SAFEGUARD SELF STORAGE
1170 ATLANTIC AVENUE, BALDWIN
NASSAU, NEW YORK

Final Remedial Action Work Plan

NYSDEC VCP Number: V00523

Prepared for:
Safeguard Self Storage
1170 Atlantic Avenue, Baldwin, New York

Prepared by:
P.W. Grosser Consulting, Inc.
630 Johnson Avenue, Bohemia, NY 11716
(631) 589-6353

SEPTEMBER 2014

CERTIFICATIONS

I, PAUL K. BOYCE certify that I am currently a NYS registered professional engineer and that this Remedial Action Work Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

I certify that all information and statements in this certification are true. I understand that a false statement made herein is punishable as Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

074604	09.03.14	Paul Boyce
NYS Professional Engineer #	Date	Signature

It is a violation of Article 145 of New York State Education Law for any person to alter this document in any way without the express written verification of adoption by any New York State licensed engineer in accordance with Section 7209(2), Article 145, New York State Education Law.



FINAL REMEDIAL ACTION WORK PLAN

TABLE OF CONTENTS

CERTIFICATIONS ii
FINAL REMEDIAL ACTION WORK PLAN iii
TABLE OF CONTENTS iii
LIST OF ACRONYMS vi
Executive Summary 1
Site Description/Physical Setting/Site History 1
Summary of the Remedial Investigation 2
Qualitative Human Health Exposure Assessment 5
Summary of the Remedy 6
REMEDIAL ACTION WORK PLAN 9
1.0 INTRODUCTION 9
1.1 Site Location and Description 9
1.2 Description of Surrounding Property 10
2.0 DESCRIPTION OF REMEDIAL INVESTIGATION FINDINGS 11
2.1 Summary Remedial Investigation Performed 11
2.2 Interim Remedial Measure 15
2.3 Site History 20
2.4 Geological Conditions 21
2.5 Contamination Conditions 21
2.5.1 Conceptual Model of Site Contamination 21
2.5.2 Identification of Standards, Criteria and Guidance 22
2.6 Environmental and Public Health Assessments 22
2.6.1 Qualitative Human Health Exposure Assessment 22
2.7 Remedial Action Objectives 25
2.7.1 Groundwater 25
2.7.2 Soil 25
3.0 DESCRIPTION OF REMEDIAL ACTION WORK PLAN 27

3.1 Long-Term Groundwater Monitoring 27
3.2 Contingency Action 29
3.3 Evaluation of Remedial Action 31
4.0 REMEDIAL ACTION PROGRAM 34
4.1 Governing Documents 34
4.1.1 Community Participation Plan 34
4.2 General Remedial information 35
4.2.1 Deviations from the Remedial Action Work Plan 35
5.0 RESIDUAL CONTAMINATION TO REMAIN ON-SITE 36
6.0 INSTITUTIONAL CONTROLS 37
6.1 Environmental Easement 37
6.2 Site Management Plan 39
FIGURES 42
Appendix A 44
Standards, Criteria, and Guidance (SCGs) 44
1.0 SCGs for site characterization and remedial investigation 45
2.0 SCGs for remedy selection 46
4.0 SCGs for remedial action 47
5.0 SCGs for site management 49

LIST OF FIGURES

Figure 1 Site Vicinity Map

Figure 2 Site Plan

Figure 3 Site Plan with Endpoint Sample Results

Figure 4 Site Plan with Groundwater Sample Results

LIST OF TABLES

Table 1 Tide Evaluation Data

Table 2 Interim Remedial Measure Soil Endpoint Analytical Results

Table 3 Historical Analytical Results of Groundwater Monitoring Well Samples

LIST OF APPENDICIES

Appendix A Standards, Criteria, and Guidance

Appendix B Monitoring Well Construction Logs

Appendix C Monitoring Well Sampling Logs

Appendix D Community Participation Plan

LIST OF ACRONYMS

Acronym	Definition
AES	Associated Environmental Services, Inc.
AWQS	Ambient Water Quality Standard
bgs	below grade surface
CAMP	Community Air Monitoring Plan
CVOC	Chlorinated Volatile Organic Compound
DNAPL	Dense Non-Aqueous Phase Liquid
ECL	Environmental Conservation Law
ESA	Environmental Site Assessment
HASP	Health and Safety Plan
IC	Institutional Control
IRM	Interim Remedial Measure
LNAPL	Light Non-Aqueous Phase Liquid
MS	Matrix Spike
MSD	Matrix Spike Duplicate
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
O&M	Operation and Maintenance
PCE	Tetrachloroethene
PID	Photoionization Detector
ppb	parts per billion
PPE	Personal Protective Equipment
PWGC	P.W. Grosser Consulting, Inc.
QEP	Qualified Environmental Professional
RAO	Remedial Action Objective
RAWP	Remedial Action Work Plan
RE	Remedial Engineer
RI	Remedial Investigation
SCG	Standards, Criteria, and Guidance

SCO	Soil Cleanup Objective
SMP	Site Management Plan
SRI	Supplemental Remedial Investigation
SVOC	Semi-Volatile Organic Compound
TCE	Trichloroethene
UST	Underground Storage Tank
VC	Vinyl Chloride
VCP	Voluntary Cleanup Program
VOC	Volatile Organic Compound

EXECUTIVE SUMMARY

Site Description/Physical Setting/Site History

The subject site (VCP Site # V00523) consists of a 2.7-acre parcel of land on the south side of Atlantic Avenue in the Hamlet of Baldwin, Town of Hempstead, Nassau County, New York. The property is identified on Nassau County Tax maps as Section 54, Block 46, Lot 62. The property is improved with a 44,600 square foot two-story steel frame commercial building with sheet metal siding. The building is currently used for self storage. The interior is divided into individual self storage units ranging in size from 25 to 300 square foot spaces. The remainder of the site consists of asphalt-paved driveway/parking areas and grass.

The site was reportedly built up from the Milburn Creek streambed. The creek was rerouted around the resulting peninsula. The site is bounded on four sides by wooden bulkheads, except for the site's access driveway at the northeast corner of the property. The property's soil is apparently comprised of dredge spoils from the stream bed of Milburn Creek.

The property is generally neighbored by commercial and residential properties. East of the site, across Milburn Creek, are commercial and residential structures. South of the site, across Milburn Creek, is a boat storage yard. North of the site is a portion of a boat canal connected to Milburn Creek, followed by a commercial building facing Atlantic Avenue. West of the site, across a boat canal connected to Milburn Creek, is a residential area.

The site was used as a boat storage and repair yard dating back to at least 1941. In 1974, the currently-existing building was constructed and used as an indoor tennis facility. The site usage of the building changed in 1983 (according to building department records), as Lightalarms Electronics Corporation (LEC) took over the site. LEC manufactured emergency lighting equipment at this facility until the operation moved in 1998. LEC was known to have used paints and solvents in their operation. LEC's operations included the use of a spray booth, with a permitted exhaust to the outside, to spray paint light fixtures and other components. Xylene and toluene were reported to have been used to clean the paint spray guns. Prior to painting, the facility utilized a solvent dip tank containing 1,1,1-trichloroethane to clean metal parts in preparation for paint.

