS\Deluxe\2011\Site Management Plan\SMP Table 1.2

TABLE 1.3

DELUXE CORPORATION
FORMER CHECK PRINTING FACILITY
4707 DEY ROAD
LIVERPOOL, NEW YORK

Summary of Groundwater Elevations and Field Measurements

Well ID	Date	Top of Casing Elevation (feet)[1/]	Total Depth (feet)	Depth to Water (ft btoc)[2/]	Groundwater Elevation (feet)	Conductivity (S/m)[3/]	Temperature (°C)	pH	Turbidity (NTU)[4/]	Dissolved Oxygen (mg/l)[5/]	ORP[6/] (mV)[7/]
1C	04/05/01	99.20	60.10	37.55	61.65	NA[8/]	NA	NA	NA	NA	NA
	10/15/02			52.02	47.18	0.20	12.6	7.20	9	8.0	83
	01/29/03			43.97	55.23	0.14	11.8	6.98	21	8.0	124
	04/28/03			37.34	61.68	0.16	17.6	6.76	280	13.3	NA
	09/24/03			52.19	47.01	0.081	NA	6.60	NA	NA	NA
	10/16/03			52.33	46.87	NA	NA	NA	NA	NA	NA
2C	04/05/01	98.83	60.10	37.24	61.59	NA	NA	NA	NA	NA	NA
	10/15/02			51.78	47.05	0.22	13.2	6.64	5	7.7	97
	01/29/03			43.66	55.17	0.19	11.5	6.88	46	7.6	96
	04/28/03			37.00	61.83	0.18	17.2	6.99	390	7.7	NA
	09/24/03			51.83	47.00	0.077	NA	6.68	NA	NA	NA
3C	04/05/01	98.19	60.18	36.24	61.95	NA	NA	NA	NA	NA	NA
	10/15/02			50.06	48.13	0.23	13.4	7.13	23	8.0	87
	01/29/03			42.62	55.57	0.21	12.7	6.82	47	7.5	154
	04/28/03			35.99	62.20	0.20	15.2	6.59	110	8.0	NA
	09/24/03			50.15	48.04	0.072	NA	6.67	NA	NA	NA
4C	04/05/01	96.50	60.20	34.73	61.77	NA	NA	NA	NA	NA	NA
	10/15/02			49.03	47.47	0.14	12.5	7.69	5	8.9	77
	01/29/03			41.15	55.35	0.15	12.8	7.01	160	9.2	115
	04/28/03			34.52	61.98	0.14	15.6	6.90	200	9.5	NA
	09/24/03			48.96	47.54	0.062	NA	6.78	NA	NA	NA

1/ Elevations referenced to arbitrary datum
2/ Feet below top of casing
3/ Siemens per meter
4/ Nephelometric turbidity units
5/ Milligrams per liter
6/ Oxidation Reduction Potential
7/ Millivolts
8/ Not analyzed

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October 31, 2011
F:\REPORTS\Deluxe\2011\Site Management Plan\SMP Table 1.3

TABLE 1.4

DELUXE CORPORATION
FORMER CHECK PRINTING FACILITY
4707 DEY ROAD
LIVERPOOL, NEW YORK

Summary of Groundwater Elevations and Field Measurements

Well ID	Date	Top of Casing Elevation (feet)[1/]	Total Depth (feet)	Depth to Water (ft btoc)[2/]	Groundwater Elevation (feet)	Conductivity (S/m)[3/]	Temperature (°C)	pH	Turbidity (NTU)[4/]	Dissolved Oxygen (mg/l)[5/]	ORP[6/] (mV)[7/]
1D	09/24/03	98.78	109.52	49.74	49.04	0.294	NA	11.41	NA	NA	NA
5D	09/24/03	96.19	111.88	106.14	-9.95	0.173	NA	7.10	NA	NA	NA
6D	09/24/03	103.03	112.28	108.58	-5.55	0.148	NA	7.28	NA	NA	NA
7D	09/24/03	105.98	112.15	59.83	46.15	0.016	NA	7.19	NA	NA	NA

1/ Elevations referenced to arbitrary datum
2/ Feet below top of casing
3/ Siemens per meter
4/ Nephelometric turbidity units
5/ Milligrams per liter
6/ Oxidation Reduction Potential
7/ Millivolts
8/ Not analyzed

TABLE 2.1

DELUXE CORPORATION
FORMER CHECK PRINTING FACILITY
4707 DEY ROAD
LIVERPOOL, NEW YORK

Summary of Groundwater Quality - #1 Well Cluster
(all concentrations in micrograms per liter)

Well ID	Date Sampled	1,1,1-Trichloro-ethane	1,1-Dichloro-ethane	1,1-Dichloro-ethylene	1,2-Dichloro-ethylene (total)	1,2,4-Trimethyl-benzene	1,3,5-Trimethyl-benzene	Ethyl-benzene	Isopropyl-benzene	MTBE[1/]	Xylenes	sec-Butyl-benzene	tert-Butyl-benzene	Tetrachloro-ethylene (PCE)	Trichloro-ethylene (TCE)	Vinyl Chloride
1A	04/05/01	2	2	6	75(c-)2(t-)	45	14	2	2	<1	3	2	3	730	300	23
	10/15/02	7	<5	<5	53(cis-)	<5	<5	<5	<5	<5	<5	<5	<5	860	340	<5
	01/31/03	12	<1	3	23(cis-)	3	<1	<1	<1	<1	<1	<1	<1	610	190	3
	04/30/03	<5	<5	<5	12(cis-)	<5	<5	<5	<5	<5	<5	<5	<5	310	82	<5
	09/24/03	12	<1	3	25(cis-)	<1	<1	<1	<1	NA	<1	<1	<1	360	130	<1
	10/16/03	10	<1	3	29(cis-)	<1	<1	<1	<1	NA	<1	<1	<1	360	140	<1
1B	04/05/01	27	1	7	70(c-)2(t-)	34	11	2	1	<1	1	<1	<1	670	290	20
	10/15/02	NS[3/]	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	01/31/03	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	04/30/03	5	<1	<1	10(cis-)	<1	<1	<1	<1	<1	<1	<1	<1	140	25	<1
	09/24/03	16	3	<2	8(cis-)	<2	<2	<2	<2	NA	<2	<2	<2	280	27	<2
1C	04/05/01	5	<1	<1	3(cis-)	<1	<1	<1	<1	<1	<1	<1	<1	44	9	<1
	10/15/02	3	2	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	3	<1	<1
	01/31/03	3	<1	<1	2(cis-)	<1	<1	<1	<1	<1	<1	<1	<1	25	8	<1
	04/30/03	3	4	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	10	1	<1
	09/24/03	4	3	2	<1	<1	<1	<1	<1	NA	<1	<1	<1	<1	<1	<1
	10/16/03	3	3	3	<1	<1	<1	<1	<1	NA	<1	<1	<1	2	<1	<1
1D	09/24/03	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1	<1	<1	<1
NYSDEC GWQS[2/]		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	10.0	5.0	5.0	5.0	5.0	5.0	2.0

1/ Methyl tert-butyl ether
2/ New York State Department of Environmental Conservation Ground Water Quality Standards
NS= Not sampled
NA = Not analyzed
Exceeds NYSDEC GWQS

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October 31, 2011
F:\REPORTS\Deluxe\2011\Site Management Plan\SMP Table 2.1

LEGGETTE, BRASHEARS & GRAHAM, INC.

TABLE 2.2

DELUXE CORPORATION
FORMER CHECK PRINTING FACILITY
4707 DEY ROAD
LIVERPOOL, NEW YORK

Summary of Groundwater Quality - #2 Well Cluster
(all concentrations in micrograms per liter)

Well ID	Date Sampled	1,1,1-Trichloro-ethane	1,1-Dichloro-ethane	1,1-Dichloro-ethylene	1,2-Dichloro-ethylene (total)	1,2,4-Trimethyl-benzene	1,3,5-Trimethyl-benzene	Ethyl-benzene	Isopropyl-benzene	MTBE[1/]	Xylenes	sec-Butyl-benzene	tert-Butyl-benzene	Tetrachloro-ethylene (PCE)	Trichloro-ethylene (TCE)	Vinyl Chloride
2A	04/04/01	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	10/15/02	<1	<1	<1	<1	<1	<1	<1	<1	3	<1	<1	<1	<1	<1	<1
	01/31/03	<1	<1	<1	<1	<1	<1	<1	<1	2	<1	<1	<1	<1	<1	<1
	04/30/03	<1	<1	<1	<1	<1	<1	<1	<1	2	<1	<1	<1	<1	<1	<1
	09/24/03	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1	<1	<1	<1
2B	04/04/01	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	10/15/02	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	01/31/03	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	04/30/03	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	09/24/03	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2C	04/04/01	4	2	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	10/15/02	3	2	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	01/31/03	2	2	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	04/30/03	3	7	3	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	09/25/03	3	2	1	<1	<1	<1	<1	<1	NA	<1	<1	<1	<1	<1	<1
NYSDEC GWQS[2/]		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	10.0	5.0	5.0	5.0	5.0	5.0	2.0

1/ Methyl tert-butyl ether
2/ New York State Department of Environmental Conservation Ground Water Quality Standards
NS= Not sampled
NA = Not analyzed
Exceeds NYSDEC GWQS

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LEGGETTE, BRASHEARS & GRAHAM, INC.

TABLE 2.3

DELUXE CORPORATION
FORMER CHECK PRINTING FACILITY
4707 DEY ROAD
LIVERPOOL, NEW YORK

Summary of Groundwater Quality - #3 Well Cluster
(all concentrations in micrograms per liter)

Well ID	Date Sampled	1,1,1-Trichloro-ethane	1,1-Dichloro-ethane	1,1-Dichloro-ethylene	1,2-Dichloro-ethylene (total)	1,2,4-Trimethyl-benzene	1,3,5-Trimethyl-benzene	Ethyl-benzene	Isopropyl-benzene	MTBE[1/]	Xylenes	sec-Butyl-benzene	tert-Butyl-benzene	Tetrachloro-ethylene (PCE)	Trichloro-ethylene (TCE)	Vinyl Chloride
3A	04/04/01	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	10/15/02	<1	<1	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	2	<1	<1
	01/31/03	<1	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2	<1	<1
	04/30/03	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	09/25/03	<1	2	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1	<1	<1	<1
3B	04/04/01	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	10/15/02	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	01/31/03	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	04/30/03	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	09/25/03	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
3C	04/04/01	3	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	10/15/02	2	2	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	01/31/03	4	2	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	04/30/03	3	3	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	09/25/03	2	2	1	<1	<1	<1	<1	<1	NA	<1	<1	<1	<1	<1	<1
NYSDEC GWQS[2/]		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	10.0	5.0	5.0	5.0	5.0	5.0	2.0

1/ Methyl tert-butyl ether

2/ New York State Department of Environmental Conservation Ground Water Quality Standards

NS= Not sampled

NA = Not analyzed

Exceeds NYSDEC GWQS

TABLE 2.4

DELUXE CORPORATION
FORMER CHECK PRINTING FACILITY
4707 DEY ROAD
LIVERPOOL, NEW YORK

Summary of Groundwater Quality - #4 Well Cluster
(all concentrations in micrograms per liter)

Well ID	Date Sampled	1,1,1-Trichloro-ethane	1,1-Dichloro-ethane	1,1-Dichloro-ethylene	1,2-Dichloro-ethylene (total)	1,2,4-Trimethyl-benzene	1,3,5-Trimethyl-benzene	Ethyl-benzene	Isopropyl-benzene	MTBE[1/]	Xylenes	sec-Butyl-benzene	tert-Butyl-benzene	Tetrachloro-ethylene (PCE)	Trichloro-ethylene (TCE)	Vinyl Chloride
4A	04/04/01	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	5	<1	<1
	10/15/02	6	<1	<1	2(cis-)	<1	<1	<1	<1	<1	<1	<1	<1	170	13	<1
	01/31/03	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	110	9	<1
	04/30/03	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	48	3	<1
	09/25/03	4	2	<1	1(cis-)	<1	<1	<1	<1	NA	<1	<1	<1	130	9	<1
4B	04/04/01	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	10/15/02	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	01/31/03	6	<1	1	5(cis-)	<1	<1	<1	<1	<1	<1	<1	<1	68	12	<1
	04/30/03	8	<1	<1	11(cis-)	<1	<1	<1	<1	<1	<1	<1	<1	88	20	<1
	09/25/03	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1	14	3	<1
4C	04/04/01	4	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	15	3	<1
	10/15/02	7	1	2	2(cis-)	<1	<1	<1	<1	<1	<1	<1	<1	54	7	<1
	01/31/03	2	<1	<1	1(cis-)	<1	<1	<1	<1	<1	<1	<1	<1	20	4	<1
	04/30/03	4	4	3	<1	<1	<1	<1	<1	<1	<1	<1	<1	12	1	<1
	09/25/03	5	2	2	<1	<1	<1	<1	<1	NA	<1	<1	<1	<1	<1	<1
NYSDEC GWQS[2/]		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	10.0	5.0	5.0	5.0	5.0	5.0	2.0

1/ Methyl tert-butyl ether
2/ New York State Department of Environmental Conservation Ground Water Quality Standards
NS= Not sampled
NA = Not analyzed
Exceeds NYSDEC GWQS

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LEGGETTE, BRASHEARS & GRAHAM, INC.

TABLE 2.5

DELUXE CORPORATION
FORMER CHECK PRINTING FACILITY
4707 DEY ROAD
LIVERPOOL, NEW YORK

Summary of Groundwater Quality - #5, 6, 7 Well Cluster
(all concentrations in micrograms per liter)

Well ID	Date Sampled	1,1,1-Trichloro-ethane	1,1-Dichloro-ethane	1,1-Dichloro-ethylene	1,2-Dichloro-ethylene (total)	1,2,4-Trimethyl-benzene	1,3,5-Trimethyl-benzene	Ethyl-benzene	Isopropyl-benzene	MTBE[1/]	Xylenes	sec-Butyl-benzene	tert-Butyl-benzene	Tetrachloro-ethylene (PCE)	Trichloro-ethylene (TCE)	Vinyl Chloride
5A	09/25/03	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1	21	<1	<1
5D	09/25/03	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1	<1	<1	<1
6A	09/25/03	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1	<1	<1	<1
6D	09/25/03	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1	<1	<1	<1
7A	09/25/03	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
7D	09/25/03	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1	<1	<1	<1
NYSDEC GWQS[2/]		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	10.0	5.0	5.0	5.0	5.0	5.0	2.0

1/ Methyl tert-butyl ether
2/ New York State Department of Environmental Conservation Ground Water Quality Standards
NS= Not sampled
NA = Not analyzed
Exceeds NYSDEC GWQS

TABLE 3

DELUXE CORPORATION
FORMER CHECK PRINTING FACILITY
4707 DEY ROAD
LIVERPOOL, NEW YORK
NYSDEC VCP No. A7-0419-0005

Summary of Indoor & Subslab Air Samples - Collected January 28, 2009 - EPA Method TO-15
(All concentrations expressed in micrograms per cubic meter)

Compound	OUTDOOR AIR SAMPLE	INDOOR AIR SAMPLE	NYSDOH Air Guidance Value	Building Assessment and Survey Evaluation - 90th Percentile, EPA 2001	FIRST FLOOR SUB-SLAB VAPOR SAMPLES			
	Rear Entrance Area	Main Floor			SS-1	SS-2	SS-3	SS-4
Dichlorodifluoromethane	2.5 J	ND	NE	16.5	3.0 J	39.0	8.3	4,800
Chlorodifluoromethane	ND	ND	NE	NL	4.2	7.1	2.1 J	ND
Freon 114	ND	ND	NE	NL	ND	ND	ND	ND
Chloromethane	1.0 J	1.5 J	NE	3.7	ND	ND	3.1	ND
Vinyl Chloride	ND	ND / SIM ND	NE	<1.9	ND	ND	ND	ND
Bromomethane	ND	ND	NE	<1.7	ND	ND	ND	ND
Chloroethane	ND	ND	NE	<1.1	ND	ND	ND	ND
Trichlorofluoromethane	1.2 J	ND	NE	18.1	7.6	5.1 J	1.2 J	10
Pentane	1.7 J	3.1	NE	NL	1.3 J	ND	ND	1.2 J
1,1-Dichloroethene	ND	ND / SIM ND	NE	<1.4	ND	ND	ND	ND
Freon 113	ND	ND	NE	NL	ND	ND	ND	ND
Acetone	8.5	170	NE	98.9	37	40	34.0	17
Carbon Disulfide	0.94 J	3.5	NE	4.2	1.1 J	2.1 J	ND	ND
3-Chloropropene	ND	ND	NE	NL	ND	ND	ND	ND
Methylene Chloride	ND	13	60	10.0	3.3 J	ND	1.3 J	1.9 J
Hexane	ND	ND	NE	NL	1.1 J	ND	ND	ND
1,1-Dichloroethane	ND	ND	NE	<0.7	ND	ND	ND	ND
cis-1,2-Dichloroethene	ND	ND / SIM ND	NE	<1.9	ND	ND	ND	ND
2-Butanone	ND	58	NE	12	6.3	12.0	25	4.4 J
Chloroform	ND	ND	NE	1.1	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND / SIM 0.312	NE	20.6	ND	2.5 J	2.1 J	6.1
Carbon Tetrachloride	ND	ND / SIM 0.364	NE	<1.3	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	NE	<0.9	ND	ND	ND	ND
Benzene	1.2 J	0.79 J	NE	9.4	1.3 J	1.3 J	ND	0.93 J
Isooctane	ND	ND	NE	NL	ND	ND	ND	ND
Heptane	ND	ND	NE	NL	ND	ND	ND	ND
Trichloroethene	ND	ND / SIM 0.436	5	4.2	1.7 J	1.8 J	1.1 J	1.2 J
1,2-Dichloropropane	ND	ND	NE	<1.6	ND	ND	ND	ND
cis-1,3-Dichloropropene	ND	ND	NE	<2.3	ND	ND	ND	ND
4-Methly-2-Pentanone	ND	ND	NE	6.0	ND	ND	ND	ND
Toluene	2.7 J	1.7 J	NE	43	16	17	7	10
Octane	ND	ND	NE	4.5	6.3	10.0	3.2 J	5.9
trans-1,3-Dichloropropene	ND	ND	NE	<1.3	ND	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	NE	NL	ND	ND	ND	ND
Tetrachloroethene	ND	ND / SIM 0.229	100	15.9	3.8 J	3.1 J	27	1.7 J
2-Hexanone	ND	ND	NE	NL	ND	3.4 J	3.8 J	ND
1,2-Dibromoethane	ND	ND	NE	<1.5	ND	ND	ND	ND
Chlorobenzene	ND	ND	NE	<0.9	ND	ND	ND	ND
Ethylbenzene	ND	ND	NE	5.7	4.3 J	8.1	2.5 J	3.9 J
m/p-Xylene	2.2 J	1.2 J	NE	22.2	15	23	10.0	11
o-Xylene	ND	ND	NE	7.9	6.3	10	5.0	4.7
Styrene	ND	ND	NE	1.9	1.8 J	ND	ND	1.3 J
Cumene	ND	ND	NE	NL	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	NE	NL	ND	ND	8.5 J	ND
4-Ethyltoluene	ND	ND	NE	3.6	ND	ND	ND	ND
1,3,5-Trimethylbenzene	ND	ND	NE	3.7	2.8 J	3.2 J	2.3 J	1.6 J
1,2,4-Trimethylbenzene	ND	ND	NE	9.5	9.1	10	6.4	4.7 J
1,3-Dichlorobenzene	ND	ND	NE	<2.4	ND	ND	ND	ND
1,4-Dichlorobenzene	ND	ND	NE	5.5	4.0 J	5.8 J	1.5 J	2.2 J
1,2-Dichlorobenzene	ND	ND	NE	<1.2	ND	1.8 J	ND	ND
1,2,4-Trichlorobenzene	ND	ND	NE	<6.8	ND	ND	ND	ND

NL - Not Listed
ND - Not Detected
NE - Not Established
J - Indicates an estimated value
SIM - Selected Ion Monitoring
200, 201 SIM — Value exceeds the NYSDOH Indoor Air Guidance Value

