SOURCE REMOVAL ACTIVITIES
WORKPLAN

Former Norton Company/Nashua Tape Products Facility
2600 Seventh Avenue
Watervliet, New York
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SECTION 1.0

INTRODUCTION

This workplan has been prepared to summarize proposed source removal activities that were identified as a presumptive remedy based on pilot testing activities conducted in association with a Corrective Measures Study (CMS) at the former Norton Company (Norton)/Nashua Tape Products (Nashua) manufacturing facility located at 2600 Seventh Avenue, Watervliet, New York (see Site Location Map, Figure 1-1). A Site Layout Map is provided as Figure 1-2. This revised workplan updates the September 2010 document submitted by Forensic Environmental Services, Inc. (FES) on behalf of Saint-Gobain Corporation (Saint-Gobain) to address comments received from the Department of Environmental Conservation (NYSDEC) dated October 5, 2010.

Background information on this site and the work completed to date was provided in the December 2008 Corrective Measures Study (CMS) Workplan, which outlined pilot testing activities designed to assess the site-specific effectiveness (including costs) of the potential Corrective Measure technologies identified in the December 2007 RCRA Facility Investigation (RFI) Report for this site. The CMS Workplan also discussed: 1) the collection of on-site sub-slab vapor and indoor/outdoor air data requested by the New York State Department of Heath (NYSDOH); 2) the removal of sediment present in storm sewer manholes; and 3) the Interim Groundwater Monitoring Plan (IGWMP), proposed in the December 2007 RFI Report, which outlined contingencies for interim sampling schedules to be continued until the CMS is finalized. Proposed revisions to the IGWMP were presented in monthly status reports submitted to the NYSDEC in August 2009 & April 2010.

Following the completion of initial pilot testing activities in Second Quarter 2010, the NYSDEC, NYSDOH, Saint-Gobain, and FES met on June 23, 2010 to discuss the results. Initial pilot testing data will be detailed in a CMS Pilot Test Report to be prepared under separate cover.

At the June 2010 meeting all parties concluded that based on the results of the pilot testing, source removal of the most impacted soils will be conducted as a presumptive remedy in the Former Tank Farm Area solid waste management unit (SWMU). It was also concluded that enhanced fluid recovery (EFR) appears to be the most viable remedy for the Building Subslab area of concern (AOC), but additional pilot testing is required. A revised Pilot Testing Extension Workplan for the Building Subslab AOC was submitted under separate cover in November 2010.

It was further discussed and agreed at the June 23, 2010 meeting that on-site groundwater monitoring activities would be conducted in conjunction with the pilot testing and source removal activities (rather than the IGWMPs previously submitted to the NYSDEC). A proposed on-site sampling schedule was included in the November 2010 Workplan, and is briefly summarized herein.

Off-site groundwater monitoring activities were to be conducted in conjunction with the source removal activities (rather than the IGWMPs previously submitted to the NYSDEC). A proposed off-site sampling schedule is included in this Workplan.

The main phase of work will consist of the excavation of impacted soil in the Former Tank Farm Area SWMU as summarized in Section 2.0. Contingency treatment of any remaining impacted soil and groundwater in the Former Tank Farm Area SWMU is discussed in Section 3.0, and the continuation of groundwater monitoring is discussed in Section 4.0. A Community Air Monitoring Plan, which was also submitted to the NYSDOH, is included as Section 5.0 of this document. Field decontamination procedures are reviewed in Section 6.0 of this Workplan. Quality Assurance/Quality Control (QA/QC) measures are discussed in Section 7.0, and laboratory analyses are summarized in Section 8.0.

All field work will be performed in compliance with applicable OSHA regulations and the site-specific master Health and Safety Plan (HASP). An updated HASP is provided as Appendix A. Subcontractors utilized during EFR/pilot test activities will develop their own site-specific HASPs that, at a minimum, comply with conditions/protocol identified in the master HASP.

Following receipt of the analytical data from all phases of the source removal activities, Saint-Gobain will prepare data summary tables and figures, and schedule a conference call or meeting with the NYSDEC to discuss the source removal activities and the need for contingency measures to treat any remaining impact to soil and groundwater. If contingency treatment measures are determined to be necessary, Saint-Gobain will begin their implementation per the schedule outlined herein (see Section 9.0). If it is agreed contingency treatment measures following source removal activities are not appropriate, per NYSDEC Order on Consent Index No. CO: 4-20001205-3375, the Commissioner will subsequently notify Saint-Gobain in writing of: 1) the submittal schedule for a CMS that evaluates alternative remedies, if required; or 2) if the NYSDEC and Saint-Gobain agree on the implementation of a pragmatic and presumptive remedy(ies), Saint-Gobain will be directed to submit a focused CMS report that includes a conceptual design for the remedy(ies) within 60 days (see Section 9.0).

SECTION 2.0

PROPOSED SOURCE REMOVAL ACTIVITIES

At the June 23, 2010 meeting, NYSDEC, NYSDOH, Saint-Gobain, and FES concluded that based on the results of the RFI and CMS pilot testing, source removal of the most impacted soils will be conducted as a presumptive remedy in the Former Tank Farm Area SWMU. NYSDOH recommended that source removal activities be conducted during the upcoming winter season to reduce possible odor complaints because: 1) meteorological conditions will reduce potential vapor migration; and 2) local residents are less likely to spend extended periods of time outdoors.

Additional soil samples collected from the Former Tank Farm SWMU in 2009 indicated that although there are localized areas with elevated concentrations of toluene, the principal site-specific compound of concern (COC), the soils proposed for removal should qualify for treatment at an off-site disposal facility as non-hazardous waste in compliance with NYSDEC correspondence regarding "Contained-In Determination" dated July 24, 2007 (see Appendix B). However, at the direction of the NYSDEC, additional soil samples will be collected during November 2010, so this determination can be finalized before excavation is initiated. The 2009 data were also forwarded to potential off-site facilities to determine: 1) any additional disposal requirements; and 2) estimated soil disposal costs.

The purpose of the proposed source removal activities is to remove readily accessible highly impacted soils in the Former Tank Farm SWMU. Because some residual impact to soil (and groundwater) will be present in adjacent SWMUs/AOCs (and most likely in the Former Tank Farm SWMU itself), extensive excavation dewatering is not included in the proposed activities. Contingent measures to treat any residual impact to soil and/or groundwater remaining after the completion of the proposed source removal activities are discussed in Section 3.0.

2.1 Excavation Area

The proposed area for source removal activities, located between Building #61 and the northern property fence line (see Figure 2-1), is approximately 100 feet long, 50 feet wide, and 12 feet deep. The total estimated volume of the excavation is approximately 2,500 cubic yards. However, based on previous soil boring data, it is assumed that most of the excavated material between the surface and a depth of six to eight feet will qualify for reuse as excavation backfill (see discussion below). Therefore, the total estimated volume of soil that will required off-site disposal is approximately 1,000 to 1,250 cubic yards.

Based on available soil boring data, residual impact to soil rapidly decreases to the east and west of the former tank farm. The final east and west excavation sidewall locations will be determined by field observations and confirmatory soil sampling data (see below).

Excavation farther north is not feasible due to the presence of an active railroad track just beyond the fence line. Excavation farther south is not feasible due to the presence of the building, an active warehouse, which is built on a minimum six-to eight-inch thick concrete slab (and includes multiple buried slabs in selected areas). The building also has deep concrete footers, which extend approximately 12 to 18 inches north of the building wall.

Additionally, there is an old brick and terra cotta storm sewer line running east-west located approximated 12.5 feet north of the building (see Figure 2-1), and an eight-inch diameter water main running east-west (with associated north-south laterals) located approximated 6.5 feet north of the building. Possible excavation of soils between the sewer line and the building was discussed with an excavation contractor, who recommended that this soil remain in place to prevent possible damage to the utilities.

Therefore, some impacted soils requiring contingent treatment will be present after the completion of the proposed source removal activities. Contingent soil treatment is discussed in Section 3.0. If impacted soil above the restricted commercial soil cleanup objective (SCO) of 500 milligrams per kilogram (mg/kg) per 6 NYCRR Part 375 is present after contingent treatment is completed, it will be addressed in the final Site Management Plan and any associated deed restrictions.

2.2 Target Soils for Removal

Based on available field screening and soil analytical data, there is minimal impact to soil at depths from 0 to approximately 8 feet (located above the water table). Soils removed from these depths will be screened for volatile organic compounds (VOCs) with a photoionization detector (PID) for possible use as backfill material as described below; however, visually impacted soils will be segregated for disposal.

Target soils for removal are the clays and silts located just above and below the water table (approximately depth 9 to 10 feet). If present, residual impact in sandier soils in this interval (and deeper) should readily respond to contingency treatment measures (see Section 3.0), so coarser-grained soils below the water table are not targeted for removal.

As discussed previously, extensive excavation dewatering is not included in the proposed source removal activities, but soils below the water table will be removed to the extent possible. If soils are excessively wet, they will be placed on plastic that is sloped to allow water to drain back into the excavation. Wet non-hazardous soils may also be blended with other excavated non-hazardous soils to meet disposal facility requirements for water content (if any hazardous soils are present they will not be blended). In addition, if needed, a vac-truck may be used to remove limited volumes of excavation water to complete the proposed soil removal activities.

2.3 Excavation Ambient Air and Soil Screening

During all excavation activities, ambient air conditions will be screened with a PID in accordance with procedures in the site-specific HASP and the May 2005 Quality Assurance Project Plan (QAPP). Additional ambient air screening will be performed in conjunction with the Community Air Monitoring Plan (CAMP; see Section 5.0).

During all soil removal activities, the selected excavation contractor will take measures to abate emissions and suppress dust. Corrective measures may include wetting the excavation soils or using vapor-retarding foam or other materials. The contractor will have appropriate dust and vapor-retarding materials onsite (or readily available) to avoid extended field delays when the excavation is open. Any soils temporarily staged onsite will be placed on plastic, and covered by plastic when active excavation is not taking place.

Excavated soils will be field screened with a PID equipped with an 11.6 eV lamp (MiniRae2000 or equivalent) that is calibrated twice-daily. Soils with non-detect or PID field screening readings below 5 parts per million by volume (ppmv) will potentially be used as backfill and will be temporarily staged onsite pending laboratory analysis.

Based on previous PID field screening readings and soil analytical data, toluene (and other VOC) concentrations in soils with PID field screening levels below 1,000 to 2,000 ppmv were also below the restricted commercial SCO of 500 mg/kg per 6 NYCRR Part 375. However, during the proposed soil excavation activities, PID readings exceeding a lower field screening limit of 500 ppmv will be considered evidence of residual soil impact. These soils will not be staged for possible reuse as excavation backfill, but will instead be live-loaded into trucks for transport to the approved disposal facility (or temporarily stockpiled pending loading and off-site transport).

Soils with PID readings between 5 and 500 ppmv will be temporarily stockpiled (separately from soils with screening readings between 0 and 5 ppmv) pending confirmatory laboratory results. Sufficient soil stockpile samples will be collected to meet the recommendations presented in Table 5.4(e)10 of DER-10 (Technical Guidance for Site Investigation and Remediation, dated May 3, 2010), and submitted for laboratory analysis of VOCs via EPA Method 8260 plus heptane and tentatively identified compounds (TICs), semi-volatile organic compounds (SVOCs) via EPA Method 8270, and polychlorinated biphenyls (PCBS) via EPA Method 8082 (see Table 2-1). VOCs analysis will be for rapid (one to two day) laboratory turnaround time (TAT); other analyses will be submitted for standard laboratory TAT.

If the analytical data indicate that toluene is below the restricted commercial soil cleanup objective (SCO) of 500 milligrams per kilogram (mg/kg) per 6 NYCRR Part 375, these soils may be retained for use as backfill material (or alternatively transported offsite for proper disposal). If subsequent laboratory analysis indicates these soils exceed restricted commercial use SCOs, these soils will be transported offsite for proper disposal.

2.4 Excavation Soil Samples and Analysis

Confirmation samples will be collected from the excavation sidewalls at the completion of soil removal activities. Per DER-10, one confirmation soil sample will be collected for every 30 feet of sidewall (2 samples on the east and west sidewalls, and 3 to 4 samples on the north and south sidewalls) at screening locations exhibiting the highest PID readings and/or odors. Additional compliance documentation samples may be collected from below the water table along the sidewalls of the excavation to further characterize subsurface conditions.

Confirmation samples will not be collected from the excavation bottom, which will be positioned below the water table. If toluene concentrations in the confirmation sidewall samples exceed the SCO of 500 mg/kg, contingency treatment measures (see Section 3.0) will be needed.

Confirmation soil samples will be submitted for analysis of VOCs via EPA Method 8260 plus heptane and TICs, SVOCs via EPA Method 8270, and PCBs via EPA Method 8082 (see Table 2-1). Soil samples will generally be submitted for standard laboratory turn-around times (two to three weeks) except as noted above.

2.5 Excavation Completion

Following the completion of soil removal activities and any contingent excavation treatment (see Section 3.1), excavation backfilling will begin. Certified clean ¾-inch gravel will be placed from the bottom of the excavation to the approximate depth of the water table (depth 9 feet). In addition to shallow soils meeting SCOs (see Section 2.3), a combination of certified clean ¾-inch gravel and/or other certified clean fill materials will be used to backfill the remainder of the excavation; however, the upper one to two feet of backfill will include only certified clean fill materials. The backfill will be brought to surface grade and finished to match the existing asphalt surface at a later date.

The excavation will be filled in lifts and compacted using a motorized compactor. The use of crushed stone at the base of the excavation will maintain structural stability within the saturated zone and allow compaction of clean sand backfill at shallower depths.

2.6 Proposed Post-Excavation Groundwater Monitoring Wells

Three monitoring well locations are proposed in the post-excavation area as depicted on Figure 2-2. These three locations will provide adequate spacing to allow complete coverage of this area for possible contingency treatment (see Section 3.0) and post-excavation monitoring (see Section 4.0).

2.6.1 Installation of Groundwater Monitoring Wells

Proposed borings will be installed to approximately ten feet below the level of the water table (or to drilling refusal). Total boring depths are anticipated to range from 15 to 20 feet.