Summary of the Remedial Investigation

A comprehensive remedial investigation was performed at the subject site which included sub-slab vapor and indoor air sampling, surface soil sampling, a drywell investigation, and a groundwater investigation.

Sub-Slab Vapor and Indoor Air Sampling

In February 2007, PWGC performed a sampling of the sub-slab vapor and indoor air at the subject building. Analytical results were evaluated utilizing the Soil Vapor / Indoor Air Matrices contained in the NYSDOH Vapor Intrusion Guidance document. The recommendation derived from the matrices, given the analytical results, was no further action. Based on this, PWGC recommended no further action regarding sub-slab vapors and indoor air at the subject site. In a letter dated July 11, 2007 the NYSDEC concurred with PWGC's conclusions.

Surface Soil Sampling

Results of a previous site investigation conducted by ATC Associates, Inc. (ATC) in March 2005 indicated elevated concentrations of semi-volatile organic compounds (SVOCs) and metals in surface soil samples collected from locations surrounding the site's building. The NYSDEC determined that SVOC and/or mercury concentrations at three locations warranted further investigation.

To address surface soil quality at the selected areas, PWGC collected additional surface samples in October 2007 from locations which required further investigation.

Analytical results were compared to NYSDEC NYCRR Environmental Remediation Programs Part 375 Commercial Soil Cleanup Objectives.

Detected concentrations of mercury were well within cleanup objectives.

Surface soil sampling analytical data indicated concentrations of SVOCs above Unrestricted Use Soil Cleanup Objectives in samples collected to the north of the building, and in the grass area to

the east of the building. The Site soils are comprised of dredged material from Milburn Creek (the surrounding waterway). The SVOCs detected in these soils may be traced to biological decay inherent in stream beds, and/or diesel fuel from boat traffic in the waterway.

The surface soils at the site are either capped with asphalt pavement, or stabilized with grass. There are no unstabilized surface soils observed at the subject site. Based on this, the risk of airborne exposure to the SVOCs appears to be low.

The grass areas of the site are not regularly utilized by facility customers or employees, as regular access to the building is through paved areas. Only some emergency exits from the building exit to grass areas. Furthermore, access to the site is restricted to employees and customers with fencing and a gate. Based on this, exposures from soil contact would be limited.

Mercury concentrations were within the cleanup objective and, therefore, do not represent a risk of exposure.

Drywell Investigation

According to historical ATC documents, the drywell located to the east of the site building was remediated and closed as a result of elevated concentrations of chlorinated solvents detected during sampling. Endpoint sampling results documented the remediation. The presence of these chlorinated solvents was apparently a result of discharge from past site usage. ATC prepared a *Drywell Closure Report* dated March 14, 2005. The Nassau County Department of Health (NCDH) reviewed the report and recommended that soil borings be performed around the drywell so that soil samples could be collected and analyzed for VOCs in order to determine if contamination from the drywell had migrated laterally.

To address the NCDH comments, PWGC conducted a subsurface investigation of the immediate area of the abandoned drywell in October 2007. Analytical results of the drywell investigation indicated that detected concentrations of VOCs were within NYSDEC 6 NYCRR Part 375 Commercial Cleanup Objectives. However, concentrations of 1,1-DCA and chloroethane were detected at levels which may impact the groundwater.

Groundwater Investigation

To further investigate groundwater quality, water table monitoring wells were installed at the subject site in October 2007. The three previously-existing wells (MW-1, MW-2, and MW-4) were supplemented by three additional wells (MW-3, MW-5, and MW-6). Well MW-3 replaced a destroyed MW-3 and served to monitor water quality to the south of the building. Wells MW-5 and MW-6 were located in the vicinity of the drywell, where groundwater impact was most likely to be present. The previously-existing wells would serve to monitor water quality on the north, east, and west sides of the building.

PWGC collected groundwater elevation data, using an electronic interface probe, over a tidal cycle. The groundwater elevation data indicated a strong tidal influence at each well location with the exception of MW-2. Monitoring well MW-2 was installed by ATC and, based upon the slow rate of recharge and a relatively high water elevation, does not appear to be representative of groundwater conditions. The tide in the surface water surrounding the site was noted to have a differential of approximately four feet. The influence of this tide was most prevalent in the wells nearest the bulkhead (i.e., MW-3 and MW-5). Due to the strong tidal influence at the site, a prevailing groundwater flow direction could not be determined. Since the site is almost entirely surrounded by surface water, subsurface water at the site appeared to flow in a radial pattern as influenced by the tide.

Since a strong tidal influence was measured at the subject site, PWGC proposed a salinity assessment to determine if saltwater intrusion was occurring into the site's subsurface. In order to measure salinity, conductivity measurements were collected by a PWGC hydrogeologist from each of the site wells and from the surface water at half hour intervals throughout half a tidal cycle. Results of the salinity assessment indicated a strong intrusion of surface saltwater into the site at well locations MW-3 and MW-5, and a moderate conductivity at locations MW-1, MW-4, and MW-6.

Analytical results indicated that the highest concentrations of VOCs were detected in MW-5, the monitoring well located between the abandoned drywell and the bulkhead. The compounds detected in MW-5 (1,1,1-trichloroethane, 1,1-dichloroethane, chloroethane) are consistent with the compounds detected in the drywell soil boring samples and in historical sampling results.

Historical VOC concentrations at the subject site indicate a process of natural attenuation. Dissolved oxygen (DO) concentrations were generally low, indicating an anaerobic natural attenuation process of reductive dechlorination, in which the chlorine atoms of parent compounds are replaced by hydrogen atoms, a process performed by bacteria in the subsurface. ORP is negative at each location, indicating that VOCs are either in the process of reductive dechlorination, or have undergone reductive dechlorination in the past.

Qualitative Human Health Exposure Assessment

Chlorinated VOCs have been detected in soil, groundwater, and soil vapor samples collected from the Site. Exposure to elevated concentrations of chlorinated VOCs can have adverse affects on human health. The possible on-Site exposure pathways are by ingestion, inhalation, or dermal exposure by a person on the Site. Ingestion, inhalation, and dermal exposure of workers at the Site would not likely be extensive given the intermittent nature of exposure. There is a limited off-Site pathway for ingestion or inhalation exposure since the constituents of concern have the potential to migrate off-Site with the natural movement of groundwater. These potential routes of exposure will be addressed in this Final RAWP.

The following in-line table summarizes the potential routes of exposure and the human assessment:

Environmental Media & Exposure Route	**Human Assessment**
Direct contact with surface soils	• Surface soil analytical results did not indicate elevated concentrations of VOCs. • SVOCs above Unrestricted Use SCOs were detected at two locations in surface soils. The potential for exposure exists if the soil is disturbed.
Direct contact with subsurface soils	• The potential exists if ground intrusive work is performed at the Site.

Environmental Media & Exposure Route	Human Assessment
Direct contact with groundwater	• The potential exists if ground intrusive work into the water table is performed at the Site, and during groundwater monitoring.
Ingestion of groundwater	• Deep groundwater sampling results indicate that vertical migration of VOCs is not occurring at the Site. The potential for ingestion is low. • There are no known domestic water supply wells in the area.
Inhalation of air	• The majority of source area soils have been removed through the IRM. • On-Site indoor air sampling results indicate that vapor intrusion is not a concern.
Direct contact with coastal waters	• The Site is surrounded by a continuous bulkhead. Therefore, release to coastal waters is unlikely.