TABLE 4

DELUXE CORPORATION
FORMER CHECK PRINTING FACILITY
4707 DEY ROAD
LIVERPOOL, NEW YORK

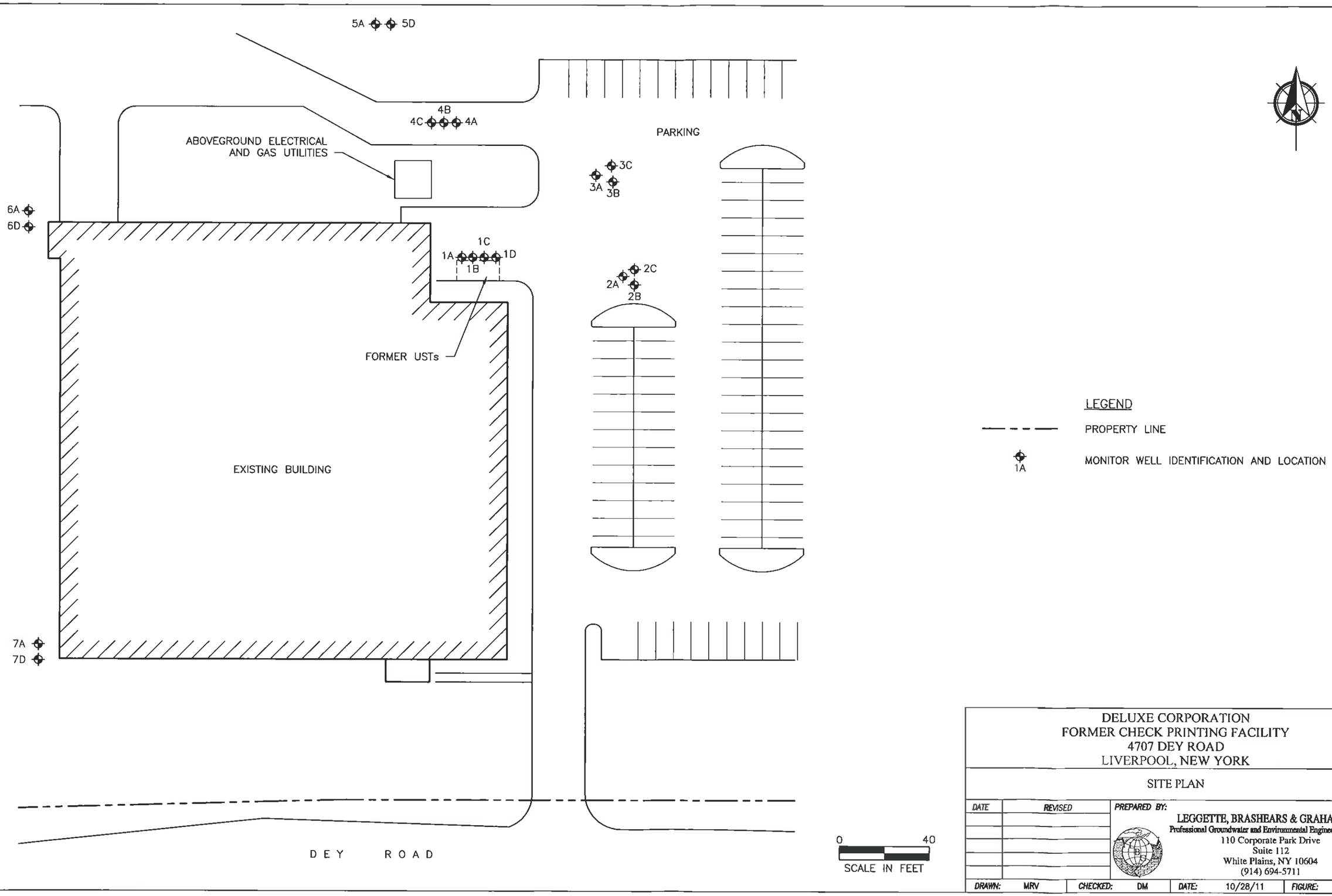
Summary of Soil Quality

Compounds	Soil Sample Identification and Date Collected							NYCRR[2/] Part 375 Soil Cleanup Objectives (Unrestricted Use)
	10/27/1998			4/27/1999	4/28/1999			
	B-1 (4'-6') (ug/kg)[1/]	B-2 (10'-12') (ug/kg)	B-3 (10'-12') (ug/kg)	S-1 (ug/kg)	S-2 (ug/kg)	S-3 (ug/kg)	B-1 (ug/kg)	(ug/kg)
Benzene	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	60
Toluene	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	700
Ethylbenzene	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	1,000
Xylenes	<10	<5.0	<5.0	<5.0	<5.0	<5.0	5	260
Isopropylbenzene	<10	<5.0	<5.0	<5.0	<5.0	<5.0	6	2,300
n-Propylbenzene	<10	<5.0	<5.0	<5.0	<5.0	<5.0	15	3,900
1,3,5-Trimethylbenzene	<10	<5.0	<5.0	<5.0	<5.0	<5.0	180	8,400
tert-Butylbenzene	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5,900
1,2,4-Trimethylbenzene	<10	<5.0	<5.0	<5.0	<5.0	<5.0	350	3,600
sec-Butylbenzene	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	11,000
p-Isopropyltoluene	<10	<5.0	<5.0	<5.0	<5.0	<5.0	43	10,000
n-Butylbenzene	<10	<5.0	<5.0	<5.0	<5.0	<5.0	50	12,000
Naphthalene	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	12,000
Tetrachloroethylene	**3,000**	<5.0	<5.0	<5.0	<5.0	<5.0	24	1,300
Trichloroethylene	49	<5.0	<5.0	<5.0	<5.0	<5.0	7	470
Fluoranthene	410	<330	<330	<330	<330	<330	<330	100,000
Pyrene	720	<330	<330	<330	<330	<330	<330	100,000

1/ Micrograms per kilogram

2/ New York State Code of Rules and Regulations

FIGURES



DELUXE CORPORATION
FORMER CHECK PRINTING FACILITY
4707 DEY ROAD
LIVERPOOL, NEW YORK

SITE PLAN

DATE	REVISED

PREPARED BY:

LEGGETTE, BRASHEARS & GRAHAM, INC.
Professional Groundwater and Environmental Engineering Services
110 Corporate Park Drive
Suite 112
White Plains, NY 10604
(914) 694-5711

DRAWN:	MRV	CHECKED:	DM	DATE:	10/28/11	FIGURE:	1

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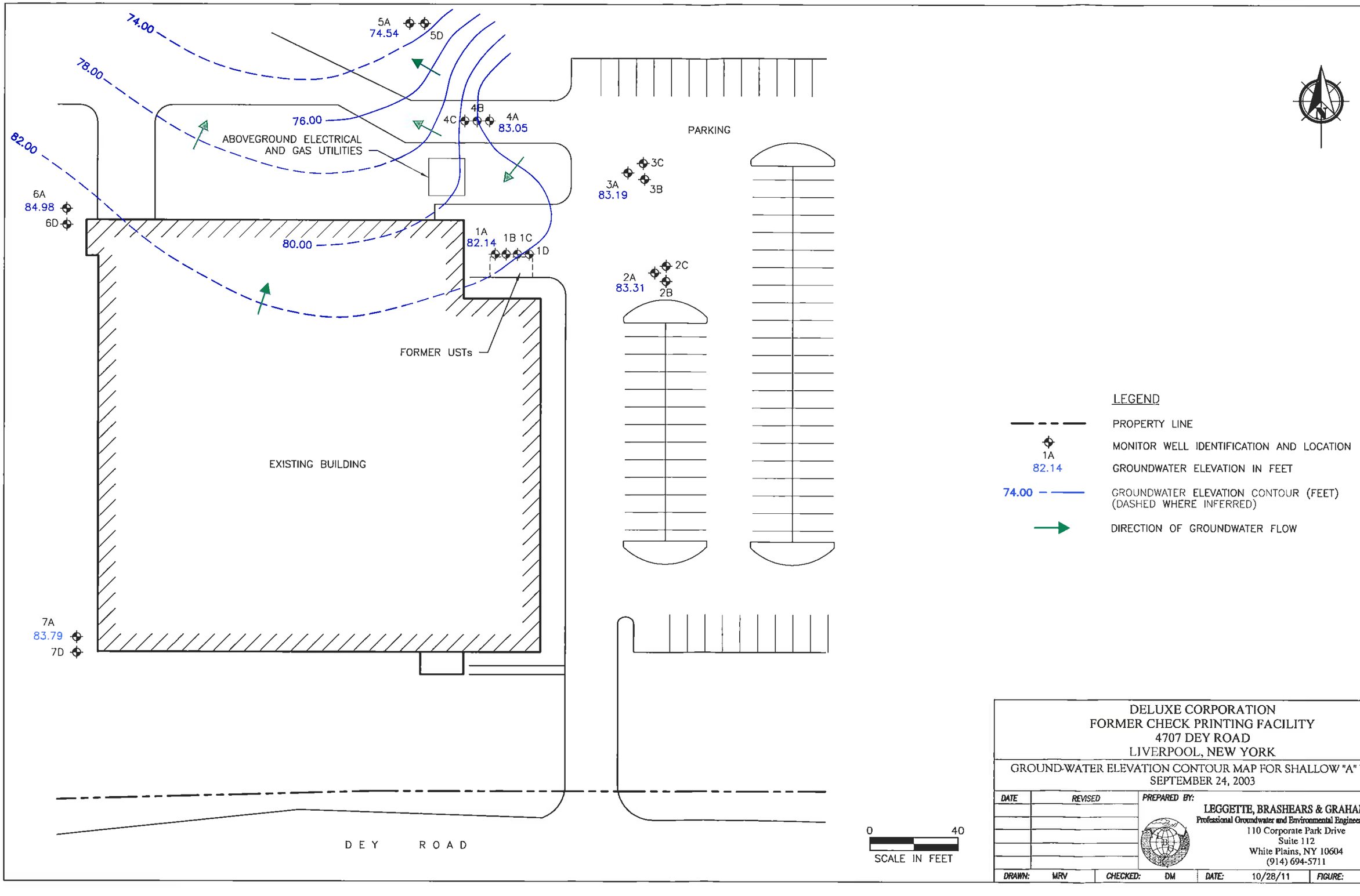

LEGEND

- PROPERTY LINE
- 1A / 82.14 — MONITOR WELL IDENTIFICATION AND LOCATION; GROUNDWATER ELEVATION IN FEET
- 74.00 — GROUNDWATER ELEVATION CONTOUR (FEET) (DASHED WHERE INFERRED)
- DIRECTION OF GROUNDWATER FLOW

DELUXE CORPORATION
FORMER CHECK PRINTING FACILITY
4707 DEY ROAD
LIVERPOOL, NEW YORK

GROUND-WATER ELEVATION CONTOUR MAP FOR SHALLOW "A" WELLS
SEPTEMBER 24, 2003

DATE	REVISED

PREPARED BY:

LEGGETTE, BRASHEARS & GRAHAM, INC.
Professional Groundwater and Environmental Engineering Services
110 Corporate Park Drive
Suite 112
White Plains, NY 10604
(914) 694-5711

DRAWN:	MRV	CHECKED:	DM	DATE:	10/28/11	FIGURE:	2

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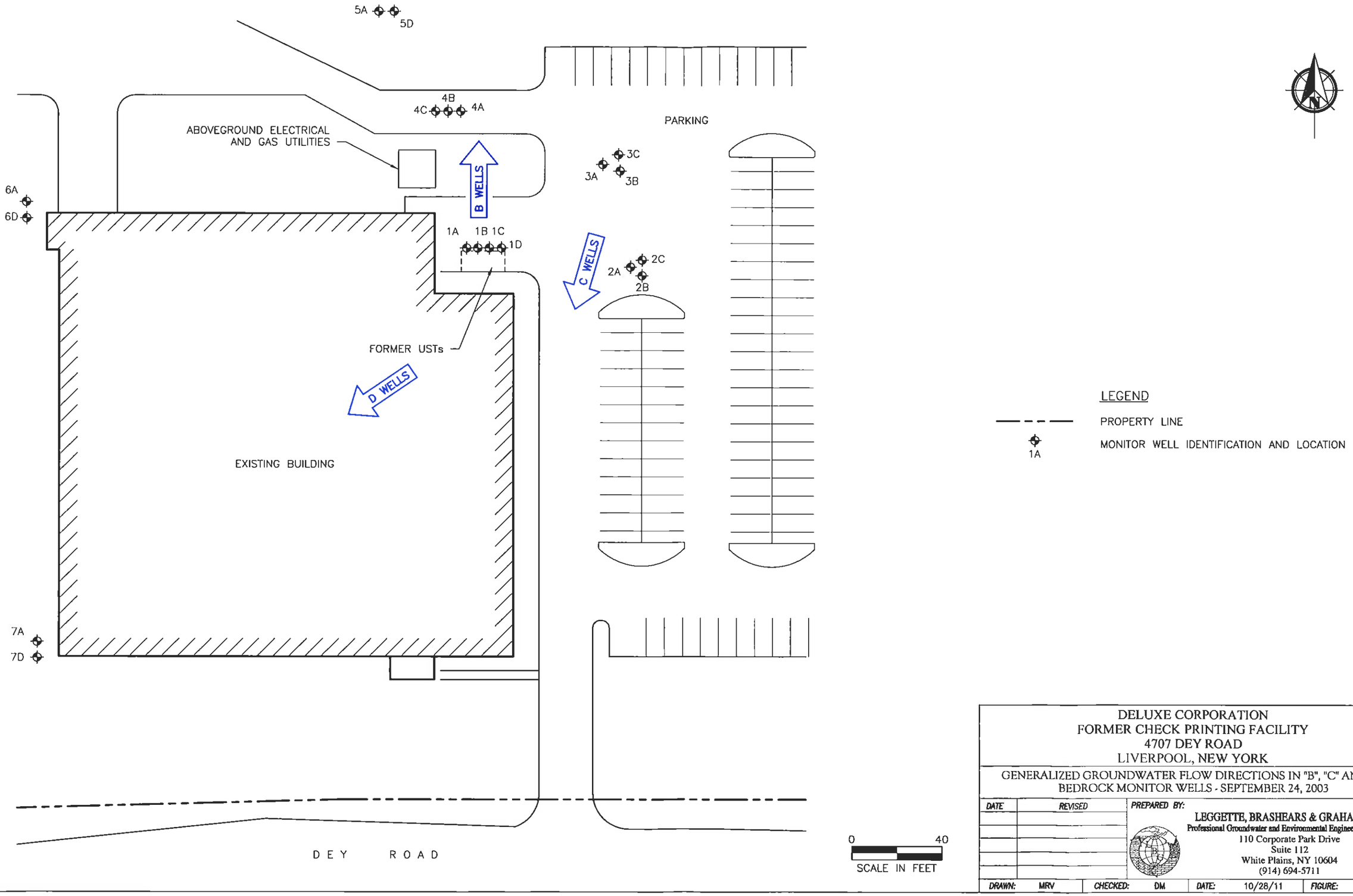

DELUXE CORPORATION
FORMER CHECK PRINTING FACILITY
4707 DEY ROAD
LIVERPOOL, NEW YORK

GENERALIZED GROUNDWATER FLOW DIRECTIONS IN "B", "C" AND "D"
BEDROCK MONITOR WELLS - SEPTEMBER 24, 2003

DATE	REVISED

PREPARED BY:

LEGGETTE, BRASHEARS & GRAHAM, INC.
Professional Groundwater and Environmental Engineering Services
110 Corporate Park Drive
Suite 112
White Plains, NY 10604
(914) 694-5711

DRAWN:	MRV	CHECKED:	DM	DATE:	10/28/11	FIGURE:	3

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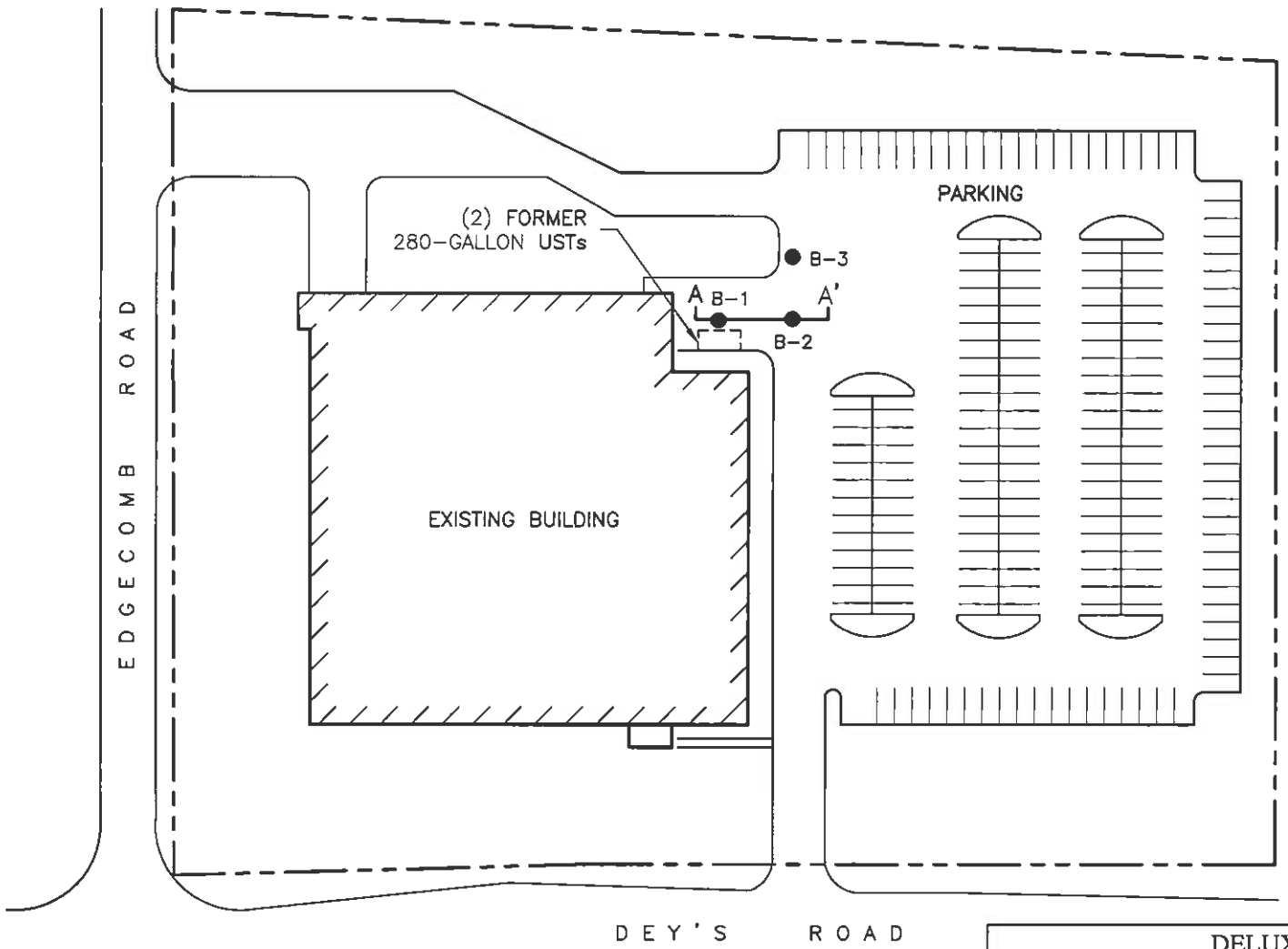

LEGEND

PROPERTY LINE

B-1 SOIL BORING LOCATION

A — A' CROSS SECTION LOCATION

0 80

SCALE IN FEET

DELUXE CORPORATION
FORMER CHECK PRINTING FACILITY
4707 DEY ROAD
LIVERPOOL, NEW YORK

1999 SOIL BORING LOCATIONS

DATE	REVISED

PREPARED BY:

LEGGETTE, BRASHEARS & GRAHAM, INC.
Professional Groundwater and Environmental Engineering Services
110 Corporate Park Drive
Suite 112
White Plains, NY 10604
(914) 694-5711

DRAWN:	MRV	CHECKED:	DM	DATE:	10/28/11	FIGURE:	4

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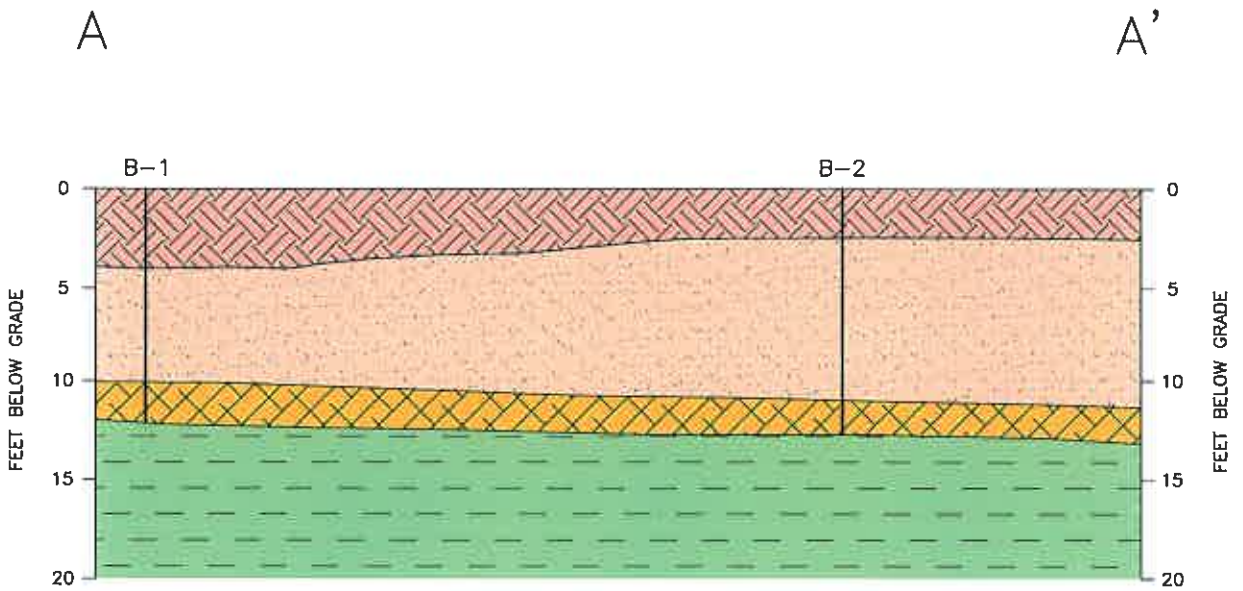

0 10
VERTICAL SCALE IN FEET

0 10
HORIZONTAL SCALE IN FEET

LEGEND

- FILL
- BROWN SILT
- HIGHLY FRACTURED AND WEATHERED SHALE
- GREEN SHALE

DELUXE CORPORATION
FORMER CHECK PRINTING FACILITY
4707 DEY ROAD
LIVERPOOL, NEW YORK

GEOLOGIC CROSS-SECTION A-A'

DATE	REVISED

PREPARED BY:
LEGGETTE, BRASHEARS & GRAHAM, INC.
Professional Groundwater and Environmental Engineering Services
110 Corporate Park Drive
Suite 112
White Plains, NY 10604
(914) 694-5711

DRAWN:	MRV	CHECKED:	DM	DATE:	10/28/11	FIGURE:	5

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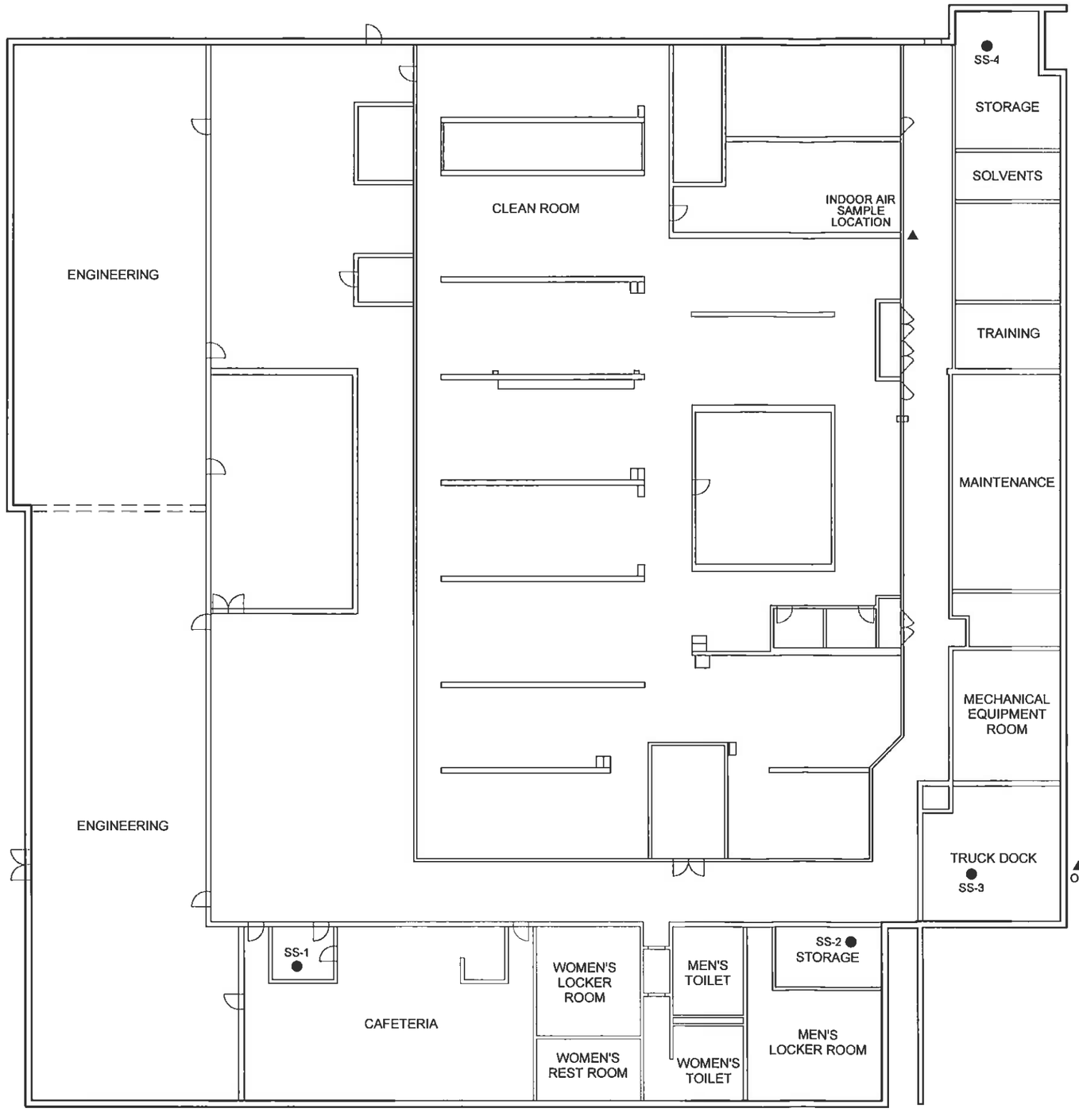