Monitoring wells installed via standard hollow stem auger (HSA) methods will be constructed of approximately 10 feet of Schedule 40 2-inch diameter PVC well screen (0.010 inch slot) installed across the water table (approximate depth 10 feet) to allow for any seasonal fluctuations, and completed with solid Schedule 40 2-inch diameter PVC well riser to the surface. Clean silica sand (#1 or #2) will be used to fill the well annulus to at least one foot above the top of the screened interval. The coarse sand is appropriate for the filter pack because the bottom of the excavation will be filled with ¾-inch gravel (see Section 2.5). A one to two-foot thick bentonite seal will be installed above the gravel pack to prevent surface infiltration, and the remaining well annulus will be grouted to surface.

Alternatively, boreholes may be installed via Geoprobe and completed with Geoprobe "pre-pack" well and filter kits constructed two-inch diameter Schedule 40 PVC riser, pre-pack Schedule 40 PVC screen (ten feet, 0.010-inch slot size, positioned across the water table), bottom plug, and sand pack. The well kits will be sealed with approximately one to two feet of bentonite, and then grouted to the surface. Any recovered soils will be temporarily stored in 55-gallon drums prior to characterization and proper disposal.

All proposed groundwater monitoring wells will be completed with a bolt-down, flush-mounted vault anchored by a small concrete skirt (or cemented into the surrounding building slab), and equipped with a locking gripper-plug to prevent unauthorized access. Following installation, each groundwater monitoring well will be properly developed to remove fine-grained sediments from the sand pack and screen. Wells will be sampled as described in Section 4.4 (and see Table 2-1). Well development water will be staged and processed in a similar manner as groundwater sampling purge water (see Section 4.7).

After the completion of each borehole (and prior to leaving the site), all equipment that has been exposed to site soils or groundwater will be decontaminated utilizing an Alconox wash and tap water rinse. The handling and disposal of liquids generated during the decontamination process is discussed in Section 6.0.

2.6.2 Monitoring Well Survey

After the installation of all proposed wells is completed, the newly installed monitoring wells will be surveyed to establish horizontal position and vertical elevation. Survey information will be used to revise future site base maps depicting monitoring locations, groundwater flow maps, isoconcentration maps, and other summary figures as appropriate.

SECTION 3.0

CONTINGENT MEASURES TO ADDRESS RESIDUAL IMPACT TO SOIL AND GROUNDWATER

Post-excavation confirmation soil samples will be collected from the excavation sidewalls immediately after the completion of soil removal activities (see Section 2.0), and groundwater samples will be collected from the newly installed monitoring wells (see Section 4.0) a minimum of two weeks after development. However, as discussed in Section 2.1, due to access limitations, it is anticipated that residual impact to soil and groundwater will exceed project target goals in at least some portions of the Former Tank Farm Area SWMU following completion of the proposed source removal activities. This section describes the contingent measures that will be taken to address the residual impact.

3.1 Contingent Excavation Treatment

The selected in-situ chemical oxidation (ISCO) vendor, In-Situ Oxidative Technologies, Inc. (ISOTEC) of West Windsor, New Jersey, was asked to evaluate possible treatment in the open excavation immediately following removal of the impacted soils. Based on previous site-specific data from the CMS pilot test, ISOTEC recommends a mixture of sodium persulfate and stabilized hydrogen peroxide that will chemically oxidize residual toluene and heptane in the soil and groundwater immediately beneath, and in the general vicinity of, the excavation.

ISOTEC proposes spraying a mixture of approximately 15,000 gallons of 10% sodium persulfate, chelated iron catalyst, and 10% stabilized hydrogen peroxide at a rate of 15 to 20 gallons per minute into the open excavation. The hydrogen peroxide will provide spontaneous treatment, while the sodium persulfate is slower to react and will provide longer term treatment of any groundwater subsequently moving through this area.

Because there are potential safety issues associated with the use of these reagents in an open excavation, although ISOTEC does not anticipate any significant problems, ISOTEC will take extra safety precautions during the ISCO application to the excavation. For example, the reagent and/or catalyst injection rates, and the reagent concentrations may be reduced as necessary to control the reaction rate. ISOTEC has detailed their experience with this type of field application and summarized the safety precautions that will be employed in correspondence provided as Appendix C.

3.2 ISCO Treatment Contingency

As discussed in Section 2.1, based on anticipated access issues, it will not be possible to remove all impacted soils in specific areas of the Former Tank Farm SWMU (i.e., soils surrounding the storm sewer, and between the sewer and the main building), so this Workplan includes treatment contingencies for these areas. Contingent treatment will also be necessary if excavation sidewall confirmation soil samples do not meet SCOs (see Section 2.4).

Based on the previous CMS ISCO bench and pilot testing conducted in this SWMU, a combination of Fenton's reagent chemistry, which utilizes hydrogen peroxide as the source of the hydroxyl radical and dissolved iron as the catalyst in a rapid (instantaneous) reaction, and sodium persulfate, which is much slower oxidizer and provides longer term treatment, was effective at removing toluene mass in soil and groundwater. Multiple rounds of oxidizer and catalyst application may be necessary to complete treatment of soil and/or groundwater to levels more suitable for long term treatment via monitored natural attenuation (MNA).

Based on the previous CMS ISCO pilot testing conducted in this SWMU, although there was significant mass destruction, there was no significant mobilization/migration of residual mass. During the proposed ISCO treatment, similar monitoring will be performed to confirm there is no mobilization/migration of residual mass.

In addition to direct treatment of residual soils, persulfate (or permanganate) may be utilized in a "curtain" application where the ISCO reagent is injected in a continuous row of points to provide longer-term treatment to groundwater flowing through the curtain area. This application will be evaluated for use on the north and/or east (downgradient) side(s) of the Former Tank Farm SWMU (see Figure 2-1) if post-excavation groundwater data indicate migration of toluene in groundwater to the north and/or east following source removal activities.

3.2.1 ISCO Contingency Treatment - Baseline Sampling

The post-source removal groundwater sampling event (see Section 4.0) will also serve as the baseline ISCO sampling event. If additional rounds of ISCO treatment are required, the prior ISCO post-treatment sampling event (see Section 3.2.3) will serve as the new baseline.

3.2.2 ISCO Contingency Treatment - Injections

Prior to the start of ISCO injections, monitoring points in the treatment area will be fitted with a pressure gauge and vapor sample collection port. Although no adverse vapor migration effects were noted in the main building during previous CMS ISCO pilot testing, at least two indoor locations will be included in the monitoring array. The following data will be recorded at each monitoring point via field meter or field chemical kit:

- liquid levels
- dissolved oxygen concentrations
- pH, temperature, specific conductivity and turbidity
- head space concentration readings (PID, lower explosive limit [LEL], O_2, CO_2)

A geoprobe drilling rig will be used to install temporary ISCO injection points to a total depth of 8 to 15 feet. The depth of the injection screen (approximately four feet in length) will be adjusted from shallow (7 to 11 feet deep) to deep (12 to 16 feet) at alternating borings to provide coverage across the entire target injection interval of 7 to 16 feet.

Based on CMS ISOC pilot testing, the target hydrogen peroxide and persulfate concentrations will be 12.5% in water. If there is a large increase in groundwater temperature during the injections, or there are negative visual indicators (steam and/or excessive bubbling), and/or evidence of vapor migration, the concentration of the injection solution may be capped or reduced (or the injection rate may be reduced or terminated) until field parameters stabilize.

Field monitoring data will be collected twice daily (during the first and last hour of injection) from the field monitoring points during each day of ISCO treatment:

- liquid levels
- dissolved oxygen concentrations
- pH, temperature, specific conductivity and turbidity
- head space concentration readings (PID, LEL, O_2, CO_2)

A final round of field monitoring data will be also collected the day after ISCO treatment is terminated.

3.2.3 ISCO Post-Treatment Sampling

To allow for possible "rebound" effects, groundwater and soil samples will not be collected for laboratory analysis until at least four to six weeks after ISCO injection activities are completed. (Sampling may be coordinated with the next regularly scheduled EFR event; see next section.) Groundwater samples will be collected from selected monitoring points in the treatment area. Geoprobe borings will be installed immediately adjacent to the baseline soil borings, and soil samples collected from the previously identified impacted intervals.

Soil and groundwater samples will be analyzed for VOCs via EPA Method 8260 plus TICs. ISCO post-treatment results will be used to further evaluate the effectiveness of this technology, and determine if any changes should be made to the: 1) treatment area; 2) injection point density; 3) quantity and concentrations of required reagents/catalysts; and 4) total number of treatment rounds.

3.3 EFR Treatment

Enhanced fluid recovery (EFR) utilizes a high vacuum (via vacuum truck or other methods) to extract impacted groundwater and free-phase product (FPP) from the extraction point. Residual mass is also recovered from the vadose zone via vapor extraction.

In addition to the physical removal of more impacted groundwater, fluid extraction during EFR events appears to draw in "fresh" water from outside the area of impact. Fluid and vapor removal during EFR events may also stimulate intrinsic remediation by circulating and oxygenating stagnant water in the extraction zone of influence.

Based on the initial round of CMS pilot testing, EFR appears to be a feasible groundwater treatment technology in the Building Subslab AOC. EFR may also be suitable for treatment of residual soil and groundwater impact following source removal and contingent ISCO treatment activities in the Former Tank Farm SWMU.

3.3.1 EFR Extraction Wells

An extension of EFR pilot testing in the Building Subslab AOC was proposed in the November 2010 revised CMS Pilot Testing Extension Workplan; however, the proposed EFR events will only utilize extraction wells south of MP-30 (see Figure 2-1) until source removal activities are completed in the Former Tank Farm SWMU to avoid potentially pulling more impacted groundwater from this SWMU towards the Building Subslab AOC. Following the completion of source removal activities (and contingent ISOC treatment; see previous section), it is anticipated that three to four wells in the northern portion of Building #61 (see Figure 2-1) will ultimately be incorporated as EFR extraction wells. Additional wells between Building #61 and the proposed excavation area may also be evaluated as potential EFR extraction wells if their dissolved toluene concentration is greater than 1,000 micrograms per liter (µg/L).

3.3.2 EFR Event Protocol

Details on EFR event protocol were provided in the November 2010 revised CMS Pilot Testing Extension Workplan. Prior to the start of each EFR event, field data will be recorded at the EFR extraction point and selected monitoring points/wells in the vicinity (if present) via field meter:

- liquid levels;
- dissolved oxygen concentration; and
- head space concentration readings (PID).

During the initial EFR event at each well, selected monitoring points/wells in the vicinity of the extraction well will be also fitted with a pressure gauge and vapor sample collection port.

Following the collection of pre-test data, the vacuum truck "stinger" (drop tube) will be inserted into the extraction well to remove fluids. Fluid removal will continue until: 1) the well goes dry; or based on CMS pilot testing results, 2) a maximum of approximately 20 minutes. Air flow, vacuum, and total fluids recovered will be recorded from truck-mounted gauges.

After fluid removal is completed, the vacuum truck hose will be connected to the riser of the extraction well, so vacuum is applied to the entire well. Induced vacuum at surrounding monitoring points equipped with pressure gauges, and air flow and vacuum at truck-mounted gauges will be recorded approximately every 30 minutes. Total fluids recovered will be obtained at the truck (via gauge or tank "stick") at the end of the test.

Whole well vacuum extraction will continue at each well until: 1) 500 gallons of fluids have been recovered; or 2) a maximum of 1.5 hours. Prior to the termination of each test, PID readings will be collected from surrounding monitoring points equipped with sampling ports. Immediately following the termination of vacuum extraction, dissolved oxygen readings and liquid level measurements will be obtained from the extraction well and surrounding monitoring points; however, groundwater rebound measurements will not be collected.

Groundwater samples will be collected for VOC analysis after each EFR event (see Section 4.0). Fluids removed during EFR pilot testing activities will be transported via vacuum truck to an off-site facility for proper disposal.

Extraction well field data (i.e., vacuum, flow rate, and total fluid recovered) will be collected during each EFR event; however, field data from surrounding monitoring points will only be collected during the initial EFR event at a specific extraction well to determine the approximate radius of influence (ROI). Field results will be reviewed after each EFR event to determine if any other modifications to the test protocol are warranted. Following each EFR event, continuation of contingency EFR treatment in the Former Tank Farm SWMU will be reviewed with the NYSDEC.

SECTION 4.0

POST-SOURCE REMOVAL AND CONTINUED GROUNDWATER MONITORING PROGRAM

A groundwater monitoring event will be conducted shortly after the completion of source removal activities, followed by regular on-site and off-site monitoring events. Details are provided below.

4.1 On-Site Groundwater Monitoring Program

The proposed on-site groundwater monitoring program outlined in the November 2010 revised CMS Pilot Testing Extension Workplan includes a number of indoor monitoring points plus outdoor well MW-15. Post-source removal groundwater monitoring will additionally include: 1) the three new sampling points proposed for the excavation area (see Section 2.2); and 2) the three existing monitoring points between the excavation area and the building (i.e., MP-23, MP-24 & MP-25). All six outdoor sampling locations (see Figure 4-1) will be sampled during the initial post-source removal monitoring event, but the number of outdoor locations sampled during subsequent events will be reduced based on the data obtained (however, at least one well from each of the two above groups will be sampled during each event.) Additional locations may also be monitored in conjunction with contingency treatment measures (see Section 3.0).

4.2 Off-Site Groundwater Monitoring Program

The post-source removal sampling event will include the following off-site monitoring points: MP-6, MP-17, MP-18, MP-22, MW-18 & MW-19. Samples will also be collected at MP-6 & MP-17 during the subsequent monitoring event (anticipated to be the following calendar quarter). Thereafter, unless one of the contingencies discussed below is triggered, the six off-site wells will be sampled on an annual basis (see Figure 4-2 for proposed sampling locations).

If COCs (i.e., toluene) are detected at concentrations above 1,000 µg/L at any off-site location, a confirmatory sample will be collected during the next scheduled monitoring event, and thereafter, the location will be monitored at least semi-annually. If toluene concentrations increase to levels above or approaching historical maximums at any off-site monitoring locations: 1) the NYSDEC Engineer will be notified within 72 hours; and 2) the need for confirmatory sampling, increased monitoring, and/or implementation of interim corrective measures (ICMs) will be discussed with the NYSDEC Engineer.