Summary of the Remedy

The final remedy selected for the subject site is no action with the implementation of institutional controls and long-term groundwater monitoring with a contingency action of chemical injection treatment.

Groundwater monitoring will continue every 18 months to evaluate the effectiveness of the IRM and to monitor residual VOC concentrations in the groundwater. Samples will be analyzed for VOCs and field parameters such as pH, oxidation-reduction potential, dissolved oxygen, conductivity, and temperature. Results of groundwater sampling events will be presented in Groundwater Monitoring Reports.

Article IV of the Nassau County Public Health Ordinance prohibits the installation of private water system wells in those areas served by a public water system. The subject site is served by a public water system. Enforcement of this ordinance will prevent potable water consumption of impacted Site groundwater.

An SMP will be prepared to inform current and future property owners regarding the distribution of impacted soil and groundwater, and to specify the manner in which intrusive work may be conducted in these areas if deemed necessary. The SMP will outline relevant considerations including groundwater monitoring requirements.

In the event of a substantial and sustained increase in chlorinated VOC concentrations in the groundwater, a contingency action of chemical injection treatment may be warranted.

The proposed remedy achieves the remedial action objectives (RAOs) established for the Site. The remedial action is protective of the public health and environment, is compliant with remedial goals, standards, criteria, and guidance (SCGs), and RAOs, demonstrates short-term and long-term effectiveness, will result in the reduction of toxicity, mobility, and volume of contaminants, is implementable, cost effective, compatible with land use, and will generally be acceptable to the surrounding community.

The proposed remedial action will consist of the following:

1. All responsibilities associated with the Remedial Action, including permitting requirements and pretreatment requirements, will be addressed in accordance with all applicable Federal, State and local rules and regulations.

2. Appropriate off-Site disposal of sub-surface material removed from the Site in accordance with all Federal, State, and local rules and regulations for handling, transport, and disposal;

3. Recording of an Environmental Easement, including ICs, to prevent future exposure to residual contamination remaining at the Site (a copy of the Environmental Easement will be provided as an appendix to the Site Management Plan);

4. Publication of a Site Management Plan (SMP) for long term management of residual contamination as required by the Environmental Easement, including plans for: (1) ICs, (2) monitoring, and (3) reporting;

5. Restriction on the use of the property to commercial or more restrictive use as detailed in the Environmental Easement.

6. Prohibition on the use of groundwater beneath the Site without treatment rendering it safe for its intended use.

REMEDIAL ACTION WORK PLAN

1.0 INTRODUCTION

Safeguard Self Storage entered into a Voluntary Cleanup Agreement (VCA) with the New York State Department of Environmental Conservation (NYSDEC) to investigate and remediate a 2.7-acre property located at 1170 Atlantic Avenue in Baldwin, Nassau County, New York. The Site is zoned for commercial use. There are no re-development plans for the Site. Safeguard Self Storage operates the Site as a personal storage facility.

This Remedial Action Work Plan (RAWP) summarizes the nature and extent of contamination as determined from data gathered during the Remedial Investigation (RI). It provides an evaluation of Remedial Action. The remedy described in this document is consistent with the procedures defined in DER-10 and complies with applicable standards, criteria and guidance. The remedy described in this document also complies with applicable Federal, State, and local laws, regulations, and requirements. The RI for this Site did not identify fish and wildlife resources. A formal Remedial Design document will not be prepared.

1.1 SITE LOCATION AND DESCRIPTION

The Site is located in the County of Nassau, Baldwin, New York and is identified as Section 54, Block 46, Lot 62. **Figure 1** shows the Site location. The Site is situated on an approximately 2.7-acre area bounded by Atlantic Avenue to the north and Milburn Creek to the south, east, and west (See **Figure 2**). The property is improved with a 44,600 square foot two-story steel frame commercial building with sheet metal siding. The building is currently used for self storage. The interior is divided into individual self storage units ranging in size from 25 to 300 square foot spaces. The remainder of the site consists of asphalt-paved driveway/parking areas and grass.

1.2 DESCRIPTION OF SURROUNDING PROPERTY

The Site is almost entirely surrounded by Milburn Creek, and is bulk-headed at along the entire boundary with Milburn Creek. Across the creek to east and west are residential properties. A boat yard is located to the south across the Creek. The site is bordered on the north by Atlantic Avenue. Across Atlantic Avenue is Milburn Creek Park (a municipal park). A commercial property occupied by a physical therapy office and a delicatessen borders on the northwest corner of the Site.

2.0 DESCRIPTION OF REMEDIAL INVESTIGATION FINDINGS

The Site RI was initiated by ATC Associates Inc. (ATC). ATC prepared a *Final Remedial Investigation Work Plan*, December 24, 2003, and subsequently performed RI activities at the Site. However, the NYSDEC determined that ATC did not complete the RI as specified in the *Final Remedial Investigation Work Plan*.

PWGC resumed the RI on behalf of Safeguard. In order to resolve the incompleteness of the ATC investigation, PWGC submitted various work plans including a *Sub-Slab Vapor and Indoor Air Sampling Plan* in October 2006, a *Remedial Investigation Results and Supplemental Workplan* in January 2007, a *Remedial Investigation Results and Supplemental Workplan Addendum* in June 2007, a *Deep Groundwater Sampling Work Plan* in February 2009, a *Salinity Assessment Work Plan* in March 2008, and a *Monitoring Well Sampling Work Plan* in May 2010. Each of these Work Plans was implemented following acceptance by the NYSDEC.

2.1 SUMMARY REMEDIAL INVESTIGATION PERFORMED

The RI was performed at the subject site which included sub-slab vapor and indoor air sampling, surface soil sampling, a drywell subsurface investigation, and a groundwater investigation.

2.1.1 Sub-Slab Vapor and Indoor Air Sampling

In February 2007, PWGC performed a sampling of the sub-slab vapor and indoor air at the subject building. The work was performed pursuant to the requirements of the NYSDEC, as detailed in the NYSDEC-approved *Sub-Slab Vapor and Indoor Air Sampling Plan*, which was previously submitted under separate cover by PWGC in October 2006. The sampling was performed in accordance with the New York State Department of Health (NYSDOH) "Guidance for Evaluating Soil Vapor Intrusion in the State of New York," October 2006.

Analytical results were evaluated utilizing the Soil Vapor / Indoor Air Matrices contained in the NYSDOH Vapor Intrusion Guidance document. The recommendation derived from the matrices, given the analytical results, was no further action. Based on this, PWGC recommended no further action regarding sub-slab vapors and indoor air at the subject site. In a letter dated July 11, 2007 the NYSDEC concurred with PWGC's conclusions.

A detailed account of sampling activities, analytical results, and conclusions and recommendations are included in the *Sub-Slab Vapor and Indoor Air Sampling Report*, which was previously submitted under separate cover by PWGC in April 2007.

2.1.2 Surface Soil Sampling

Results of the previous site investigation conducted by ATC Associates, Inc. (ATC) in March 2005 indicated elevated concentrations of semi-volatile organic compounds (SVOCs) and metals in surface soil samples collected from locations surrounding the site's building. The NYSDEC determined that SVOC and/or mercury concentrations at three locations warranted further investigation.