NOT TO SCALE

LEGEND

- SS-1 ● SUB-SLAB SAMPLE LOCATION
- ▲ INDOOR/OUTDOR AIR SAMPLE LOCATION

DELUXE CORPORATION
FORMER CHECK PRINTING FACILITY
4707 DEY ROAD
LIVERPOOL, NEW YORK

SITE PLAN WITH SUB-SLAB SOIL VAPOR SAMPLE POINT LOCATIONS - SAMPLES COLLECTED JANUARY 28, 2009

DATE	REVISED

PREPARED BY:

LEGGETTE, BRASHEARS & GRAHAM, INC.
Professional Groundwater and Environmental Engineering Services
110 Corporate Park Drive
Suite 112
White Plains, NY 10604
(914) 694-5711

DRAWN:	MRV	CHECKED:	DM	DATE:	10/28/11	FIGURE:	6

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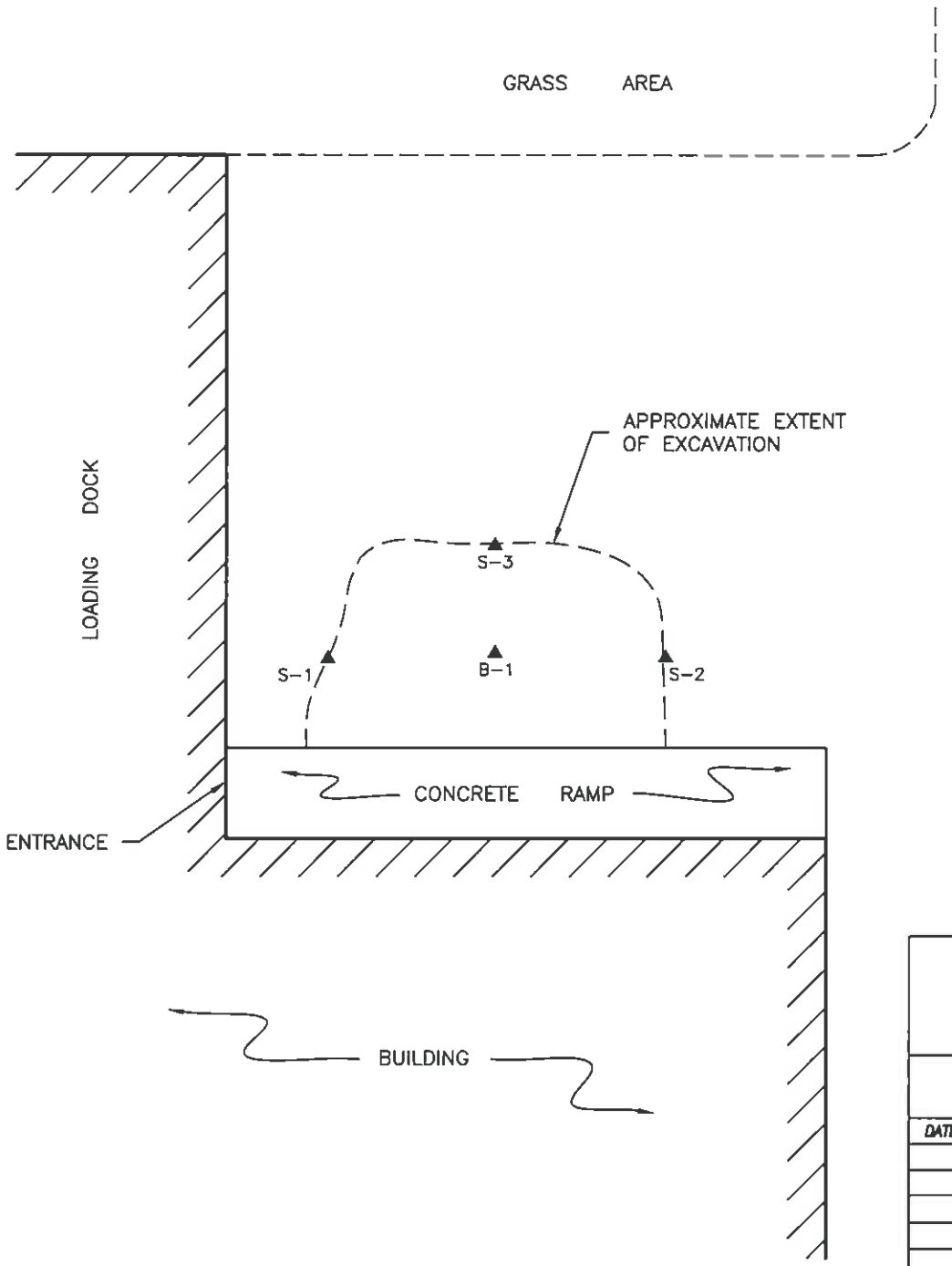

LEGEND

S-1 SIDEWALL SOIL SAMPLE

B-1 BOTTOM SOIL SAMPLE

0 10

SCALE IN FEET

DELUXE CORPORATION
FORMER CHECK PRINTING FACILITY
4707 DEY ROAD
LIVERPOOL, NEW YORK

1999 POST EXCAVATION SOIL SAMPLE LOCATIONS

DATE	REVISED

PREPARED BY:

LEGGETTE, BRASHEARS & GRAHAM, INC.
Professional Groundwater and Environmental Engineering Services
110 Corporate Park Drive
Suite 112
White Plains, NY 10604
(914) 694-5711

DRAWN:	MRV	CHECKED:	DM	DATE:	10/28/11	FIGURE:	7

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APPENDIX A

Metes and Bounds and Declaration of Covenants and Restrictions

DECLARATION of COVENANTS and RESTRICTIONS

THIS DECLARATION of COVENANTS and RESTRICTIONS is made the 28th day of December, 2011, by M. S. Kennedy Corp. ("M. S. Kennedy"), a corporation organized and existing under the laws of the State of New York and having an office for the transaction of business at 4707 Dey Road, Liverpool, New York.

WHEREAS, Deluxe Corporation Former Check Printing Site is the subject of a Voluntary Cleanup Agreement executed by Deluxe Corporation ("Deluxe") as part of the New York State Department of Environmental Conservation's (the "Department's) Voluntary Cleanup Program, namely that parcel of real property located on 4707 Dey Road in the Town of Clay, County of Onondaga, State of New York, which is part of lands conveyed by Deluxe Financial Services, Inc. to M. S. Kennedy by deed dated December 29, 1999 and recorded in the Onondaga County Clerk's Office in Liber and Page 4383/287, and being more particularly described in Appendix "A," attached to this declaration and made a part hereof, and hereinafter referred to as the "Property"; and

WHEREAS, the Department approved a remedy to eliminate or mitigate all significant threats to the environment presented by the contamination disposed at the Property and such remedy requires that the Property be subject to restrictive covenants.

NOW, THEREFORE, M. S. Kennedy, as the current owner of the Property, for itself and its successors and/or assigns, covenants that:

First, the Property subject to this Declaration of Covenants and Restrictions is as shown on a map attached to this declaration as Appendix "B" and made a part hereof.

Second, unless prior written approval by the Department or, if the Department shall no longer exist, any New York State agency or agencies subsequently created to protect the environment of the State and the health of the State's citizens, hereinafter referred to as "the Relevant Agency," is first obtained, where contamination remains at the Property subject to the provisions of the Site Management Plan ("SMP"), there shall be no construction, use or occupancy of the Property that results in the disturbance or excavation of the Property which threatens the integrity of the engineering controls or which results in unacceptable human exposure to contaminated groundwater.

Third, the owner of the Property shall not disturb, remove, or otherwise interfere with the installation, use, operation, and maintenance of engineering controls required for the remedy, which are described in the SMP, unless in each instance the owner first obtains a written waiver of such prohibition from the Department or Relevant Agency.

Fourth, the owner of the Property shall prohibit the Property from ever being used for purposes other than for Commercial or Industrial use without the express written waiver of such prohibition by the Department or Relevant Agency.

Fifth, the owner of the Property shall prohibit the use of the groundwater underlying the Property without treatment rendering it safe for drinking water or industrial purposes, as appropriate, unless the user first obtains permission to do so from the Department or Relevant Agency.

Sixth, the owner of the Property shall provide a periodic certification prepared and submitted by a professional engineer or environmental professional acceptable to the Department or Relevant Agency, which will certify that the institutional and engineering controls put in place are unchanged from the previous certification, comply with the SMP, and have not been impaired, unless such periodic certification has been timely provided to the Department or Relevant Agency by Deluxe or Deluxe's successors or assigns.

Seventh, the owner of the Property shall continue in full force and effect any institutional and engineering controls required for the remedy and maintain such controls, unless Deluxe or Deluxe's successors or assigns have timely continued in full force and effect any such institutional and engineering controls and maintained such controls, or permission to discontinue such controls is first obtained from the Department or Relevant Agency, in compliance with the approved SMP, which is incorporated and made enforceable hereto, subject to modifications as approved by the Department or Relevant Agency.

Eighth, this Declaration is and shall be deemed a covenant that shall run with the land and shall be binding upon all future owners of the Property, and shall provide that the owner and its successors and assigns consent to enforcement by the Department or Relevant Agency of the prohibitions and restrictions that the Voluntary Cleanup Agreement requires to be recorded, and hereby covenant not to contest the authority of the Department or Relevant Agency to seek enforcement.

Ninth, any deed of conveyance of the Property, or any portion thereof, shall recite, unless the Department or Relevant Agency has consented to the termination of such covenants and restrictions, that said conveyance is subject to this Declaration of Covenants and

Restrictions.

IN WITNESS WHEREOF, the undersigned has executed this instrument the day written below.

M. S. KENNEDY CORP.

By: Richard Roehm

Print Name: RICHARD ROEHM

Title: GM Date: 12/28/11

ACKNOWLEDGEMENT OF DELUXE CORPORATION

Deluxe Corporation hereby acknowledges that it is a former owner of the above-referenced Property and that it continues to have certain obligations under the above-referenced Voluntary Cleanup Agreement to undertake periodic monitoring at the Property and to submit annual certifications to the New York State Department of Environmental Conservation.

DELUXE CORPORATION

By: Terry D. Peterson

Print Name: Terry D. Peterson

Title: CFO + SVP Date: 12-19-2011

STATE OF NEW YORK)
) s.s.:
COUNTY OF ONONDAGA)

On the 28th day of December, in the year 2011, before me, the undersigned, personally appeared Richard Roehm, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

Sharon K. Ross

Notary Public State of New York

Sharon K. Ross
Notary Public in the State of New York
Qualified in Onondaga County
#01RO6021388
My Commission Expires on March 15, 2015

STATE OF MINNESOTA)
) s.s.:
COUNTY OF RAMSEY)

On the 19th day of December, in the year 2011, before me, the undersigned, personally appeared Terry D. Peterson, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

Notary Public State of Minnesota

JOSEPH M. PAAUWE
Notary Public - Minnesota
My Commission Expires January 31, 2014

APPENDIX A

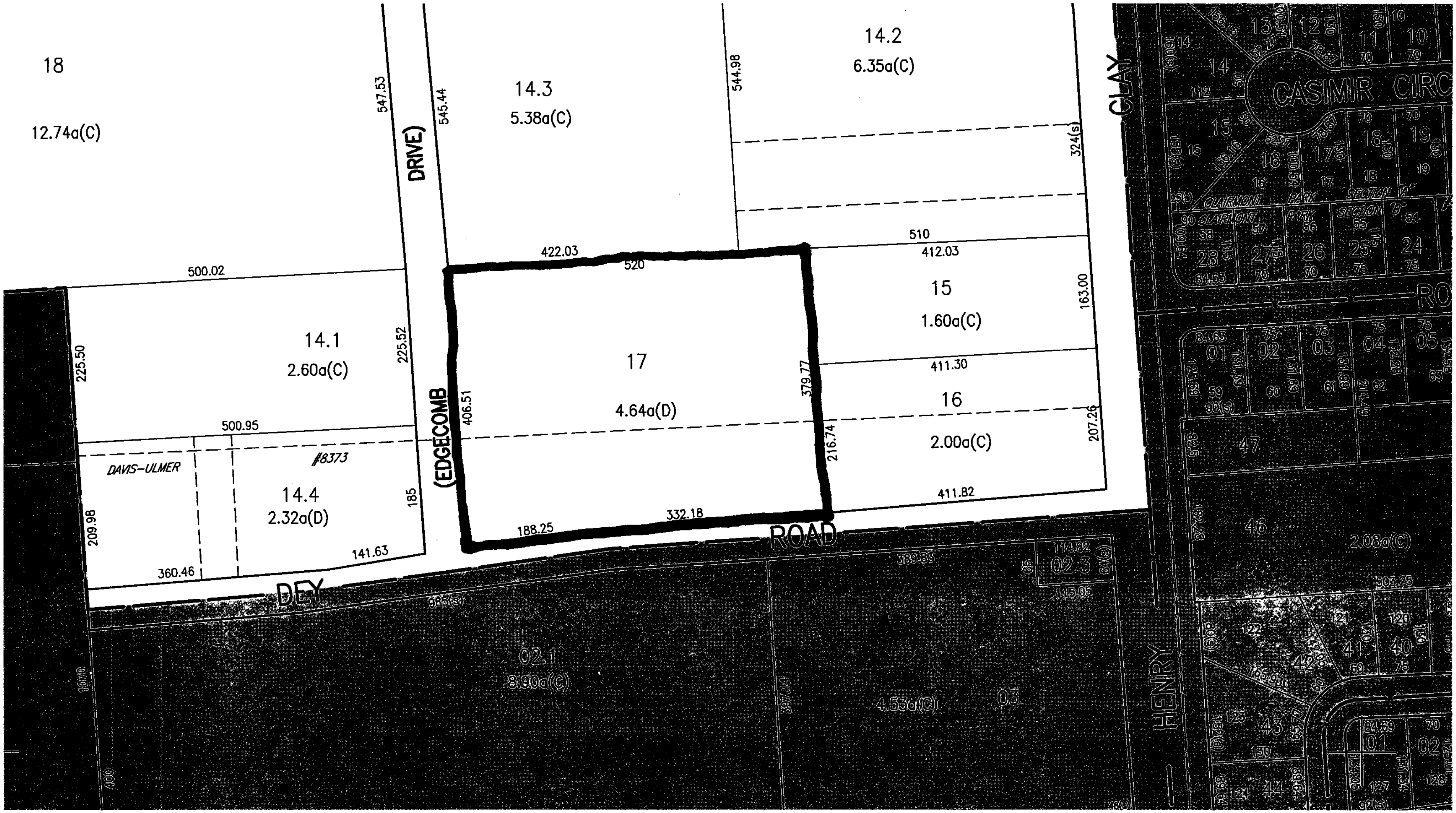
Metes and Bounds Description of the Controlled Property
from Schedule "A" to Deed dated December 29, 1999,
and recorded in Onondaga County Deeds Liber 4383, page 287 on January 3, 2000

Schedule "A"

ALL THAT TRACT OR PARCEL OF LAND, situate in the Town of Clay, County of Onondaga and State of New York and being Part of Farm Lot 76 – BEGINNING at a point on the northerly line of Deys Road South 89° 09' 30" West 411.22 feet from the intersection of said northerly line of Deys Road with the westerly line of Seventh North Street (as widened), running thence from the above mentioned point of beginning South 89° 09' 30" West along the northerly line of Deys Road 332.18 feet to an angle point in said Deys Road, thence South 84° 39' 30" West along the northerly line of Deys Road 188.25 feet, thence North 0° 50' 30" West 406.51 feet, thence South 89° 31' 20" East 520.0 feet, thence South 0° 50' 30" East 379.77 feet to the northerly line of Deys Road and the place of beginning.

APPENDIX B

Map of Controlled Property
Tax Map #095.02-17.0
Excerpt from Section Map 95
Town of Clay, Onondaga County, NY
Onondaga County Finance Department
dated March 1, 2011


18
12.74a(C)
14.3
5.38a(C)
14.2
6.35a(C)
14.1
2.60a(C)
14.4
2.32a(D)
DAVIS-ULMER
#8373
17
4.64a(D)
15
1.60a(C)
16
2.00a(C)
(EDGECOMB DRIVE)
DEY ROAD
CLAY
HENRY
CASIMIR CIRC
547.53
545.44
544.98
324(s)
500.02
225.50
225.52
500.95
209.98
360.46
141.63
185
422.03
520
406.51
379.77
216.74
188.25
332.18
510
412.03
163.00
411.30
207.26
411.82
02.1
8.90a(C)
4.53a(C)
03
02.3
2.08a(C)
47
46

APPENDIX B

Geologic Logs

GEOLOGIC LOG LEGGETTE, BRASHEARS & GRAHAM, INC. WHITE PLAINS, NEW YORK	OWNER: Deluxe Corporation WELL NO.: B-1 PAGE: 1 OF 1 PAGES
SITE LOCATION: Deluxe Check Printing Facility 4707 Dey Road Liverpool, New York	SCREEN SIZE & TYPE: SLOT NO.: SETTING:
DATE COMPLETED: 10/27/98	SAND PACK SIZE & TYPE:
DRILLING COMPANY: Drilex Environmental	SETTING:
	CASING SIZE & TYPE:
DRILLING METHOD: 6 5/8" Hollow-Stem Auger	SETTING:
SAMPLING METHOD: Split Spoon	SEAL TYPE:
OBSERVER: Jorma Weber	SETTING:
REFERENCE POINT (RP): Grade	BACKFILL TYPE:
ELEVATION OF RP: N/A	STATIC WATER LEVEL:
STICK-UP: N/A	DEVELOPMENT METHOD:
SURFACE COMPLETION:	DURATION: YIELD:
REMARKS: Ended boring at bedrock surface (12 ft bg)	
ABBREVIATIONS: SS = split spoon W = wash C = cuttings G = grab ST = shelby tube REC = Recovery PPM = parts per million	

DEPTH (FEET) FROM	DEPTH (FEET) TO	SAMPLE TYPE	BLOW COUNT	REC. (FEET)	PID[1/] READING	DESCRIPTION
0	2	ss	5-16-7-5	0.3	7.0	FILL; brown, composed of silt, some gravel, coarse, dry.
2	4	SS	6-12-14-12	0.3	23	FILL; brown, composed of silt, some gravel, fine to medium, little sand, fine to coarse, dry.
4	6	SS	12-6-3-2	0.5	45	SILT; brown, trace gravel, fine, moist.
6	8	SS	12-18-13-7	0.0	--	No sample; pushed a rock.
8	10	SS	4-2-2-8	0.1	9.5	SILT; brown, trace gravel, fine, moist.
10	12	SS	13-12-12-17	0.3	0.0	SILT; brown, trace gravel, fine, moist.
12	14	SS	50-75-100/2	1.5	--	SHALE; green.

1/ Units are ppm calibration gas equivalent

dmd
June 18, 1999
reports\deluxe\b123 log

GEOLOGIC LOG LEGGETTE, BRASHEARS & GRAHAM, INC. WHITE PLAINS, NEW YORK	OWNER: Deluxe Corporation WELL NO.: B-2 PAGE: 1 OF 1 PAGES
SITE LOCATION: Deluxe Check Printing Facility 4707 Dey Road Liverpool, New York	SCREEN SIZE & TYPE: SLOT NO.: SETTING:
DATE COMPLETED: 10/27/98	SAND PACK SIZE & TYPE: SETTING:
DRILLING COMPANY: Drilex Environmental	CASING SIZE & TYPE: SETTING:
DRILLING METHOD: 6 5/8" Hollow-Stem Auger	SEAL TYPE: SETTING:
SAMPLING METHOD: Split Spoon	BACKFILL TYPE:
OBSERVER: Jorma Weber	STATIC WATER LEVEL:
REFERENCE POINT (RP): Grade	DEVELOPMENT METHOD:
ELEVATION OF RP: N/A	DURATION: YIELD:
STICK-UP: N/A	
SURFACE COMPLETION:	
REMARKS: Ended boring at bedrock surface (12 ft bg)	
ABBREVIATIONS: SS = split spoon W = wash C = cuttings G = grab ST = shelby tube REC = Recovery PPM = parts per million	

DEPTH (FEET) FROM	TO	SAMPLE TYPE	BLOW COUNT	REC. (FEET)	PID[1/] READING	DESCRIPTION
0	2	C	–	--	–	GRAVEL; coarse.
2	4	SS	7-12-10-7	0.2	0.0	SILT; brown, some gravel, fine to coarse, moist.
4	6	SS	4-6-4-2	1.2	0.0	SILT; brown, trace gravel, fine, moist.
6	8	SS	6-10-10-10	1.1	0.0	SILT; brown, trace gravel, fine, moist.
8	10	SS	7-7-7-7	1.2	0.0	SILT; brown, little gravel, fine to medium, moist.
10	12	SS	8-10-12-10	1.3	0.0	SILT; brown, some green, trace gravel, fine to medium, wet.
12	14	SS	–	–	–	SHALE, green.