4.3 Groundwater Sample Collection

Monitoring points/wells will be sampled via the micropurge sampling method. The United States Environmental Protection Agency (USEPA) has encouraged the use of this method because of its reproducibility, accuracy, and cost-effectiveness (additional details are available in the April 1996 USEPA reference document). A micropurging pump capable of a flow rate of approximately 0.1 to 0.5 liters per minute (i.e., peristaltic/bladder pump) will be used to minimize turbulence in the well bore and hydraulic stress on the formation. The pump will be positioned in the middle of the saturated portion of the screened interval of the well.

Water quality indicator parameters (temperature, pH, specific conductivity, oxidation-reduction potential [ORP], and dissolved oxygen [DO]) will be monitored during purging with a continuous "flow-through" cell device (YSI-600XL or equivalent). Readings will be taken every three to five minutes until the following stabilization rates are achieved: pH ± 0.1 standard units, specific conductivity ± 3%, ORP ± 10 mV, and DO ± 10%. After the water quality parameters have stabilized, groundwater samples will be collected directly from the pump effluent line using dedicated tubing and pump bladders at each well. Groundwater samples will be collected in a manner that minimizes turbulence in the samples.

4.4 Groundwater Sample Analyses

Groundwater samples will be collected in appropriate laboratory bottleware (see Table 2-1), logged on a chain-of-custody form, and maintained at 4°C until laboratory receipt via courier or overnight delivery. Groundwater samples will be analyzed for VOCs via EPA Method 8260 plus heptane and TICs, and other selected analyses (see below). Relevant sampling protocol is summarized in Table 2-1. All analyses will include Category B laboratory deliverables.

4.5 Supplemental Groundwater Analyses

In addition to the analyses discussed in Section 4.4, two on-site outdoor monitoring samples will be analyzed for the following natural bioattenuation parameters during the post-source removal sampling event (see Table 2-1): redox, pH, and O_2 (via field instrumentation), total and dissolved iron (EPA Method 7380), ferrous iron (Fe^{+2}; via field chemical analysis kit), nitrate/nitrite (EPA Method 353.2), and phosphate (EPA Method 365.1).

Redox, pH, and O_2 will be monitored at all sampling points via field instrumentation. During the post-source removal groundwater sampling event, nitrate and phosphate will be monitored at all sampling points using field chemical analysis kits, but based on the results, field analyses may be discontinued at selected monitoring points during subsequent sampling events.

4.6 Nutrient Supplement

CMS bioattenuation pilot testing indicated that groundwater in the vicinity of the dissolved toluene plume is deficient in adequate nitrate, phosphate, and other micronutrients necessary for optimal biological activity. Selected wells (see below) may be dosed with approximately 100-200 grams of potassium nitrate dissolved in several gallons of potable-grade water to try to raise the nitrate concentration to the optimal concentration of 2 to 5 micrograms per liter (mg/L).

Groundwater samples collected from wells/monitoring points dosed with nutrients may no longer be indicative of aquifer conditions. Therefore, only selected wells that are not required for active groundwater monitoring (i.e., toluene is not detected above groundwater standards, an alternate monitoring location is available, etc.) will be dosed with supplemental nutrients.

Nitrate supplementation will continue prior to each monitoring event, and if nitrate is not detected, the dose concentration will be increased during the subsequent sampling event. Microcat-VNBAF, which also contains phosphate and other trace nutrients, or similar additives may also be used as supplements.

4.7 Purge Water Disposal

Purge water from groundwater sampling conducted in conjunction with groundwater monitoring will be temporarily containerized in 55-gallon drums. Drums will be stored at an approved on-site staging location pending proper off-site disposal at a later date.

SECTION 5.0

COMMUNITY AIR MONITORING PLAN (CAMP)

The following Community Air Monitoring Plan (CAMP) has been developed per NYSDOH guidelines to monitor VOCs and particulates (i.e., dust) at the downwind perimeter of the designated work area during source removal activities (i.e., when there is an open excavation).

5.1 VOC Monitoring, Response Levels, and Actions

VOC concentrations in ambient air will be monitored with a PID at an upwind location at the start of each workday and periodically thereafter to establish background conditions. The PID will be calibrated at least daily. The PID will be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 ppmv above background for the 15-minute average, work activities will be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppmv over background, work activities will resume with continued monitoring.

- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppmv over background but less than 25 ppmv, work activities will be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. Corrective measures may include the use of vapor-retarding foam or other materials. After these steps, work activities can resume provided that the total organic vapor level 125 feet downwind of the exclusion zone is below 5 ppmv over background for the 15-minute average. (Note: half the distance to the nearest potential receptor or residential/commercial structure, i.e., houses along Alden Street, is approximately 125 feet. A daily PID reading will also be collected along Alden Street during source removal activities.)

- If the organic vapor level 15-minute average is above 25 ppmv at the perimeter of the work area, activities will be shutdown and the situation reviewed with the NYSDEC & NYSDOH.

All 15-minute average VOC readings will be recorded and will be available for NYSDEC and NYSDOH personnel to review. Instantaneous readings, if any, used for decision purposes will also be recorded.

5.2 Particulate Monitoring, Response Levels, and Actions

Particulate concentrations will be monitored continuously at the upwind and downwind perimeters of the exclusion zone. The particulate monitoring equipment will be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration will be visually assessed during all source removal activities.

Particulate monitoring will be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action levels outlined below.

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques, such as wetting the excavation, will be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work will be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

- If the downwind PM-10 particulate concentration remains greater than 150 mcg/m^3 of the upwind level and/or there is visible dust migration, activities will be shutdown and the situation reviewed with the NYSDEC & NYSDOH.

All particulate monitoring readings will be recorded and will be available for NYSDEC and NYSDOH personnel to review.

In addition to the on-site and off-site monitoring activities discussed above, the potential for nuisance vapors will be discussed with the contractor selected to transport the excavated soils from the Former Norton/Nashua facility. The contractor will be required to take appropriate measures to minimize the potential release of vapors during transport of the soils to the approved off-site disposal facility.

SECTION 6.0

DECONTAMINATION PROCEDURES

All non-disposable sampling and data procurement equipment will be decontaminated using the following procedures:

1) manual scrub with alconox and potable water using a brush;
2) thorough rinse with potable water;
3) triple rinse with distilled water (ASTM Type II); and
4) air dry.

Any liquids generated during the decontamination process will be treated in the same manner as purge and development water as discussed in Section 4.7.

SECTION 7.0

QUALITY ASSURANCE/QUALITY CONTROL SAMPLES

The objective of the sampling Quality Assurance/Quality Control (QA/QC) program is to ensure the reliability and integrity of all data generated as part of the pilot testing and sampling program. Unless otherwise noted in this Workplan, QA/QC for all proposed pilot testing and sampling activities will be conducted in accordance with the procedures outlined in: 1) the May 2005 Supplemental RFI Workplan QAPP; 2) the July 2003 RFI Workplan; and 3) for instances where specific QA/QC procedures were not presented in the former two documents, the April 1994 QAPP, IRM, and General RFA/RFI Sampling Investigation Work Plan prepared by Rust Environment & Infrastructure (Rust).

The QA/QC program will involve the collection of trip blanks, matrix spike/matrix spike duplicate (MS/MSD) samples, equipment blanks, and field duplicate samples. QA/QC sample collection is summarized in Table 7-1. Data validation will be performed in accordance with NYSDEC and USEPA procedures by a third party reviewer retained by Saint-Gobain for that purpose (see Section 8.0).

Trip Blanks

One trip blank sample will be analyzed for each groundwater and/or soil sampling cooler utilized for the transport of samples for VOC analyses. Trip blanks will be analyzed for VOC target parameters and TICs. The trip blanks will be prepared and supplied by the laboratory, and transported and handled in the same manner as other groundwater sampling bottleware. The trip blank will be received in the field within one day of laboratory preparation and cannot be held at the field site for more than two days.

MS/MSD Samples

One set of MS/MSD samples will be collected for every twenty samples from each applicable medium (groundwater and soil) and analyzed for the complete set of VOC target parameters. Care will be taken to ensure that each MS/MSD pair can be considered a homogeneous sample split in two (however, there will be no mechanical mixing of soil samples that will be analyzed for VOCs). The MS/MSD samples will be identified as such and given a sample designation that is consistent with other analytical samples.

Field Duplicate Sampling

One field duplicate sample will be collected for every twenty samples collected from each medium (groundwater and soil) and analyzed for the complete set of VOC target analytes. Care will be taken to ensure that each field duplicate can be considered a homogeneous sample split (however, there will be no mechanical mixing of soil samples that will be analyzed for VOCs).

Each field duplicate will be given a sample designation that is consistent with other analytical samples collected from the same medium to prevent the analyzing laboratory from identifying the field duplicate samples. Identification of the field duplicate samples will be provided to the NYSDEC.

Equipment Blanks

One equipment blank sample will be collected from each medium sampled (groundwater and soil) during each mobilization and analyzed for the complete list of VOC/SVOC/PCB target analytes. The equipment blank samples will be obtained by pouring demonstrated analyte-free water through or over the sampling device so that the rinsate flows directly into the laboratory cleaned sample containers.

SECTION 8.0

LABORATORY ANALYSIS

All groundwater and soil samples will be submitted to Adirondack Environmental Services, Inc. (Adirondack), of Albany, New York for analysis via standard turn around times. Adirondack is certified by the NYSDOH – Environmental Laboratory Approval Program (NYSDOH-ELAP). All samples will be analyzed following NYSDEC, ASP (June 2000) CLP procedures with complete NYSDEC CLP/Category B laboratory deliverables including TICs.

Data validation will be performed by a third party reviewer (Dataval, Inc. of Endwell, NY or similar) retained by Saint-Gobain for that purpose in accordance with the NYSDEC ASP (June 2000), the USEPA Region II document CLP Organics Data Review and Preliminary Review (SOP No. HW-6, Revision No. 8, January 1992), and USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (February 1994). Data validation will include a comparison of QC checks to prescribed acceptance criteria for the following major elements: equipment blanks, trip blanks, field duplicate samples, MS/MSD samples, laboratory qualifiers, holding times, detection limits, and accuracy. Each element will be examined by the third party reviewer to ensure project data quality objectives are met.

As outlined in Section 7.0, one equipment blank sample will be collected for each medium (groundwater and soil) during each mobilization and analyzed for all VOC target parameters. A sample or sample delivery group may be qualified if the equipment blank contains detectable concentrations of target analytes; however, the data may be used qualitatively to assess the quality of the decontamination procedure or ambient site conditions. A similar procedure will be followed for the utilization of trip/travel blanks.

The laboratory report may qualify the sample concentration with a "B", which indicates that a target analyte has been detected in the laboratory method blank. Data which have been qualified with a "B" will be utilized quantitatively only if the following criteria apply: 1) historical data suggests this specific compound was utilized at the facility; 2) the compound has been detected in previous analytical sampling; or 3) the laboratory case narrative states the presence of this compound is not the result of laboratory contamination. Consistent detection of compounds in the method blank suggests a laboratory contamination problem, and more importantly, problems with the internal laboratory QA/QC procedures.

The laboratory will often estimate analyte concentrations when samples are below, or greatly exceed, quantification limits. A concentration below the laboratory method detection limit, qualified with a "J", will be used for quantitative interpretation as it represents the "best" estimate of a specific analyte concentration. Under NYSDEC ASP methods, the laboratory should not report concentrations that exceed the highest concentration within the calibration range. The analysis should be rerun using an appropriate dilution factor.

Analytical data packages received from the contract laboratory will be compared with the list of analyses requested on the chain-of-custody record and the project Workplan to ensure all analyses were performed as requested. If an analytical sample exceeds the method-specific holding time (see Table 2-1), the sample will be rejected for quantitative interpretation, and the data will be utilized only in a qualitative manner.

Practical quantitation limits for each analyte should meet the Contract Required Quantitation Limit (CRQL) as per NYSDEC ASP, revised June 2000. All data will be reviewed by the NYSDEC for precision, accuracy, representativeness, completeness, and comparability (PARCC). Surrogate recoveries, GC/MS calibrations, system performance checks, and other internal laboratory QA/QC results will be reviewed to assure that the laboratory analysis met all applicable performance criteria.

SECTION 9.0

SCHEDULE & REPORTING

The first phase of work will consist of source removal activities proposed herein. Based on discussions with the NYSDEC and NYSDOH at the June 2010 meeting, the optimal time to conduct these activities is during the winter season when: 1) meteorological conditions will reduce the potential for vapor migration; and 2) local residents are less likely to spend extended periods of time outdoors. Therefore, if possible, the proposed excavation activities will be conducted no sooner than December 2010 (or later in the season if preparations/approvals are not complete).

Discussions with potential contractors are ongoing, but based on available information, it is anticipated soil removal activities will take a total of 7 to 10 field days, the emplacement of the ISCO excavation treatment will require an additional 2 to 3 field days, followed by 2 to 3 field days for backfilling and compaction. Based on the proposed time of year, which is after most asphalt plants close for the season, it will not be possible to provide an asphalt cover across the excavation area until the following spring.

Monitoring well installation will immediately follow the completion of backfilling activities, if possible, or within 30 days of the completion of excavation activities. The post-excavation groundwater sampling event will be conducted at least 14 days but no more than 45 days after well development activities are completed. Groundwater samples and confirmatory soil samples will be submitted for standard laboratory turn-around times (two to three weeks).

The groundwater and soil sampling data will be evaluated to confirm the necessity of possible contingent treatment measures. If indicated, EFR events in the Former Tank Farm SWMU will be initiated in conjunction with the next regularly scheduled EFR pilot test event (see the November 2010 revised CMS Pilot Testing Extension Workplan).

ISCO treatment in the area between the excavation and the building will require additional contractor coordination (and favorable weather conditions) before implementation. It is anticipated that a round of treatment can be scheduled during late First Quarter or early Second Quarter 2011. Follow-up treatment(s), if necessary, would be scheduled approximately six months later (after the completion of post-treatment sampling and evaluation of the data).

Progress reports summarizing the status of all activities associated with implementation of the Source Removal Workplan will be submitted to the NYSDEC on a monthly basis. Copies of all final groundwater and soil sampling laboratory data packages and the third party data validation review will be submitted to the NYSDEC in CD format.

