# **CORRECTIVE MEASURES STUDY (CMS) WORKPLAN – PILOT TESTING EXTENSION**

Former Norton Company/Nashua Tape Products Facility 2600 Seventh Avenue Watervliet, New York EPA ID No. NYD 066829599 NYSDEC Index Number: CO 4-20001205-3375

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#### **SECTION 1.0**

#### **INTRODUCTION**

This workplan has been prepared to summarize data collection activities proposed in association with the extension of Corrective Measures Study (CMS) pilot testing 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 July 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 and remedial actions 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 the initial pilot testing activities in Second Quarter 2010, the NYSDEC, 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 being prepared under separate cover.

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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). A Source Removal Workplan, which will include post-excavation treatment contingencies for any residual impact to soil and groundwater, is being prepared under separate cover. 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. This Workplan includes proposals for the installation of additional EFR extraction points and future EFR pilot testing events.

It was further discussed and agreed at the June 23, 2010 meeting, that on-site groundwater monitoring activities will be conducted in conjunction with the pilot testing and source removal activities rather than the IGWMP previously submitted to the NYSDEC. A proposed on-site sampling schedule is included in this Workplan.

The first phase of work will consist of the installation of additional monitoring wells (summarized in Section 2.0) for use during extended pilot testing in the Building Subslab AOC and associated baseline sampling (see Section 3.0). The second phase of work will focus on the extended field testing of EFR in the Building Subslab AOC outlined in Section 4.0 and the continuation of groundwater monitoring discussed in Section 5.0.

Storm sewer inspection and sampling activities (see Section 6.0) were completed in September 2010. In addition to the parameters specified in the December 2008 CMS Workplan, the storm sewer samples were analyzed for polychlorinated biphenyls (PCBs).

Field decontamination procedures are reviewed in Section 7.0 of this Workplan, Quality Assurance/Quality Control (QA/QC) measures are discussed in Section 8.0, and laboratory analyses are summarized in Section 9.0. The proposed work schedule is outlined in Section 10.0.

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 Attachment 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 the proposed EFR program, Saint-Gobain will prepare appropriate data summary tables and figures, and schedule a meeting (or conference call) with the NYSDEC to discuss the EFR results. Saint-Gobain will then propose a plan for continued operation of the EFR program or an alternative remedy if necessary. 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.

#### **SECTION 2.0**

# INSTALLATION OF EFR EXTRACTION WELLS AND MONITORING POINTS

Additional monitoring wells/points are needed to: 1) complete plume delineation; and 2) provide the proper spatial array for extended EFR pilot testing program. A limited number of conventional monitoring wells (two-inch diameter) are proposed in the Building Subslab AOC, which will allow future deployment of downhole sampling equipment and pumps, if needed. Smaller-diameter monitoring points (one-inch diameter) are proposed for groundwater sampling, liquid-level monitoring, and/or vacuum/pressure gauging purposes.

Additional soil characterization in the Building Subslab AOC is unnecessary because: 1) extensive soil characterization was performed in this AOC as part of the RFI activities documented in the March 2008 RFI Report; and 2) remedial actions under consideration for this AOC are limited to groundwater (vs. soil) treatment technologies. Therefore, soil samples for field description and/or laboratory analysis will not be collected during the installation of groundwater monitoring points/wells in the Building Subslab AOC.

To provide greater access flexibility, a smaller Geoprobe drilling rig was previously used to install monitoring points at the Former Norton/Nashua facility, but the presence of one or more subfloors and subsurface debris (i.e., bricks and cobbles) frequently interfered with borehole advancement. Future indoor borings at this site may be installed via standard hollowstem auger (HSA) or air hammer methods, as needed.

During all drilling activities, ambient air conditions will be screened with a photoionization detector (PID) in accordance with procedures in the site-specific HASP and the May 2005 Quality Assurance Project Plan (QAPP). The PID, equipped with a 11.6 eV lamp (MiniRae2000 or equivalent), will be calibrated twice-daily or after any two hour break.

#### 2.1 Proposed Groundwater Monitoring Well/Point Locations

Work conducted during the RFI determined that residual toluene was present adjacent to the former solvent lines beneath Building #61; however, because this area was identified as "impacted", extensive groundwater sampling was not conducted as part of the RFI Further, the RFI field work was conducted several years ago. Therefore, additional groundwater delineation is necessary to determine: 1) the current extent of the toluene plume in some portions of the Building Subslab AOC; and 2) optimal locations for EFR extraction wells.

Proposed delineation well (and possible EFR extraction well) locations are depicted on Figure 2-1. Final drilling locations will be coordinated with the current warehousing business operating at the Former Norton/Nashua facility. Borehole locations may be shifted slightly in the field to address various access and business operational issues without significantly affecting pilot testing/EFR or monitoring requirements. Potential well relocations greater than 15 to 20 feet will be reviewed with the NYSDEC.

Delineation/potential EFR extraction wells are proposed for the following locations in the Building Subslab AOC (all locations are in Building #61; see Figure 2-1): 1) MW-20; along the north wall of Building #61 between existing wells MP-12 and MP-26 (just west of the former solvent lines); 2) MW-21; between existing well MP-30 and the former solvent lines; 3) MW-22; along the south wall of Building #61, just east of the former solvent lines; 4) MW-23; between proposed well MW-22 and existing well MP-11; and 5) MW-24; along the north wall of Building #61, east of existing well MP-29. These five locations were selected to: 1) define the anticipated area of maximum residual toluene impact to groundwater within the Building Subslab AOC (current plume data are presented on Figure 2-1a); and 2) in conjunction with existing wells, provide adequate spacing to allow complete coverage of the toluene plume for EFR purposes.

In addition to the wells proposed above, one-inch diameter monitoring points are proposed for the following locations in the Building Subslab AOC (see Figure 2-1): 1) MP-34; in the northwest corner of Building #59; and 2) MP-35; in Building #61, south of existing well DGC-6 and west of the solvent lines. These two points should complete the delineation of residual toluene impact to groundwater within the Building Subslab AOC. Alternatively, if significant residual toluene impact (see Section 4.0) is detected in these wells, they will be used as EFR extraction points, and contingent delineation points will be installed (see next section).

# 2.2 Contingent Groundwater Monitoring Point Locations

Existing wells MP-12, DGC-6, MW-17, MP-10, MP-32, MP-33, and MW-11 (see Figure 2-1) currently serve as delineation wells for residual toluene impact to groundwater within the Building Subslab AOC. Based upon the baseline groundwater sampling results (see Section 3.0) at the proposed EFR wells and monitoring points (see Section 2.1a), contingent one-inch diameter monitoring points may be installed to fill in any remaining delineation gaps.