1/ Units are ppm calibration gas equivalent

dmd
June 18, 1999
reports\deluxe\b123.log

GEOLOGIC LOG LEGGETTE, BRASHEARS & GRAHAM, INC. WHITE PLAINS, NEW YORK	OWNER: Deluxe Corporation WELL NO.: B-3 PAGE: 1 OF 1 PAGES
SITE LOCATION: Deluxe Check Printing Facility 4707 Dey Road Liverpool, New York	SCREEN SIZE & TYPE: SLOT NO.: SETTING:
DATE COMPLETED: 10/27/98	SAND PACK SIZE & TYPE: SETTING:
DRILLING COMPANY: Drilex Environmental	CASING SIZE & TYPE: SETTING:
DRILLING METHOD: 6 5/8" Hollow-Stem Auger	
SAMPLING METHOD: Split Spoon	SEAL TYPE: SETTING:
OBSERVER: Jorma Weber	
REFERENCE POINT (RP): Grade	BACKFILL TYPE:
ELEVATION OF RP: N/A	STATIC WATER LEVEL:
STICK-UP: N/A	DEVELOPMENT METHOD:
SURFACE COMPLETION:	DURATION: YIELD:
REMARKS: Ended boring at bedrock surface (12 ft bg)	
ABBREVIATIONS: SS = split spoon W = wash C = cuttings G = grab ST = shelby tube REC = Recovery PPM = parts per million	

DEPTH (FEET) FROM	DEPTH (FEET) TO	SAMPLE TYPE	BLOW COUNT	REC. (FEET)	PID[1/] READING	DESCRIPTION
0	5	C	--	--	--	FILL; brown, composed of gravel, fine to coarse, some silt, dry.
5	7	SS	3-5-4-4	1.1	0.0	SILT; brown, trace gravel, fine, dry.
7	9	SS	5-7-6-8	1.2	0.0	SILT; brown, trace gravel, fine, dry.
10	12	SS	3-3-12-15	2.0	0.0	SILT; brown, trace gravel, fine, dry. SHALE at 12 feet below grade.

1/ Units are ppm calibration gas equivalent

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June 18, 1999
reports\deluxe\b123 log

GEOLOGIC LOG LEGGETTE, BRASHEARS & GRAHAM, INC. WHITE PLAINS, NEW YORK	OWNER: Deluxe Corporation WELL NO.: MW-1A PAGE: 1 OF 1 PAGES
SITE LOCATION: 4707 Dey Road Liverpool, New York	SCREEN SIZE & TYPE: 4-inch diameter PVC Schedule 40 SLOT NO.: 20 SETTING: 5-20
DATE COMPLETED: 04/04/01	SAND PACK SIZE & TYPE: #2 Quartz
DRILLING COMPANY: Aquifer Drilling & Testing, Albany, New York	SETTING: 4-20
DRILLING METHOD: 12-inch hollow-stem auger to 13 feet/10-inch button	CASING SIZE & TYPE: 4-inch diameter PVC riser: 0-5
SAMPLING METHOD: Cuttings	SEAL TYPE: Bentonite chips
OBSERVER: Paul Woodell	SETTING: 3-4
REFERENCE POINT (RP): Grade	BACKFILL TYPE: Cuttings
ELEVATION OF TOC: 98.78	STATIC WATER LEVEL: 12.38 (4/5/01)
STICK-UP:	DEVELOPMENT METHOD:
SURFACE COMPLETION: 12-inch manhole in 2 x 2 foot concrete pad	DURATION: YIELD:
REMARKS:	
ABBREVIATIONS: SS = split spoon W = wash C = cuttings G = grab ST = shelby tube REC = recovery PPM = parts per million	

DEPTH (FEET)		SAMPLE TYPE	BLOW COUNT	REC. (FEET)	PID[1/] READING	DESCRIPTION
FROM	TO					
0	0.5	C				Asphalt, gravel fill.
0	5	C				Fill; composed of gravel and asphalt.
5	13					SILT; some clay.
13	20	C				Shale bedrock, green.

1/ Units are ppm calibration gas equivalent

dmd
June 12, 2001
reports\deluxe\mw1throughmw4 log

GEOLOGIC LOG LEGGETTE, BRASHEARS & GRAHAM, INC. WHITE PLAINS, NEW YORK	OWNER: Deluxe Corporation WELL NO.: MW-1B PAGE: 1 OF 1 PAGES
SITE LOCATION: 4707 Dey Road Liverpool, New York	SCREEN SIZE & TYPE: 4-inch diameter PVC Schedule 40 SLOT NO.: 20 SETTING: 30-40
DATE BEGUN: 04/03/01 DATE COMPLETED: 04/04/01	SAND PACK SIZE & TYPE: #2 Quartz SETTING: 29-40
DRILLING COMPANY: Aquifer Drilling & Testing, Albany, New York	CASING SIZE & TYPE: 8-inch diameter steel: 0-30 4-inch diameter PVC riser: 0-30
DRILLING METHOD: 12-inch hollow-stem auger to 13.5 feet/10-inch button	
SAMPLING METHOD: Cuttings	SEAL TYPE: Bentonite chips (between steel and PVC) SETTING: 3-29
OBSERVER: Paul Woodell	
REFERENCE POINT (RP): Grade	BACKFILL TYPE: Cuttings
ELEVATION OF TOC: 98.87	STATIC WATER LEVEL: 33.39 (4/5/01)
STICK-UP:	DEVELOPMENT METHOD:
SURFACE COMPLETION: 12-inch manhole in 2 x 2 foot concrete pad	DURATION: YIELD:
REMARKS:	
ABBREVIATIONS: SS = split spoon W = wash C = cuttings G = grab ST = shelby tube REC = recovery PPM = parts per million	

DEPTH (FEET)		SAMPLE TYPE	BLOW COUNT	REC. (FEET)	PID[1/] READING	DESCRIPTION
FROM	TO					
0	1					Asphalt, fill.
1	8	C				Sand, silt, item 4 crushed stone.
8	12	C			38	Heavy brown/red silt at 12 feet bright green clay, odor.
13.5	40					Shale bedrock, gray-green.

1/ Units are ppm calibration gas equivalent

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June 12, 2001
reports\deluxe\mw1throughmw4 log

GEOLOGIC LOG LEGGETTE, BRASHEARS & GRAHAM, INC. WHITE PLAINS, NEW YORK	OWNER: Deluxe Corporation WELL NO.: MW-1C PAGE: 1 OF 1 PAGES
SITE LOCATION: 4707 Dey Road Liverpool, New York	SCREEN SIZE & TYPE: 4-inch diameter PVC Schedule 40 SLOT NO.: 20 SETTING: 50-60
DATE BEGUN: 04/03/01 DATE COMPLETED: 04/04/01	SAND PACK SIZE & TYPE: #2 Quartz SETTING: 49-60
DRILLING COMPANY: Aquifer Drilling & Testing, Albany, New York	CASING SIZE & TYPE: 8-inch diameter steel: 0-50 4-inch diameter PVC riser: 0-50
DRILLING METHOD: 12-inch hollow-stem auger to 13 feet/10-inch button	
SAMPLING METHOD: Cuttings	SEAL TYPE: Bentonite chips (between steel and PVC)
OBSERVER: Paul Woodell	SETTING: 3-49
REFERENCE POINT (RP): Grade	BACKFILL TYPE: Cuttings
ELEVATION OF TOC: 99.20	STATIC WATER LEVEL: 37.55 (4/5/01)
STICK-UP:	DEVELOPMENT METHOD:
SURFACE COMPLETION: 12-inch manhole in 2 x 2 foot concrete pad	DURATION: YIELD:
REMARKS:	
ABBREVIATIONS: SS = split spoon W = wash C = cuttings G = grab ST = shelby tube REC = recovery PPM = parts per million	

DEPTH (FEET)		SAMPLE TYPE	BLOW COUNT	REC. (FEET)	PID[1/] READING	DESCRIPTION
FROM	TO					
0	1	C				Asphalt, fill.
1	11	C				SILT and clay, brown, moist at 8 feet.
11	60					SHALE BEDROCK, upper 2 feet very weathered, green-gray turning to red at 42 feet.

1/ Units are ppm calibration gas equivalent

GEOLOGIC LOG LEGGETTE, BRASHEARS & GRAHAM, INC. WHITE PLAINS, NEW YORK	**OWNER:** Deluxe Corporation **WELL NO.:** MW-2A **PAGE:** 1 **OF** 1 **PAGES**
SITE LOCATION: 4707 Dey Road Liverpool, New York	**SCREEN SIZE & TYPE:** 4-inch diameter PVC Schedule 40 **SLOT NO.:** 20 **SETTING:** 5-20
DATE BEGUN: 04/02/01 **DATE COMPLETED:** 04/02/01	**SAND PACK SIZE & TYPE:** #2 Quartz **SETTING:** 4-20
DRILLING COMPANY: Aquifer Drilling & Testing, Albany, New York	**CASING SIZE & TYPE:** 2-inch diameter PVC riser: 0-5
DRILLING METHOD: 6-inch tricone and air	
SAMPLING METHOD: Cuttings	**SEAL TYPE:** Bentonite chips
OBSERVER: Paul Woodell	**SETTING:** 3-4
REFERENCE POINT (RP): Grade	**BACKFILL TYPE:** Cuttings
ELEVATION OF TOC: 98.73	**STATIC WATER LEVEL:** 9.49 (4/5/01)
STICK-UP:	**DEVELOPMENT METHOD:**
SURFACE COMPLETION: 8-inch manhole in 2 x 2 foot concrete pad	**DURATION:** **YIELD:**
REMARKS:	
ABBREVIATIONS: SS = split spoon W = wash C = cuttings G = grab ST = shelby tube **REC = recovery PPM = parts per million**	

DEPTH (FEET)		SAMPLE TYPE	BLOW COUNT	REC. (FEET)	PID[1/] READING	DESCRIPTION
FROM	TO					
0	0.5	C				Asphalt, gravel fill.
0.5	13	C				SILT, some clay, trace gravel, brick red, slightly moist, saturated at ~10 ft bg.
13	20	C				Shale bedrock, green, some clay.

1/ Units are ppm calibration gas equivalent

dmd

GEOLOGIC LOG LEGGETTE, BRASHEARS & GRAHAM, INC. WHITE PLAINS, NEW YORK	OWNER: Deluxe Corporation WELL NO.: MW-2B PAGE: 1 OF 1 PAGES
SITE LOCATION: 4707 Dey Road Liverpool, New York	SCREEN SIZE & TYPE: 2-inch diameter PVC Schedule 40 SLOT NO.: 20 SETTING: 30-40
DATE BEGUN: 03/28/01 DATE COMPLETED: 03/30/01	SAND PACK SIZE & TYPE: #2 Quartz SETTING: 29-40
DRILLING COMPANY: Aquifer Drilling & Testing, Albany, New York	CASING SIZE & TYPE: 6-inch diameter steel: 0-30 2-inch diameter PVC riser: 0-30
DRILLING METHOD: 8-inch hollow-stem auger to 14 feet/air to 40	
SAMPLING METHOD: Cuttings	SEAL TYPE: Bentonite chips (between steel and PVC) SETTING: 5-29
OBSERVER: Paul Woodell	
REFERENCE POINT (RP): Grade	BACKFILL TYPE: Cuttings
ELEVATION OF TOC: 98.92	STATIC WATER LEVEL: 35.48 (4/5/01)
STICK-UP:	DEVELOPMENT METHOD:
SURFACE COMPLETION: 8-inch manhole in 2 x 2 foot concrete pad	DURATION: YIELD:
REMARKS: Much water below 30 feet in bedrock.	
ABBREVIATIONS: SS = split spoon W = wash C = cuttings G = grab ST = shelby tube REC = recovery PPM = parts per million	

DEPTH (FEET)		SAMPLE TYPE	BLOW COUNT	REC. (FEET)	PID[1/] READING	DESCRIPTION
FROM	TO					
0	0.5	C				Asphalt, gravel fill.
0.5	12	C				SILT, some clay, trace gravel, brick red, moist.
12	14					Augered through friable bedrock.
14	20					Shale bedrock, green.
20	40					Shale bedrock, more brown.

1/ Units are ppm calibration gas equivalent

dmd

GEOLOGIC LOG LEGGETTE, BRASHEARS & GRAHAM, INC. WHITE PLAINS, NEW YORK	**OWNER:** Deluxe Corporation **WELL NO.:** MW-2C **PAGE:** 1 **OF** 1 **PAGES**
SITE LOCATION: 4707 Dey Road Liverpool, New York	**SCREEN SIZE & TYPE:** 2-inch diameter PVC Schedule 40 **SLOT NO.:** 20 **SETTING:** 50-60
DATE BEGUN: 03/28/01 **DATE COMPLETED:** 04/02/01	**SAND PACK SIZE & TYPE:** #2 Quartz
DRILLING COMPANY: Aquifer Drilling & Testing, Albany, New York	**SETTING:** 49-60
DRILLING METHOD: 8-inch hollow-stem auger to 14 feet/air to 60	**CASING SIZE & TYPE:** 6-inch diameter steel: (0-50) 2-inch diameter PVC riser: (0-50)
SAMPLING METHOD: Cuttings	**SEAL TYPE:** Bentonite chips (between steel and PVC)
OBSERVER: Paul Woodell	**SETTING:** 3-49
REFERENCE POINT (RP): Grade	**BACKFILL TYPE:** Cuttings
ELEVATION OF TOC: 98.83	**STATIC WATER LEVEL:** 37.24 (4/5/01)
STICK-UP:	**DEVELOPMENT METHOD:**
SURFACE COMPLETION: 8-inch manhole in 2 x 2 foot concrete pad	**DURATION:** **YIELD:**
REMARKS:	
ABBREVIATIONS: SS = split spoon W = wash C = cuttings G = grab ST = shelby tube **REC = recovery PPM = parts per million**	

DEPTH (FEET)		SAMPLE TYPE	BLOW COUNT	REC. (FEET)	PID[1/] READING	DESCRIPTION
FROM	TO					
0	0.5	C				Asphalt, gravel fill.
0.5	12	C				SILT, some clay, trace gravel, brick red, moist.
12	60	C				Shale bedrock, green changing to brown changing to brick red, much water below 30 feet.

1/ Units are ppm calibration gas equivalent

dmd

GEOLOGIC LOG LEGGETTE, BRASHEARS & GRAHAM, INC. WHITE PLAINS, NEW YORK	**OWNER:** Deluxe Corporation **WELL NO.:** MW-3A **PAGE:** 1 **OF** 1 **PAGES**
SITE LOCATION: 4707 Dey Road Liverpool, New York	**SCREEN SIZE & TYPE:** 2-inch diameter PVC Schedule 40 **SLOT NO.:** 20 **SETTING:** 5-20
DATE BEGUN: 04/02/01 **DATE COMPLETED:** 04/02/01	**SAND PACK SIZE & TYPE:** #2 Quartz **SETTING:** 4-20
DRILLING COMPANY: Aquifer Drilling & Testing, Albany, New York	**CASING SIZE & TYPE:** 2-inch diameter PVC riser: 0-5
DRILLING METHOD: 6-inch tricone and air	
SAMPLING METHOD: Cuttings	**SEAL TYPE:** Bentonite chips **SETTING:** 3-4
OBSERVER: Paul Woodell	
REFERENCE POINT (RP): Grade	**BACKFILL TYPE:** Cuttings
ELEVATION OF TOC: 98.31	**STATIC WATER LEVEL:** 8.79 (4/5/01)
STICK-UP:	**DEVELOPMENT METHOD:**
SURFACE COMPLETION: 8-inch manhole in 2 x 2 foot concrete pad	**DURATION:** **YIELD:**
REMARKS: Bottom of well set on bedrock	
ABBREVIATIONS: SS = split spoon W = wash C = cuttings G = grab ST = shelby tube **REC = recovery PPM = parts per million**	

DEPTH (FEET)		SAMPLE TYPE	BLOW COUNT	REC. (FEET)	PID[1/] READING	DESCRIPTION
FROM	TO					
0	20	C	—	—	—	SILT, some clay, brown, moist.

1/ Units are ppm calibration gas equivalent

dmd
June 12, 2001

GEOLOGIC LOG LEGGETTE, BRASHEARS & GRAHAM, INC. WHITE PLAINS, NEW YORK	**OWNER:** Deluxe Corporation **WELL NO.:** MW-3B **PAGE:** 1 **OF** 1 **PAGES**
SITE LOCATION: 4707 Dey Road Liverpool, New York	**SCREEN SIZE & TYPE:** 2-inch diameter PVC **SLOT NO.:** 20 **SETTING:** 30-40
DATE BEGUN: 03/26/01 **DATE COMPLETED:** 03/30/01	**SAND PACK SIZE & TYPE:** #2 Quartz **SETTING:** 29-40
DRILLING COMPANY: Aquifer Drilling & Testing, Albany, New York	**CASING SIZE & TYPE:** 6-inch steel: 1-31 2-inch diameter PVC riser: 0-30
DRILLING METHOD: 8-inch hollow-stem auger to 20 feet/air rotary to 40 feet	
SAMPLING METHOD: Cuttings	**SEAL TYPE:** Bentonite chips (in steel casing)
OBSERVER: Paul Woodell	**SETTING:** 8-29, Sand 0-8
REFERENCE POINT (RP): Grade	**BACKFILL TYPE:** None
ELEVATION OF TOC: 98.36	**STATIC WATER LEVEL:** 34.30 (4/5/01)
STICK-UP:	**DEVELOPMENT METHOD:**
SURFACE COMPLETION: 8-inch manhole in 2 x 2 foot concrete pad	**DURATION:** **YIELD:**
REMARKS: Casing set and grouted 3/27/01 at 12:00/outer steel casing grouted in place	
ABBREVIATIONS: SS = split spoon W = wash C = cuttings G = grab ST = shelby tube **REC = recovery PPM = parts per million**	

DEPTH (FEET)		SAMPLE TYPE	BLOW COUNT	REC. (FEET)	PID[1/] READING	DESCRIPTION
FROM	TO					
0	20	C	—	—	—	Silt, some clay, brown, moist.
20	30	C	—	—	—	Shale bedrock, green, highly weathered. Advanced 10 feet in approximately 10 minutes.
30	40					No cuttings.

1/ Units are ppm calibration gas equivalent

dmd

GEOLOGIC LOG LEGGETTE, BRASHEARS & GRAHAM, INC. WHITE PLAINS, NEW YORK	**OWNER:** Deluxe Corporation **WELL NO.:** MW-3C **PAGE:** 1 **OF** 1 **PAGES**
SITE LOCATION: 4707 Dey Road Liverpool, New York	**SCREEN SIZE & TYPE:** 2-inch diameter PVC Schedule 40 **SLOT NO.:** 20 **SETTING:** 50-60
DATE BEGUN: 03/27/01 **DATE COMPLETED:** 03/30/01	**SAND PACK SIZE & TYPE:** #2 Quartz **SETTING:** 49-60
DRILLING COMPANY: Aquifer Drilling & Testing, Albany, New York	**CASING SIZE & TYPE:** 6-inch steel to 50 feet 2-inch PVC to 50 feet
DRILLING METHOD: 8-inch hollow-stem auger to 20 feet/air rotary to 60 ft bg	
SAMPLING METHOD: Cuttings	**SEAL TYPE:** Bentonite chips (between steel and PVC)
OBSERVER: Paul Woodell	**SETTING:** 3-49
REFERENCE POINT (RP): Grade	**BACKFILL TYPE:** Cuttings
ELEVATION OF TOC: 98.19	**STATIC WATER LEVEL:** 36.24 (4/5/01)
STICK-UP:	**DEVELOPMENT METHOD:**
SURFACE COMPLETION: 8-inch manhole in 2 x 2 foot concrete pad	**DURATION:** **YIELD:**
REMARKS: Casing set and grouted 3/27, 16:30	
ABBREVIATIONS: SS = split spoon W = wash C = cuttings G = grab ST = shelby tube **REC = recovery PPM = parts per million**	

DEPTH (FEET)		SAMPLE TYPE	BLOW COUNT	REC. (FEET)	PID[1/] READING	DESCRIPTION
FROM	TO					
0	1					
1	20	C	—	—	—	SILT and clay, brown, moist, saturated below 10 ft bg
20	60	C	—	—	—	Shale, highly weathered color green changing to brown then green with depth.

1/ Units are ppm calibration gas equivalent

dmd

GEOLOGIC LOG LEGGETTE, BRASHEARS & GRAHAM, INC. WHITE PLAINS, NEW YORK	OWNER: Deluxe Corporation WELL NO.: MW-4A PAGE: 1 OF 1 PAGES
SITE LOCATION: 4707 Dey Road Liverpool, New York	SCREEN SIZE & TYPE: 2-inch diameter PVC Schedule 40 SLOT NO.: 20 SETTING: 5-20
DATE COMPLETED: 04/02/01	SAND PACK SIZE & TYPE: #2 Quartz
DRILLING COMPANY: Aquifer Drilling & Testing, Albany, New York	SETTING: 4-20
DRILLING METHOD: 6-inch tricone and air	CASING SIZE & TYPE: 2-inch diameter PVC riser: 0-5
SAMPLING METHOD: Cuttings	SEAL TYPE: Bentonite chips
OBSERVER: Paul Woodell	SETTING: 3-4
REFERENCE POINT (RP): Grade	BACKFILL TYPE: Cuttings
ELEVATION OF TOC: 96.90	STATIC WATER LEVEL: 8.91 (4/5/01)
STICK-UP:	DEVELOPMENT METHOD:
SURFACE COMPLETION: 8-inch manhole in 2 x 2 foot concrete pad	DURATION: YIELD:
REMARKS:	
ABBREVIATIONS: SS = split spoon W = wash C = cuttings G = grab ST = shelby tube REC = recovery PPM = parts per million	

DEPTH (FEET)		SAMPLE TYPE	BLOW COUNT	REC. (FEET)	PID[1/] READING	DESCRIPTION
FROM	TO					
0	1	C				Asphalt, fill.
1	11	C				Clay, some silt, trace gravel, brown, moist.
11	20	C				Shale bedrock, gray-green.