Following receipt of the analytical data from all phases of the pilot testing, Saint-Gobain will prepare data summary tables and figures. A meeting (or conference call) with the NYSDEC will be scheduled within 60 days of the receipt of the final analytical data from the post-source removal groundwater sampling event to discuss results and the need for any contingency treatment measures.

Per the general requirements of NYSDEC CO: 4-20001205-3375, any revisions to this Workplan will be submitted within 45 days of receipt of comments from the NYSDEC (or within 30 days of a meeting with the NYSDEC to discuss the Workplan, if determined to be necessary). Field work will be scheduled and initiated (depending upon contractor availability) within 45 days of receipt of final Workplan approval from the NYSDEC, or in November-December 2010, whichever comes later.

After the proposed source removal activities are completed, the NYSDEC and Saint-Gobain will review the appropriateness of contingency treatment measures, which would be implemented as outlined as above. Per NYSDEC Order on Consent Index No. CO: 4-20001205-3375, if it is agreed proposed contingency measures are not appropriate following source removal activities, the Commissioner will subsequently notify Saint-Gobain in writing of: 1) the

submittal schedule for a CMS that evaluates alternative remedies, if required; or 2) if the NYSDEC and Saint-Gobain agree on the implementation of a pragmatic and presumptive remedy, Saint-Gobain will be directed to submit a focused CMS report that includes a conceptual design for the remedy within 60 days.

An updated project schedule is provided as Table 9-1.

SECTION 10.0

REFERENCES

Forensic Environmental Services, Inc. (FES), 2001. RCRA Facility Assessment (Enhanced RFA) Workplan, September 2001.

FES, 2002. RCRA Facility Assessment (Enhanced RFA) Sampling Results, May 2002 (Revised June 2002).

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FES, 2006. Addendum to the Supplemental RCRA Investigation (RFI) Workplan, January 2006.

FES, 2007. Final RCRA Investigation (RFI) Report, December 2007. (Revised March 2008).

FES, 2008. Corrective Measures Study (CMS) Workplan, May 2008. (Revised December 2008).

FES, 2010. CMS Workplan – Pilot Testing Extension, August 2010; revised November 2010.

NYSDEC Division of Environmental Remediation (DER). DER-10, Technical Guidance for Site Investigation and Remediation, dated May 3, 2010.

Rust Environment & Infrastructure (Rust), 1994. Quality Assurance Project Plan (QAPP), IRM and General RFA/RFI Sampling Investigation, April 1994.

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USEPA, 1994. Contract Laboratory Program (CLP) National Functional Guidelines for Organic Data Review, February 1994.

USEPA, 1996a. Groundwater Issue Low Flow (Minimal Drawdown) Groundwater Sampling Procedures. USEPA Publication No. EPA/540/S-95/504, April 1996.

USEPA Region I, 1996b. Low Stress (Low-Flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells, July 30, 1996.

TABLES

Table 2-1
Sample Summary Matrix - Groundwater and Soil Samples
Source Removal Activities
Former Norton/Nashua Facility
Watervliet, NY

Matrix	Sample Locations	Parameter	Analytical Parameter	Container and Preservative	Analysis Holding Time
Water	Selected Monitoring Points/Wells (see text)	TCL Volatiles plus heptane and TICs	EPA 8260	3 x 40 ml glass vials w/teflon lined enclosure (no headspace)	14 days
Supplemental Water	Selected Monitoring Points/Wells (see text)	total/dissolved (field filter) iron	EPA 200.7	250 ml plastic, HNO_3 to pH <2	6 mos.
		nitrate/nitrite	EPA 300.0	100 ml plastic, H_2SO_4 to pH <2	28 days
		phosphate	EPA 365.1	100 ml plastic, H_2SO_4 to pH <2	28 days
		nitrate/nitrite	(field kit)		
		phosphate	(field kit)		
Soil	Selected Samples (see text)	TCL Volatiles plus heptane and TICs	EPA 8260	4 oz. glass w/septum (no headspace), Cool to 4°C	14 days
		TCL Semi-Volatiles plus TICs	EPA 8270	8 oz. glass Cool to 4°C	14 days extraction
		Polychlorinated biphenyls (PCBs)	EPA 8082	4 oz. glass Cool to 4°C	14 days extraction

Table 7-1
QA/QC Sample Summary Matrix
Source Removal Activities
Former Norton/Nashua Facility
Watervliet, NY

Matrix	Sample Type	Frequency	Analytical Parameters
Water	Equipment Blank	one sample per each mobilization	TCL Volatiles plus heptane and TICs
	MS/MSD Samples	one sample per every 20 samples	TCL Volatiles plus heptane and TICs
	Field Duplicate Sample	one sample per every 20 samples	TCL Volatiles plus heptane and TICs
	Trip Blank	one sample per cooler	TCL Volatiles plus heptane and TICs
Soil	Equipment Blank	one sample per each mobilization	TCL Volatiles plus heptane and TICs
	MS/MSD Samples	one sample per every 20 samples	TCL Volatiles plus heptane and TICs
	Field Duplicate Sample	one sample per every 20 samples	TCL Volatiles plus heptane and TICs

TICs = tentatively identified compounds; volatile analysis via EPA Method 8260.

Table 9-1

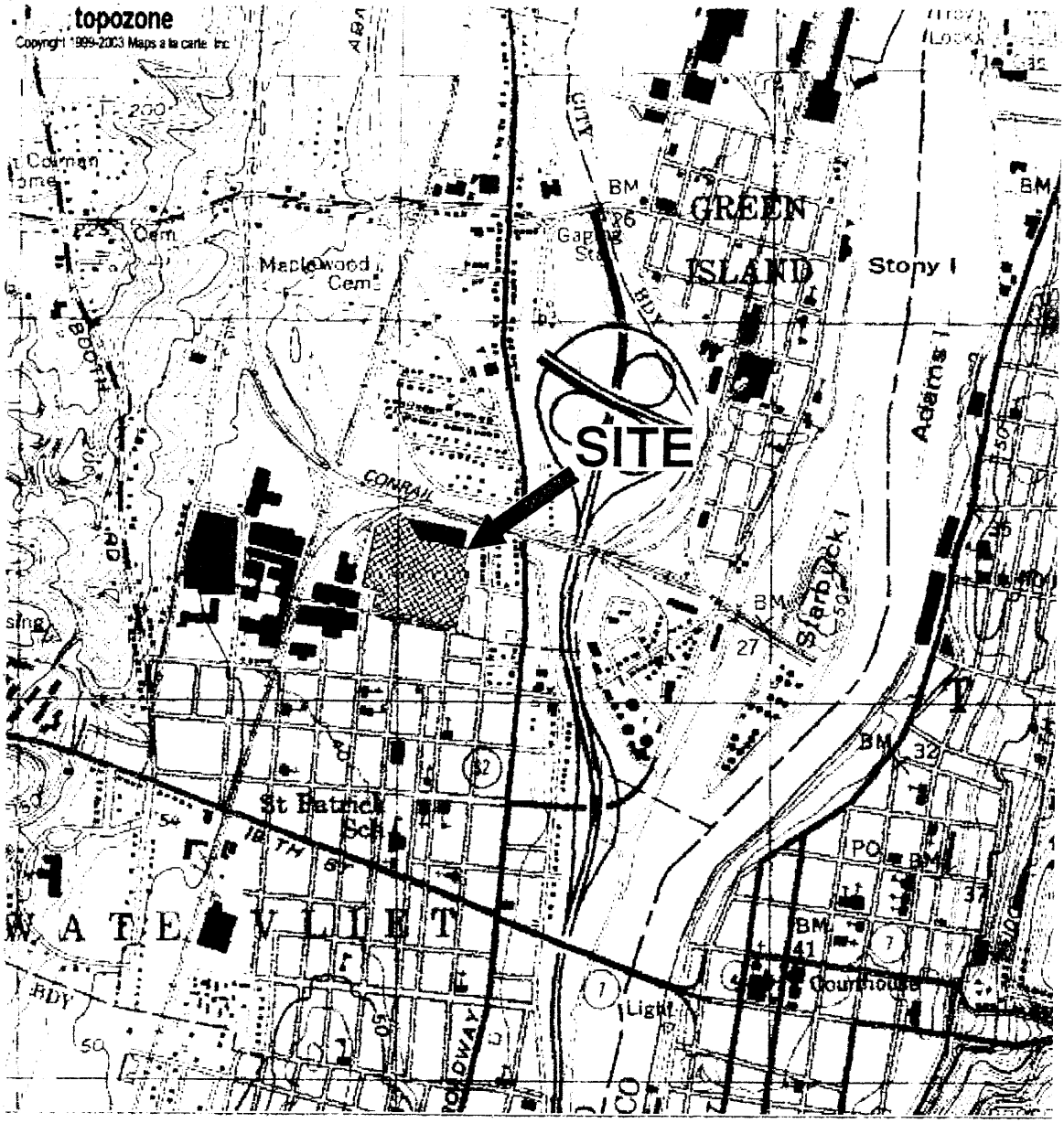
Tentative Source Removal Activities Schedule

Former Norton/Nashua Tape Facility

Watervliet, New York

	2010	2011			
	12	1Q	2Q	3Q	4Q
Source Removal Workplan Approved by NYSDEC					
Source Removal Activities					
Install Monitoring Wells					
Baseline Groundwater Sampling Event					
Continued Groundwater Monitoring					
Implement Contingency Treatment Measures					

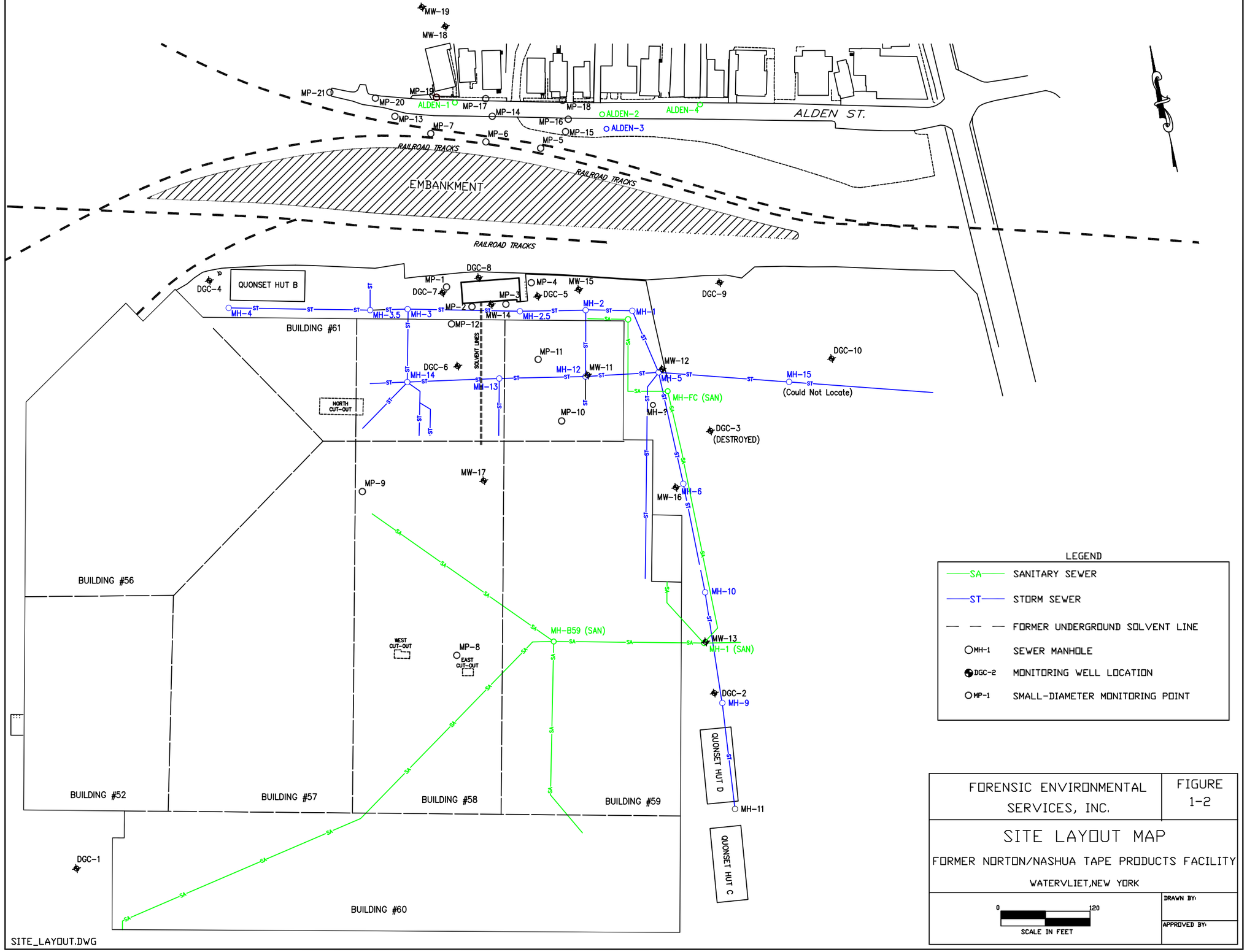
FIGURES



FORENSIC ENVIRONMENTAL SERVICES, INC.	FIGURE 1-1
SITE LOCATION MAP FORMER NORTON/NASHUA TAPE PRODUCTS FACILITY WATERVLIET, NEW YORK	
0 1540 SCALE IN FEET	DRAWN BY: APPROVED BY:

DERIVED FROM THE TROY SOUTH QUADRANGLE
COMPILED BY THE U.S. GEOLOGICAL SURVEY.

WV-TOPO.DWG



LEGEND

SA	SANITARY SEWER
ST	STORM SEWER
— — —	FORMER UNDERGROUND SOLVENT LINE
MH-1	SEWER MANHOLE
DGC-2	MONITORING WELL LOCATION
MP-1	SMALL-DIAMETER MONITORING POINT

FORENSIC ENVIRONMENTAL SERVICES, INC.