Contingent monitoring point locations (see Figure 2-1) include: 1) MP-36; Building #61, west of proposed monitoring point MP-35; 2) MP-37; Building #58, southwest of the terminus of the former solvent lines; 3) MP-38; Building #58, southwest of contingent point MP-37; 4) MP-39; Building #59, southeast of proposed monitoring point MP-35; and 5) MP-40; Building #61, east of proposed well MW-24.

If the baseline dissolved toluene concentration at a newly-installed monitoring well/point is greater than 1,000 micrograms per liter ( $\mu$ g/L), installation of the associated contingent point(s) will be scheduled and completed before the next groundwater sampling/EFR event. If lower dissolved toluene concentrations are present, the need to install the contingent monitoring point(s) will be assessed following the review of groundwater data collected after at least one subsequent EFR event. Contingent monitoring points will be sampled during the next regularly scheduled groundwater sampling event. Based upon the results, the need for further delineation, if any, will be reviewed with the NYSDEC.

#### 2.3 Installation of Groundwater Monitoring Wells/Points

Proposed borings will be installed to approximately ten feet below the level of the water table (or to drilling refusal). Total monitoring point/well depths are anticipated to range from 15 to 20 feet. All proposed groundwater monitoring wells/points 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.

Monitoring wells/points installed via standard HSA or air hammer 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. 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.

Boreholes installed via Geoprobe will be completed with Geoprobe "pre-pack" well and filter kits constructed of one-inch or two-inch diameter Schedule 40 PVC riser, pre-pack Schedule 40 PVC screen (ten feet, 0.010-inch slot size), 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.

Following installation, each groundwater monitoring well/point will be properly developed to remove fine-grained sediments from the sand pack and screen. Well development water will be staged and processed in a similar manner as groundwater sampling purge water (see Section 3.5).

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 7.0.

#### 2.4 Monitoring Point/Well Survey

After the installation of all proposed/contingent wells is completed, the newly installed monitoring points/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**

#### **COLLECTION OF BASELINE GROUNDWATER SAMPLES**

Baseline groundwater samples will be collected from each newly installed monitoring point/well (see Section 2.0) a minimum of two weeks after development. Additionally, the following monitoring points will be sampled during the baseline event (see Figure 2-1): MP-30, MP-11, MW-17, MP-10, and MW-15. The baseline sampling event will likely be scheduled to occur immediately before the first EFR event (see Section 4.0).

#### **3.1** 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, oxidationreduction 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  $\pm$  0.1 standard units, specific conductivity  $\pm$  3%, ORP  $\pm$  10 mV, and DO  $\pm$  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.

## 3.2 Groundwater Sample Analyses

Groundwater samples will be collected in appropriate laboratory bottleware (see Table 3-1), properly labeled, 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 volatile organic compounds (VOCs) via EPA Method 8260 plus heptane and tentatively identified compounds (TICs), and other selected analyses (see below). Relevant sampling protocol are summarized in Table 3-1. All analyses will include Category B laboratory deliverables.

# 3.3 Supplemental Groundwater Analyses

In addition to the analyses discussed in Section 3.2, two monitoring well locations will be analyzed for the following natural bioattenuation parameters during the baseline sampling event (see Table 3-1): redox, pH, and  $O_2$  (via field instrumentation), total and dissolved iron (EPA Method 7380), Fe<sup>+2</sup> (via field chemical analysis kit), nitrate/nitrite (EPA Method 353.2), and phosphate (EPA Method 365.1). Redox, pH, and  $O_2$  will also be monitored at all sampling points via field instrumentation, and nitrate and phosphate will be monitored at all sampling points using field chemical analysis kits during the baseline groundwater sampling event.

#### 3.4 Nutrient Supplement

CMS bioattenuation 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.

## 3.5 Purge Water Disposal

Purge water from monitoring point/well development and groundwater sampling conducted in conjunction with plume delineation and the EFR program 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 4.0**

# EFR PILOT TESTING EVENTS

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.

Based on the initial round of CMS pilot testing, EFR appears to be a feasible groundwater treatment technology in the Building Subslab AOC (and possibly, the southern portion of the Former Tank Farm SWMU) for "hot spot" remediation. A one-day EFR event at well MP-11 resulted in lower post-test dissolved toluene concentrations at this well and in surrounding wells in the area, and the radius of influence on groundwater levels extended over 50 feet from the extraction well. In addition to the physical removal of more impacted groundwater, fluid extraction during the EFR test appears to have drawn in "fresh" water from outside the area of impact. Fluid and vapor removal during the EFR test may have also stimulated intrinsic remediation by circulating and oxygenating stagnant water in the extraction zone of influence.

#### 4.1 EFR Extraction Wells

An EFR event will be conducted immediately after baseline sampling is completed (see Section 3.0). The following wells will be used as EFR extraction points during the initial pilot testing event (see Figure 2-1): MP-11, MP-30, and the three proposed EFR extraction wells south of MP-30 (see Section 2-1). EFR extraction wells north of MP-30 will not be utilized until source removal activities are completed in the Former Tank Farm SWMU (workplan being prepared under separate cover) to avoid potentially pulling more impacted groundwater from this SWMU towards the Building Subslab AOC, but it is anticipated that three to four wells in this area will ultimately be incorporated as EFR extraction wells. After post-test groundwater sampling results are obtained, these data will be used to determine if the list of EFR extraction wells should be modified during subsequent quarterly pilot testing events. A well will be dropped from the extraction list if the toluene concentration decreases below 1,000  $\mu$ g/L. Conversely, a well will be added to the list if the toluene concentration is greater than 1,000  $\mu$ g/L (or greater than 500  $\mu$ g/L if previously less than 5  $\mu$ g/L). During each EFR event, extraction will start at the outermost wells and work towards the center of the dissolved plume in an attempt to draw "fresh" water towards the plume centroid.

## 4.2 EFR Pilot Test Protocol

Each quarterly EFR pilot test will last approximately one day. Prior to the start of each quarterly EFR event, the following data will be recorded at each EFR extraction point and selected monitoring points/wells in the vicinity of the extraction well (if present) via field meter:

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

During the first EFR event, selected monitoring points/wells in the vicinity of the extraction well (if present) 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 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 (this was when maximum influence was observed during the previous EFR pilot test at MP-11). Prior to the termination of each event, 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 all quarterly EFR extraction events are completed (see next section). 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 all quarterly EFR events; however, field data from surrounding monitoring points will only be collected during the first EFR event at a specific extraction well to establish the approximate radius of influence from that extraction point.