1/ Units are ppm calibration gas equivalent

dmd
June 12, 2001
reports\deluxe\mw1throughmw4 log

GEOLOGIC LOG LEGGETTE, BRASHEARS & GRAHAM, INC. WHITE PLAINS, NEW YORK	**OWNER:** Deluxe Corporation **WELL NO.:** MW-4B **PAGE:** 1 **OF** 1 **PAGES**
SITE LOCATION: 4707 Dey Road Liverpool, New York	**SCREEN SIZE & TYPE:** 2-inch diameter PVC Schedule 40 **SLOT NO.:** 20 **SETTING:** 30-40
DATE BEGUN: 03/29/01 **DATE COMPLETED:** 04/02/01	**SAND PACK SIZE & TYPE:** #2 Quartz **SETTING:** 29-40
DRILLING COMPANY: Aquifer Drilling & Testing, Albany, New York	**CASING SIZE & TYPE:** 6-inch diameter steel: 0-30 2-inch diameter PVC riser: 0-30
DRILLING METHOD: 8-inch hollow-stem auger to 14/air to 40	
SAMPLING METHOD: Cuttings	**SEAL TYPE:** Bentonite chips (between steel and PVC)
OBSERVER: Paul Woodell	**SETTING:** 3-29
REFERENCE POINT (RP): Grade	**BACKFILL TYPE:** Cuttings
ELEVATION OF TOC: 96.76	**STATIC WATER LEVEL:** 32.85(4/5/01)
STICK-UP:	**DEVELOPMENT METHOD:**
SURFACE COMPLETION: 8-inch manhole in 2 x 2 foot concrete pad	**DURATION:** **YIELD:**
REMARKS:	
ABBREVIATIONS: SS = split spoon W = wash C = cuttings G = grab ST = shelby tube **REC = recovery PPM = parts per million**	

DEPTH (FEET)		SAMPLE TYPE	BLOW COUNT	REC. (FEET)	PID 1/ READING	DESCRIPTION
FROM	TO					
0	1	C				Asphalt, fill.
1	11	C				Clay, some silt, trace gravel, brown moist.
11	40	C				Shale bedrock, gray-green.

1/ Units are ppm calibration gas equivalent

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GEOLOGIC LOG LEGGETTE, BRASHEARS & GRAHAM, INC. WHITE PLAINS, NEW YORK	OWNER: Deluxe Corporation WELL NO.: MW-4C PAGE: 1 OF 1 PAGES
SITE LOCATION: 4707 Dey Road Liverpool, New York	SCREEN SIZE & TYPE: 2-inch diameter PVC Schedule 40 SLOT NO.: 20 SETTING: 50-60
DATE BEGUN: 03/29/01 DATE COMPLETED: 04/02/01	SAND PACK SIZE & TYPE: #2 Quartz SETTING: 49-60
DRILLING COMPANY: Aquifer Drilling & Testing, Albany, New York	CASING SIZE & TYPE: 6-inch steel to 50 feet 2-inch PVC to 50 feet
DRILLING METHOD: 8 1/4-inch hollow-stem auger to 13 feet/air rotary to 60 feet	
SAMPLING METHOD: Cuttings	SEAL TYPE: Bentonite chips (inside steel casing) SETTING: 3-49
OBSERVER: Paul Woodell	
REFERENCE POINT (RP): Grade	BACKFILL TYPE: Cuttings
ELEVATION OF TOC: 96.50	STATIC WATER LEVEL: 34.73 (4/5/01)
STICK-UP:	DEVELOPMENT METHOD:
SURFACE COMPLETION: 8-inch manhole in 2 x 2 foot concrete pad	DURATION: YIELD:
REMARKS:	
ABBREVIATIONS: SS = split spoon W = wash C = cuttings G = grab ST = shelby tube REC = recovery PPM = parts per million	

DEPTH (FEET) FROM	DEPTH (FEET) TO	SAMPLE TYPE	BLOW COUNT	REC. (FEET)	PID 1/ READING	DESCRIPTION
0	1					Asphalt, fill.
1	11					CLAY, some silt, trace gravel, brown, moist, saturated may be around 6-8 ft bg.
11	50					Shale bedrock, grey-green, much clay, color change to red shale ~45 ft bg, much water below ~40-45 feet.

1/ Units are ppm calibration gas equivalent

dmd
June 12, 2001
reports\deluxe\mw1throughmw4 log

GEOLOGIC LOG LEGGETTE, BRASHEARS & GRAHAM, INC. WHITE PLAINS, NEW YORK		OWNER: Deluxe Corporation WELL NO: MW-5A PAGE: 1 OF 1 PAGES	
SITE LOCATION:	Dey Road Liverpool, New York	SCREEN SIZE & TYPE:	2" Diameter Sch. 40 PVC
		SLOT NO.: 20	SETTING: 5 to 20 ft bg
DATE COMPLETED:	August 25, 2003	SAND PACK SIZE & TYPE:	#2 quartz
DRILLING COMPANY:	Aquifer Drilling & Testing Troy, New York	SETTING:	4 to 20 ft bg
		CASING SIZE & TYPE:	2" Diameter Sch. 40 PVC
DRILLING METHOD:	4-inch rollerbit/air	SETTING:	+2.4 to 5 ft bg
SAMPLING METHOD:	Cuttings	SEAL TYPE:	Bentonite
OBSERVER:	Paul Woodell	SETTING:	2 to 5 ft bg
REFERENCE POINT (RP):	Grade	BACKFILL TYPE:	Sand
ELEVATION OF TOC:	96.52 feet	STATIC WATER LEVEL:	21.98 ft btoc (9/24/03)
STICK-UP:	+2.4 feet	DEVELOPMENT METHOD:	--
SURFACE COMPLETION:	4-inch steel standpipe in concrete	DURATION: --	YIELD: --
REMARKS:			

ABBREVIATIONS: SS = split spoon W = wash C = cuttings G = grab ST = shelby tube
MC = macrocore REC = recovery PPM = parts per million

DEPTH (FEET) FROM	DEPTH (FEET) TO	SAMPLE TYPE	BLOW COUNT	REC. (FEET)	PID[1] READING	DESCRIPTION
0	6	C	--	--	--	Overburden, sand, silt, gravel, brown.
	6	C				Green/gray shale bedrock.
	20	C				End of boring.

[1] Units are ppm calibration gas equivalent

dmd
March 22, 2004
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GEOLOGIC LOG LEGGETTE, BRASHEARS & GRAHAM, INC. WHITE PLAINS, NEW YORK		OWNER: Deluxe Corporation WELL NO: MW-5D PAGE: 1 OF 1 PAGES	
SITE LOCATION:	Dey Road Liverpool, New York, West side of building	SCREEN SIZE & TYPE:	Open bedrock borehole
		SLOT NO.: --	SETTING: 80 to 110 ft bg
DATE COMPLETED:	Begin August 20, 2003, Complete August 25, 2003	SAND PACK SIZE & TYPE:	--
DRILLING COMPANY:	Aquifer Drilling & Testing	SETTING:	
	Troy, New York	CASING SIZE & TYPE:	4-inch steel
DRILLING METHOD:	4-inch rollerbit/air	SETTING:	+2.2 to 80 ft bg
SAMPLING METHOD:	Cuttings	SEAL TYPE:	Grout/cement
OBSERVER:	Paul Woodell	SETTING:	2 to 5 ft bg
REFERENCE POINT (RP):	Grade	BACKFILL TYPE:	Sand
ELEVATION OF TOC:	96.19 feet	STATIC WATER LEVEL:	106.14 ft btoc (9/24/03)
STICK-UP:	+2.2 feet	DEVELOPMENT METHOD:	--
SURFACE COMPLETION:	6-inch steel standpipe in concrete	DURATION: --	YIELD: --
REMARKS:			
ABBREVIATIONS: SS = split spoon W = wash C = cuttings G = grab ST = shelby tube MC = macrocore REC = recovery PPM = parts per million			

DEPTH (FEET) FROM	DEPTH (FEET) TO	SAMPLE TYPE	BLOW COUNT	REC. (FEET)	PID[1] READING	DESCRIPTION
0	6	C	--	--	--	Overburden, sand, silt, gravel, pink.
	6	C	--	--	--	Green/gray shale bedrock.
	20	C	--	--	--	Pink shale bedrock.
	100	C	--	--	--	Green/gray shale bedrock.
	110	C	--	--	--	End of boring.

[1] Units are ppm calibration gas equivalent

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GEOLOGIC LOG LEGGETTE, BRASHEARS & GRAHAM, INC. WHITE PLAINS, NEW YORK		OWNER: Deluxe Corporation WELL NO: MW-6A PAGE: 1 OF 1 PAGES	
SITE LOCATION:	Dey Road Liverpool, New York, Northwest corner of building	SCREEN SIZE & TYPE:	2" PVC
		SLOT NO.: 20	SETTING: 5 to 20 ft bg
DATE COMPLETED:	August 22, 2003	SAND PACK SIZE & TYPE:	#2 quartz
DRILLING COMPANY:	Aquifer Drilling & Testing Troy, New York	SETTING:	4 to 20 ft bg
		CASING SIZE & TYPE:	2" PVC
DRILLING METHOD:	4-inch tricone/air	SETTING:	+2.38 to 5 ft bg
SAMPLING METHOD:	Cuttings	SEAL TYPE:	Bentonite
OBSERVER:	Paul Woodell	SETTING:	2 to 5 ft bg
REFERENCE POINT (RP):	Grade	BACKFILL TYPE:	Sand
ELEVATION OF TOC:	102.73 feet	STATIC WATER LEVEL:	17.75 ft btoc (9/24/03)
STICK-UP:	+2.38 feet	DEVELOPMENT METHOD:	--
SURFACE COMPLETION:	4-inch steel standpipe in concrete	DURATION: --	YIELD: --
REMARKS:			
ABBREVIATIONS: SS = split spoon W = wash C = cuttings G = grab ST = shelby tube MC = macrocore REC = recovery PPM = parts per million			

DEPTH (FEET) FROM	TO	SAMPLE TYPE	BLOW COUNT	REC. (FEET)	PID[1] READING	DESCRIPTION
0	12	C	--	--	--	Overburden, sand, silt, gravel, brown.
	12	C	--	--	--	Gray shale bedrock.
	20	C	--	--	--	Gray shale bedrock, end of boring.

[1] Units are ppm calibration gas equivalent

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GEOLOGIC LOG LEGGETTE, BRASHEARS & GRAHAM, INC. WHITE PLAINS, NEW YORK		OWNER: Deluxe Corporation WELL NO: MW-6D PAGE: 1 OF 1 PAGES	
SITE LOCATION:	Dey Road Liverpool, New York, Northwest building corner	SCREEN SIZE & TYPE:	Open rock borehole
		SLOT NO.: --	SETTING: 80 to 110 ft bg
DATE COMPLETED:	Begin August 19, 2003	SAND PACK SIZE & TYPE:	--
DRILLING COMPANY:	Aquifer Drilling & Testing Troy, New York	SETTING:	
		CASING SIZE & TYPE:	4-inch steel
DRILLING METHOD:	Air rotary	SETTING:	+2.35 to 80 ft bg
SAMPLING METHOD:	Cuttings	SEAL TYPE:	Grout/cement
OBSERVER:	Paul Woodell	SETTING:	2 to 5 ft bg
REFERENCE POINT (RP):	Grade	BACKFILL TYPE:	Sand
ELEVATION OF TOC:	103.03 feet	STATIC WATER LEVEL:	108.58 ft btoc (9/24/03)
STICK-UP:	+2.35 feet	DEVELOPMENT METHOD:	--
SURFACE COMPLETION:	6-inch steel standpipe in concrete	DURATION: --	YIELD: --
REMARKS:			

ABBREVIATIONS: SS = split spoon W = wash C = cuttings G = grab ST = shelby tube
MC = macrocore REC = recovery PPM = parts per million

DEPTH (FEET) FROM	TO	SAMPLE TYPE	BLOW COUNT	REC. (FEET)	PID[1] READING	DESCRIPTION
0	12	C	--	--	--	Overburden, sand, silt, gravel.
	12	C	--	--	--	Gray shale bedrock.
	~60	C	--	--	--	Color change to red shale bedrock.
	80	C	--	--	--	Bottom of steel casing.
	110	C	--	--	--	Red shale, end of boring.

[1] Units are ppm calibration gas equivalent

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GEOLOGIC LOG LEGGETTE, BRASHEARS & GRAHAM, INC. WHITE PLAINS, NEW YORK		OWNER: Deluxe Corporation WELL NO: MW-7A PAGE: 1 OF 1 PAGES	
SITE LOCATION:	Dey Road Liverpool, New York, Southwest building corner	SCREEN SIZE & TYPE:	2" Diameter Sch. 40 PVC
		SLOT NO.: 20	SETTING: 5 to 20 ft bg
DATE COMPLETED:	August 21, 2003	SAND PACK SIZE & TYPE:	#2 quartz
DRILLING COMPANY:	Aquifer Drilling & Testing Troy, New York	SETTING:	4 to 20 ft bg
		CASING SIZE & TYPE:	2" Diameter Sch. 40 PVC
DRILLING METHOD:	4-inch rollerbit/air	SETTING:	+2.45 to 5 ft bg
SAMPLING METHOD:	Cuttings	SEAL TYPE:	Bentonite
OBSERVER:	Paul Woodell	SETTING:	2 to 5 ft bg
REFERENCE POINT (RP):	Grade	BACKFILL TYPE:	Sand
ELEVATION OF TOC:	106.31 feet	STATIC WATER LEVEL:	Dry (9/24/03)
STICK-UP:	+2.45 feet	DEVELOPMENT METHOD:	--
SURFACE COMPLETION:	4-inch steel standpipe in concrete	DURATION: --	YIELD: --
REMARKS:			

ABBREVIATIONS: SS = split spoon W = wash C = cuttings G = grab ST = shelby tube
MC = macrocore REC = recovery PPM = parts per million

DEPTH (FEET) FROM	DEPTH (FEET) TO	SAMPLE TYPE	BLOW COUNT	REC. (FEET)	PID[1] READING	DESCRIPTION
0	14	C	--	--	--	Overburden, sand, silt, gravel, brown.
	14	C	--	--	--	Gray shale bedrock.
	20	C				Gray shale bedrock, end of boring.

[1] Units are ppm calibration gas equivalent

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GEOLOGIC LOG LEGGETTE, BRASHEARS & GRAHAM, INC. WHITE PLAINS, NEW YORK		OWNER: Deluxe Corporation WELL NO: MW-7D PAGE: 1 OF 1 PAGES	
SITE LOCATION:	Dey Road Liverpool, New York, Southwest building corner	SCREEN SIZE & TYPE:	Open rock borehole
		SLOT NO.: 20	SETTING: 80 to 110 ft bg
DATE COMPLETED:	Begin August 18, 2003, Complete August 21, 2003	SAND PACK SIZE & TYPE:	--
DRILLING COMPANY:	Aquifer Drilling & Testing Troy, New York	SETTING:	
		CASING SIZE & TYPE:	4-inch steel
DRILLING METHOD:	Air rotary	SETTING:	+2.10 to 80 ft bg
SAMPLING METHOD:	Cuttings	SEAL TYPE:	Grout
OBSERVER:	Paul Woodell	SETTING:	2 to 5 ft bg
REFERENCE POINT (RP):	Grade	BACKFILL TYPE:	Sand
ELEVATION OF TOC:	105.98 feet	STATIC WATER LEVEL:	59.83 ft btoc (9/24/03)
STICK-UP:	+2.10 feet	DEVELOPMENT METHOD:	--
SURFACE COMPLETION:	6-inch steel standpipe in concrete	DURATION: --	YIELD: --
REMARKS:			

ABBREVIATIONS: SS = split spoon W = wash C = cuttings G = grab ST = shelby tube MC = macrocore REC = recovery PPM = parts per million

DEPTH (FEET) FROM	TO	SAMPLE TYPE	BLOW COUNT	REC. (FEET)	PID[1] READING	DESCRIPTION
0	9	C	--	--	--	Sand, silt, gravel, till, pink.
	9	C	--	--	--	Harder driller, gravel, cobble?
	14	C	--	--	--	Bedrock, gray shale, black clay layer above.
	29	C	--	--	--	Still gray shale, more water coming up borehole.
	60	C	--	--	--	Red shale.
	110	C	--	--	--	Red shale, end of boring.

[1] Units are ppm calibration gas equivalent

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GEOLOGIC LOG LEGGETTE, BRASHEARS & GRAHAM, INC. WHITE PLAINS, NEW YORK		OWNER: Deluxe Corporation WELL NO: MW-1D PAGE: 1 OF 1 PAGES	
SITE LOCATION:	Dey Road Liverpool, New York, in old loading dock	SCREEN SIZE & TYPE:	Open rock borehole
		SLOT NO.:	SETTING: 80 to 110 ft bg
DATE COMPLETED:	Begin August 20, 2003	SAND PACK SIZE & TYPE:	--
DRILLING COMPANY:	Aquifer Drilling & Testing Troy, New York	SETTING:	
		CASING SIZE & TYPE:	4-inch steel
DRILLING METHOD:	Air rotary	SETTING:	+0 to 80 ft bg
SAMPLING METHOD:	Cuttings	SEAL TYPE:	Grout
OBSERVER:	Paul Woodell	SETTING:	2 to 5 ft bg
REFERENCE POINT (RP):	Grade	BACKFILL TYPE:	Sand
ELEVATION OF TOC:	98.78 feet	STATIC WATER LEVEL:	49.74 ft btoc (9/24/03)
STICK-UP:	None	DEVELOPMENT METHOD:	--
SURFACE COMPLETION:	8-inch flush mount roadbox in concrete	DURATION: --	YIELD: --
REMARKS:			
ABBREVIATIONS: SS = split spoon W = wash C = cuttings G = grab ST = shelby tube MC = macrocore REC = recovery PPM = parts per million			

DEPTH (FEET) FROM	DEPTH (FEET) TO	SAMPLE TYPE	BLOW COUNT	REC. (FEET)	PID[1] READING	DESCRIPTION
0	12	C	--	--	--	Asphalt, fill.
	12	C	--	--	--	Green/gray shale bedrock.
	39	C	--	--	--	Color change to red shale, lots of water, very soupy, cuttings to 80 feet.
	100	C	--	--	--	Green/gray shale.
	110	C	--	--	--	Green/gray shale, end of boring.

[1] Units are ppm calibration gas equivalent

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March 22, 2004
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APPENDIX C

Groundwater Monitoring Well Sampling Log Form

LEGGETTE, BRASHEARS & GRAHAM, INC.
Professional Groundwater and Environmental Engineering Services
110 Corporate Park Drive, Suite 112
White Plains, New York 10604
(914) 694-5711
Fax: (914) 694-5744

Client:

Location:

Date:

Professional:

Weather/Comments:

Well	Hour	Ref. Pt. (feet)	Meas. Pt. (feet)	D.T.W. (feet)	T.D. (feet)	Gal Evac Actual	D.O.		Temp (EF)	pH	Cond.	ORP	Time Sampled
							mg/l	%					

APPENDIX D

Health and Safety Plan

DELUXE CORPORATION
SITE SPECIFIC HEALTH AND SAFETY PLAN
FOR ENVIRONMENTAL WORK RELATED TO
VOLATILE ORGANIC COMPOUNDS
FORMER CHECK PRINTING FACILITY
4707 DEY ROAD
LIVERPOOL, NEW YORK

Prepared For

Deluxe Corporation

June 2000

Revised: May 2003

LEGGETTE, BRASHEARS & GRAHAM, INC.
Professional Ground-Water and Environmental Engineering Services
110 Corporate Park Drive, Suite 112
White Plains, NY 10604
(914) 694-571

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LEGGETTE, BRASHEARS & GRAHAM, INC.
110 CORPORATE PARK DRIVE, SUITE 112
WHITE PLAINS, NEW YORK 10604
(914) 694-5711

DELUXE CORPORATION
SITE SPECIFIC HEALTH AND SAFETY PLAN
FOR ENVIRONMENTAL WORK RELATED
TO VOLATILE ORGANIC COMPOUNDS
FORMER CHECK PRINTING FACILITY
4707 DEY ROAD
LIVERPOOL, NEW YORK

This Health and Safety Plan (HASP) is intended to provide a basic framework for the safe conduct of field investigations related to the former Deluxe Corporation check printing facility. The procedures provided herein are intended as a guide for all Leggette, Brashears & Graham, Inc. (LBG) and subcontractor employees who will be involved in the performance of the project.

The primary objective of the HASP is to establish work-safety guidelines, requirements and procedures before field activities begin and during the field activities. The following information was prepared specifically for field operations by personnel to enforce and adhere to the established rules as specified in the HASP. The HASP will be provided to all personnel to aid in accomplishing the following objectives:

- monitoring the effectiveness of the HASP as it is conducted in the field by performing field operation audits;
- following up on any necessary corrective actions;
- interacting with regulatory agencies and/or client representatives regarding modifications of health and safety actions; and
- stopping work should work-site conditions warrant such action.

All personnel will have had health and safety training in accordance with OSHA Interim Final Standard 29 CFR 1910 or as may be amended. A copy of LBG's Corporate Safety Policy and Drug and Alcohol Policy is attached in Appendix A.

1.0 ORGANIZATION AND RESPONSIBILITIES

The organization and responsibilities for implementing safe site-investigation procedures, and specifically for the requirements contained in this manual, are described in this section.

1.1 Project Manager

The LBG Project Manager will be responsible for the overall implementation and monitoring of the health and safety program by:

- ensuring appropriate protective equipment is available and properly used by all personnel, in accordance with the HASP;
- ensuring personnel health and safety awareness by providing them with proper training and familiarity with procedures and contingency plans;
- ensuring all personnel are apprised of potential hazards associated with the site conditions and operations;
- supervising and monitoring the safety performance of all personnel to ensure their work practices are conducted in accordance with the HASP;
- correcting any work practices or conditions that would expose personnel to possible injury or hazardous condition;
- communications with the onsite Health and Safety Officer (HSO);
- ensuring sufficient protective equipment is provided and used;
- promptly initiating emergency alerts; and,
- communicating with the client and/or regulatory agency representatives.

1.2 Onsite Health and Safety Officer

The LBG HSO will be onsite during all field activities. The HSO will be accountable for the direct supervision of personnel from the subcontractors and other LBG personnel with regard to:

- health and safety program compliance;
- maintaining a high level of health and safety consciousness among employees at the work site;

- reporting accidents within LBG jurisdiction and undertaking corrective action; and,
- the Community Air Monitoring Plan which is described in Section 3.1 of this HASP.

1.3 Field Personnel

All field personnel will report directly to the onsite HSO, and will be required to:

- be familiar with, and conform to, provisions of the HASP;
- report any accidents or hazardous conditions to the onsite HSO; and,
- have complete familiarity with their job requirements and the health and safety procedures involved.

1.4 Reporting of Accidents and Unsafe Conditions

If an accident occurs, the HSO and the injured person(s) are to complete an Accident Report for submittal to the project manager, who will forward a copy to the principal-in-charge who should ensure that follow-up action is taken to correct the situation that caused the accident.