FIGURE 1-2

SITE LAYOUT MAP

FORMER NORTON/NASHUA TAPE PRODUCTS FACILITY

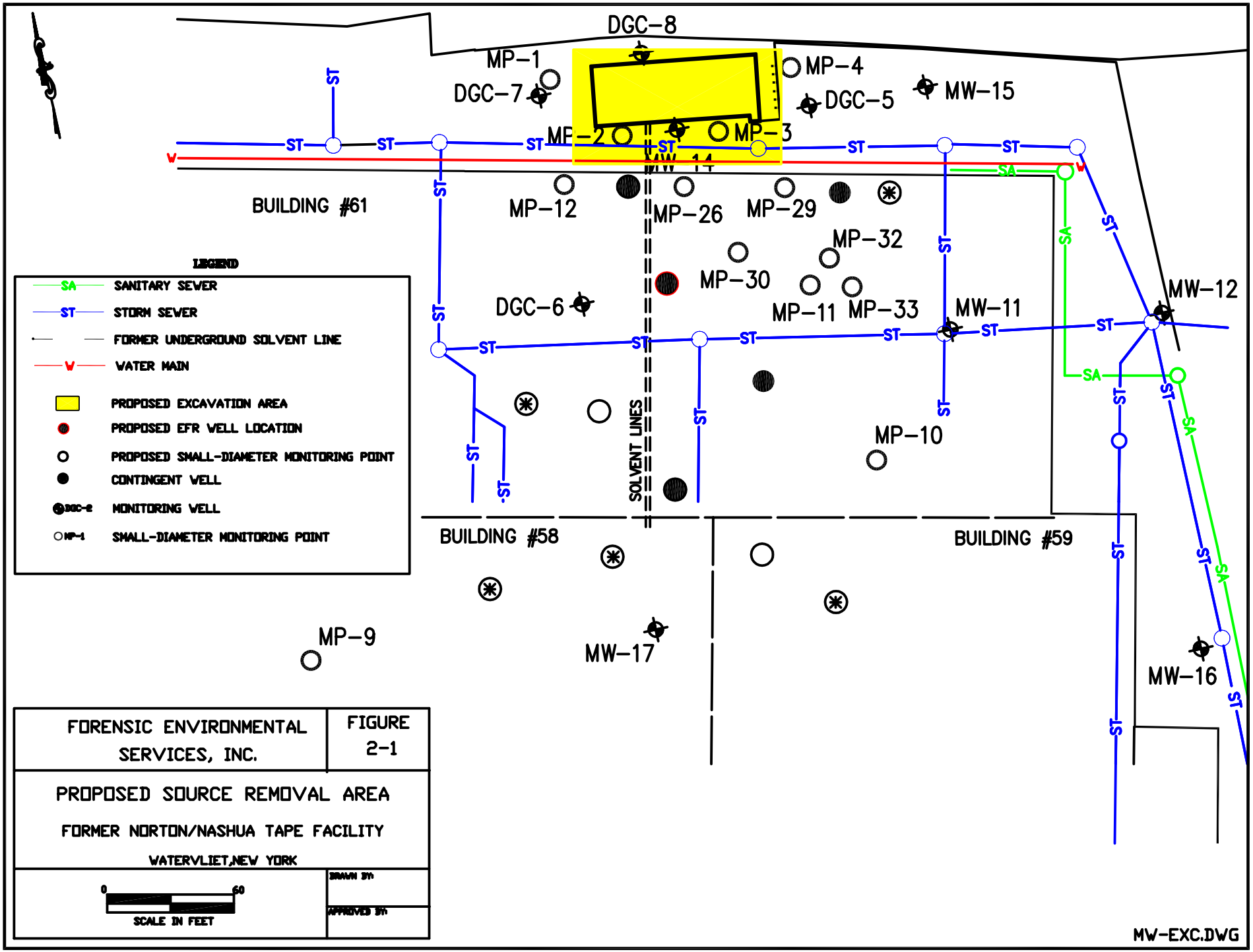
WATERVLIET,NEW YORK

0 120

SCALE IN FEET

DRAWN BY:

APPROVED BY:


DGC-8
MP-1
DGC-7
MP-4
DGC-5
MW-15
MP-2
MP-3
MW-14
BUILDING #61
MP-12
MP-26
MP-29
MP-32
MP-30
DGC-6
MP-11
MP-33
MW-11
MW-12
MP-10
SOLVENT LINES
BUILDING #58
BUILDING #59
MP-9
MW-17
MW-16
LEGEND
SANITARY SEWER
STORM SEWER
FORMER UNDERGROUND SOLVENT LINE
WATER MAIN
PROPOSED EXCAVATION AREA
PROPOSED EFR WELL LOCATION
PROPOSED SMALL-DIAMETER MONITORING POINT
CONTINGENT WELL
MONITORING WELL
SMALL-DIAMETER MONITORING POINT
FORENSIC ENVIRONMENTAL SERVICES, INC.
FIGURE 2-1
PROPOSED SOURCE REMOVAL AREA
FORMER NORTON/NASHUA TAPE FACILITY
WATERVLIET,NEW YORK
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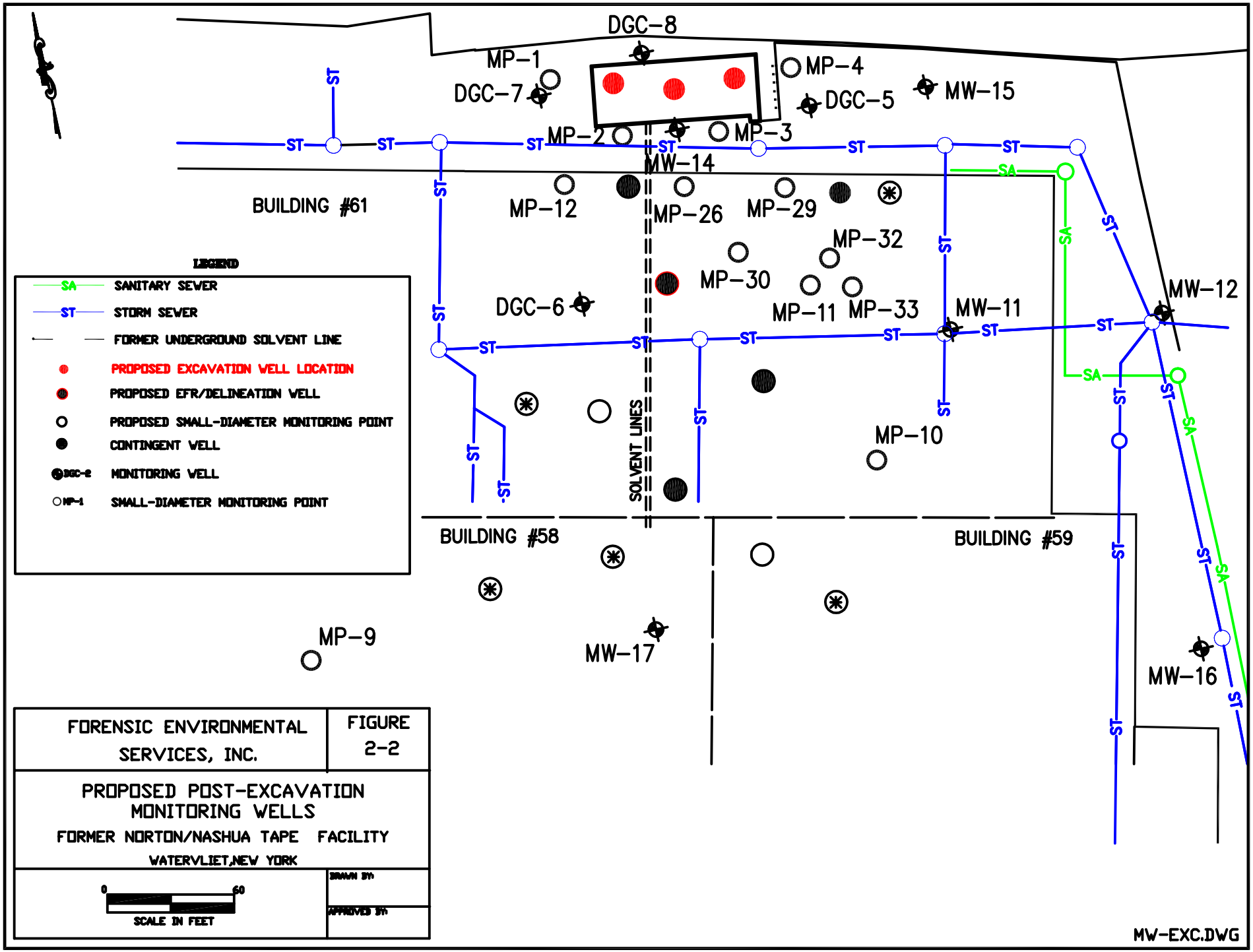
60
SCALE IN FEET
DRAWN BY:
APPROVED BY:
MW-EXC.DWG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MP-1
DGC-7
MP-4
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MW-15
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MW-14
BUILDING #61
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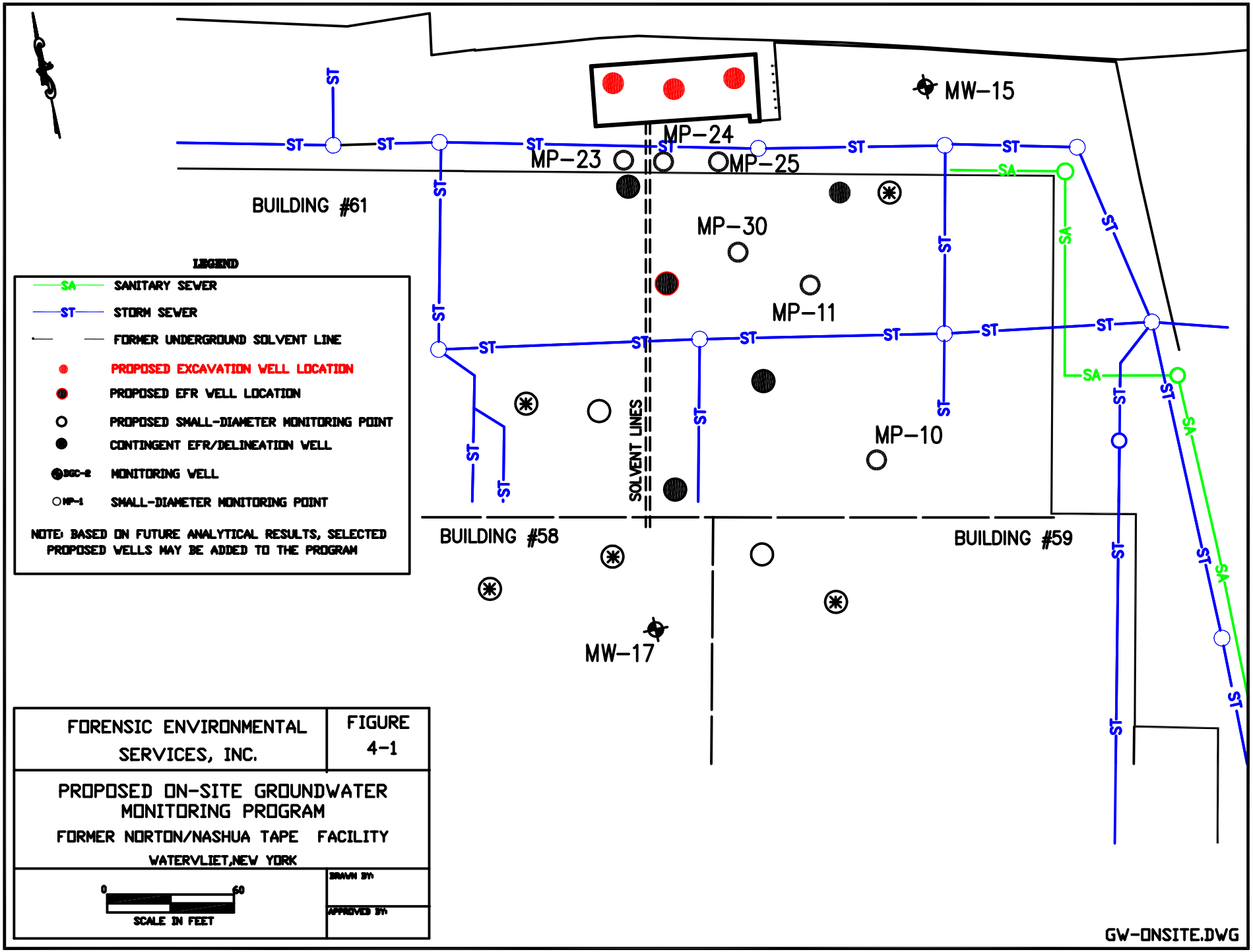
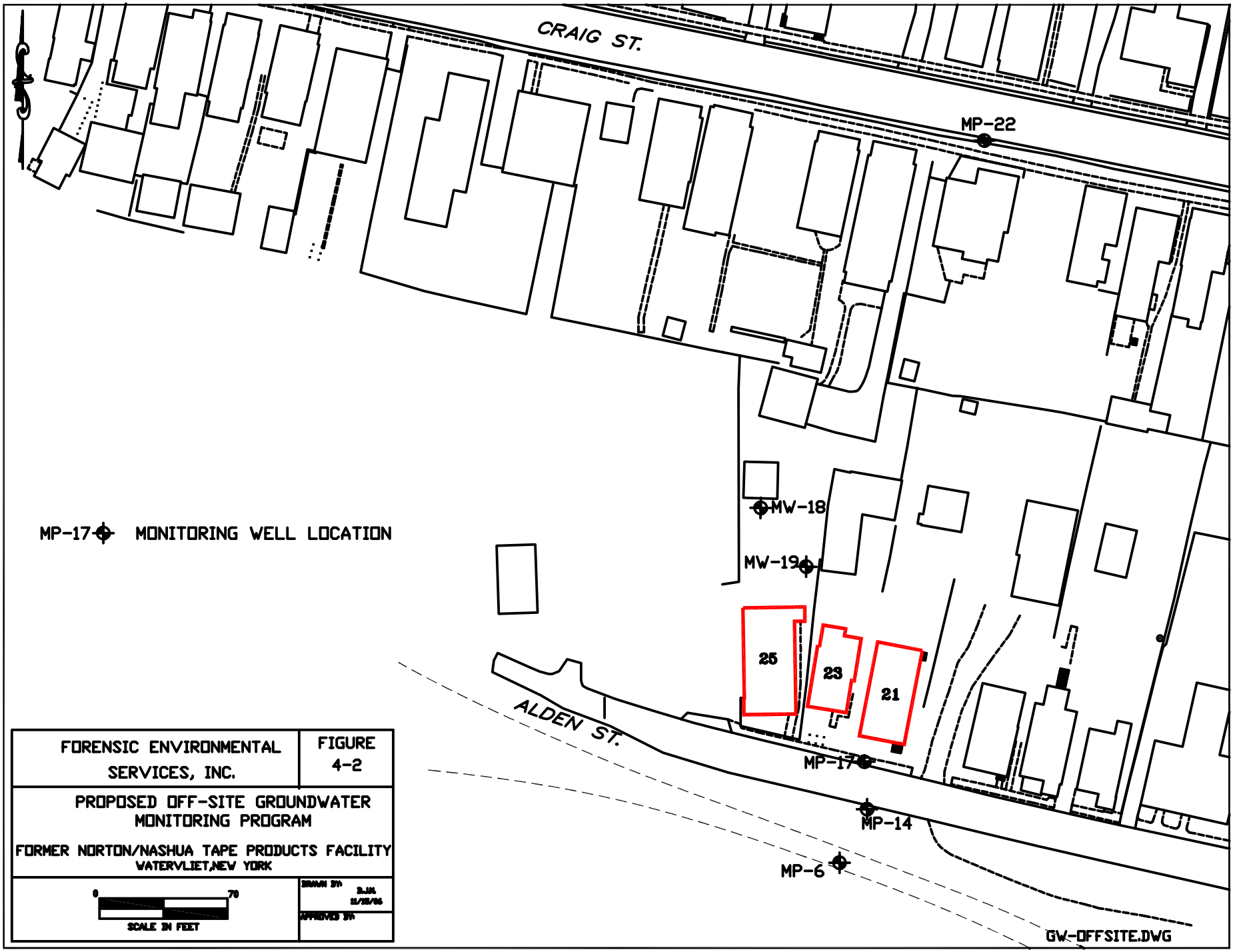
MP-29
MP-32
MP-30
DGC-6
MP-11
MP-33
MW-11
MW-12
MP-10
SOLVENT LINES
BUILDING #58
BUILDING #59
MP-9
MW-17
MW-16
ST
SA
LEGEND
SANITARY SEWER
STORM SEWER
FORMER UNDERGROUND SOLVENT LINE
PROPOSED EXCAVATION WELL LOCATION
PROPOSED EFR/DELINEATION WELL
PROPOSED SMALL-DIAMETER MONITORING POINT
CONTINGENT WELL
DGC-2 MONITORING WELL
MP-1 SMALL-DIAMETER MONITORING POINT
FORENSIC ENVIRONMENTAL SERVICES, INC.
FIGURE 2-2
PROPOSED POST-EXCAVATION MONITORING WELLS
FORMER NORTON/NASHUA TAPE FACILITY
WATERVLIET,NEW YORK
0
60
SCALE IN FEET
DRAWN BY:
APPROVED BY:
MW-EXC.DWG