If the number of EFR extraction points increases, the whole well extraction time at each well may be decreased or EFR events may be expanded to two days. Field results will be reviewed after each quarterly round of tests to determine if any other modifications to the test protocol are warranted.

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#### **SECTION 5.0**

#### CONTINUED ON-SITE GROUNDWATER MONITORING PROGRAM

The collection of baseline groundwater samples is discussed in Section 3.0. Groundwater monitoring events will also occur after each EFR event (see Section 4.0), and in combination with the supplemental monitoring points discussed below, will constitute the on-site interim groundwater monitoring program.

## 5.1 On-Site Groundwater Monitoring Program

In addition to the newly installed monitoring points discussed in Section 2.0, the following monitoring points will be incorporated into the on-site groundwater monitoring program (see Figure 2-1): MP-30, MP-11, MW-17, MP-10, and MW-15. Additional outdoor monitoring points may be incorporated into the on-site monitoring program after source removal activities (see Section 1.0) are completed.

The following sampling schedule will apply:

- 1. <u>EFR extraction points</u> Sample all extraction points after each EFR event. If EFR extraction is discontinued at a specific location (see Section 4.1), collect at least one subsequent sample to check for possible rebound effect, then follow monitoring point schedule (see below).
- 2. <u>New monitoring points</u> If the toluene concentration is non-detect or less than 5  $\mu$ g/L, collect a confirmatory sample in six months. If the toluene concentration is between 5  $\mu$ g/L and 500  $\mu$ g/L, collect a confirmatory sample in six months, and then sample at least annually. If the toluene concentration is greater than 500  $\mu$ g/L, evaluate as possible EFR extraction well (see Section 4.1), continue monitoring after each EFR event.
- 3. <u>MW-17 & MP-10</u> Collect sample during baseline event (this will serve as the "confirmatory" sample) and then follow the monitoring point schedule (see above).
- 4. <u>MW-15</u> Collect sample during baseline event (this will serve as the "confirmatory" sample), collect sample after the completion of source removal activities, and then follow the monitoring point schedule (see above).

# 5.2 Groundwater Sample Collection and Analyses

Monitoring points/wells will be sampled via the micropurge sampling method as discussed in Section 3.1, and analyzed for the same suite of parameters discussed in Sections 3.2 & 3.3. Redox, pH, and  $O_2$  will be monitored at all sampled points via field instrumentation, and nitrate and phosphate will be monitored at all sampling points during each sampling event using field chemical analysis kits; however, field kit analyses may be discontinued at selected monitoring points during subsequent sampling events.

#### 5.3 Nutrient Supplement

As discussed in Section 3.3, "non-active" monitoring points may be dosed with a nitrate supplement after baseline sampling is completed. Any nitrate supplementation will be conducted prior to each EFR event. If nitrate is not detected in the well following the EFR event, the dose concentration will be increased during the subsequent event.

Adding the supplement before each EFR event will increase the likelihood that fluid extraction during the EFR event will draw the supplemented groundwater towards the center of the dissolved toluene plume and potentially increase biological activity. Microcat-VNBAF, which also contains phosphate and other trace nutrients, or similar additives may also be used as supplements.

#### 5.4 Purge Water Disposal

Purge water from groundwater sampling conducted in conjunction with CMS pilot testing 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 6.0**

# SEWER SWMUs CORRECTIVE MEASURES SAMPLING

Proposed Sewer SWMUs Corrective Measures were limited to addressing the presence of polycyclic aromatic hydrocarbons (PAHs) in the storm sewer sediment. The source of the PAHs previously detected in the storm sewer sediments was most likely: 1) historical site activities; and/or 2) run-off from asphalt covered areas, e.g., parking lots and/or the roof of the main building (a large section of the roof was previously resealed/repaired).

#### 6.1 Storm Sewer SWMU Corrective Measures Testing

Per the December 2008 CMS Workplan, all visible sediment and standing water was removed from each of the accessible on-site storm sewer manholes in June 2009 and sent offsite for proper disposal. If the PAH-impacted sediments are associated with historical site activities, there will be no subsequent accumulation of contaminated sediment, and the removal event will eliminate the potential migration of sediments from the Norton/Nashua Site via the storm sewer system. If PAH-impacted sediments return after removal of the current sewer sediments, the source is more likely ongoing surface run-off to the storm sewer system, and thus, unrelated to activities associated with NYSDEC Order on Consent Index No. CO: 4-20001205-3375. In the latter case, further Corrective Measures will not be proposed.

#### 6.2 Storm Sewer SWMU Monitoring

Per the December 2009 CMS Workplan, following the sediment removal event, and at least two significant (greater than 0.5 inches) rainfall events or equivalent snow melts, a sewer inspection and sampling event was to be performed. Sewer sampling was performed according to the sampling procedures documented in Section 5.4 of the December 2007 RFI report.

Sewer sediment sampling proceeded upstream to avoid agitation of bottom sediments at succeeding sediment sample locations (see Figure 6-1 for storm sewer manhole locations). The original workplan called for the collection of sewer sediment samples from five storm sewer manholes (MH-2, MH-3, MH-6, MH-12 & MH-14), but in September 2010 sediment was only present at manholes MH-2 & MH-6.

Because no sediment was present at sewer manholes MH-3 and MH-12 (note: there are no upstream locations from MH-14), alternate locations upstream along the these sewer lines were assessed for possible substitution (see Table 6-1). A sediment sample from manhole MH-3.5 was obtained to substitute for MH-3, but the only manhole upstream from MH-12 (MH-13) was not accessible in September 2010.

Contingent storm sewer sediment samples were analyzed for semi-volatile organic compounds (SVOCs) via EPA Method 8270 plus TICs, and, per discussions at the June 2009 meeting, polychlorinated biphenyls (PCBs) via EPA Method 8082. All sediment analyses will include Category B laboratory deliverables (see Table 6-1). Results will be discussed in a future monthly Status Report.

Regardless of whether or not sewer sediment was present, sewer water samples were to be collected from the same five storm sewer manholes (MH-2, MH-3, MH-6, MH-12 & MH-14), according to the sampling procedures documented in Section 5.5 of the December 2007 RFI report. However, water was only present at manhole MH-12 in September 2010. Per the original workplan, alternate sampling locations upstream along the same sewer lines (see Table 6-1) were inspected, but were either dry or inaccessible in September 2010.

The sewer water sample from MH-12 was analyzed for SVOCs via EPA Method 8270 plus TICs, and, per discussions at the June 2009 meeting, PCBs via EPA Method 8082 (see Table 6-1). All sewer water sample analyses will include Category B laboratory deliverables.