1.4.1 Disciplinary Actions for Safety Related Infractions

If an infraction of the Health and Safety Plan is discovered by the Project Manager or the onsite HSO, each case will be dealt with individually. The infraction will be investigated and a disciplinary meeting held with the offender. Disciplinary actions may include a performance deficiency evaluation entered into the employee's personnel file, correction of problem after the disciplinary meeting or removal of the offender from the project. Repeated infractions will not be tolerated and will be dealt with accordingly.

1.4.2 Safety Inspections

Safety inspections will be conducted periodically by the Project Manager. The Project Manager will be familiar with the Health and Safety Plan before performing an onsite visit. While onsite, the Project Manager will evaluate the effectiveness of the plan and offer any sugges-

tion for improvement. Although the Project Manager is responsible for periodic safety inspections and evaluation of the Health and Safety Plan, the onsite HSO is responsible for daily observation and evaluation of Health and Safety Plan effectiveness.

1.4.3 Safety Meetings

Prior to the start of field activities, a meeting will be held to discuss the potential hazards at the site, with a review of the required protective clothing and procedures observed at this site. As needed, daily meetings will be held to discuss any changes in the hazards. A site safety briefing form will be filled out each day the HSO holds a meeting and signed by all of the attendees of the briefing.

2.0 HAZARD EVALUATION

The exposure limits of chemical constituents which may be encountered are listed in table 1. These constituents would possibly be encountered in ground water and/or soil and comprise the major concerns for personal health. The protection of personnel and the public from exposure to these substances by inhalation, oral ingestion, dermal absorption or eye contact is included as a primary purpose of this plan.

The onsite HSO is responsible for determining the level of personal protection equipment required. The HSO will perform a preliminary evaluation to confirm personal protective equipment requirements once the site has been entered. When work-site conditions warrant, the onsite HSO will modify the level of protection to be utilized. The existence of a situation more hazardous than anticipated will result in the suspension of work until the Project Manager and volunteer have been notified and appropriate instructions have been provided to the field team.

3.0 MONITORING REQUIREMENTS

A photoionization detector (PID) will be used to continuously monitor ambient air quality at the drilling or excavation sites. Records of these data will be maintained by the onsite HSO. During drilling operations or excavation activities, air quality will be monitored, especially near the top of the boreholes as samples are taken and at the perimeters of any excavations. Work

operations which involve handling of potentially hazardous substances will include continuous contaminant monitoring using the PID. When deemed necessary or desirable by the onsite HSO, area monitoring will be used in potentially hazardous zones. Area monitoring will be performed as plans and conditions dictate, and in accordance with the HASP and with the goal of accident and hazardous condition prevention in mind. Instrument calibration information is included in Appendix B.

For the compounds previously identified to be most prevalent, the lowest 8-hour exposure limit is listed on table 1.

3.1 Community Air Monitoring Plan

During all field activities, a Community Air Monitoring Plan (CAMP) will be followed. The CAMP is outlined below.

Real-time air monitoring, for volatile compounds and particulate levels at the perimeter of the work area is necessary. The plan includes the following:

- Volatile organic compounds (VOCs) will be monitored at the downwind perimeter of the work area on a continuous basis using a PID. If total organic vapor levels exceed 5 ppm (parts per million) above background, work activities will be halted and monitoring continued under the provisions of a Vapor Emission Response Plan. All readings will be recorded and be available for State (DEC and DOH) personnel to review.
- Particulates will be continuously monitored upwind, downwind and within the work area at temporary particulate monitoring stations using a personal Data RAM Dust Meter capable of measuring particulate matter less than 10 micrometers in size. If the downwind particulate level is 150 ug/m^3 (micrograms per cubic meter) greater than the upwind particulate level, then dust suppression techniques will be employed and work will continue. All readings will be recorded and be available for State (DEC and DOH) personnel to review.

3.2 Vapor Emission Response Plan

If the ambient air concentration of organic vapors exceeds 5 ppm above background at the perimeter of the work area, activities will be halted and monitoring continued. If the organic vapor level decreases below 5 ppm above background, work activities can resume. If the organic vapor levels are greater than 5 ppm over background but less than 25 ppm over background at the perimeter of the work area, activities can resume provided:

- the organic vapor level 200 feet downwind of the work area or half the distance to the nearest residential or commercial structure, whichever is less, is below 5 ppm over background.

If the organic vapor level is above 25 ppm at the perimeter of the work area, activities will be shutdown. When work shutdown occurs, downwind air monitoring as directed by the Safety Officer will be implemented to ensure that vapor emission does not impact the nearest residential or commercial structure at levels exceeding those specified in the Major Vapor Emission section.

3.3 Major Vapor Emission

If any organic levels greater than 5 ppm over background are identified 200 feet downwind from the work area or half the distance to the nearest residential or commercial property, whichever is less, all work activities will be halted.

If, following the cessation of the work activities, or as the result of an emergency, organic levels persist above 5 ppm above background 200 feet downwind or half the distance to the nearest residential or commercial property from the work area, then the air quality will be monitored within 20 feet of the perimeter of the nearest residential or commercial structure (20 Foot Zone).

If efforts to abate the emission source are unsuccessful and if the following levels persist for more than 30 minutes in the 20 Foot Zone, then the Major Vapor Emission Response Plan shall automatically be placed into effect.

- if organic vapor levels are approaching 5 ppm above background.

However, the Major Vapor Emission Response Plan shall be immediately placed into effect if organic vapor levels are greater than 10 ppm above background.

3.4 Major Vapor Emission Response Plan

Upon activation, the following activities will be undertaken:

1. All Emergency Response Contacts as listed in the Health and Safety Plan of the Work Plan will be notified.
2. The local police authorities will immediately be contacted by the Safety Officer and advised of the situation.
3. Frequent air monitoring will be conducted at 30 minute intervals within the 20 Foot Zone. If two successive readings below action levels are measured, air monitoring may be halted or modified by the Safety Officer.

4.0 LEVELS OF PROTECTION

The level of protection anticipated to perform work on this investigation is Level D, unless otherwise upgraded. Only protective equipment deemed suitable by the onsite HSO for use at the work site will be worn. Any changes in protection levels shall be documented by the onsite HSO. Field personnel should exercise informed judgment on protective equipment requirements at active work sites or at work sites that have been repeatedly entered or occupied without apparent harm. In any case where doubt exists, the safest course of action must be taken. The protective equipment to be used by field personnel is listed below.

4.1 Level D

- hard hat;
- safety glasses, shatter-proof prescription glasses or chemical splash goggles;
- boots/shoes, leather or chemical-resistant, steel toe and shank;
- coveralls; and,
- chemical resistant gloves.

At a minimum, protective headgear, including protective hearing devices, eyewear and footwear will be worn at all times by personnel working around the drilling equipment. When work-site conditions dictate, protective gloves and chemical-resistant boots shall be required for those personnel handling contaminated soils or water.

Should levels of organic vapor greater than the TLV/PEL exposure limits listed on table 1 above background levels be detected by the PID in the work area, work will stop and all personnel will leave the work area. Typically, for VOCs related work, a sustained level of 5 ppm above background or less as measured with a PID provides a large safety margin for the 8-hour exposure limit.

4.2 Level C

- hard hat;
- boots, leather, steel toe and shank;
- outer boots, chemical resistant;
- chemical-resistant gloves (solvex);
- Tyvek or Saranex suit; and,
- air purifying respirator with organic vapor cartridge and dust and mist filter.

Level C protection will be considered for sustained PID readings of 5 to 100 ppm above background in the breathing zone.

Respirators for all personnel will be available with both particulate and organic vapor protection cartridges. The onsite HSO will direct when the protective clothing and respirators will be utilized based on the conditions encountered at the work site.

4.3 Level B

- pressure-demand, self-contained breathing apparatus;
- standby escape pack;
- chemical resistant clothing (Saranex suit);
- outer gloves (Solvex);
- inner gloves (surgical);

- outer boots (chemical resistant);
- inner boots (leather, steel shank and toe); and,
- hard hat.

Level B will be considered for sustained PID readings of 100 ppm above background in the breathing zone. In the event that the work space atmosphere contains in excess of 100 ppm of total ionizable compounds above background, colorimetric tubes or a portable gas chromatograph will be used to determine the levels of individual chemicals. The use of Level B equipment will be based on the specific compounds present and will include discussions with the regulatory authorities and/or the client representative.

Level A conditions will require specialized procedures to be formulated on a case-by-case basis.

5.0 SAFE WORK PRACTICES AND HYGIENE

In addition to the use of protective equipment, other procedures will be followed to minimize risk:

- all consumptive activities including eating, drinking or smoking are prohibited during the drilling, sampling and decontamination activities;
- an adequate source of potable water for emergency use will be available at the drilling sites (two liters per person per day);
- fire extinguishers will be available at the work sites for use on equipment or small fires when appropriate; and,
- an adequately stocked first-aid kit will be maintained at the work site at all times during operational hours.

5.1 Heat Stress

In order to avoid heat stress several preventative measures will be observed:

- Workers will be urged to drink a 16-ounce glass of water prior to work (in the morning and after lunch). Water will be contained in a cooler, maintained at a

temperature below 60°F. Workers will be encouraged to drink approximately every 20 minutes during days of extreme heat.

- In extreme hot weather, field activities will be conducted in the early mornings and late afternoons.
- Rest breaks in cool or shaded areas will be enforced as needed.
- Toilet facilities will be made available to site workers, unless transportation is readily available to nearby toilet facilities.
- Good hygiene practices will be encouraged, stressing the importance of allowing the clothing to dry during rest periods. Anyone who notices skin problems should receive medical attention immediately.
- If there are support personnel available outside the work zone, they should observe the workers in the exclusion zone to monitor signs of stress, frequency of breaks, etc.

5.2 Cold Stress and Exposure

In order to avoid cold stress, several preventative measures will be observed;

- work will not take place when the temperature falls below -20°F. (The wind chill factor should be a major consideration);
- clothing should be worn in layers, so that personnel can adapt to changing conditions and various levels of physical stress;
- if possible, breaks should be taken in a heated vehicle or building, but care should be taken to remove outer clothing during the break;
- have on hand extra inner clothing in case perspiration builds up;
- keep insulated containers of warm liquids available for breaks outside of the exclusion zone;
- be aware of the signs of frostbite and take immediate remedial measures; and,
- take extra precautions around areas subject to ice buildup, such as sanding slippery surfaces.

6.0 WORK ZONE

To prevent unauthorized personnel from entering areas where active operations are being performed, the area enclosing the operation will be marked.

Typically, VOC projects such as this one involve installation of wells, monitoring of wells, installation and operation of treatment systems and observation of tank and trench excavation work. Safety issues with respect to this type of work are attached in Appendix C.

7.0 DECONTAMINATION

An area will be set aside within the work zone for decontamination. The type of decontamination procedures used will be based on the level of protection required. Decontamination of Level D protective wear will consist of brushing heavily soiled boots to remove soils, rinsing gloves and safety glasses (and overboots, if worn) with water, and removing and storing coveralls in plastic bags before leaving the work zone, if heavily soiled or suspected of having been in contact with site contaminants. For detailed decontamination, equipment and procedures, refer to Appendix D.

8.0 CONTINGENCY PLAN FOR EMERGENCIES

In the event of a safety or health emergency, appropriate corrective measures must immediately be taken to assist those who have been injured or exposed and to protect others from hazard. The onsite HSO will be notified of the incident immediately. If necessary, first aid will be rendered. A contact sheet showing the closest police, hospital and NYSDEC office will be maintained onsite within this HASP as Appendix E.

dmd
June 12, 2002
Revised: May 15, 2003
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TABLE

TABLE 1

Exposure Limits

COMPOUND	EXPOSURE STANDARDS			RECOGNITION QUALITIES		
	TLV/PEL (a) (ppm)	STEL (b) (ppm)	IDLH (c) (ppm)	Odor/Threshold (ppm)	LEL (d) (%)	Ionization Potential (eV)
Gasoline[1/]	300	500	1,400	–	1.4	–
Alachlor[2/]	–	–	–	No odor	–	–
Benzene[1/]	0.1	1	500	12	1.2	9.24
Butane	800	–	–	2,700	1.6	10.63
Chlorobenzene	75[3/]	–	1,000	Almonds	1.3	–
1,1-Dichloroethane	100	Ca[5/]	3,000	Chloroform	5.4	11.06
1,2-Dichloroethylene	200	–	1,000	Chloroform	5.6	9.65
EDB (Ethylene dibromide)[1/]	0.045	0.13	100	Sweet	–	9.45
EDC (Ethylene dichloride)[1/]	1	2	50	Chloroform	6.2	11.05
Ethylbenzene	100	125	800	Aromatic	0.8	8.76
Heptane	85	440	750	150	1.05	9.90
N-Hexane	50	–	1,100	Gasoline/130	1.1	10.18
Hexanes	100	510	–	Mild gasoline	–	–
Methyl ethyl ketone (MEK)	0.2[4/]	–	–	Characteristic odor	–	–
Octane	75	385	1,000	Gasoline/150	1.0	9.82
Pentane	120	610	1,500	Gasoline/1000	1.5	10.34
TBA (Tert-butyl alcohol)	100	150	1,600	Camphor	2.4	9.70
Tetrachloroethylene[1/]	Ca[5/]	Ca[5/]	150	Chloroform	–	9.32
Tetraethyl Lead	0.075*	–	40*	Sweet	1.8	11.10
Tetramethyl Lead	0.075*	–	40*	Fruity	–	8.50
Toluene	100	150	500	Sweet benzene like/2.9	1.1	8.82
1,1,2-Trichloroethane	Ca[5/]	10	100	Chloroform	6.0	11.00

TABLE 1
(continued)

Exposure Limits

COMPOUND	EXPOSURE STANDARDS			RECOGNITION QUALITIES		
	TLV/PEL (a) (ppm)	STEL (b) (ppm)	IDLH (c) (ppm)	Odor/Threshold (ppm)	LEL (d) (%)	Ionization Potential (eV)
Trichloroethylene	Ca[5/]	25	1,000	Chloroform	8.0	9.45
Vinyl Chloride	Ca[5/]	Ca[5/]	Not determined	Pleasant	3.6	9.99
Xylenes	100	150	900	Aromatic/1.1	0.9	8.56

Notes:

1/ Potential occupational carcinogen
2/ Alachlor manufacturer established internal exposure guideline of 10 ppb for 8-hour TWA
3/ OSHA guideline, NIOSH questions the adequacy of 75 ppm
4/ Ceiling REL, should not be exceeded at any time
5/ NIOSH recommends occupational exposures to carcinogens to be limited to the lowest feasible concentration
– = No published value
* mg/m3
(a) The more stringent of either: (1) Occupational Safety and Health Administration (OSHA) 1989 Permissible Exposure Limit (PEL), (2) American Conference Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV), or (3) National Institute for Occupational Safety and Health (NIOSH) recommended exposure limits (RELs), time-weighted average concentrations for up to a 10-hour work day.
(b) Short Term Exposure Limit - 15 minute exposure.
(c) Immediately dangerous to life and health.
(d) Lower Explosive Limit.

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June 12, 2000
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FORMS

LEGGETTE, BRASHEARS & GRAHAM, INC.
110 CORPORATE PARK DRIVE, SUITE 112
WHITE PLAINS, NY 10604

DELUXE CORPORATION
SITE SPECIFIC HEALTH AND SAFETY PLAN
FOR ENVIRONMENTAL WORK RELATED TO
VOLATILE ORGANIC COMPOUNDS
FORMER CHECK PRINTING FACILITY
4707 DEY ROAD
LIVERPOOL, NEW YORK

SITE LIST

Site List No.	Site Name	Site Address	Client	Date
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				

SITE SAFETY BRIEFING

Job Name: Monitor well installation and groundwater sampling
Date: _____
Site Location: 4707 Dey Road, Liverpool, New York

SAFETY ISSUES (Circle appropriate information)

Tasks: Drilling, Groundwater Monitoring, Treatment System O&M, UST or Trench Excavation

Protective Clothing/Equipment: Level D, Level C, Level B, Level A

Chemical Hazards: Gasoline, Diesel Fuel, Heating Oil, Number 2 Oil

Physical Hazards: Car Traffic, Construction Equipment, Confined Space, Overhead Wires

Control Methods: Cones, Restricted Access, Traffic Control Personnel

Other: _____

Hospital Name/Address: _____

_____

_____

ATTENDEES

Print Name:	Sign Name:
_____	_____
_____	_____
_____	_____
_____	_____

Meeting conducted by: _____

_____

AIR MONITORING

General Information

Name(s): _____ Background Level: _____

Date: _____ Weather Conditions: _____

Time: _____ _____

Project: 4707 Dey Road
Liverpool, New York

Equipment Calibration

PID _____ CGI _____

Sample No.	Time	Location	PID Reading (ppm)	Comments	CGI Reading	
					$\%O_2$	%LEL
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						

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Revised: May 15, 2003
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AIR MONITORING DATA

General Information

Name(s): _____

Project/Location: _____

Equipment Used: MINIRAM

Background Level: _____

Date	Weather	Total Time (min)	SA (mg/m^3)	TWA (mg/m^3)

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PLAN ACCEPTANCE FORM

PROJECT HEALTH & SAFETY PLAN

INSTRUCTIONS: This form is to be completed by each Leggette, Brashears & Graham, Inc. employee to work on the subject project work site and returned to the Office Safety Coordinator prior to site activities.

Client/Project: Deluxe Corporation

Date: _____

I represent that I have read and understand the contents of the above Plan and agree to perform my work in accordance with it.

_____	_____
Signed	Signed
_____	_____
Print Name	Print Name
_____	_____
Date	Date
_____	_____
Signed	Signed
_____	_____
Print Name	Print Name
_____	_____
Date	Date

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EXCLUSION ZONE LOG SHEET

LEGGETTE, BRSHEARS & GRAHAM, INC.
110 CORPORATE PARK DRIVE, SUITE 112
WHITE PLAINS, NY 10604

Client: Deluxe Corporation

Location: 4707 Dey Road, Liverpool, New York

Name	Date	Time In	Time Out	Elapsed Time

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APPENDIX A

APPENDIX A

LEGGETTE, BRASHEARS & GRAHAM, INC.
SAFETY POLICY

Job safety is a common-sense part of everyone's life, but requires constant alertness to possible dangers. When we work on industrial sites, LBG employees are expected to observe the safety rules of our Client hosts.

You are the first line of defense for your own personal safety. In the field, appropriate clothing should be worn at all times. Where appropriate, work shoes with hard toes and/or ankle protection should be worn at all times. **Sneakers/tennis shoes should never be worn in the field, regardless of the circumstances.**

LBG provides hard hats that should be worn around any drilling operations and in any other "hard hat zones". Where required, safety glasses, goggles, protective gloves, respirators, and other safety clothing or equipment should be worn and disposed of as specified by the Project Safety Officer.

Periodically, LBG provides special safety seminars which satisfy the OSHA requirements for work on hazardous waste sites. In-house safety training is conducted on an ongoing basis and as dictated by case-by-case needs. There is a Corporate Safety Officer in the Trumbull, Connecticut headquarters and a designated Safety Officer in each regional office to whom questions and problems relating to job safety should be referred.

Any project that involves or may involve hazardous or toxic waste or any potentially dangerous condition requires the preparation, filing, use and compliance with a Health and Safety Plan (HASP). LBG has a petroleum related work HASP that can be readily adapted to most petroleum jobs and has numerous site-specific HASPS that comply with state and federal CERCLA requirements that can be used for guidance in developing site-specific HASPS.

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June 12, 2000
Revised: May 15, 2003
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APPENDIX A

LEGGETTE, BRASHEARS & GRAHAM, INC.
GENERAL DRUG AND ALCOHOL POLICY

In any company, certain common-sense rules of conduct and performance must be established for the employees to follow in order to avoid any misunderstanding and to protect the right of all concerned. Breaches of acceptable conduct which include, but are not limited to, abusive language, insubordination, intoxication, moral turpitude, or substance abuse/possession can lead to disciplinary action or to dismissal.

While performing any service for LBG or LBG's clients, employees, agents, and subcontractors of LBG shall not: (1) be under the influence of alcohol or any controlled substance; (2) use, possess, distribute, or sell illicit or unprescribed controlled drugs, drug paraphernalia, or alcoholic beverages; or (3) misuse legitimate prescription drugs.

LBG may remove from active project status any of its employees any time there is a reasonable basis for suspicion of alcohol/drug use, possession, or impairment involving such employee, and at any time an incident occurs where drug or alcohol use could have been a contributing factor. In such cases, employee may only be considered for return to work after LBG certifies as a result of a for-cause test, conducted immediately following removal, that said employee is in compliance with this policy.

LBG reserves the right to require drug and alcohol testing for its employees, either for its own purposes or at the direction of Clients. Such testing may take place periodically, or for specific projects. The testing will be in compliance with Department of Transportation drug testing regulations.

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APPENDIX B

APPENDIX B

LEGGETTE, BRASHEARS & GRAHAM, INC.
AIR MONITORING EQUIPMENT OPERATION

Instrument Calibration

All applicable instruments will be calibrated daily before use. Readings will be recorded on the Air Monitoring form.

Background Readings

Before any field activities commence, the background levels of the site must be read and noted. Daily background readings must be conducted away from areas of potential contamination to obtain accurate results.

Air Monitoring Frequency

All site readings must be noted on the Air Monitoring form along with the date, time, background level, weather conditions, wind direction and speed, and the location where the background level was recorded.

OVM 580B Calibration

- Turn the OVM on by pressing the ON/OFF switch.
- With the OVM running, press the MODE/STORE switch and then press the -/CRSR switch when the OVM reads if "logging is desired".
- Keep pressing the -/CRSR switch until OVM will display "reset to calibrate".
- Enter the calibration mode by pressing the RESET switch. The OVM will then display "restore backup + = Yes".
- Press the -/INC switch and the OVM will display "zero gas reset when ready".
- Connect zero gas to OVM and press RESET switch. The OVM will display "Model 580B zeroing".

- After the OVM calibrates the zero gas, it will display "span gas reset when ready".
- Connect span gas to OVM and press RESET switch.
- When OVM displays "reset to calibrate", the OVM has calibrated the span gas.
- To exit calibration mode, press MODE/STORE switch.

HNU PI-101 Calibration

- Battery check--The function switch should be turned to BATT. The needle should be in the green region; if not, recharge the battery.
- Zero set--The function switch should be turned to STANDBY. In this position, the lamp is OFF and no signal is generated. The zero point should be set with the ZERO set control.
- Gas standard--The standard should be connected to the probe. The function switch should be turned to the range position of the standard and the meter reading should be noted. The SPAN control setting should be adjusted, as required, to read the parts per million (ppm) concentration of the standard. The zero setting should be rechecked.
- Lamp cleaning--If the span setting from calibration is 0.0 or calibration cannot be achieved, then the lamp must be cleaned.
- Lamp replacement--If the lamp output is too low or if the lamp has failed, it must be replaced.