MW-15
MP-24
MP-23
MP-25
BUILDING #61
MP-30
MP-11
MP-10
SOLVENT LINES
BUILDING #58
BUILDING #59
MW-17
ST
SA
LEGEND
SANITARY SEWER
STORM SEWER
FORMER UNDERGROUND SOLVENT LINE
PROPOSED EXCAVATION WELL LOCATION
PROPOSED EFR WELL LOCATION
PROPOSED SMALL-DIAMETER MONITORING POINT
CONTINGENT EFR/DELINEATION WELL
MONITORING WELL
SMALL-DIAMETER MONITORING POINT
NOTE: BASED ON FUTURE ANALYTICAL RESULTS, SELECTED PROPOSED WELLS MAY BE ADDED TO THE PROGRAM
FORENSIC ENVIRONMENTAL SERVICES, INC.
FIGURE 4-1
PROPOSED ON-SITE GROUNDWATER MONITORING PROGRAM
FORMER NORTON/NASHUA TAPE FACILITY
WATERVLIET,NEW YORK
0
60
SCALE IN FEET
DRAWN BY:
APPROVED BY:
GW-ONSITE.DWG



FORENSIC ENVIRONMENTAL SERVICES, INC.	FIGURE 4-2
PROPOSED OFF-SITE GROUNDWATER MONITORING PROGRAM FORMER NORTON/NASHUA TAPE PRODUCTS FACILITY WATERVLIET,NEW YORK	
0 70 SCALE IN FEET	DRAWN BY: D.M. 11/22/05 APPROVED BY:

APPENDIX A

SITE-SPECIFIC HEALTH & SAFETY PLAN
OCTOBER 2010

SITE-SPECIFIC HEALTH & SAFETY PLAN

Former Norton Company Nashua Tape Products Facility
Watervliet, New York

October 2010

Prepared by:

Forensic Environmental Services, Inc.
113 John Robert Thomas Drive
The Commons at Lincoln Center
Exton, Pennsylvania, 19341

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FORMER NORTON/NASHUA TAPE PRODUCTS FACILITY

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HEALTH & SAFETY PLAN
FORMER NORTON/NASHUA TAPE PRODUCTS FACILITY

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1.0 INTRODUCTION

1.1 Introduction

The Forensic Environmental Services, Inc. (FES) Health and Safety Program (HASP) described herein presents health and safety procedures and emergency response guidelines to be implemented during the Corrective Measures Study (CMS) pilot testing and source removal activities at the former Norton (Norton)/Nashua Tape Products (Nashua) manufacturing facility located at 2600 Seventh Avenue, Watervliet, New York (Figure 1).

Site activities will be coordinated and implemented by FES and subcontractors. FES personnel will be on site to coordinate field operations related to liquid-level data collection, soil and groundwater quality sampling, sanitary/storm sewer water and sediment sampling, as well as field activities associated with CMS pilot testing and source removal (soil excavation) activities. Health and safety measures described herein are designed to protect FES personnel from site environmental hazards. This program has been designed to address issues relevant to FES personnel only. Contractors who are contracted to perform work at the site will be required to prepare and implement their own site-specific health and safety plan for their site personnel.

1.2 Summary of Environmental Scope of Work

The scope of work associated with this project is presented in the following documents: 1) CMS Workplan (FES, November 2010); and 2) Source Removal Activities Workplan (FES, November 2010). Specific elements of the above-referenced workplans include the following:

1. Installation of Enhanced Fluid Recovery (EFR) Extraction Wells and Monitoring Points;
2. Liquid-level data collection;
3. Groundwater quality sampling;

4. Sanitary/storm sewer water and sediment sampling;
5. EFR pilot testing and associated field monitoring activities;
6. Source removal (soil excavation) activities including field screening, air monitoring, and post-excavation soil sampling activities;
7. Monitoring well installation activities; and
8. In-Situ Chemical Oxidation (ISCO) activities.

During field activities, there is the potential for FES personnel to come in contact with water, and or wastes potentially containing hazardous constituents. This HASP has been developed to ensure the following:

1. FES on-site personnel are not adversely exposed to chemicals of concern.
2. FES personnel are in compliance with all applicable state, federal, and non-governmental regulations. The rules and guidelines set forth in the Occupational Safety and Health Act (OSHA) Part 1910 (Title 29 Code of Federal Regulations CFR Part 1910.120) will be implemented for all site activities.

Due to the nature of project tasks, all fieldwork activities that potentially involve contact with hazardous materials will require varying degrees of personal protective equipment (PPE). A description of the required PPE is presented in section 4.0.

This HASP applies only to FES personal on site during the CMS and source removal activities outlined above. All field activities conducted by FES personnel will be performed in accordance with the provisions set forth in this HASP.

2.0 SITE CHARACTERIZATION

2.1 Site Characterization

The former Norton/Nashua Tape Products manufacturing site occupies approximately 27 acres in Watervliet, New York. The facility was formerly used for the manufacture of floor polishing discs and adhesive tape. The area proximal to the site is residential/industrial. The structure is bordered by railroad tracks to the north and industrial/residential areas to the west, south, and east.

Previous site investigations have determined that soil and groundwater quality have been impacted at the site in several areas. The exposure routes, threshold limit values (TLV's), and IDLH concentrations set forth by OSHA and NIOSH for certain compounds of concern (COCs) at the site are presented in Table 1.

3.0 EMPLOYEE TRAINING AND TESTING

3.1 Employee Training

All site workers involved in hazardous or potentially hazardous work will have met the requirements set forth in 29 CFR 1910.120 (e). These requirements include forty hours of off-site classroom training in hazardous waste site safety, three days of on-site field experience working under a trained, experienced supervisor, eight hours of annual refresher training, and eight hours of supervisor training for employees in supervisory positions. All personnel will be required to provide documentation on the successful completion of the training requirements of 29 CFR 1910.120.

In addition, a health and safety site indoctrination session will be presented by FES prior to commencement of site activities. This session will include a review of planned work activities, known or suspected contaminants present, potential health and safety hazards, the health and safety plan, health and safety protection procedures including PPE and equipment, and the site emergence response plan.

3.2 Medical Surveillance

All FES personnel (or subcontractors) who may be exposed to hazardous substances or health hazards on-site will participate in a medical surveillance program that meets the requirements set forth in 29 CFR 1910.120 (f). These requirements specify that employees who satisfy one of the following conditions receive a medical examination at least annually:

1. engage in site operations in which they have the potential to be exposed to hazardous substances at or above the permissible exposure limits (PEL), or published exposure levels, for more than 30 days a year;
2. wear a respirator for more than 30 days a year; or

3. are injured due to overexposure involving a hazardous substance.

Additionally, employees who wear respirators must be determined to be fit to perform their work duties while wearing a respirator.

There are no site-specific medical surveillance requirements for this project. Medical examinations must be conducted by or under the direct supervision of a licensed physician. Medical records for all FES personnel are maintained in the firm's Exton, Pennsylvania office. These medical records detail the tests that were conducted and include a copy of the participating physician's written opinions and recommended limitations for the employee.

4.0 PERSONAL PROTECTIVE EQUIPMENT

4.1 Personal Protective Equipment

This section of the HASP describes the requirements for PPE and the levels of protection required for each individual work task. All site personnel are required to use PPE that is appropriate to the health and safety hazards to which they may be exposed. Basic PPE in all site areas consists of a hard hat, safety glasses, and steel-toed boots. PPE requirements will vary depending on the work task and the employee's location at the site.

All personnel on site will wear PPE when activities involve the potential for exposure to contaminated vapors, gases, or particulate, or when direct contact with a contaminated substance may occur. Chemical resistant clothing will prevent contaminants from absorbing into the skin. Respirators will protect the lungs and gastrointestinal tract. Full-face respirators will also provide eye protection. Respiratory protection levels will comply with air monitoring results collected by FES personnel, as discussed later in this HASP.

The specific protection levels for each work task is listed in Table 2. All field activities will require the use of one of the following levels of PPE:

Level B

1. Pressure demand, full-face self-contained breathing apparatus (SCBA) or pressure demand supplied air respirator with escape SCBA.
2. Chemical resistant clothing (overalls and long sleeved, hooded jacket); one or two piece chemical splash suit; or disposable, chemical resistant one piece suit.
3. Inner and outer chemical resistant gloves.
4. Steel-toed boots with chemical resistant covers.

5. Hearing protection, as needed.
6. Hard hat.

Level C

1. Half-face, air-purifying, canister equipped respirator with organic vapor and particulate cartridges.
2. Chemical resistant clothing (overalls and long sleeved, hooded jacket); one or two piece chemical splash suit; or disposable, chemical resistant one piece suit.
3. Inner and outer chemical resistant gloves.
4. Steel-toed boots with chemical resistant covers.
5. Hearing protection as needed.
6. Hard hat.

Modified Level D

1. Tyvec coveralls or poly-coated tyvec coveralls.
2. Steel-toed boots.
3. Disposable, chemical resistant inner gloves.
4. Outer, chemical resistant work gloves.
5. Safety glasses.
6. Splash shield, if necessary.
7. Hearing protection, if necessary.
8. Hard hat.

Level D

1. Standard work uniform or coveralls.
2. Steel-toed work boots.
3. Disposable, chemical resistant gloves.
4. Safety glasses.
5. Splash shield if necessary.
6. Hearing protection if necessary.
7. Hard hat, if necessary.

Miscellaneous PPE

1. Knife.
2. Flashlight or lantern.
3. Personal dosimeter (volatile organic compounds and particulates)

PPE will be stored in a designated area on-site and will be maintained in a clean sanitary condition and ready for use. All PPE will be inspected before each use to ensure that all equipment is functioning properly and is free from defects. Any coveralls which have been torn/ripped will be disposed of once the employee has left the work zone. Hard hats and respirators will be thoroughly cleaned after each use and respirator cartridges will be discarded daily.

4.2 Limitations of Protective Clothing

PPE ensembles designated for use during field activities have been selected, and will be selected, to provide protection against contaminants at known or anticipated concentrations in the soil. However, no protective garment, glove or boot is chemical proof, nor will it afford protection against all chemical materials. In order to obtain optimum usage from PPE, the following procedures will be developed:

1. Inspect all boots, gloves, and clothing for rips, tears, poorly functioning closings, etc.; and
2. Inspect all reusable garments for visible signs of chemical penetration, discoloration, cracks, punctures, and abrasions;

4.3 Respiratory Protection Program

All FES personnel will have received the proper training in the use of both supplied air and air purifying respirators, and have been fit tested for full-face respirators. All employees will be in compliance with the rules and guidelines set forth in 29 CFR 1910.134. To assure worker protection from airborne particulate and volatile organic compounds (VOC's), full-face respiratory protection will be used during certain activities, based on results of periodic air monitoring.

A photoionization detector (PID) will be used to determine if organic vapors are present in the worker breathing zone. A background PID reading will be taken prior to commencement of work activities. Air monitoring results will be used to determine action levels and dictate levels of PPE to be used based upon the known contaminants in the work area. The action levels and necessary respiratory protection for all activities are as follows:

Sustained Organic Vapor Reading Above Background Within Working Breathing Zone	**Action Levels**
Background	Respirator available
>Background - 5 ppm	Wear respirator
>5 ppm	Shut down activities, vacate area

The appropriate air-purifying respirator cartridge will be used to provide protection for both organic vapors and particulate. The respirator and respirator cartridge must be from the same manufacturer.