Sewer water sampling results will be discussed in a future monthly Status Report. Sewer sampling results will be used to determine the need, if any, for additional Corrective Measures for the Storm Sewer SWMU.

# **SECTION 7.0**

# **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 3.5.

#### **SECTION 8.0**

#### 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 8-1. 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 9.0).

#### Trip Blanks

One trip blank sample will be analyzed for each groundwater 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 sediment) and analyzed for the complete set of VOC/SVOC 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, sediment, and stormwater) and analyzed for the complete set of VOC/SVOC/PCB 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, sediment, and stormwater) 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 9.0**

#### LABORATORY ANALYSIS

All groundwater, sediment, and stormwater 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 <u>CLP Organics Data Review and Preliminary Review</u> (SOP No. HW-6, Revision No. 8, January 1992), and <u>USEPA Contract Laboratory</u> <u>Program National Functional Guidelines for Organic Data Review</u> (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 8.0, one equipment blank sample will be collected for each medium (groundwater, sediment, and stormwater) during each mobilization and analyzed for all VOC/SVOC/PCB 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 3-1), 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 10.0**

#### **SCHEDULE & REPORTING**

The first phase of work will consist of the monitoring well installations proposed in Section 2.0. All wells will be installed during the same mobilization if possible, but the facility is an active warehouse, and additional advance notice may be required for access to all locations.

Baseline groundwater sampling (see Section 3.0) will be begin at least 14 days, but no more than 45 days, after well development activities are completed at the Site. An EFR pilot testing event (Section 4.0) will be conducted immediately following baseline sampling.

Subsequent EFR and groundwater monitoring events will be conducted in a quarterly basis. Groundwater and storm sewer water (and contingent sediment) samples will be submitted for standard laboratory turn-around times (two to three weeks). Storm sewer water and sediment sampling (see Section 6.0) was completed in September 2010.

If elevated dissolved toluene concentrations (i.e., greater than 1,000  $\mu$ g/L) are present at any newly installed monitoring well/point locations, installation of the associated contingent monitoring point(s) will be scheduled and completed so the points can be sampled during the next regularly sampled groundwater sampling event. If less elevated dissolved toluene concentrations are present at newly installed monitoring locations, the need to install any contingent monitoring points will be assessed following the review of groundwater data from at least one subsequent EFR pilot testing event.

Progress reports summarizing the status of all activities associated with implementation of the approved CMS Workplan will be submitted to the NYSDEC on a monthly basis. Copies of all final groundwater, sediment, and stormwater 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 EFR events to discuss results.

If the results of one year of EFR events are favorable, Saint-Gobain will propose a plan for continued operation of the EFR Program that includes a select number of EFR wells which will be monitored to determine if additional EFR events (or an alternative remedial method) are necessary. If an alternative remedial method is necessary, 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 the alternative remedies; 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.

Per the general requirements of NYSDEC CO: 4-20001205-3375, any revisions to this Workplan are to 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 30 days of receipt of final Workplan approval from the NYSDEC.

An updated project schedule is provided as Table 10-1.

#### **SECTION 11.0**

#### 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).
- FES, 2005. Supplemental RCRA Facility Investigation (RFI) Workplan and Quality Assurance Project Plan (QAPP), May 2005.
- 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).
- Rust Environment & Infrastructure (Rust), 1994. Quality Assurance Project Plan (QAPP), IRM and General RFA/RFI Sampling Investigation, April 1994.
- USEPA Region II, 1992. Contract Laboratory Program (CLP) Organics Data Review and Preliminary Review. Publication No. SOP No. HW-6, Revision No. 8, January 1992.
- 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 3-1 Sample Summary Matrix - Groundwater Samples CMS Pilot Testing Extension Former Norton/Nashua Facility Watervliet, NY

Matrix	Sample Locations	Parameter	Analytical Parameter	Analysis Holding Time		
Water	Selected Monitoring Points/Wells (see text)	TCL Volatiles plus heptane	EPA 8260	3 x 40 ml glass vials w/teflon lined enclosure (no headspace)	14 days	
Supplemental	alselected Monitoringtotal/dissolved(field filter) irc		EPA 200.7	250 ml plastic, HNO <sub>3</sub> to pH <2	2 6 mos.	
Water	Points/Wells (see text) nitrate/nitrite	EPA 300.0	28 days			
		phosphate	EPA 365.1 100 ml plastic, $H_2SO_4$ to pH <2		28 days	
Supplemental	Selected Monitoring	nitrate/nitrite	(field kit)			
Water	Points/Wells (see text)	(field kit)				

# Table 6-1 Sample Summary Matrix - Storm Sewer Samples CMS Pilot Testing Extension Former Norton/Nashua Facility Watervliet, NY

Matrix	Sample Locations	Parameter	Analytical Parameter	Container and Preservative	Analysis Holding Time
Sediment	МН-2, МН-3,	TCL	EPA	8 oz. glass	14 days extraction -
	MH-6,	Semi-Volatiles	8270	Cool to 4°C	analysis within
	MH-12 & MH-14				40 days of extraction
(Contingent)	MH-2.5, MH-3.5,	Polychlorinated	EPA	8 oz. glass	14 days extraction -
	MH-4,	biphenyls	8082	Cool to 4°C	analysis immediately
	MH-10 & MH-13	(PCBs)			after extraction
Water	MH-2, MH-3,	TCL	EPA		7 days extraction -
	MH-6,	Semi-Volatiles	8270	2 x 1Liter amber glass	analysis within
	MH-12 & MH-14				40 days of extraction
(Contingent)	MH-2.5, MH-3.5,	Polychlorinated	EPA		extraction and
	MH-4,	biphenyls	8082	1 x 1Liter amber glass	analysis within
	MH-10 & MH-13	(PCBs)			one year

Note: if sufficient sediment and/or water is unavailable for sampling at the above locations, contingent storm sewer locations will be inspected for possible sampling.