To address surface soil quality at the selected areas, PWGC collected additional surface samples in October 2007 from locations which required further investigation.

Analytical results were compared to NYSDEC NYCRR Environmental Remediation Programs Part 375 Commercial Soil Cleanup Objectives.

Detected concentrations of mercury were well within cleanup objectives.

Surface soil sampling analytical data indicated concentrations of SVOCs above cleanup objectives in samples collected to the north of the building, and in the grass area to the east of the building. Site soils are comprised of dredged material from Milburn Creek (the surrounding waterway). The SVOCs detected in these soils may be traced to biological decay inherent in stream beds, and/or diesel fuel from boat traffic in the waterway.

The surface soils at the site are either capped with asphalt pavement, or stabilized with grass. There are no unstabilized surface soils observed at the subject site. Based on this, the risk of airborne exposure to the SVOCs appears to be low.

The grass areas of the site are not regularly utilized by facility customers or employees, as regular access to the building is through paved areas. Only some emergency exits from the building exit to grass areas. Furthermore, access to the site is restricted to employees and customers with fencing and a gate. Based on this, exposures from soil contact would be limited.

Mercury concentrations were within the cleanup objective and, therefore, do not represent a risk of exposure.

PWGC recommended no further action regarding surface soils at the subject site.

2.1.3 Drywell Investigation

According to historical ATC documents, the drywell located to the east of the site building was remediated and closed as a result of elevated concentrations of chlorinated solvents detected during sampling. Endpoint sampling results documented the remediation. The presence of these chlorinated solvents was apparently a result of discharge from past site usage. ATC prepared a Drywell Closure Report dated March 14, 2005. The Nassau County Department of Health (NCDH) reviewed the report and recommended that soil borings be performed around the drywell so that soil samples could be collected and analyzed for VOCs in order to determine if contamination from the drywell had migrated laterally.

To address the NCDH comments, PWGC conducted a subsurface investigation of the immediate area of the abandoned drywell in October 2007. A direct-push Geoprobe® was utilized to advance samplers in order to collect soil samples from selected locations around the abandoned drywell. At each location, the 7.5’ to 10’ interval (the depth at which water was encountered) was submitted for analysis.

Analytical results of the drywell investigation indicated that detected concentrations of VOCs were within NYSDEC 6 NYCRR Part 375 Commercial Cleanup Objectives. However, concentrations of 1,1-DCA and chloroethane were detected at levels which may impact the groundwater.

2.1.4 Groundwater Investigation

To further investigate groundwater quality during the RI, water table monitoring wells were installed at the subject site in October 2007. The three previously-existing wells (MW-1, MW-2, and MW-4) were supplemented by three additional wells (MW-3, MW-5, and MW-6). Well MW-3 replaced a destroyed MW-3 and served to monitor water quality to the south of the building. Wells MW-5 and MW-6 were located in the vicinity of the drywell, where groundwater impact was most likely to be present. The previously-existing wells would serve to monitor water quality on the north, east, and west sides of the building.

PWGC collected groundwater elevation data, using an electronic interface probe, over a tidal cycle. The groundwater elevation data indicated a strong tidal influence at each well location with the exception of MW-2. The tide evaluation data is summarized on **Table 1**. Monitoring well MW-2 was installed by ATC and, based upon the slow rate of recharge and a relatively high water elevation, does not appear to be representative of groundwater conditions. The tide in the surface water surrounding the site was noted to have a differential of approximately four feet. The influence of this tide was most prevalent in the wells nearest the bulkhead (i.e., MW-3 and MW-5). Due to the strong tidal influence at the site, a prevailing groundwater flow direction could not be determined. Since the site is almost entirely surrounded by surface water, subsurface water at the site appeared to flow in a radial pattern as influenced by the tide.

Since a strong tidal influence was measured at the subject site, PWGC proposed a salinity assessment to determine if saltwater intrusion was occurring into the site's subsurface. In order to measure salinity, conductivity measurements were collected by a PWGC hydrogeologist from each of the site wells and from the surface water at half hour intervals throughout half a tidal cycle. Results of the salinity assessment indicated a strong intrusion of surface saltwater into the site at well locations MW-3 and MW-5, and a moderate conductivity at locations MW-1, MW-4, and MW-6. The conductivity measurements are summarized on **Table 2**.

Analytical results indicated that the highest concentrations of VOCs were detected in MW-5, the monitoring well located between the abandoned drywell and the bulkhead. The compounds detected in MW-5 (1,1,1-trichloroethane, 1,1-dichloroethane, chloroethane) are consistent with the compounds detected in the drywell soil boring samples and in historical sampling results.

Two subsequent rounds of groundwater sampling were performed at the subject site in July and October 2010.

Historical VOC concentrations at the subject site indicate a process of natural attenuation. Dissolved oxygen (DO) concentrations were generally low, indicating an anaerobic natural attenuation process of reductive dechlorination, in which the chlorine atoms of parent compounds are replaced by hydrogen atoms, a process performed by bacteria in the subsurface. ORP is negative at each location, indicating that VOCs are either in the process of reductive dechlorination, or have undergone reductive dechlorination in the past.

The highest DO concentrations were detected in MW-5, which varied between 0.81 mg/L (a DO concentration which supports anaerobic attenuation) and 3.71 mg/L (a concentration which most likely would not support anaerobic attenuation). This variation in DO is most likely caused by the intrusion of surface saltwater on a tidal basis. The unstable oxygen concentration may be slowing the attenuation process of the chlorinated compounds at MW-5 and perhaps MW-3 which is also located in close proximity to surface water.

The results of vertical profile groundwater sampling performed in the vicinity of the former drywell indicated the absence of VOCs at depths below the water table. A means of downward vertical flow, such as the presence of VOCs as DNAPL, has not been detected or observed. Furthermore, the Site is located on the south shore of Long Island in a region where deep water discharge does not occur.

2.2 INTERIM REMEDIAL MEASURE

An Interim Remedial Measure (IRM) was performed at the Site in October 2011. The purpose of the IRM was to remove impacted soils surrounding the former drywell which was acting as a source of chlorinated VOCs, and to chemically treat VOC-impacted groundwater.

The IRM consisted of the excavation of VOC-impacted soils in the area of the former drywell which acted as the source of the VOC impact, and the chemical treatment of the impacted groundwater through the open excavation. The soil removal program coincided with bulkhead replacement work, which also involved excavation in the area of the former drywell. Remedial activities were performed in accordance with NYSDEC Division of Environmental Remediation's, *DER-10, Technical Guidance for Site Investigation and Remediation*, May 2010

and PWGC's *IRM Work Plan,* August 2011 for the subject site, which was approved by the NYSDEC.

2.2.1 Soil Excavation

The Remedial Investigation identified the soils surrounding the former drywell location as being impacted with 1,1-dichloroethane (1,1-DCA) and chloroethane at concentrations that appear to be acting as a source of groundwater impact.

On October 25, 2011, PWGC was at the subject site to perform an excavation of the soils surrounding the drywell. During the excavation, soils were screened for VOCs utilizing a photo-ionization detector (PID) with an 11.7 eV lamp. Dry soils above the water table (less than 3 feet bgs) which did not exhibit a PID response above background levels were set aside for use as backfill.