Additional air monitoring including PID screening and particulate monitoring will be conducted during soil excavation activities in accordance with the Community Air Monitoring Plan (CAMP).

4.4 Site Control

The majority of the former Norton/Nashua Tape Products site is surrounded by a chain-link fence. Vehicular access to the site is via Seventh Avenue.

Designated work areas at the site will be established by FES personnel to facilitate completion of field activities. The purpose of establishing work areas will be to limit access to potentially contaminated areas, and to prevent the migration of potentially hazardous materials from the areas of impact. Specific work areas to be defined at the site include:

1. Exclusion Zone (EZ): The EZ or work zone is the area immediately surrounding the active work area, with boundaries modified depending on operational requirements. Sufficient area will be provided within the EZ to allow efficient movement of personnel and equipment. The EZ will be defined by FES personnel. All personnel entering the EZ will be required to wear the appropriate PPE based on air monitoring results (Section 5.0).

2. Contaminant Reduction Zone (CRZ): The CRZ or Decontamination Area will be utilized as the location for removal of contaminated PPE, if any and final removal and decontamination of equipment. Supplementary safety equipment, such as fire extinguishers, potable eyewash and extra quantities of PPE may be stored in this area.

3. Support Zone (SZ): The SZ will be located in a non-impacted area where the threat of exposure to hazardous materials is minimal. As such, PPE other than standard construction clothing and equipment is not required.

5.0 AIR MONITORING

5.1 Monitoring Program

Periodic monitoring of organic vapors will be conducted throughout field activities by FES personnel utilizing a Photoionization detector (PID). Particulate monitoring will also be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action levels outlined the CAMP. All monitoring equipment will be calibrated daily according to the manufacturer's specifications. The date and time of instrument calibration will be logged in the field book as well as the periodic monitoring results.

All air monitoring will be conducted in the breathing zone of the workers on an hourly basis or as deemed necessary by FES personnel. Additional air monitoring will be conducted during soil excavation activities at the upwind and downwind perimeters of the designated work area and proximal to residential structures adjacent to the site (Alden Street) in accordance with the CAMP. Background measurements on all instruments will be taken at an area upwind of the work area to establish baseline levels before activities commence. Work activities resulting in organic vapor levels greater than 2.5 ppm above background at the downwind perimeter of the EZ (work zone) will temporarily be halted until levels drop to acceptable levels. Additional air monitoring requirements are described in the CAMP.

6.0 DECONTAMINATION PROCEDURES

All personnel and equipment coming into contact with potentially hazardous substances must be decontaminated or properly disposed (as appropriate) upon exit from the site. Prior to demobilization, potentially contaminated PPE and equipment will be decontaminated and inspected by the FES personnel before it is moved into the clean zone. Any material that is generated by decontamination procedures will be stored in a designated area until disposal arrangements are made. The decontamination solution for the equipment and PPE at the Former Norton Nashua Tape Products site is Alconox.

6.1 Equipment Decontamination

All equipment will be decontaminated in the CRZ (Decontamination Area) by a pressure wash cleaner. Decontamination procedures will include: removal of soil/mud by scraping or knocking; scrubbing with a hand brush; rinse using a solution of water and Alconox; and rinse by potable water. Decontamination of equipment will occur on the wash pad constructed in the Decontamination Area so that rinsates and solids can be collected for subsequent disposal. Decontamination of equipment will be performed at the same PPE level as work in the EZ.

7.0 GENERAL SAFETY AND PERSONAL HYGIENE

7.1 General Safety Protocols

In addition to those measures identified above, FES personnel will abide by general safety protocols including:

1. Designation of Eating Areas: Eating at the site is prohibited except in specifically designated areas. Designation of eating areas will be the responsibility of FES personnel. The location of these areas may change during the project to maintain adequate separation from the work area.
2. Designation of Smoking Areas: Smoking at the site is prohibited except in specifically designated areas to be identified by FES personnel.
3. Individuals getting wet to the skin with effluent from the washing operation must wash the affected area immediately. In addition, if clothes which are in contact with skin become wet then these garments must be changed.
4. Hands must be washed with a soap solution before eating, drinking, smoking, and before using toilets at the site.
5. All disposable coveralls and soiled gloves will be disposed of in a FES designated plastic bag at the end of every shift or sooner.

8.0 EMERGENCY CONTINGENCIES

8.1 Emergency Numbers and Contacts

Emergency Contacts

Fire	911
Police	911
Ambulance	911
Hospital	Saint Mary's Hospital 1300 Massachusetts Avenue Troy, New York Telephone: (518) 268-5000

Directions to Hospital:

Exit site and proceed to Route NT-32 South towards Route NY-2. Turn left onto route NY-2 East. Turn left onto Routs US-4 North. Turn right onto Hoosick Street. Turn left onto Route NY-40. St. Mary's Hospital is located on 1300 Massachusetts Avenue. (See attached map). The distance from the subject work site to the hospital is approximately 2.5 miles, with a driving time estimated to require 10 - 15 minutes.

Additional Emergency Numbers

National Response Center (NRC)	800-424-8802
Chemtrec	800-424-9300
New York State Department of Environmental Conservation (NYSDEC)	(518) 457-9255
Saint-Gobain Representative (James Smith)	(610) 341-7321
FES Exton Office	610-594-3940

8.2 Medical Emergencies

Any person who becomes ill or injured at the site will be transported to Saint Mary's Hospital. All injuries will be reported to the FES HSO or qualified alternate and documented in the FES HASP field book.

Any person transporting an injured person to the hospital for treatment will take with them a copy of the FES HASP. Any vehicle utilized to transport injured personnel to the hospital will subsequently be decontaminated as warranted.

9.0 RECORD KEEPING

9.1 Record Keeping

FES's HSO (Bryan J. Machella) or qualified alternate (Robert Zei) will maintain records of all necessary and pertinent monitoring activities as described below:

- description of each work task completed on site;
- name and position title of employees involved on each specific work task;
- names of individuals working at the site; and
- emergency report sheets describing any incidents or accidents.

All records will be maintained in a project field book dedicated for the former Norton/Nashua Tape Products Facility Site.

TABLES

Table 1
Exposure Pathways and Exposure Levels
Former Norton/Nashua Tape Products Facility
Watervliet, New York

Contaminant	Exposure Pathway	Acceptable Exposure Limits		IDLH
		NIOSH	OSHA	Concentration (OSHA)
Volatile Organic Compounds				
Benzene	INH, ING, ABS, CON	0.1 ppm	1 ppm	500 ppm
2-Butanone (MEK)	INH, ING, CON	200 ppm	200 ppm	3,000 ppm
MIBK (Hexone)	INH, ING, CON	50 ppm	100 ppm	500 ppm
n-Heptane	INH, ING, CON	85 ppm	500 ppm	750 ppm
Ethylbenzene	INH, ING, CON	100 ppm	100 ppm	800 ppm
Toluene	INH, ING, ABS, CON	100 ppm	200 ppm	500 ppm
Xylenes	INH, ING, ABS, CON	100 ppm	100 ppm	900 ppm
Methylcyclohexane	INH, ING, CON	400 ppm	500 ppm	1,200 ppm
Styrene	INH, ABS, ING, CON	50 ppm	100 ppm	700 ppm
Base Neutral Compounds				
2-Methylnaphthalene	NA	NA	NA	NA
Acenaphthene	NA	NA	NA	NA
Anthracene	NA	NA	NA	NA
Benzo (a) Anthracene	NA	NA	NA	NA
Benzo (a) pyrene	NA	NA	NA	NA
Benzo (b) fluoranthrene	NA	NA	NA	NA
Benzo (k) fluoranthrene	NA	NA	NA	NA
Indeno-(1,2,3-cd) Pyrene	NA	NA	NA	NA
Dibenzo (a,h) Anthracene	NA	NA	NA	NA
Benzo (ghi) perylene	NA	NA	NA	NA
Bis (2-ethylhexyl) Phthalate	NA	NA	NA	NA
Chrysene	NA	NA	NA	NA
Fluoranthracene	NA	NA	NA	NA
Fluorene	NA	NA	NA	NA
Naphthalene	INH, ING, ABS, CON	10 ppm	10 ppm	250 ppm
Phenathrene	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA
Phenol	INH, ING, ABS, CON	5 ppm	5 ppm	250 ppm
2-Methyl phenol	INH, ING, ABS, CON	2.3 ppm	5 ppm	250 ppm
4-Methyl phenol	INH, ING, ABS, CON	2.3 ppm	5 ppm	250 ppm
1,4 Dichlorobenzene	INH, ING, ABS, CON	NA	75 ppm	150 ppm
Total Petroleum Hydrocarbons				
Gasoline Range	INH, ING, ABS, CON	NA	NA	NA

Notes:
1. Acceptable Exposure levels and IDLH concentrations were obtained from the NIOSH Pocket Guide to Chemical Hazards, June 1994
2. ppm = Parts Per Million;
3. INH = Inhalation; ING = Ingestion; ABS = Absorption; CON = Contact
4. NA = Not Available

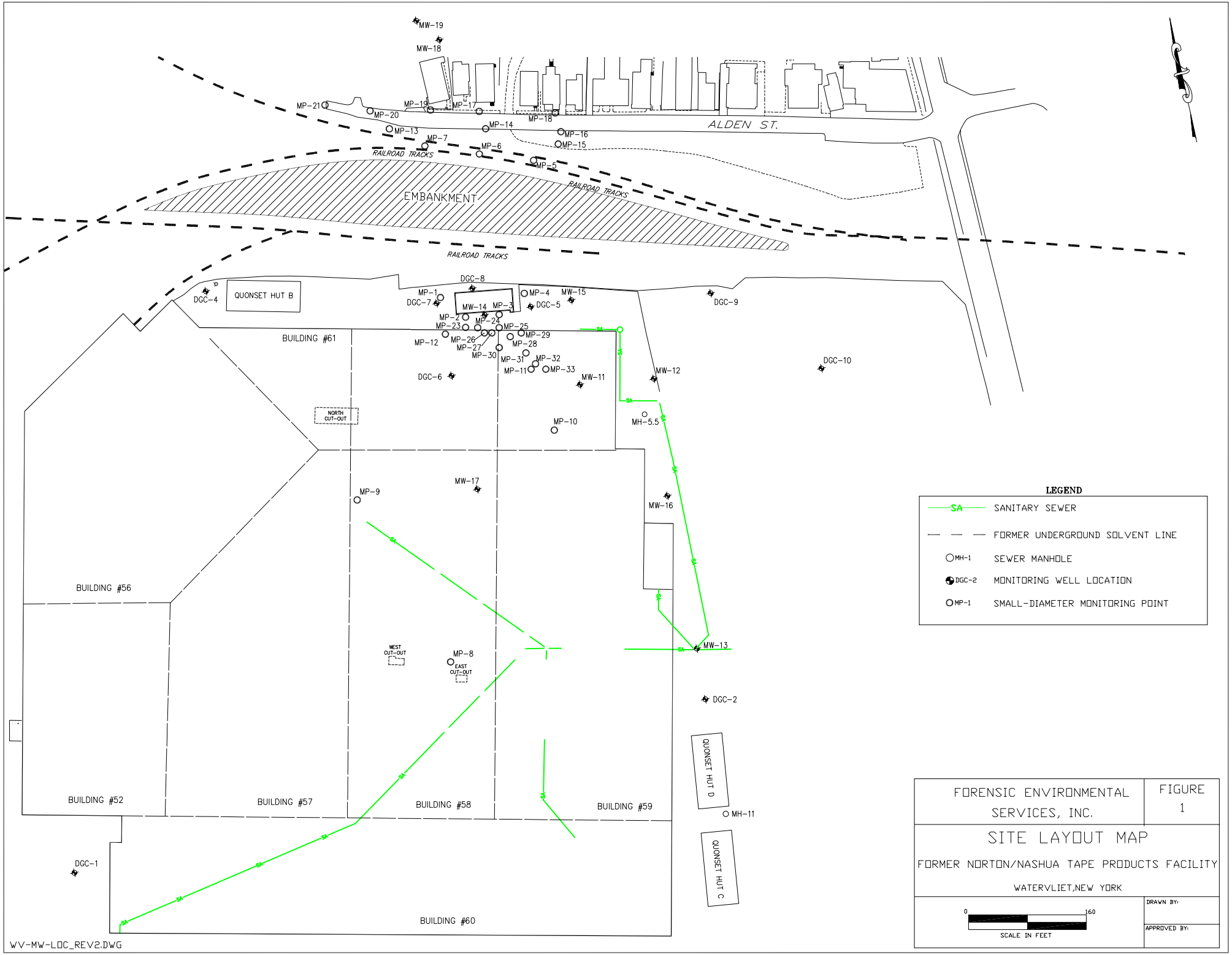
Table 2
PPE Requirements per Work Task
Former Norton/Nashua Tape Products Facility
Watervliet, New York

Work Task	Maximum Protection Level	Alternate Protection Level
Mobilization and Demobilization	Level D	Level D
Installation of EFR Extraction Wells and Monitoring Points	Level D or Level C* based on air monitoring results	Level D
Liquid-Level Data Collection	Level D	Level D
Groundwater Quality Sampling	Level D	Level D
Sanitary/Storm Sewer Water and Sediment Sampling	Level D or Level C* based on air monitoring results	Level D
EFR Pilot Testing and Associated Field Monitoring Activities	Level D or Level C* based on air monitoring results	Level D
Source Removal (Soil Excavation) Activities	Level D or Level C* based on air monitoring results	Level D
Monitoring Well Installation Activities	Level D or Level C* based on air monitoring results	Level D
In-Situ Chemical Oxidation (ISCO) Activities	Level D or Level C* based on air monitoring results	Level D

Notes:

1. Specific requirements for PPE are discussed in the HASP.
2. Alternate protection levels if monitoring levels indicate that conditions are appropriate.
3. * = Level C: to be worn when the criterion for using air-purifying respirators are met and a lesser level of skin protection is required