# Table 8-1 QA/QC Sample Summary Matrix CMS Pilot Testing Extension Former Norton/Nashua Facility Watervliet, NY

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

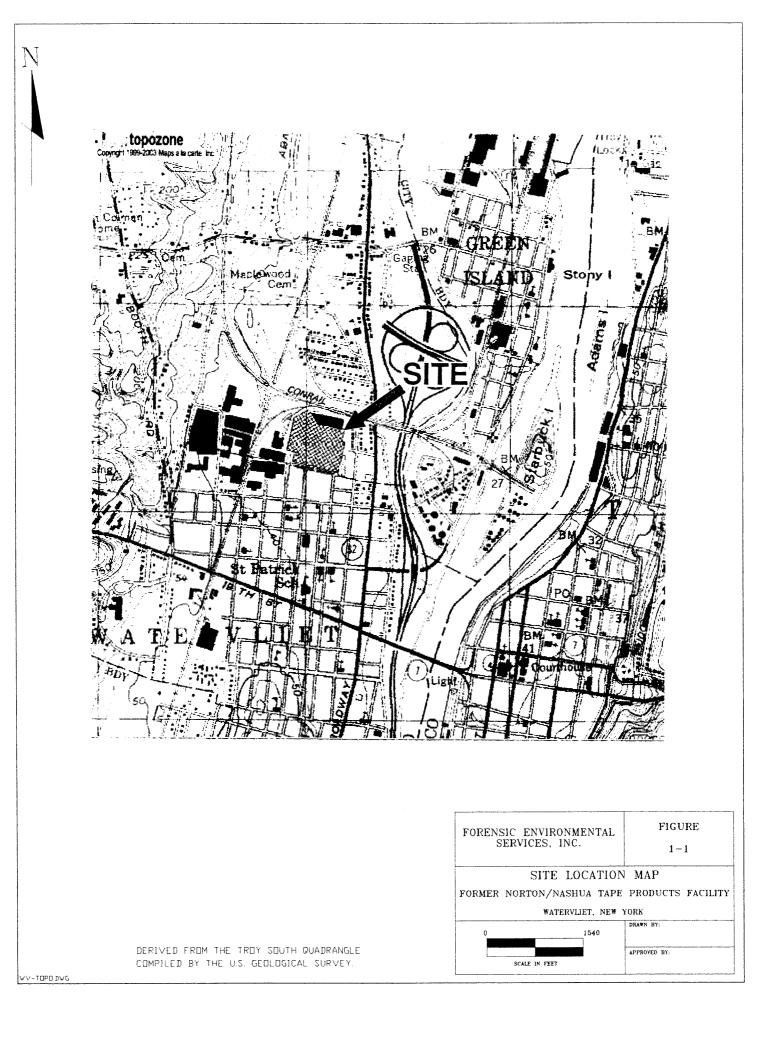
PCBs = polychlorinated biphenyls; TCL = target compound list; TICs = tentatively identified compounds;

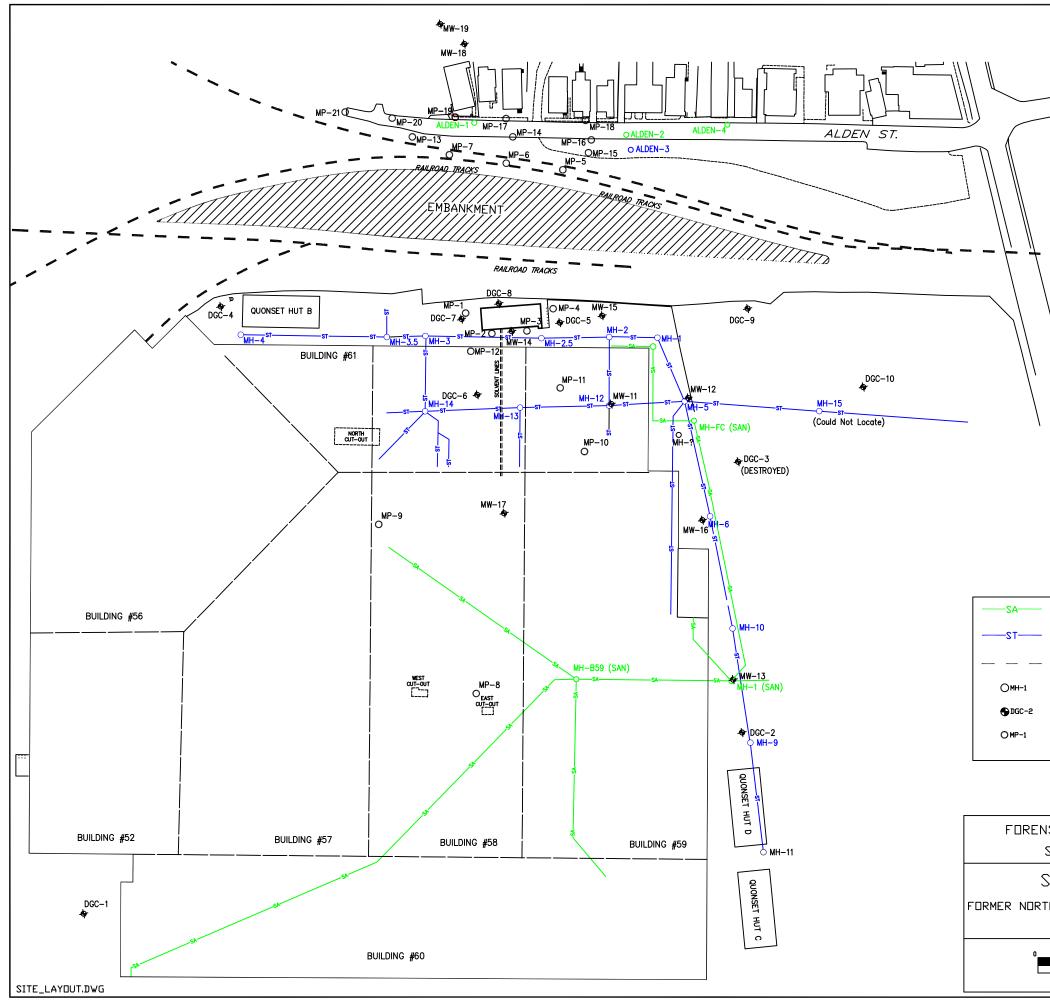
volatile analysis via EPA Method 8260; semi-volatile analysis via EPA Method 8270, PCB analysis via EPA Method 8082.