The structure of the drywell was not encountered during the excavation, indicating that the entire structure had been removed along with the impacted sediments within it during its initial remediation. This was evidenced by the light-colored sand fill located in the former drywell location which contrasted with the dark, highly-organic surrounding soils.

Based on the tide evaluation performed at the site, the groundwater elevation varies between 2.5 feet and 7 feet below ground surface at the MW-5 location, and between 3 feet and 5 feet at the MW-6 location. The drywell was located near MW-5 and MW-6, so a tidal influence was expected to be encountered in the excavation. In order to remove the mass of impacted soils in the smear zone while limiting the water infiltration, excavation of the deepest soils coincided with the low tide. The excavation extended to a depth of approximately 8 feet below ground surface, at which depth groundwater was encountered. Excavation ceased at this depth in order to limit the amount of water in the removed soils.

Soils above groundwater were characterized as dry, dark brown medium to fine-grained sands and silt with no odor. Soils at and below the water table consisted of highly-organic bog material with dark brown and black sand and silt. These soils had a strong organic odor typical of the decay of organic material.

The impacted soils were stockpiled adjacent to the excavation.

Once the proposed limits of excavation, as indicated in the *IRM Work Plan*, were reached, soil samples were collected from the four sidewalls and the bottom of the excavation. Sidewall samples were collected from a depth of six feet bgs. The depth of the bottom sample was eight feet bgs. The samples were screened with the PID. PID response for the bottom sample was 44.6 ppm. The depth of the excavation ceased at eight feet due to water infiltration. PID responses for the four sidewalls were 10.8 ppm (EP-N), 5.4 ppm (EP-S), 1.7 ppm (EP-E), and 1.1 ppm (EP-W). Based on these readings and the proximity of the building, the final limits of excavation were approximately 20 feet by 20 feet with a depth of 8 feet. The light-colored sand in the center of the excavation was left in the excavation.

2.2.2 Enhanced Bioremediation

Following the soil excavation, Hydrogen Release Compound (HRC®) was applied in the excavation to address residual VOCs in the groundwater. HRC® is an electron donor material that, when hydrated, produces lactic acid. The lactic acid is made available for fermentation by microbes that generate hydrogen. The hydrogen degrades the 1,1,1-TCA, 1,1-DCA, and chloroethane to ethane through a process of reductive dechlorination. HRC® can produce lactic acid up to 24 months after its application.

150 gallons of HRC® was evenly distributed in the base of the excavation during low tide. Regenesis®, the manufacturer of HRC®, performed an evaluation of site subsurface conditions to determine the appropriate amount of HRC® to reduce VOC concentrations in the vicinity of the drywell to within Groundwater Standards. The excavator was then utilized to mix the HRC® with the residually impacted soils and groundwater.

2.2.3 Backfill and Site Restoration

Following collection of endpoint samples and the application of HRC®, the excavation was backfilled with the clean overburden set aside and then to grade with approximately 30 cubic yards of clean fill.

2.2.4 Monitoring Well Installation and Sampling

Three of the site's monitoring wells (MW-3, MW-5, and MW-6) were destroyed during the replacement of the site's bulkhead. Monitoring wells MW-3 and MW-5 were re-installed in the same locations. Monitoring well MW-6A was installed in the location of the former drywell in order to measure groundwater quality in the center of the treatment area. The three new wells were installed on May 8, 2012.

Sampling and surveying of the monitoring wells occurred on May 30, 2012, and a second round of sampling was performed on August 29, 2012. Groundwater samples were collected from monitoring wells MW-4 and the newly-installed MW-3, MW-5, and MW-6A. The monitoring of wells MW-1 and MW-2 has been discontinued as they have been consistently well outside the area of impact.

2.2.5 Endpoint Sample Analytical Results

IRM analytical results of the endpoint soil samples were compared to NYSDEC 6 NYCRR Part 375 Soil Cleanup Objectives. Analytical results indicated that VOCs were detected at concentrations well within Commercial SCOs. The highest concentrations were of 1,1,1-trichloroethane (TCA, 13,000 µg/kg), and 1,1-dichloroethane (DCA, 19,000 µg/kg) in sample EP-N, along the north sidewall. Detected concentrations in endpoint sample EP-B were well below Commercial SCOs. Detected VOC concentrations were within Unrestricted Use SCOs in samples EP-S, EP-E, EP-W, and EP-B. These results indicate residual VOCs to the north of the former drywell area in the soils at the water table. However, the detected concentrations were well below Commercial SCOs.

2.2.6 Monitoring Well Sample Analytical Results

Three rounds of post-IRM groundwater sampling were performed (May 2012, August 2012, and July 2013). Groundwater analytical results were compared to the NYSDEC Class GA Groundwater Standards, as well as to the results of previous groundwater sampling events.

VOCs were not detected in the samples collected from monitoring well MW-4 in both the May and August sampling rounds. This is consistent with the previous results at MW-4.

The new monitoring wells MW-3 and MW-5 were installed in the same locations as the destroyed MW-3 and MW-5. At MW-3, DCA and chloroethane concentrations have fluctuated. An increased chloroethane concentration indicates that reductive dechlorination is occurring at that location.

At the MW-5 location, the concentrations of TCA and DCA have reduced to levels below the method detection limit, while the chloroethane concentration continues to decrease. These results indicate reductive dechlorination, which appears to have been enhanced by the application of the HRC®.

Monitoring well MW-6A is located in the former drywell location in order to monitor groundwater quality in the former source area. VOCs have remained consistent at this location. However, pre-IRM data is not available for MW-6A.

2.2.7 IRM Conclusions

The purpose of the IRM was to remove impacted soils surrounding the former drywell which was acting as a source of chlorinated volatile organic compounds (VOCs), and to chemically treat impacted groundwater.

During the excavation, it was confirmed that, not only the impacted sediment from within the drywell of concern was previously removed, but also the drywell structure itself. The evidence of its removal was the light-colored coarse sand used to backfill its excavation, which contrasted with the dark brown highly organic sand and silt which surrounded the former drywell area. This confirms that a significant portion of the source of VOCs at the site had been previously removed.

The function of a drywell is to leach its liquid contents into the surrounding soils. Based on the results of analytical results of samples collected adjacent to the former drywell during the Supplemental Remedial Investigation, VOCs which had been discharged to the drywell had leached into these surrounding soils. During the IRM, 42 tons of this VOC-impacted material was removed and replaced with clean sand. The results of the endpoint soil samples indicate that detected VOC concentrations are within Commercial SCOs.

HRC® was applied to the base of the excavation in order to enhance the reductive dechlorination of TCA, DCA, and chloroethane, into ethane. The analytical results of groundwater monitoring in the center of the treatment area (MW-6A) indicate that the HRC® treatment has had an effect, as VOC concentrations are lower than at other well locations. The removal of impacted soils from this location most likely reduced VOC concentrations as well.