MSA Explosimeter Model 2A Calibration Instructions

Before the calibration can be checked, the instrument and its aspirator sampling bulb must be in operating condition, as described in the instrument instruction manual.

- The flow control should be attached to the calibration gas tank.
- The hose should be connected to the flow control and to the instrument inlet fitting.
- The control valve should be opened.
- The meter reading should be recorded after it stabilizes. Note: It is not necessary for the aspirator bulb to be operated for the calibration sample to be obtained. If the

instrument does not read within the acceptable range, the detector filament unit should be replaced and the calibration check procedure should be repeated.

- The flow control valve should be closed.
- The hose should be removed from the flow control and from the inlet fitting on the instrument.
- The flow control should be removed from the calibration gas tank.

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June 12, 2000
Revised: May 15, 2003
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APPENDIX C

APPENDIX C

LEGGETTE, BRASHEARS & GRAHAM, INC.
VOLATILE ORGANIC COMPOUNDS
PROJECT WORK ZONE CONSIDERATIONS

1.0 EXCAVATION

The following requirements, which apply to all types of excavation operations, except tunnels and shafts, are taken from the U.S. Department of the Interior, Bureau of Reclamation's Construction Safety Standards. They are not intended to be an exhaustive set of requirements, but rather, a summary of current practices that are being enforced at construction activities by Federal and state government agencies and private industry. The requirements were assembled in cooperation with the Associated General Contractors of America, the American National Standards Institute, labor unions, and other interested in improving safety.

1.1 Preliminary Inspection

Prior to excavation, the site should be thoroughly inspected to determine conditions that require special safety measures. The location of underground utilities, such as sewer, telephone, gas, water, and electric lines, must be determined and plainly staked. Necessary arrangements must be made with the utility company or owner for the protection, removal, or relocation of the underground utilities. In such circumstances, excavation will be done in a manner that does not endanger the employees engaged in the work or the underground utility. Utilities left in place should be protected by barricading, shoring, suspension, or other measures, as necessary.

1.2 Protection of the Public

Necessary barricades, walkways, lighting, and posting should be provided for the protection of the public prior to the start of excavation. Excavation operations on or near state, county, or city streets, accessways, or other locations where there is extensive interface with the

public and/or motorized equipment will not start until all of the following actions have been taken:

- The contractor has contacted the authority having jurisdiction and obtained written permission to proceed with protective measures required.
- The contractor, using the authority's instructions and these standards, has developed an extensive and detailed standard operating plan.
- The plan has been discussed with affected employees, and applicable protective measures are in place and functioning.

1.3 Access and Lighting

Safe access will be provided for employees, including installation of walkways, stairs, ladders, etc. When operations are conducted during hours of darkness, adequate lighting will be provided at the excavation, borrow pits, and waste areas.

Where employees are required to enter excavations over 4 feet in depth, stairs, ladders, or ramps must be provided, so as to require no more than 25 feet of lateral travel. When access to excavations exceeds 20 feet vertically, ramps, stairs, or personnel hoists should be provided. Ladders extending from the bottom of the trench to at least 3 feet above the top must be placed within 25 feet of workers in the trench.

1.4 Personal Protective Equipment

PPE will be provided and used in accordance with the specific requirements set forth in the plan. Drillers and helpers must wear approved safety goggles or safety glasses with side shields, hearing protection, hard hats, and safety shoes.

1.5 Removal of Trees and Brush

Prior to excavation, trees, brush, boulders, and other surface obstacles that present a hazard to employees should be removed.

1.6 Slide Prevention and Trenching Requirements

All trench excavations over 5 feet in depth must be shored, shielded, or sloped to the angle of repose from the bottom of the trench, but never less than 3/4 horizontal to 1 vertical (i.e., 37 degrees from vertical), or supported by structures designed by a professional engineer. Excavations should be inspected following rainstorms or other hazardous events. Additional protection against possible slides or cave-ins shall be provided, as necessary.

1.7 Angle of Repose

The determination of the angle of repose and design of supporting systems should be based on a thorough evaluation of all pertinent factors, including depth of cut; possible variation in water content of the material; anticipated changes in the material from exposure to air, sun, water, or freezing; loading imposed by structures, equipment, or overlying or stored material; and vibrations from sources such as traffic, equipment, and blasting. The angle of repose for all excavations, including trenching, should be determined by a professional engineer, but in no event should the slope be less than 3/4 horizontal to 1 vertical (i.e., 37 degrees from vertical) from the bottom of the excavation.

1.8 Support Systems

Materials used for support systems, such as sheeting, piling, cribbing, bracing, shoring, and underpinning, should be in good serviceable condition, and timbers should be sound and free of large or loose knots. The design of support systems should be based on calculations of the forces and their directions, with consideration for surcharges, the angle of internal friction of materials, and other pertinent characteristics of the material to be retained.

When tight sheeting or sheet piling is used; full loading due to the groundwater table should be assumed unless relieved by weep holes, drains, or other means. Cross braces and trench jacks should be placed in true horizontal position and secured to prevent sliding, falling, or kickouts. Additional stingers, ties, and bracing should be provided to allow for any necessary temporary removal of individual supports. Support systems should be planned and designed by a professional engineer competent in the field.

Backfilling and removal of trench support systems should progress together from the bottom of the trench. Jacks or braces should be released slowly. In unstable soil, ropes or other safe means will be used to remove the braces from the surface after workers have left the trench.

Special precaution must be taken in sloping or shoring the sides of excavations adjacent to a previously backfilled excavation or fill area. The use of compacted backfill as backforms on slopes that are steeper than the angle of repose of the compacted material in its natural state is prohibited.

1.9 Structural Foundations and Footings

Except in hard rock, excavations below the level of the base of any foundation, footing, or retaining wall will not be permitted unless the wall is underpinned and all necessary precautions are taken to ensure the stability of adjacent walls. If the excavation endangers the stability of adjacent buildings or structures, shoring, bracing, or underpinning designed by a qualified person will be installed. Such supporting systems must be inspected at least daily by qualified persons to ensure that protection is adequate and effectively maintained.

Small diameter footings that workers are required to enter, including bell-bottomed footings over 4 feet deep, must be provided with a steel casing or support system of sufficient strength to support the earth walls and prevent cave-ins. The casing or support system shall be provided for the full depth, except for the bell portion of bell footings.

Fixed or portable ladders must be provided for access. A lifeline, securely attached to a shoulder harness, should be worn by every employee entering the footing. The lifeline should be manned from above and should be separate from any line used to raise or lower materials.

1.10 Vertical Cuts and Slopes

Before a slope or vertical cut is undercut, the residual material must be adequately supported and the undercutting method and support system must be inspected.

When exposed to falling, rolling, or sliding rocks, earth, or other materials, employees working below or on slopes or cuts should be protected in the following manner:

- By effective scaling performed prior to exposure and at intervals necessary to eliminate the danger.
- By the installation of rock bolting, wire mesh, or equivalent support if the material continues to ravel and fall after scaling.
- By the installation of protective timber or wire mesh barricades at the slope of the cut and at necessary intervals down the slope. Wherever practical, benching sufficient to retain falling material may be used in lieu of barricades.
- By ensuring that personnel do not work above one another where there is danger of falling rock or earth. Personnel performing work on vertical cuts or slopes where balance depends on a supporting system must wear appropriate safety equipment.

1.11 Groundwater

Groundwater should be controlled. Freezing, pumping, draining, and other major control measures should be planned. Full consideration should be given to the existing moisture balance in surrounding soil and the effects on foundations and structures if it is disturbed. When continuous operation of groundwater control equipment is necessary, an emergency power source should be provided.

1.12 Surface Water

The accumulation of surface water in excavations must not be permitted and should be controlled by diversion ditches, dikes, dewatering sumps, or other effective means.

1.13 Excavated Materials

Excavated materials should be laced and retained at least 2 feet from the depth of the excavation, or at a greater distance when required to prevent hazardous loading on the face of the excavation.

1.14 Protective Devices

Guardrails, fences, barricades, and warning lights or other illumination systems will be maintained from sunset to sunrise on excavations adjacent to walkways, driveways, and other pedestrian or vehicle thoroughfares. Walkways or bridges that are protected by standard guardrails should be provided where employees are required or permitted to cross over excavations.

Wells, calyx holes, pits, shafts, and all similar hazardous excavations must be effectively barricaded or covered and posted. All temporary excavations of this type should be backfilled as soon as possible. When mobile equipment is permitted adjacent to excavations with steep slopes or cuts, substantial stoplogs or barricades should be installed.

1.15 Equipment Operation

Equipment that is operated on loading or waste areas must be equipped with an automatic backup alarm. Additionally, when employees are on foot or otherwise endangered by equipment in dumping or waste areas, a competent signalman should be used to direct traffic. The signalman must have no other assignment that interferes with signaling duties. If the equipment or truck cab is not shielded, the operator should stand clear of the vehicle during loading. Excavating or hoisting equipment should not be allowed to raise, lower, or swing loads over workers unless effective overhead protection is provided.

1.16 Drilling Operations

When drilling in rock or other dust-producing material, the dust should be controlled within the OSHA Permissible Exposure Limits (PELs). Except in shaft and tunnel excavation, dust control devices are not required on jackhammers as long as the operators wear approved dust respirators.

2.0 DRILLING SAFETY

2.1 Basic Requirements

Employees will not proceed with work on, or in the proximity of, hazardous equipment until they have been properly trained and have received a safety briefing. If drilling is at a

hazardous substance site, the site-specific safety plan must be reviewed onsite and discussed in the safety briefing.

Potential hazards (e.g., overhead or underground power, oil, or gas lines in the immediate vicinity of the drilling location) must be removed, avoided by relocating the drill site, or adequately barricaded to eliminate the hazard.

The use of unsafe or defective equipment is not permitted. Equipment must be inspected regularly and, if found to be defective, must be immediately removed from use and either repaired or replaced.

Employees will be familiar with the location of first-aid kits and fire extinguishers. Telephone numbers for emergency assistance must be prominently posted and kept current.

2.2 General Requirements at Drilling Operations

2.2.1 Housekeeping

Good housekeeping conditions should be observed in and around the work area. Suitable storage places should be provided for all materials and supplies. Pipe, drill rods, etc., must be securely stacked on solid, level sills.

Work surfaces, platforms, stairways, walkways, scaffolding, and accessways will be kept free of obstructions. All debris will be collected and stored in piles or containers for removal and disposal.

2.2.2 Salamander Heaters

Salamanders will be used only with approved fuels (e.g., do not use gasoline). Salamander heaters must not be refueled or moved until they have been extinguished and permitted to cool. Heaters will be equipped with exhaust stacks and will not be set on or placed near combustible material. They should be equipped with metal stands that will provide adequate stability and permit at least a 2-inch clearance under the unit.

Burning salamanders must be attended at all times, with suitable fire extinguishers available to each attendant. If tarpaulins or other flexible materials and used to form a heating enclosure, they must be fire resistant and installed to prevent contact with the heater. Worn

salamanders that have developed holes or have been otherwise damaged will be replaced and removed from service.

2.2.3 Lighting

In addition to providing required or recommended illumination intensities of at least 5 foot-candles, consideration should be given to the selection and placement of lighting equipment. Proper lighting should provided minimum glare, eliminate harsh shadows, and provide adequate illumination to perform work efficiently and safely.

Light bulbs should be of the heavy duty, outdoor, nonshattering type.

All lighting circuits, including drop cords, should be grounded and have ground fault interrupters. Lighting circuits will be inspected periodically, and defective wiring or fixtures will be removed from service.

2.2.4 Flammable Liquids

All highly flammable liquids should be stored and handled only in approved containers. Portable containers must be the approved red safety containers equipped with flame arresters and self-closing lids.

Approved hand pumps will be used to dispense gasoline from barrels. Gasoline must not be used for degreasing or to start fires. Also, gasoline containers should be clearly labeled, and storage areas should be posted with "No Smoking" signs. Fire extinguishers should be installed in all areas that contain flammable liquids.

2.2.5 Public Safety

Work areas will be regulated so that the public will be protected from injury or accident. Adequate danger signs, barriers, etc., will be placed to effectively warn the public of hazards as well as to restrict access to dangerous areas.

2.3 Off-Road Movement of Drill Rigs

The following rules apply to the off-road movement of drill rigs:

- Before moving a drill rig, an inspection should be made of the route of travel for depressions, slumps, gullies, ruts, and similar obstacles.
- The brakes of a drill rig carrier should always be checked before traveling, particularly on rough, uneven, or hilly ground.
- All passengers should be discharged before a drill rig is moved on rough or hilly terrain.
- The front axle of 4 x 4 or 6 x 6 vehicles or carriers should be engaged when traveling off-road on hilly terrain.
- Caution should be used when traveling on a hillside. The hillside capability of drill rigs should be evaluated conservatively, because the addition of drilling tools may raise the center of mass. When possible, travel should be made directly uphill or downhill.
- Obstacles such as small logs, small erosion channels, or ditches should be crossed squarely, not at an angle.
- When lateral or overhead clearance is close, someone on the ground should act as a guide.
- After the drill rig has been moved to a new drilling site, all brakes or locks should be set. Wheels should be blocked on steep grades.
- The mast (derrick) of the drill rig should not be in the raised or partially raised position during off-road travel.
- Loads on the drill rig and supporting trucks should be tied down during transport.

2.4 Drilling Equipment

2.4.1 Skid-Mounted Units

Labels clearly indicating the function and direction of control levers should be posted on the lower unit controls of all drills.

An emergency safety power shutoff device should be installed within reach of the operator on all units. The device should be clearly labeled or otherwise made readily

identifiable and checked daily to ensure that it is operable. The power unit should be operated only by authorized and qualified personnel.

Equipment will be shut down during manual lubrication and while repairs or adjustments are being made. Equipment such as internal combustion engines will not be refueled while running. Where practical, the gasoline tank should be positioned or shielded to avoid accidental spillage of fuel on the engine or exhaust manifold during refueling operations. Hazardous gears and moving parts also should be shielded to prevent accidental contact.

A dry chemical or carbon dioxide fire extinguisher, rated 5 pounds or larger, should be carried on the unit and removed to a position within 25 feet of the work site during drilling operations. Extinguishers will be inspected and tagged at least once every 3 months.

Engine exhaust systems should be equipped with spark arresters when operated in areas where sparks constitute a fire hazard.

2.4.2 Overhead and Underground Utilities

Special precaution must be taken when using a drill rig on a site within the vicinity of electrical power lines and other utilities. Electricity can shock, burn, and cause death.

Overhead and underground utilities should be located, noted, and emphasized on all boring location plans and assignment sheets. When overhead electrical power lines exist at or near a drilling site, all wires should be considered dangerous.

A check should be made for sagging power lines before a site is entered. Power lines should not be lifted to gain entrance. The appropriate utility company should be contacted and a request should be made that it lift or raise and cut off power to the lines.

The area around the drill rig should be inspected before the drill rig mast (derrick) is raised at a site in the vicinity of power lines. The minimum distance from any point on the drill rig to the nearest power line should be determined when the mast is raised or is being raised. The mast should not be raised and the drill rig should not be operated if this distance is less than 20 feet, because hoist lines and overhead power lines can be moved toward each other by the wind.

The existence of underground utilities, such as electric power, gas, petroleum, telephone, sewer, and water lines, should always be suspected. These underground electric lines are as dangerous as overhead lines, so a utility locating service should always be contacted.

There are generally two types of utility locating services. One is a "free" service that is paid for by companies with underground pipes, lines, etc., to protect the public and to prevent costly repairs. However, these services have access only to drawings for primary pipes or lines, typically on public property or right-of-way easements, but not to drawings showing supply or feeder lines from a primary system to the interior of a property. Therefore, they are not required, and in fact hesitate, to locate interior lines. Sites can be cleared for drilling by such services, but without the drill operator's knowledge of the locations of underground feeder or supply lines.

A second type of locating service is provided by a paid subcontractor who physically sweeps or clears interior locations using locating equipment. Locating costs can be minimized by obtaining all available maps, drawings, and employee interview information before contracting with the locating company. This is especially important at large industrial plants or military bases, which can have an intricate network of underground utilities. It is important that every location be cleared, even those for hand-auger borings.

If a sign warning of underground utilities is located on a site boundary, it should not be assumed that underground utilities are located on or near the boundary or property line under the sign; they may be a considerable distance from the sign. The utility company should be contacted to check it out.

The owners of utility lines or the nearest underground utility location service should always be contacted before drilling is started. However, remember that some services provide information on utilities going to, but not within, a site. Metal detectors or other locating equipment may be necessary to determine the presence of shallow (surface) utilities onsite. The utility personnel should mark or flag the location of the underground lines and determine what specific precautions must be taken to ensure safety.

2.4.3 Site Selection and Working Platforms

In preparing a work site located on adverse topography, precautions must be taken against cave-ins, slides, and loose boulders. The drill platform should be stabilized by outriggers or adequate timbering.

Prior to drilling, adequate site clearing and leveling should be performed to accommodate the drill rig and supplies and to provide a safe working area. Drilling should not commence when tree limbs, unstable ground, or site obstructions result in unsafe tool-handling conditions.

Suitable storage locations should be provided that allow for the convenient handling of tools, materials, and supplies without danger that they could fall and injure anyone. Storing or transporting tools, materials, or supplies within or on the drilling mast (derrick) should be avoided. Pipes, drill rods, bits, casings, augers, and similar drilling tools should be securely stacked in an orderly manner on racks or sills.

Penetration hammers or other types of driving hammers should be placed at a safe location on the ground or secured when unattended on a platform. Work areas, platforms, walkways, scaffolding, and other accessways should be kept free of obstructions and substances such as ice, grease, or oil that could create a hazardous surface. All controls, control linkages, and warning and operation lights and lenses also should be kept free of ice, grease, or oil.

In the vicinity of power transmission or distribution lines, drills should be adequately grounded and set with at least a 15-foot clearance between any part of the drill or mast and the power lines.

Toilet facilities will be convenient to drill crews, or transportation will be readily available to nearby toilet facilities. Toilets will be either the chemical type or constructed over ground pits, which will be backfilled when abandoned. They should be fly tight and maintained in a sanitary condition.

Mud pits and drainage excavations should be safely sloped and located to provide minimum interference with work. Where necessary, suitable barricades, catwalks, etc., should be provided to reduce the possibility of personal injury. Ladders will be positioned in pits or excavations that are 5 or more feet deep. Such excavations should be periodically inspected to ensure safe operation and adequate maintenance.

Truck-mounted drills will be equipped with a "safetyline" or with clearly marked and conspicuously located emergency switches. The safetyline emergency stop consists of a taut wire that runs around the back of the machine and connects to a special switch that turns off the power unit when the line is contacted. When emergency switches are used in lieu of a safetyline, there should be a minimum of two switches--one located within easy reach of the operator, and one located within easy reach of workers at ground level near the drill or auger head.

Trucks should not be moved backward unless the driver has personally inspected the area behind the truck. In restricted or congested areas, or areas where workmen are located, the assistance of a "spotter" is mandatory. Also, trucks will be equipped with serviceable automatic backup alarms.

Before the mast is raised, personnel will be cleared from the immediate area--with the exception of the operator and a helper, when necessary. A check should be made to ensure safe clearance from energized power lines or equipment. Unsecured equipment must be removed from the mast, and cables, mud lines, and catline ropes must be adequately secured to the mast before raising. After it is raised, the mast must be secured to the rig in an upright position with steel pins.

Drill equipment will not be moved until a thorough inspection has been made to ensure that the mast, drill rods, tools, and other equipment are secured. A check will also be made of the steering mechanism, brakes, lights, load limits, and proper flagging and lighting of load extensions. Applicable traffic laws will be observed when moving drill equipment over public roads.

2.5 Surface Drilling Operations

Before the mast of a drill rig is raised and drilling is commenced, the drill rig must first be leveled and stabilized with leveling jacks and/or solid cribbing. The drill rig should be releveled if it settles after the initial setup. The mast should only be lowered when the leveling jacks are down, and the leveling jack pads should not be raised until the mast is completely lowered. Before drilling operations start, the mast should be secured or locked, if required by the drill's manufacturer.

Before the power unit is started, all gears should be disengaged, the cable drum brake should be set, and no rope should be in contact with the cathead.

Before the mast is raised, a check should be made for overhead obstructions. Everyone (with the exception of the operator) should be cleared from the areas immediately to the rear and sides of the mast and informed that the mast is being raised. The drill rig should not be driven from hole to hole with the mast in the raised position.

The drill rig should only be operated from the position of the controls. The operator should shut down the drill engine before leaving the vicinity of the drill. "Horsing around" in the vicinity of the drill rig and tool and supply storage areas is strictly prohibited, even when the drill rig is shut down. Caution should be taken when mounting/dismounting the platform.

Drill operations should be terminated during an electrical storm.

The consumption of alcoholic beverages, depressants, stimulants, or any other chemical substance while on the job is strictly prohibited. All unattended boreholes must be adequately covered or protected to prevent people or animals from stepping or falling into the hole. When the drilling project has been completed, all open boreholes should be adequately covered, protected, or backfilled, according to local or state regulations.

A safety chain and cable arrangement should be used to prevent water swivel and mud line whip. All water swivels and hoisting plugs should be checked for possible frozen bearings and should be properly lubricated before use. A frozen bearing could cause mud line whip, which could injure the operator.

Only drill operators should brake or set the chucks to prevent engagement of the transmission prior to removal of the chuck wrench. Also, the chuck jaws should be periodically checked and replaced as necessary.

A string of drill rods should not be braked by the chuck jaws during lowering into the hole. A catline or hoisting cable and plug should be used for braking prior to tightening of the chuck. Failure to follow this procedure could result in steel slivers on the rods, possible hand injuries, and loss of the rods into the hole. Following braking, drill rods should be allowed to drain completely before removal from the working area.

Drill rods will not be lowered into the hole with a pipe wrench. Serious back and hand injuries may result if the rods are lowered by this method.

When using drilling fluids, a rubber or other suitable wiper should be used to remove the material from the drill rods when removing them from the drill hole. When drilling with air, the exhaust and cuttings should be directed away from workers with devices such as diverter heads, the use of which should be stipulated on drilling agreements where appropriate.

Care must be exercised by the operator to avoid a sudden hoist release of the drill rod while the rod is being carried from the hole. The hoisting capacity and weight of the drill rod must be known to prevent collapse of the mast during drill string removal from the hole. The operating capacity of the mast and hoist also must be known and must not be exceeded.

When tool joints are broken on the ground or on a drilling platform, fingers should be positioned so they will not be caught between the wrench handle and the ground or the platform if the wrench slips or the joint suddenly lets go. Pipe wrench jaws should be checked periodically and replaced as they become worn.