# Table 10-1 Tentative CMS EFR Pilot Testing Extension Schedule Former Norton/Nashua Tape Facility Watervliet, New York

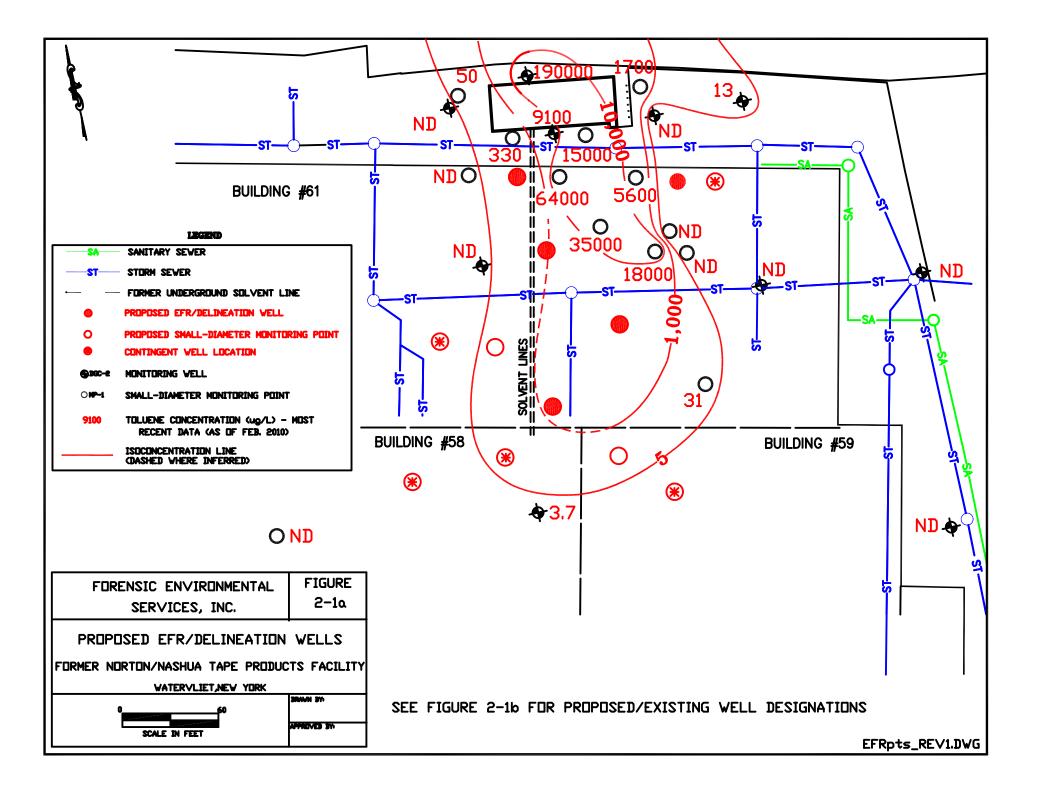
	Month											
	1	2	3	4	5	6	7	8	9	10	11	12
CMS Workplan Approved by NYSDEC												
Install Monitoring Wells/Points												
Baseline Groundwater Sampling												
EFR Event												
Post-Event Groundwater Sampling												
Storm Sewer Sediment/Water Sampling (completed Sept. 2010)												