The effects of the IRM are also notable at the MW-5 location, which is approximately 10 feet to the southeast of the IRM excavation area. At that location, the concentrations of TCA and DCA have reduced to levels below the method detection limit, while the chloroethane initially increased, indicating that TCA and DCA have been reduced to chloroethane. The chlorethane concentration decreased in the most recent sampling event. The chloroethane concentrations are expected to continue to decrease.

2.3 SITE HISTORY

The site was reportedly built up from the Milburn Creek streambed. The creek was rerouted around the resulting peninsula. The site is bounded on four sides by wooden bulkheads, except for the site's access driveway at the northeast corner of the property. The property's soil is apparently comprised of dredge spoils from the stream bed of Milburn Creek.

The site was used as a boat storage and repair yard dating back to at least 1941. In 1974, the currently-existing building was constructed and used as an indoor tennis facility. The site usage of the building changed in 1983 (according to building department records), as Lightalarms Electronics Corporation (LEC) took over the site. LEC manufactured emergency lighting equipment at this facility until the operation moved in 1998. LEC was known to have used paints and solvents in their operation. LEC's operations included the use of a spray booth, with a permitted exhaust to the outside, to spray paint light fixtures and other components. Xylene and toluene were reported to have been used to clean the paint spray guns. Prior to painting, the facility utilized a solvent dip tank containing 1,1,1-trichloroethane to clean metal parts in preparation for paint.

2.4 GEOLOGICAL CONDITIONS

As described in the previous section, the Site was constructed in Milburn Creek. The perimeter of the Site consists of a bulkhead which was filled in with dredge spoils from the surrounding creek. During soil boring investigation and IRM excavation, the Site soils were noted as having a substantial natural organic content indicative of decaying biological matter.

In November 2007, PWGC conducted a tide evaluation utilizing the six (6) Site groundwater monitoring wells. The findings indicated that groundwater depth at the Site ranges between two (2) and seven (7) feet bgs and is heavily influenced by the surrounding Milburn Creek surface water. The data obtained by from the tide evaluation was also utilized to determine groundwater flow direction at the Site. The results indicated that the direction of groundwater flow was dominated by the inward and outward flow of surface water from the surrounding tidally-influenced creek.

2.5 CONTAMINATION CONDITIONS

2.5.1 Conceptual Model of Site Contamination

Based on the results of the RI and the post-IRM groundwater monitoring, residual concentrations of chlorinated VOCs are present in the shallow groundwater in the vicinity of the former drywell and at the southern end of the Site (MW-3 location). **Table 4** indicates exceedances from GA groundwater standards in monitoring wells. A Site plan that indicates the location(s) of and summarizes exceedances from GA groundwater standards is shown in **Figure 4**.

The results of surface water sampling performed adjacent to the bulkhead and of soil sampling from Milburn Creek's bed did not indicate the presence of VOCs. These results indicate that Site contamination has not migrated off-Site.

Based on the results of the RI and the IRM endpoint sampling, concentrations of residual chlorinated VOCs in excess of NYSDEC Unrestricted Use SCOs exist in the soils in the vicinity of the former drywell. However, Restricted Commercial Use SCOs were not exceeded. **Table 3** shows exceedances from Unrestricted SCOs for soil at the Site. **Figure 3** indicates the location and summarizes exceedances from Unrestricted SCOs for soil.

2.5.2 Identification of Standards, Criteria and Guidance

- 6 NYCRR Part 371 - Identification and Listing of Hazardous Wastes
- 6 NYCRR Part 375 - Inactive Hazardous Waste Disposal Sites, specifically Part 375-6 Remedial Program Soil Cleanup Objectives
- 29 CFR Part 1910.120 - Hazardous Waste Operations and Emergency Response
- TOGS 1.1.1 - Ambient Water Quality Standards & Guidance Values and Groundwater Effluent Limitations
- NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York
- TAGM 3028 - "Contained In" Criteria for Environmental Media: Soil Action Levels
- 6 NYCRR Part 372 - Hazardous Waste Manifest System and Related Standards for Generators, Transporters and Facilities (November 1998)
- DER-23 - Citizen Participation Handbook for Remedial Programs
- OSWER Directive 9200.4-17 - Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites
- CP-43 - Groundwater Monitoring Well Decommissioning Policy
- DER Technical Guidance for Site Investigation and Remediation (DER-10)
- CP-51 – Soil Cleanup Guidance
- DER Institutional Controls (DER 33)

2.6 ENVIRONMENTAL AND PUBLIC HEALTH ASSESSMENTS

2.6.1 Qualitative Human Health Exposure Assessment

The overall purpose of the Qualitative Human Exposure Assessment is to evaluate and document potential exposure to Site-related contaminants and to identify and characterize the potentially exposed surrounding population. To evaluate if an exposure pathway exists, the exposure assessment should assess the quality, representativeness, and adequacy of the available data. In

addition, the qualitative exposure assessment should consider the nature of populations that have the potential to be exposed to Site-related contaminants both on-Site and off-Site.

The contaminants of concern at the subject site are chlorinated VOCs including 1,1,1-trichloroethane (TCA) and its degradation products, 1,1-dichloroethane (DCA), chloroethane, and vinyl chloride. TCA was used as a parts degreaser during the occupation of the Site by LEC, which utilized the Site for the production of emergency lighting products. The Site's former drywell was impacted with chlorinated VOCs, an apparent result of improper discharge from the LEC operation. VOCs entered the groundwater and soils in the saturated zone surrounding the drywell.

The subject drywell was remediated and removed from the Site. Additional soils from the area of the former drywell were excavated and removed during the IRM, and Hydrogen Release Compound (HRC) was applied to the IRM excavation. Subsequent groundwater monitoring results indicate concentrations of chlorinated VOCs which exceed NYSDEC Groundwater Standards in samples collected from the former drywell area and at the southern end of the Site.

Results of off-site surface water and stream bottom sampling performed by ATC in Milburn Creek indicate that VOCs have not migrated off-site.

Deep groundwater sampling performed during the RI indicates that VOCs have not migrated vertically. Dense non-aqueous phase liquid (DNAPL) has not been observed at the site, which would increase the ability for the VOCs to migrate.

TCA and its degradation products can have adverse affects on human health and can be absorbed after ingestion, inhalation, or dermal exposure. Acute exposure symptoms may include headache, dizziness, unconsciousness, abdominal pain, nausea, diarrhea, and skin and eye irritation among other affects. Chronic exposure may cause harm to the central nervous system, liver, kidneys, and dermatitis among other affects. Vinyl chloride is also known as a probable human carcinogen.

The possible on-Site exposure pathways are by ingestion, inhalation, or dermal exposure by a person on the Site. However, the chlorinated VOCs at the Site are limited to the groundwater and soils in the saturated zone. Therefore, the current potential for exposure is limited to groundwater monitoring workers. There are no re-development plans for the subject site.

However, an exposure potential would exist if soil intrusive activities were to be performed in the area of the former drywell or at the southern end of the property.

The results of sub-slab vapor and indoor air sampling for the Site indicate that vapor intrusion is not occurring in the subject building. Based on these results, a potential for human exposure to subsurface VOC vapors does not exist.

2.6.2 Characterization of Potential Receptor Populations

The subject Site is located at 1170 Atlantic Avenue in Baldwin, New York. The subject area consists of suburban development with mostly single-family residential and commercial properties and municipal park land.