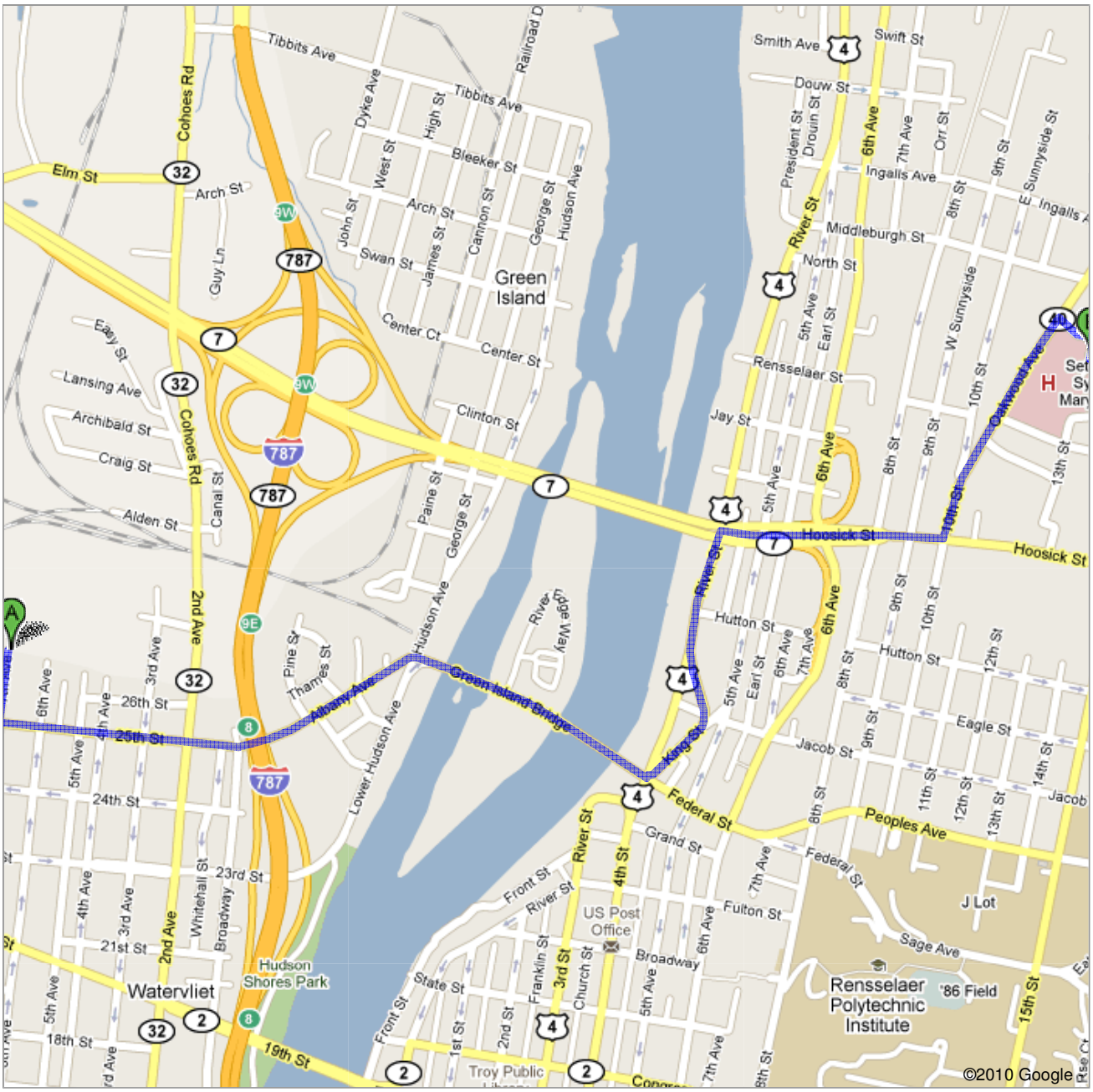
FIGURES


MW-19
MW-18
MP-21
MP-20
MP-19
MP-17
MP-18
MP-14
MP-16
MP-15
MP-13
MP-7
MP-6
MP-5
ALDEN ST.
RAILROAD TRACKS
EMBANKMENT
RAILROAD TRACKS
RAILROAD TRACKS
DGC-8
DGC-4
QUONSET HUT B
MP-1
DGC-7
MW-14
MP-3
MP-4
MW-15
DGC-5
DGC-9
MP-2
MP-24
MP-23
MP-25
MP-29
BUILDING #61
MP-12
MP-26
MP-28
MP-27
MP-30
MP-31
MP-32
MP-11
MP-33
MW-11
MW-12
DGC-10
DGC-6
NORTH CUT-OUT
MP-10
MH-5.5
MW-17
MP-9
MW-16
BUILDING #56
WEST CUT-OUT
MP-8
EAST CUT-OUT
MW-13
DGC-2
QUONSET HUT D
MH-11
BUILDING #52
BUILDING #57
BUILDING #58
BUILDING #59
DGC-1
QUONSET HUT C
BUILDING #60
SA
LEGEND
SANITARY SEWER
FORMER UNDERGROUND SOLVENT LINE
MH-1 SEWER MANHOLE
DGC-2 MONITORING WELL LOCATION
MP-1 SMALL-DIAMETER MONITORING POINT
FORENSIC ENVIRONMENTAL SERVICES, INC.
FIGURE 1
SITE LAYOUT MAP
FORMER NORTON/NASHUA TAPE PRODUCTS FACILITY
WATERVLIET,NEW YORK
0
160
SCALE IN FEET
DRAWN BY:
APPROVED BY:
WV-MW-LOC_REV2.DWG

APPENDICES

Google maps

Directions to 1300 Massachusetts Ave, Troy, NY 12180
2.2 mi – about **8 mins**



A 2600 7th Ave, Watervliet, NY 12189

	1. Head **south** on **7th Ave** toward **25th St**	go 0.1 mi total 0.1 mi
	2. Take the 1st **left** onto **25th St** About 2 mins	go 0.4 mi total 0.5 mi
	3. Continue onto **Albany Ave**	go 0.3 mi total 0.8 mi
	4. Continue onto **Green Island Bridge**	go 0.3 mi total 1.1 mi
	5. Turn **left** at **River St** About 1 min	go 33 ft total 1.1 mi
	6. Take the 1st **right** onto **King St**	go 0.2 mi total 1.3 mi
	7. Continue onto **River St**	go 0.2 mi total 1.5 mi
	8. Turn **right** at **Hoosick St** About 2 mins	go 0.3 mi total 1.8 mi
	9. Turn **left** at **10th St**	go 466 ft total 1.9 mi
	10. Continue onto **Oakwood Ave**	go 0.3 mi total 2.2 mi
	11. Turn **right** at **Massachusetts Ave**	go 292 ft total 2.2 mi
	12. Turn **right** to stay on **Massachusetts Ave** Destination will be on the right	go 164 ft total 2.2 mi

B 1300 Massachusetts Ave, Troy, NY 12180

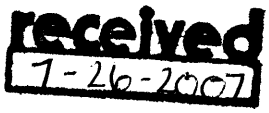
APPENDIX B

NYSDEC CORRESPONDENCE
DATED JULY 24, 2007

New York State Department of Environmental Conservation
Division of Solid & Hazardous Materials
Bureau of Hazardous Waste and Radiation Management
625 Broadway, Albany, NY 12233-7258
Phone:(518) 402-8594 • **FAX:**(518) 402-8646
Website: www.dec.ny.gov

Alexander B. Grannis
Commissioner

July 24, 2007



Robert W. Zei, Ph.D., CPG
Sr. Project Manager
Forensic Environmental Services, Inc.
113 John Robert Thomas Drive
The Commons at Lincoln Center
Exton, Pennsylvania 19341

Re: Request for "Contained-In" Determination
Former Norton-Nashua Tape Products Site
2600 Seventh Avenue, Watervliet, NY
EPA ID No. NYD002083954
NYSDEC Index Number: CO 4-20001205-3375

Dear Mr Zei:

This office has reviewed the proposed "Contained-In" Request received on June 15, 2007. The "Contained-In" Determination will be performed once the soil and groundwater sampling data associated with the above site is submitted to this office. As per agreement:

- The "Contained-In" determination would be used to assist in the evaluation of future treatment and/or discharge alternatives. There is no intention within this "Contained-In" determination to put forth a methodology for developing cleanup levels for contaminated environmental media. Cleanup levels will be determined at a later time as part of the corrective action process.

- Identify where the environmental media or debris will be disposed. If the material will be transported off-site for disposal or for thermal treatment provide the name and address of the facility that will receive it. For soil that will be placed on-site after receiving a "contained-in" determination first describe and identify on a scaled facility plot plan the placement location, and submit this information to the NYSDEC project manager for approval.

In order for the Department to process a "contained-in" determination, you must submit all QA/QC deliverables for which a determination is sought. There should be a QA/QC section describing sample information records (sample location, field sample I.D. link to specific segregated piles, sample analysis method, etc). We also need a brief narrative from the laboratory describing any problems with the calibration data or a statement saying there were no QC problems plus a statement on whether samples were analyzed within the proper holding

times. Once we have reviewed the analytical data results for each individual batch, we will send you a "Contained-In" determination letter, similar to the enclosed draft letter.

Should you have any questions regarding the content of this letter, please do not hesitate to contact me at (518) 402-8594 or email me at hjwilkie@gw.dec.state.ny.us.

Sincerely,

Henry Wilkie
Environmental Engineer 1
Hazardous Waste Engineering Eastern Section

ecc: A. Barraza
L. Rosenman

New York State Department of Environmental Conservation
Division of Solid & Hazardous Materials
Bureau of Hazardous Waste and Radiation Management
625 Broadway, Albany, NY 12233-7258
Phone:(518) 402-8594 • ***FAX:***(518) 402-8646
Website: www.dec.ny.gov

Alexander B. Grannis
Commissioner

Robert W. Zei, Ph.D., CPG
Sr. Project Manager
Forensic Environmental Services, Inc.
113 John Robert Thomas Drive

The Commons at Lincoln Center
Exton, Pennsylvania 19341

DRAFT

Re: Request for "Contained-In" Determination
Former Norton-Nashua Tape Products Site
2600 Seventh Avenue, Watervliet, NY
EPA ID No. NYD002083954
NYSDEC Index Number: CO 4-20001205-3375

Dear Mr Zei:

A review of the referenced data from Soil Pile ID# X has been completed. Contaminated soils which have concentrations of toluene meet the Department's "contained-in" criteria TAGM 3028. Therefore, Soil Pile ID# X does o not have to be managed as hazardous waste when transported to XYZ Facility for thermal treatment.

Should you have any questions regarding the content of this letter, please do not hesitate to contact me at (518) 402-8594.

Sincerely,

Henry Wilkie
Environmental Engineer 1
Hazardous Waste Engineering Eastern Section

ecc: A. Barraza
L. Rosenman

APPENDIX C

ISOTEC CORRESPONDENCE
DATED OCTOBER 29, 2010

51 Everett Drive
Suite A-10
West Windsor, New Jersey 08550
(609) 275-8500 phone
(609) 275-9608 fax

6452 Fig Street
Suite C
Arvada, Colorado 80004
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Ref: Health & Safety/ Former Norton/Nashua Tape Products Facility, Watervliet, NY
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ISOTEC processes were created based on numerous years of both academic and private research in the chemical oxidation field and are one of the safest chem-ox processes due to the use of stabilized reagents injected in a controlled manner to reduce the possibility of any hazard occurring. ISOTEC has proposed application of in-situ chemical oxidation (ISCO) using modified Fenton's reagent (MFR) activated sodium persulfate technology based on the levels and types of contaminants present at the site. The reagents to be applied are sodium persulfate, stabilized hydrogen peroxide and chelated iron catalyst. This memo addresses the health and safety procedures to be followed during field implementation of the excavation treatment program.

- Incompatible reagents (i.e. catalyst and oxidants) will be stored such that in case of a spill the two would not come into contact with each other. Combustion issues associated with the presence of hydrogen peroxide or sodium persulfate are minimal since they are not flammable chemicals. Flammable materials (i.e. gasoline), will not be stored near the oxidants or in locations where a spill of oxidants could occur. ISOTEC trailer/box-truck will be equipped with an emergency fire extinguisher.
- Reagents utilized will be stabilized, used at low concentrations, and applied in a controlled manner over a 2-3 day period to limit the potential for aggressive reaction and vapor generation. Based on ISOTEC's past experience, sodium persulfate is a relatively slowly reacting oxidant where as the chelated iron catalyst is non-hazardous with minimal safety hazards while applying into an open excavation. To minimize dust generation, both sodium persulfate and catalyst will be applied as dilute liquids. Hydrogen peroxide will be applied in a dilute form (i.e. 5%-10% concentration) and stabilized with ISOTEC stabilizers to allow reaction in a slow, controlled manner that minimizes vapor generation. Breathing zone air monitoring near the excavation will be conducted during the

field activities for VOCs, oxygen, carbon monoxide and LEL using a multi ray PID instrument or similar. Based on ISOTEC's past experience, application of oxidants (i.e. hydrogen peroxide) in a stabilized form at the proposed low concentrations (i.e. 5%-10%) is relatively safe; however, the concentrations and/or application rate can be field adjusted if necessary.

- All field personnel will be equipped with the necessary PPE including splash suits, goggles, hard hats with face shields and gloves. Full-face air purifying respirators will be available on site although it is not anticipated that they will be necessary.
- An emergency eye wash station will be set up during mobilization and available for the entire duration of the treatment program.
- ISOTEC personnel are well trained to understand the potential dangers associated with the chemical reaction they are creating, and have completed extensive safety training. As with any activity, by applying safety measures, plus understanding how a process works, limits the potential for any misfortune. A site-specific health and safety plan will be prepared prior to field mobilization, which will discuss material handling and storage procedures. All field members have completed health and safety training consistent with the Occupational Safety and Health Act (Title 29 of the Code of Federal Regulations 1910.120) with current certificates. The site supervisor has completed an additional eight hours of OSHA training. In addition, all field members have completed Loss Prevention System (LPS) training. All employees receive an annual physical, drug screening and 8-hour safety refresher course.