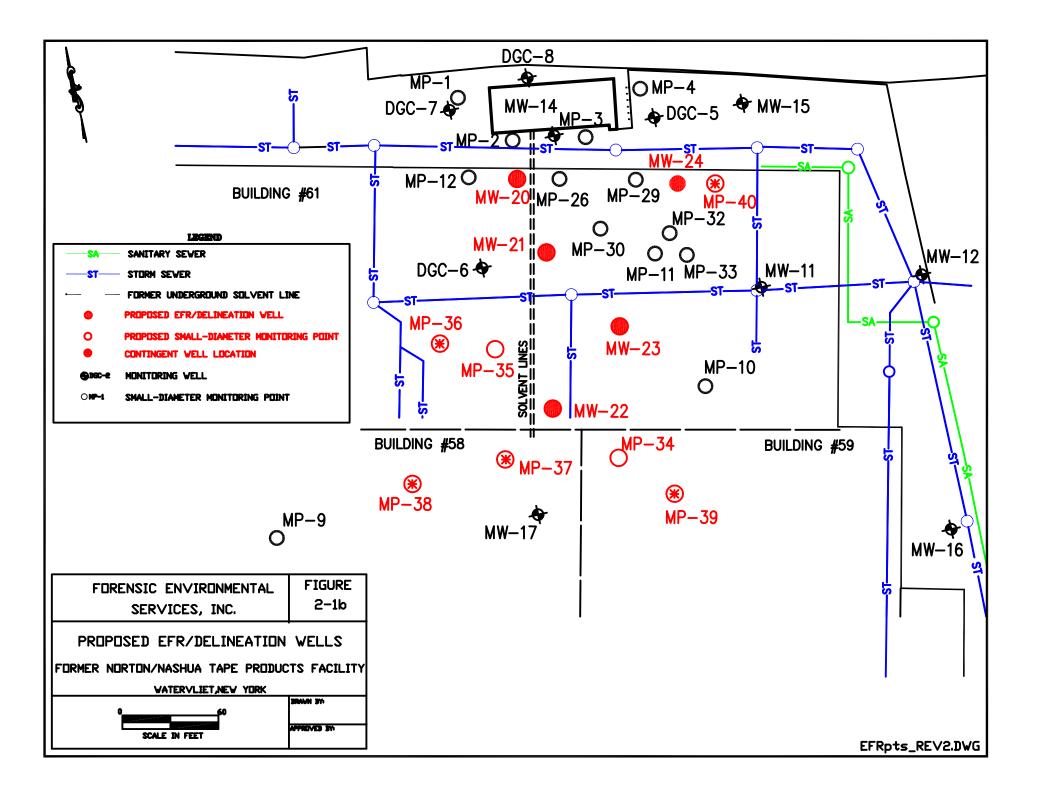
FIGURES

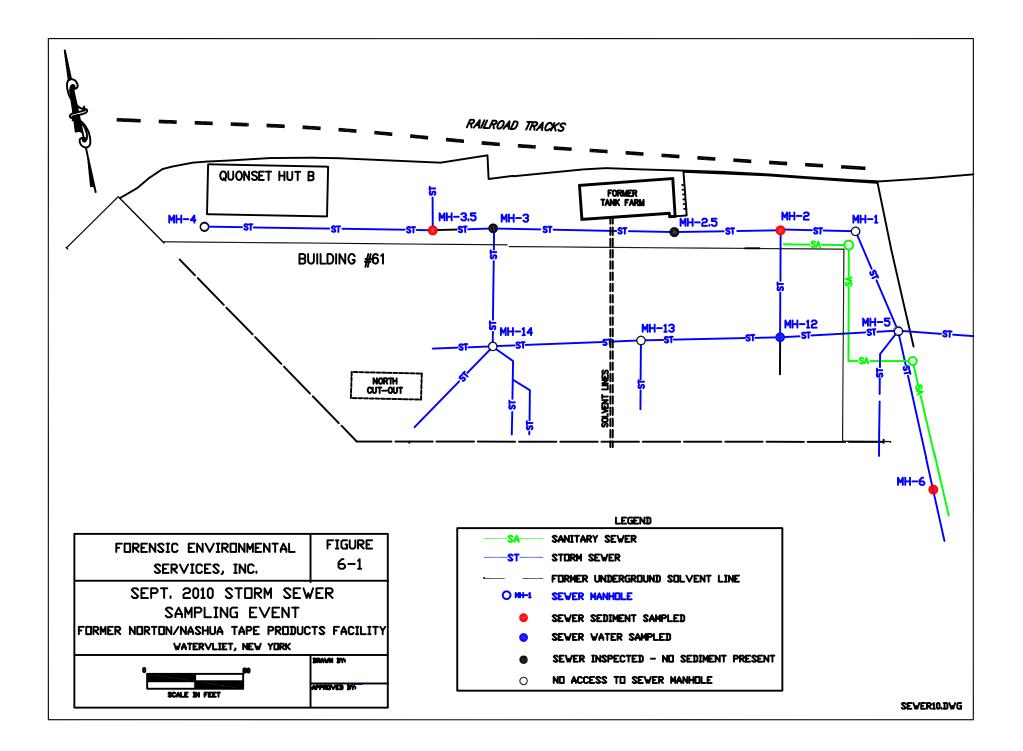




LEGEND - SANITARY SEWER - STORM SEWER	
FORMER UNDERGROUND SOLVEN SEWER MANHOLE MONITORING WELL LOCATION SMALL-DIAMETER MONITORING	
NSIC EN∨IR⊡NMENTAL SER∨ICES, INC.	FIGURE 1-2
SITE LAYOUT MAF TON/NASHUA TAPE PRODUC WATERVLIET,NEW YORK	TS FACILITY
120 SCALE IN FEET	DRAWN BY:
	J







# 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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#### **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:

- 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.
- 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 offsite 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:

- 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.
- 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 chainlink 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:

- 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.
- 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:

- 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

		Acceptable Ex	posure Limits	Page 1 IDLH
Contaminant	Exposure Pathway	NIOSH	OSHA	Concentration (OSHA)
	Volatile	Organic Compound	s	•
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 N	eutral 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 Pet	roleum Hydrocarbo	ns	
Gasoline Range	INH, ING, ABS, CON	NA	NA	NA

Notes:

Acceptable Exposure levels and IDLH concentrations were obtained from the NIOSH Pocket Guide to Chemical Hazards, June 1994
 ppm = Parts Per Million;
 INH = Inhalation; ING = Ingestion; ABS = Absorption; CON = Contact

4. NA = Not Available

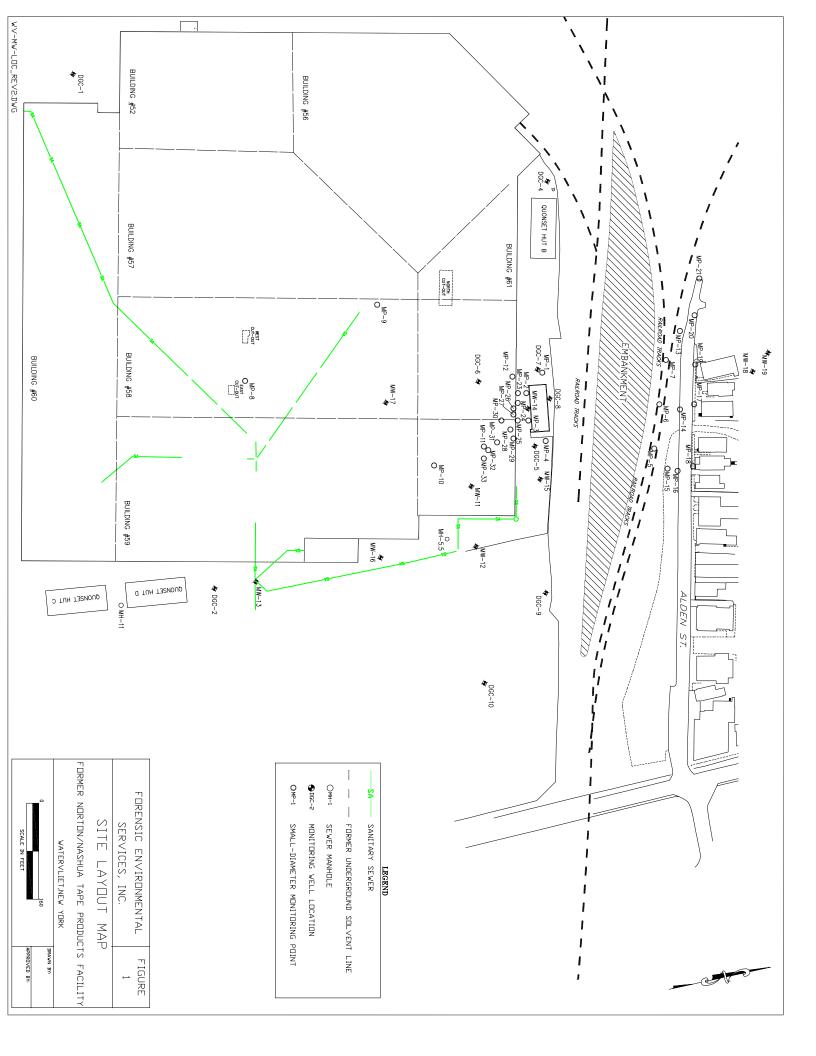
# Table 2PPE Requirements per Work TaskFormer Norton/Nashua Tape Products Facility<br/>Watervliet, New York

		Page 1 of 1
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	
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

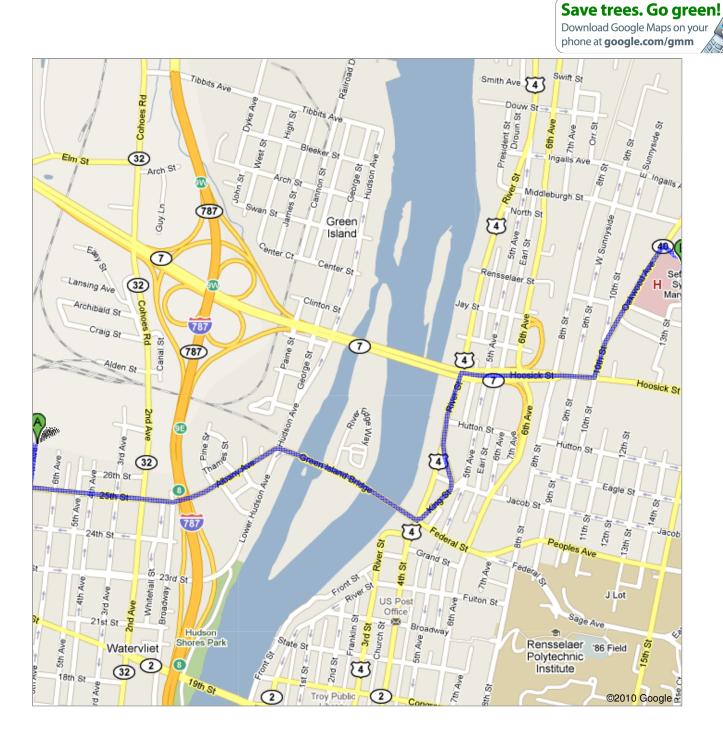


APPENDICES

2600 7th Ave, Watervliet, NY 12189 to 1300 Massachusetts Ave, Troy, NY 12180 - Google Maps Page 1 of 2



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



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

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route. Map data ©2010 Google

Directions weren't right? Please find your route on maps.google.com and click "Report a problem" at the bottom left.