2.6 Use of Augers

The use of mismatched auger sections should be avoided. Different brands and different weights should not be used in the same auger flight.

Because some pins lose their temper after very little use, causing the spring or clip section to fail, only tight-fitting pins designed for the auger should be used.

A daily inspection--to include a thorough check of the hydraulic hoses, connections, and valves--will be made before equipment is used. Deficiencies should be corrected or safe condition verified before the equipment is started.

A durable sign containing the following wording should be installed on all equipment in full view of the operator:

- All personnel must be clear before starting this machine
- Stop the auger to clean it
- Stop engine when repairing, lubricating, or refueling
- Do not wear loose-fitting clothing or gauntlet-type gloves.

The following general procedures should be used when advancing a boring with continuous flight or hollow-stem augers:

- An auger boring should be started with the drill rig level, the clutch or hydraulic rotation control disengaged, the transmission in low gear, and the engine running at low revolutions per minute (rpm).
- A system of responsibility should be established for the series of activities required for auger drilling, such as connecting or disconnecting auger sections and inserting or removing the auger fork. The operator must be sure that the tool handler is well away from the auger column and that the auger fork has been removed before rotation is started.
- Only the manufacturer's recommended method of securing the auger to the power coupling should be used. The coupling or the auger should not be touched with the hands, a wrench, or any other tool during rotation.
- Tool hoists should be used to handle auger sections whenever possible. Hands or fingers should never be placed under the bottom of an auger section when the auger is being hoisted over the top of the auger section in the ground or other hard surface, such as the drill rig platform. Feet should never be allowed to get under the auger section that is being hoisted.
- Workers should stay clear of the auger and other rotating components of the drill rig. Workers should never reach behind or around a rotating auger for any reason.
- Hands or feet should never be used to remove cuttings from the auger.
- Augers should be cleaned only when the drill rig is in neutral and the augers have stopped rotating. A special paddle should be designed for cleaning auger flights; if available, pressurized water is recommended for jet cleaning.

3.0 REMEDIATION SYSTEM EQUIPMENT

LBG operates remediation system equipment at various sites. Remediation equipment includes but is not limited to pump and treat, soil vapor extraction, two-phase vapor extraction, liquid and vapor phase granular activated carbon, thermal destruction and air stripping tower systems. This brief list of safety requirements cover hazards specific to this type of operation.

The list assumes that safety requirements for standard operations inherent in SVE operations are already being followed, such as 29 CFR 1910.120 "Hazwoper" planning, training, and other requirements; or drilling, trenching, and shoring safety practices.

The components of a typical remediation system equipment can include an electric or gasoline powered motor, a carbo absorption bed, and various filters, piping, and controls.

3.1 Basic Requirements

3.1.1 General

Employees will not proceed with work on, or in the proximity of, the remediation equipment until they have been properly trained and have attended a safety briefing covering the hazards involved. This may in the form of a "tailgate" safety briefing or a more extensive session, depending upon the extent of the hazards, the employees' safety knowledge, and site-specific exposures.

The use of unsafe or defective equipment is not permitted. Equipment must be inspected regularly and, if found to be defective, immediately removed from use and repaired or replaced.

Employees should be familiar with the location of first-aid kits and fire extinguishers. Telephone numbers or radio frequencies for emergency assistance must also be prominently posted and kept current.

3.1.2 Housekeeping

Good housekeeping practices should be observed in and around the work area. Suitable storage should be provided for all materials and supplies.

Any work surfaces, platforms, stairways, walkways, scaffolding, or accessways should be kept free of obstructions. Any debris should be collected and stored in piles or containers for removal and proper disposal.

3.1.3 Flammable Liquids

All highly flammable liquids should be stored and handled only in approved containers. Portable containers must be of the approved, red safety container type, equipped with flame arresters and self-closing lids.

Approved hand pumps should be used to dispense gasoline from drums. Gasoline must not be used for degreasing or starting fires. Also, gasoline containers should be clearly labeled, and any storage areas should be posted with "No Smoking" signs. Fire extinguishers should be installed in all areas that contain flammable liquids.

3.1.4 Public Safety

Work areas should be regulated so that the public will be protected from injury or accident. Adequate danger signs, barriers, etc., should be placed to effectively warn the public of hazards as well as to restrict access to dangerous areas.

3.1.5 Drilling Safety

Construction of soil-vapor extraction systems requires installation of soil-vapor extraction wells and separate air inlet wells. Safety requirements for drilling operations should be followed.

3.2 Specific Requirements

3.2.1 Chemical Hazards

Some of the primary chemical hazards at remediation operations are site contaminants related to volatile organic compounds. Typically, contaminants are drawn from extraction wells and treated with carbon absorption units and/or are incinerated. Additional chemical hazards associated with these treatment technologies include fuel for the incinerator and activated carbon saturated with site contaminants. Manufacturers' Material Safety Data Sheets should be available on site for all neat chemical compounds used.

Personnel can be exposed to site contaminants during sampling and equipment maintenance. Because soil-vapor extraction systems are typically closed systems terminating in contaminant oxidization or absorption apparatus, chances of exposure incidents during normal

operations are minimal. If chemical exposure occurs, however, it is most likely during sampling or equipment maintenance. Sampling typically includes sampling of site soils or groundwater to measure the long-term effectiveness of remediation activities, or sampling process water or vapors to determine the efficiency of treatment technologies in capturing or destroying the contaminants.

A potential for exposure exists during maintenance procedures because of cleaning sediment from knockout pots and from general piping system repairs.

In order to minimize the potential hazards associated with chemical exposure, all site workers should have a knowledge of particular site hazards and contaminants. Based upon site conditions, proper personal protective equipment should be worn such as hard hats, chemical protective clothing, and safety shoes.

3.2.2 Physical Hazards

Physical hazards can be managed by general housekeeping in work areas and routine equipment maintenance. Scaffolding may be erected around water stripping towers and incinerators and should be inspected periodically, as part of a routine maintenance procedure.

3.2.3 Pressure

Remediation systems typically recover soil vapors or groundwater from beneath the ground surface. Remedial equipment should be shut off when maintenance activities or repairs occur.

3.2.4 Electric Hazards

Because several types of equipment in remediation systems are commonly powered by electricity, electrical hazards exist at these remedial sites. Liquid ring vacuum pumps, knockout pumps, air stripper holding tanks and pumps, and other elements of the treatment units are frequently powered by electricity. General housekeeping and equipment maintenance are necessary to prevent electrical safety hazards. Worn switches and wiring should be quickly repaired, use of water should be controlled, and unnecessary spills prevented. Ground fault interrupters (GFI) should be used on all circuits carrying power from a nearby indoor source to

outdoor equipment or from an outdoor portable generator to equipment. Equipment should also be properly grounded as a protection against shocks, static electricity, and lightning if an electrical storm occurs.

3.2.5 Lighting

In addition to providing required or recommended illumination intensities of at least 5 foot-candles for nighttime operation, consideration should be given to the selection and placement of lighting equipment. Proper lighting should provide minimum glare, eliminate harsh shadows, and provide adequate illumination to perform work efficiently and safely. Light bulbs should be of the heavy duty, outdoor, nonshattering type.

All lighting circuits, including extension cords, should be grounded and have GFI protection. Circuits and extension cords should be inspected periodically.

3.2.6 Incinerator/Treatment System

Thermal hazards exist with incinerators, and boundaries should be set up to prevent contact with headed surfaces. Additionally, proper thermal protection should be available for personnel working at the incinerator. Vapor extractor pumps should be set to shut off automatically if the incinerator shuts off, to prevent accumulation of high concentrations of volatile compounds that could result in an explosion hazard.

3.2.7 Carbon Bed Temperature

A hazard related to carbon absorption units is the heat of reaction, which is high for some materials, such as ketones, treated in high concentrations. SVE equipment should be designed to take this into account when carbon absorption is employed and the bed temperature must be monitored.

Typically, but not limited to, two carbon units will be piped in series to treat the recovered vapors. Carbon units will be changed out according to the air permit guidelines.

When carbon units are changed out, the primary unit will be taken off line, the secondary unit will become the primary unit, and a fresh carbon vessel will become the secondary unit.

All field activities will be initiated in Level D. If the action levels specified in Table 5-1 are reached, an upgrade will be made to Level C.

3.2.8 Vapor Emission Response Plan

If the air concentration of (chlorinated) organic vapors exceeds 5 ppm above background in the exhaust of the treatment system, the system exhaust will be continuously monitored and necessary actions will be taken to reduce system emissions to 5 ppm--for example, by bleeding air into the system, changing carbon canisters, etc. If the organic vapor levels measured in the treatment system exhaust are between 5 ppm and 50 ppm above background, continue site activities and perform continuous monitoring. If the organic vapor level exceeds 50 ppm above background in the treatment system exhaust, shut down work activities until the system is repaired.

Prior to beginning construction activities, notify fire departments and police as well as the local emergency facility of planned site activities. These organizations should be briefed on the nature of planned site work and given a schedule of the proposed tasks. Changes or modifications to the planned work or schedule which could affect the need for emergency services shall be communicated to these organizations. LBG shall communicate to the local hospital and fire department what types of materials may be encountered at the site.

Should the level of total (chlorinated) hydrocarbons exceed 100 ppm for any single reading, or should the explosimeter indicate in excess of 10 percent of the lower explosive limit on any single reading, work in that area will be shut down and personnel will be evacuated upwind. Work will not resume there until authorized by the Site Safety Officer.

3.2.9 System Start-Up and Initial Operating Period

The VE system is designed to operate unattended 24 hours per day, 7 days per week. Once the electrical connections are complete, LBG will begin system start-up.

LBG will monitor the system on a weekly basis during the month of operation. LBG field personnel will use a photoionization detector (PID) to monitor the VE system emissions before GAC treatment. LBG will monitor between GAC units and at the point of vapor emissions to determine GAC breakthrough and compare those concentrations to air emissions

standards. These measurements will be used to estimate the amount of VOCs removed from the soil and the rate at which the GAC is being used to treat vapor phase emissions. As part of the daily monitoring, LBG will follow the Vapor Emission Response Plan.

3.2.10 Continued Operations and Maintenance

After the first month of operation, LBG will monitor the system biweekly for the second and third month. From the beginning of the fourth month to the remainder of the treatment period, LBG will monitor the system once a month. The following data will be recorded on each visit:

- Operating time
- Applied vacuum at blower inlet
- Induced vacuum at air inlet wells
- Vapor temperature at blower inlet
- Vapor temperature at blower outlet
- Pressure at blower outlet
- Concentrations of VOCs at blower outlet
- Concentrations of VOCs in treated emissions.

LBG field personnel will analyze and record the vapor-phase VOC concentrations before and after GAC treatment.

dmd
June 12, 2000
Revised: May 15, 2003
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APPENDIX D

APPENDIX D

DECONTAMINATION PROCEDURES

Procedure for Level C Decontamination

Level C decontamination, if required, will take place on plastic sheeting so all contaminated material can be contained for proper disposal.

Station 1: Segregated Equipment Drop

Deposit equipment used onsite (tools, sampling devices and containers, monitoring instruments, radios, clipboards, etc.) on plastic drop cloths or in different containers with plastic liners. Segregation at the drop reduces the probability of cross-contamination.

Equipment: various size containers
plastic liners
plastic drop cloths

Station 2: Suit/Safety Boot Wash

Thoroughly wash splash suit and safety boots. Scrub with long-handle, soft-bristle scrub brush and copious amounts of decon solution or detergent/water. Repeat as many times as necessary.

Equipment: container (30-50 gallons)
decon solution
or
detergent/water
2-3 long-handle, soft-bristle scrub brushes

Station 3: Suit/Safety Boot Rinse

Rinse off decon solution or detergent/water using copious amounts of water. Repeat as many times as necessary.

Equipment: container (30-50 gallons)

or

high-pressure spray unit

water

2-3 long-handle, soft-bristle scrub brushes

Station 4: Canister or Mask Change

If worker leaves Exclusion Zone to change canister (or mask), this is the last step in the decontamination procedure. Worker's canisters will be exchanged, depositing the old canisters in containers with plastic liners. The worker will enter the work area and return to duty.

Equipment: canister (or mask)

boot covers

gloves

Station 5:

Step 1 - Tape, Safety Boot and Outer Glove Removal

Remove safety boots and gloves and deposit in container with plastic liner.

Equipment: container (30-50 gallons)

plastic liners

bench or stool

boot jack

Step 2 - Splash Suit Removal

With assistance of helper, remove splash suit. Deposit in container with plastic liner.

Equipment: container (30-50 gallons)

bench or stool

liner

Step 3 - Facepiece Removal

Remove facepiece. Avoid touching face with gloves. Deposit facepiece in container with plastic liner.

Equipment: container (30-50 gallons)
plastic liners

Masks will be collected at a central location. Decontamination will be performed as follows:

- remove all cartridges, canisters and filters, plus gaskets or seals not affixed to their seats;
- remove elastic headbands;
- remove exhalation cover;
- remove speaking diaphragm or speaking diaphragm-exhalation valve assembly;
- remove inhalation valves;
- wash facepiece and breathing tube in cleaner mixed with warm water, preferably at 120°F to 140°F; wash components separately from the face mask; remove heavy soil from surfaces with a hand brush;
- remove all parts from the wash water and rinse twice in clean warm water;
- air dry parts in a designated clean area; and,
- wipe facepiece, valves and seats with a damp lint-free cloth to remove any remaining soap or other foreign materials.

Station 6: Inner Glove Removal

Remove inner gloves and deposit in container with plastic liner.

Equipment: container (20-30 gallons)
plastic liners

Station 7: Inner Clothing Removal (optional)

Remove clothing soaked with perspiration. Place in container with plastic liner. Do not wear inner clothing offsite if there is a possibility small amounts of contaminants might have been transferred in removing splash suit.

Equipment: container (30-50 gallons)
plastic liners

Station 8: Field Wash (optional)

Shower if highly toxic, skin-corrosive or skin-absorbable materials are known or suspected to be present. Wash hands and face if shower is not available.

Equipment: water
soap
tables
wash basins/buckets
field showers

Station 9: Redress

Put on clean clothes. A dressing trailer is needed in inclement weather.

Procedure for Level B Decontamination

Level B decontamination, if required, will take place on plastic sheeting so all contaminated material can be contained for proper disposal.

Station 1: Segregated Equipment Drop

Deposit equipment used onsite (tools, sampling devices and containers, monitoring instruments, radios, clipboards, etc.) on plastic drop cloths or in different containers with plastic liners. Each will be contaminated to a different degree. Segregation at the drop reduces the probability of cross-contamination.

Equipment: various size containers
plastic liners
plastic drop cloths

Station 2: Suit/Safety Boot Wash

Thoroughly wash chemical-resistant splash suit, SCBA, gloves, and safety boots. Scrub with long-handle, soft-bristle scrub brush and copious amounts of decon solution or detergent/water. Wrap SCBA regulator (if belt-mounted type) with plastic to keep out water. Wash backpack assembly with sponges or cloths.

Equipment: container (30-50 gallons)
decon solution
or
detergent/water
2-3 long-handle, soft-bristle scrub brushes
sponges or cloths

Station 3: Suit/SCBA/Boot/Glove Rinse

Rinse off decon solution or detergent/water using copious amounts of water. Repeat as many times as necessary.

Equipment: container (30-50 gallons)
or
high-pressure spray unit
water
small buckets
2-3 long-handle, soft-bristle scrub brushes
sponges or cloths

Station 4: Tank Change

If worker leaves Exclusion zone to change air tank, this is the last step in the decontamination procedure. Worker's air tank is exchanged and worker returns to duty.

Equipment: air tanks
tape
boot covers
gloves

Station 5: Tape, Safety Boot and Outer Glove Removal

Remove safety boots and gloves and deposit in container with plastic liner.

Equipment: container (30-50 gallons)
plastic liners
bench or stool
boot jack

Station 6: SCBA Backpack Removal

While still wearing facepiece, remove backpack and place on table. Disconnect hose from regulator valve and proceed to next station.

Equipment: table

Station 7: Splash Suit Removal

With assistance of helper, remove splash suit. Deposit in container with plastic liner.

Equipment: container (30-50 gallons)
plastic liners
bench or stool

Station 8: Facepiece Removal

Remove facepiece. Avoid touching face with gloves. Deposit in container with plastic liner.

Equipment: container (30-50 gallons)
plastic liners

Masks will be collected at a central location. Decontamination will be performed as follows:

- remove all cartridges, canisters and filters, plus gaskets or seals not affixed to their seats;
- remove elastic headbands;
- remove exhalation cover;
- remove speaking diaphragm or speaking diaphragm-exhalation valve assembly;
- remove inhalation valves;

- wash facepiece and breathing tube in cleaner mixed with warm water, preferably 120°F to 140°F; wash components separately from the face mask; remove heavy soil from surfaces with a hand brush;
- remove all parts from the wash water and rinse twice in clean warm water;
- air dry parts in a designated clean area; and,
- wipe facepiece, valves and seats with a damp lint-free cloth to remove any remaining soap or other foreign materials.

Station 9: Inner Glove Removal

Remove inner gloves and deposit in container with plastic liner.

Equipment: container (20-30 gallons)
plastic liners

Station 10: Inner Clothing Removal (optional)

Remove clothing soaked with perspiration. Place in container with plastic liner. Do not wear inner clothing offsite since there is a possibility small amounts of contaminants might have been transferred in removing fully encapsulating suit.

Equipment: container (30-50 gallons)
plastic liners

Station 11: Field Wash (optional)

Shower if highly toxic, skin-corrosive, or skin-absorbable materials are known or suspected to be present. Wash hands and face if shower is not available.

Equipment: water
soap
small tables
basins or buckets
field showers

Station 12: Redress

Put on clean clothes. A dressing trailer is needed in inclement weather.

Equipment: tables
chairs
lockers
clothes

Procedures for Level A Decontamination

(to be formulated on a case-by-case basis)

dmd
June 12, 2000
Revised: May 15, 2003
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APPENDIX E

CONTACT SHEET

Client:	Deluxe Corporation
	(651) 481-4027
Project:	4707 Dey Road
Location:	Liverpool, New York
Task:	Monitoring; drilling
Client Contact:	Mr. Bob Jeras

Leggette, Brashears & Graham, Inc.

(914) 694-5711 (914) 694-5744 (fax)

Field Supervisor (HSO):	Jorma Weber
Project Manager:	Jorma Weber
Principal-in-Charge:	Dan C. Buzea

Local Police Headquarters:	Clay Police Department
	4483 Route 31, Clay, New York
	(315) 652-3846
Local Hospital:	North Medical Urgent Care
	Buckley Road, Liverpool, New York
Emergency Room:	(315) 452-2333
State Police:	State Government Police
	New York Marshalls Bureau
	80 Maiden Lane, Floor 17, New York, New York
	(212) 825-5953
Miscellaneous:	New York State Department of
	Environmental Conservation (NYSDEC)
	(315) 426-7519

DIRECTIONS TO LOCAL HOSPITAL:

North Medical Urgent Care
Buckley Road
Liverpool, New York

Total Distance: 2.0 miles
Total Estimated Time: 5 minutes

- Go south on Henry Clay Boulevard about 1 mile
- Make left turn onto West Taft Road
- Follow West Taft Road about 1 mile to Buckley Road
- Hospital on the corner of West Taft Road and Buckley Road

dmd
June 12, 2000
Revised: May 15, 2003
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APPENDIX E

Site-Wide Inspection Form

(EXAMPLE)

SITE-WIDE INSPECTION FORM
DELUXE CORPORATION
FORMER CHECK PRINTING FACILITY
4707 DEY ROAD
LIVERPOOL, NEW YORK

NYSDEC SITE #V00339-7
VCA #A7-0419-0005

Site Owner:	M. S. Kennedy Corporation
Environmental Easement on File with Onandaga County:	Yes
Condition of Onsite Monitor Wells:	Good (any defects would be reported here)

Inspected By: _____
(signature)

_____
(print name)

_____
(date)

dmd
October 31, 2011
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APPENDIX F

Quality Assurance/Quality Control Plan

GROUNDWATER SAMPLING
QUALITY ASSURANCE/QUALITY CONTROL PLAN

When collecting a groundwater sample from a monitor well, a minimum of three volumes of water will be evacuated from the well. The volume of water within the well will be calculated from the depth to water and total depth data measured in the field. Groundwater samples will be collected using dedicated, disposable polyethylene bailers and will be transferred to the appropriate laboratory container. During sampling, latex gloves will be worn and changed between sampling locations. All of the samples will be preserved for holding time and properly labeled in the field. This includes the following:

- name of collector;
- date and time of collection;
- place of collection; and,
- sample identification and/or number.

Chain-of-Custody Record will be completely filled out for every shipment and every sample to trace sample possession including:

- sample number and/or identification;
- signature of sample collector;
- date and time of sample collection;
- place of sample collection;
- sample type (water, soil, etc.);
- sample preservatives;
- sample container;
- requested analysis;
- signature of person involved with sample possession;
- inclusive dates of sample possession; and,
- pertinent comments and/or notes.

The laboratory portion of the Chain-of-Custody Form will be completed by the designated analytical laboratory person and contain the following information:

- name of person receiving the sample;
- laboratory sample number;
- date of sample receipt;
- analysis requested; and,
- sample condition and temperature.

Detailed field records for all site activities will be kept by the personnel performing or supervising the work. Recordkeeping will be completed in a field notebook and/or preprinted date sheets used by the consulting industry. The field notebook will be used to record pertinent observations (odors, visual observation, matters of interest, weather), all field measurements (water levels, pH, specific conductance) and any irregularities or deviations from the prescribed sampling procedures. All entries into the field book will be with waterproof ink pen, initialed by the person completing the measurements/observations, and the pages of the field book numbered.

Analytical data control checks will be established by utilizing transport/trip blanks, field blanks and matrix spikes. Trip blanks will be prepared in the laboratory using organic free water. Trip blanks will accompany a batch of samples from the start of sampling to delivery of samples to the laboratory for analysis, remaining unopened. The purpose of the trip blank is to measure possible cross contamination of samples during the shipping and handling stages. The Field Blank is prepared in the field by passing the analyte-free water from the full bottle to the empty Field Blank container. The purpose of the Field Blank is to demonstrate ambient field conditions and/or equipment conditions that may potentially affect the quality of the samples.

Sample storage should be in an appropriate shipping container such as a cooler. The sample storage container should be secured to ensure that the samples have not been disturbed during transport. In cases where the samples may leave the immediate care of the site personnel responsible for them, a seal should be provided on the shipping container to assure that the samples have not been disturbed during transport.

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June 12, 2000
Revised: May 15, 2003
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