Due to the isolation of the subject site by the surrounding Milburn Creek, exposure of neighboring populations is unlikely.

The following table provides a summary of the routes of exposure.

Environmental Media & Exposure Route	**Human Assessment**
Direct contact with surface soils	• Surface soil analytical results did not indicate elevated concentrations of VOCs.
Direct contact with subsurface soils	• The potential exists if ground intrusive work is performed at the Site.
Direct contact with groundwater	• The potential exists if ground intrusive work into the water table is performed at the Site, and during groundwater monitoring.
Ingestion of groundwater	• Deep groundwater sampling results indicate that vertical migration of VOCs is not occurring at the Site. The potential for ingestion is low. • There are no known domestic water supply wells in the area.

Environmental Media & Exposure Route	Human Assessment
Inhalation of air	• The majority of source area soils have been removed through the IRM. • On-Site indoor air sampling results indicate that vapor intrusion is not a concern.
Direct contact with coastal waters	• The Site is surrounded by a bulkhead. Therefore, release to coastal waters is unlikely.

2.7 REMEDIAL ACTION OBJECTIVES

Based on the results of the Remedial Investigation, the following Remedial Action Objectives (RAOs) have been identified for this Site.

2.7.1 Groundwater

RAOs for Public Health Protection

- Prevent ingestion of groundwater containing contaminant levels exceeding drinking water standards.
- Prevent contact with, or inhalation of, volatiles emanating from contaminated groundwater.

RAOs for Environmental Protection

- Restore ground water aquifer, to the extent practicable, to pre-disposal/pre-release conditions.

2.7.2 Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.

- Prevent inhalation of, or exposure to, contaminants volatilizing from contaminated soil.

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in groundwater or surface water contamination.

3.0 DESCRIPTION OF REMEDIAL ACTION WORK PLAN

The final remedy selected for the subject site is no action with the implementation of institutional controls and long-term groundwater monitoring with a contingency action of chemical injection treatment.

Groundwater monitoring will continue every 18 months to evaluate the effectiveness of the IRM and to monitor residual VOC concentrations in the groundwater. Samples will be analyzed for VOCs and selected parameters during purging. Results of groundwater sampling events will be presented in Groundwater Monitoring Reports.

Article IV of the Nassau County Public Health Ordinance prohibits the installation of private water system wells in those areas served by a public water system. The subject site is served by a public water system. Enforcement of this ordinance will prevent potable water consumption of impacted Site groundwater.

An SMP will be prepared to inform current and future property owners regarding the distribution of impacted soil and groundwater, and to specify the manner in which intrusive work may be conducted in these areas if deemed necessary. The SMP will outline relevant considerations including groundwater monitoring requirements.

In the event of a substantial and sustained increase in chlorinated VOC concentrations in the groundwater, a contingency action of chemical injection treatment may be warranted.

3.1 LONG-TERM GROUNDWAER MONITORING

Groundwater quality will be monitored at the site through four of the existing monitoring wells (MW-3, MW-4, MW-5, and MW-6A) on an 18-month basis. The monitoring wells will be sampled by a low stress (low flow) method to collect representative samples while producing a minimal amount of purge water. Sampling will be performed with dedicated instruments to prevent cross-contamination between well locations. Purging of each well will continue until the

turbidity is less than or equal to 50 Nephelometric Turbidity Units (NTUs), and when pH, temperature, and conductivity measurements stabilize. Stabilization will be considered achieved when three consecutive readings within five percent of each other are collected in five minutes. Portable field instruments will be used to collect measurements. If turbidity cannot be reduced to 50 NTUs, but other parameters stabilize, the well will be considered properly evacuated. Samples will be collected directly from the polyethylene tubing into laboratory-supplied glassware upon stabilization of field parameters.

During the sampling event, depth to bottom and depth to water measurements will be collected at each monitoring well. Water level measurements will be obtained with an electronic water level probe relative to the marked measuring point. Measurements will be recorded in a dedicated bound project field notebook along with the time collected. Measuring equipment will be decontaminated between wells using a laboratory-grade detergent and water solution and tap water rinse.

3.1.1 Laboratory Analysis

Collected groundwater samples will be placed in laboratory supplied glassware and stored in a cooler packed with ice for transport to the laboratory. Sample analysis will be provided by an ELAP-certified environmental laboratory and will consist of VOCs by EPA Method 8260B in accordance with NYSDEC Analytical Sampling Protocol with Category-B deliverables (ASP-B) and third party data validation. The QA/QC program will include the preparation and analysis of field and laboratory QA/QC samples such as trip blanks and matrix spike duplicates.

3.1.2 Quality Assurance / Quality Control

Collected samples will be appropriately packaged, placed in coolers and shipped via overnight courier or delivered directly to the analytical laboratory by field personnel. Samples will be containerized in appropriate laboratory provided glassware and shipped in plastic coolers. Samples will be preserved through the use of ice or “cold-paks” to maintain a temperature of $4^{o}C$.

If dedicated disposable materials are used to collect groundwater samples (polyethylene tubing, dedicated samplers), field equipment (rinsate) blanks will not be part of the QA/QC program. Trip blanks will accompany samples each time they are transported to the laboratory.

3.1.3 Reporting and Data Evaluation

Upon receipt of analytical results, PWGC will prepare a groundwater monitoring report which will present the monitoring results and the laboratory data with appropriate figures and tables. The data will be compared to the results of previous sampling rounds to determine trends in contaminant concentrations. Conclusions and recommendations will be made based on the findings and trends. Recommendations may include altering the period between sampling events, or the contingency action. The groundwater monitoring report will be submitted for NYSDEC review and approval.

As a decreasing trend in residual contaminant concentrations is confirmed, PWGC will recommend that long-term groundwater monitoring cease at the subject site. Alterations to the sampling schedule and the decision to cease monitoring is subject to approval by the NYSDEC.

3.2 CONTINGENCY ACTION

The levels of contamination at the subject site have substantially decreased through remediation and natural attenuation. The primary components of the residual contamination are the daughter compounds of the VOCs previously utilized on site. As such, further remediation of the residual contamination is not warranted. However, in the event of a substantial and sustained increase in the chlorinated VOC concentration detected in a monitoring well, chemical injection treatment has been selected as an appropriate contingency action to remediate the groundwater in the vicinity of that monitoring well.

The criteria for implementation of the contingency in the area of MW-3, where the highest total VOC concentration has been detected (5,700 µg/L in July 2013), will be a total VOC concentration of greater than 5,700 µg/L for two consecutive sampling events.

The criteria for implementation of the contingency at each of the other monitoring well locations will be a total VOC increase of greater than 2,000 µg/L above the total VOC concentrations detected in the July 2013 sampling event, for two consecutive sampling events.

It is anticipated that chemical injection treatment would include the injection of Hydrogen Release Compound (HRC®) through temporary wells installed in the area of the impacted monitoring well utilizing a Geoprobe® direct-push apparatus. HRC® was previously utilized as part of the site's IRM in the contaminant source area (the area of the former drywell). Post-IRM analytical results indicate the success of the HRC® application.

HRC® is an electron donor material that, when hydrated, produces lactic acid. The lactic acid is made available for fermentation by microbes that generate hydrogen. The hydrogen degrades the 1,1,1-TCA, 1,1-DCA, and chloroethane to ethane through a process of reductive dechlorination. HRC® can produce lactic acid up to 24 months after its application.