Forensic Environmental Services, Inc.

113 John Robert Thomas Drive The Commons at Lincoln Center Exton, Pennsylvania 19341

Telephone: (610) 594-3940

Telecopier: (610) 594-3943

November 30, 2010

NYSDEC Regional Solid & Hazardous Materials Engineer 1150 N. Westcott Street Schenectady, NY 12306

Chief, Bureau of Hazardous Waste Management NYSDEC - Division of Solid & Hazardous Materials 625 Broadway, Albany, New York 12233-7252

Director, NYSDEC Division of Environmental Enforcement (Attn: RCRA Enforcement Attorney) 625 Broadway, Albany, New York 12233-5500

RE: Corrective Measures Study (CMS) Workplan – Pilot Testing Extension
 Former Norton/Nashua Tape Products Facility
 2600 Seventh Avenue, Watervliet, New York
 EPA ID No. NYD 066829599, NYSDEC Index Number: CO 4-20001205-3375

Forensic Environmental Services, Inc. (FES), on behalf of Saint-Gobain Corporation (Saint-Gobain), submits the enclosed Corrective Measures Study (CMS) Workplan – Pilot Testing Extension for the referenced project. Electronic and paper copies of these documents have also been submitted to Ms. Alicia Barraza, the NYSDEC Site Environmental Engineer, and electronic copies of the Workplan will be sent to all parties on the current project distribution list. This document has been prepared in accordance with NYSDEC Order on Consent Index No. CO 4-20001205-3375 dated June 4, 2002.

If you have any questions on this submittal, please contact me at (610) 594-3940.

Sincerely yours,

FORENSIC ENVIRONMENTAL SERVICES, INC.

Róbert W. Zei, Ph.D., CPG Sr. Project Manager

cc: Lauren Alterman, Esq., Saint-Gobain James Smith, Saint-Gobain Alicia Barraza, NYSDEC

Consulting and Forensic Environmental Scientists

Ms. Alicia Barraza November 30, 2010 Page Two

ec: (via e-mail) Charlotte Bethoney, NYS Department of Heath James Smith, Saint-Gobain Corporation Lauren Alterman, Esq., Saint-Gobain Corporation Thomas S. West, Esq., The West Firm, PLLC Joseph Schohn, Tyco International (U.S.), Inc. Brian K. Helf, Cloverleaf Distribution, LLC Russell Gregg, Esq., Liberty Mutual Insurance Co. Steve N. Siegel, Esq., Dinsmore & Shohl LLP Pete Popovics, Cenveo, Inc. R. Steven Krohn, Esq., Berry Plastics Corporation Ronald. L. Groves, P.E., Albany County Health Department Forensic Environmental Services, Inc.

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Róbert W. Zei, Ph.D., CPG Sr. Project Manager

cc: Lauren Alterman, Esq., Saint-Gobain James Smith, Saint-Gobain Alicia Barraza, NYSDEC

Consulting and Forensic Environmental Scientists

# Forensic Environmental Services, Inc.

113 John Robert Thomas Drive Exton, Pennsylvania 19341

Telephone: (610) 594-3940

Telecopier: (610) 594-3943

DATE: November 30, 2010

- TO: Alicia Barraza, Environmental Engineer NYS Dept. of Environmental Conservation Division of Solid & Hazardous Materials 625 Broadway, Albany, NY 12233-7252
- RE: Corrective Measures Study (CMS) Workplan Pilot Testing Extension Former Norton/Nashua Tape Products Facility 2600 Seventh Avenue, Watervliet, New York EPA ID No. NYD 066829599 NYSDEC Index Number: CO 4-20001205-3375

 We are sending you
 X
 herewith
 \_\_\_\_under separate cover

 \_\_\_\_\_drawings
 \_\_\_\_\_letters
 \_\_\_\_other

If material received is not as listed, please notify us at once.

Quantity	Title	Action
l ea.	Corrective Measures Study (CMS) Workplan – Pilot Testing Extension - Former Norton/Nashua Tape Products Facility – November 2010	for your records

Please find enclosed a complete copy of the Corrective Measures Study (CMS) Workplan – Pilot Testing Extension for the referenced project. An electronic copy of this document was previously forwarded to you via e-mail. Copies of this workplan are also being sent to the Regional Solid & Hazardous Materials Engineer, the Chief of the Bureau of Hazardous Waste Management, and the RCRA Enforcement Attorney (a copy of the transmittal letter is enclosed), and copies of the Workplan will be forwarded to all parties on the current project distribution list.

Very truly yours,

FORENSIC ENVIRONMENTAL SERVICES, INC.

Robert W. Zei, CPG Sr. Project Manager

# New York State Department of Environmental Conservation Division of Environmental Remediation Remedial Bureau B, 12th Floor 625 Broadway, Albany, New York 12233-7016 Phone: (518) 402-9768• Fax: (518) 402-9773 Website:



November 18, 2010



James J. Smith Saint-Gobain Corporation 750 E. Swedesford Road P.O. Box 860 Valley Forge, PA 19482

> Re: Former Norton/Nashua Tape Products Facility, Watervliet, NY; USEPA ID No. NYD066829599; Revised Corrective Measures Study (CMS) Workplan -- Pilot Testing Extension, Revised November 2010

Dear Mr. Smith:

The New York State Department of Environmental Conservation (the Department) has reviewed the revised workplan referenced above. The Department finds it acceptable and hereby approves the work plan.

Please submit an updated project schedule upon implementation of work plan activities. If you have any questions, please contact me at (518) 402-8594 or (518) 402-9768.

Sincerely,

Alicia Barraza Environmental Engineer Section D

cc: Robert Zei, Forensic Environmental Services, Inc. Carol Stein, USEPA Region 2

ecc: Chris Doroski, NYSDOH **Ş**. Dewes L. Rosenmann