The HRC® would arrive at the site as a viscous liquid contained in 30-pound buckets. Regenesis®, the manufacturer of HRC®, would perform an evaluation of site subsurface conditions prior to the implementation of the contingency action, if applicable, to determine an appropriate amount of HRC® to reduce VOC concentrations in the area of concern to within Groundwater Standards.

Post-injection groundwater monitoring would include the collection of groundwater samples from monitoring wells in the area of concern. The sampling procedures described in Section 3.1 would be followed during post-injection sampling. The first round of post-injection sampling would occur three months after the injection treatment.

Upon receipt of analytical results, PWGC will prepare a groundwater monitoring report which will present the monitoring results and the laboratory data with appropriate figures and tables. The data will be compared to pre-injection results to determine the effectiveness of the treatment, and to determine if additional treatment is warranted. The groundwater monitoring report will be submitted for NYSDEC review and approval.

3.3 EVALUATION OF REMEDIAL ACTION

3.3.1 Protection of Human Health and the Environment

The SMP that governs soil disturbance activities will prevent ingestion, direct contact, and inhalation of contaminants that pose a risk to public health and the environment. No soil redevelopment or soil disturbance is anticipated for the site.

The source of contamination at the subject site, the former drywell, has been removed. The mass of the residual contamination surrounding the drywell area was removed during the IRM excavation and chemical treatment. The overall reduction in source material expedites natural attenuation of VOCs in the groundwater.

Article IV of the Nassau County Public Health Ordinance prohibits the installation of private water system wells in those areas served by a public water system. Under this remedy, this would continue to be enforced and would prevent potable water consumption or exposure to impacted groundwater. This institutional control will minimize the potential of exposure to residual concentrations in the groundwater.

3.3.2 Compliance with Standards, Criteria, and Guidelines (SCGs)

The proposed remedial action is designed to meet the SCGs applicable to the Site to conform with applicable requirements of the VCA. If applicable SCGs have not been substantially achieved after implementation of the remedy, the contingency action of chemical injection treatment may be appropriate to complete the remediation in conformance with applicable requirements of the VCA.

The following Remedial Action standards, criteria and guidance were considered for the selection of the remedy:

- 6 NYCRR Part 375-6 Soil Cleanup Objectives
- New York State Groundwater Quality Standards – 6 NYCRR Part 703;
- NYSDEC Ambient Water Quality Standards and Guidance Values – TOGS 1.1.1;

- NYSDEC Draft DER-10 Technical Guidance for Site Investigation and Remediation - December 2002;
- NYS Waste Transporter Permits – 6 NYCRR Part 364;
- NYS Solid Waste Management Requirements – 6 NYCRR Part 360 and Part 364;

3.3.3 Short-Term Effectiveness and Impacts

The institutional control prohibiting the installation of potable supply wells in areas served by public water is in place and enforced by Nassau County. Long-term groundwater monitoring will be used to assess the effectiveness of natural attenuation. The duration of long-term groundwater monitoring is anticipated to be greater than two years.

3.3.4 Long-Term Effectiveness and Permanence

The SMP that governs soil disturbance activities will prevent ingestion, direct contact, and inhalation of contaminants that pose a risk to public health and the environment. No soil redevelopment or soil disturbance is anticipated for the site.

The restriction of the installation of potable wells will permanently prevent contact with impacted groundwater provided Article IV of the Nassau County Health Ordinance remains in place.

Natural attenuation will continue to reduce contaminant mass. The biodegradation of groundwater VOCs is permanent. The long-term effectiveness of this process will be evaluated through long-term groundwater monitoring.

3.3.5 Reduction of Toxicity, Mobility, or Volume of Contaminated Material

Based on the findings of the RI and post-IRM sampling, the remaining mass of VOCs in the subsurface of the Site is minimal, and non-aqueous phase liquid has not been encountered. Through natural attenuation, there will be a decrease in the toxicity, mobility, and volume of

VOCs in groundwater. This reduction would be confirmed through long-term groundwater monitoring.

3.3.6 Implementability

Site groundwater quality will be monitored through the use of existing Site wells. Significant difficulties are not anticipated during the groundwater monitoring program.

3.3.7 Community Acceptance

The public will be provided the opportunity to provide input on the chosen alternative during the RAWP public comment period, which will be evaluated by the NYSDEC.

4.0 REMEDIAL ACTION PROGRAM

4.1 GOVERNING DOCUMENTS

4.1.1 Community Participation Plan

A certification of mailing will be sent by the Volunteer to the NYSDEC project manager following the distribution of all Fact Sheets and notices that includes: (1) certification that the Fact Sheets were mailed, (2) the date they were mailed; (3) a copy of the Fact Sheet, (4) a list of recipients (contact list); and (5) a statement that the repository was inspected on (specific date) and that it contained all of applicable project documents.

No changes will be made to approved Fact Sheets authorized for release by NYSDEC without written consent of the NYSDEC. No other information, such as brochures and flyers, will be included with the Fact Sheet mailing.

The approved Community Participation Plan for this project is attached in **Appendix D**.

A document repository will be established at the following location and will contain applicable project documents:

Baldwin Public Library
2385 Grand Ave
Baldwin, NY 11510
Phone: (516) 223-6228

Hours of Operation:

Mon - Thu	9:00 AM - 9:00 PM
Fri	9:00 AM - 6:00 PM
Sat	9:00 AM - 5:00 PM
Sun	1:00 PM - 5:00 PM

4.2 GENERAL REMEDIAL INFORMATION

Active remediation, including excavation and chemical treatment, is complete for the Site and the elements necessary for the implementation of the final remedy, including the monitoring wells, are constructed. The final remedy selected for the subject site is no action with the implementation of institutional controls and long-term groundwater monitoring with a contingency action of chemical injection treatment. Further ground intrusive work is not anticipated for the site. However, monitoring wells which are damaged in the future may be replaced in order to continue monitoring.

4.2.1 Deviations from the Remedial Action Work Plan

When possible, deviations from the RAWP will be discussed with the NYSDEC prior to the deviation. Deviations will be subject to the approval of the NYSDEC. The effects and potential effects of the deviation will be evaluated, documented, and submitted for review by PWGC to the NYSDEC.

5.0 RESIDUAL CONTAMINATION TO REMAIN ON-SITE

Since residual contaminated groundwater exists beneath the Site, Institutional Controls (ICs) are required to protect human health and the environment. These ICs are described hereafter. Long-term management of ICs and of residual contamination will be executed under a Site-specific Site Management Plan (SMP). The SMP will report residual contamination on the Site in tabular and map form. This will include presentation of exceedances of Class GA Groundwater Standards and Part 375 Unrestricted Use SCOs.

6.0 INSTITUTIONAL CONTROLS

The Site may have residual contamination remaining in place. Two elements have been designed to ensure continual and proper management of residual contamination in perpetuity: an Environmental Easement and a Site Management Plan (SMP). These elements are described in this Section. A Site-specific Environmental Easement will be recorded with Nassau County to provide an enforceable means of ensuring the continual and proper management of residual contamination and protection of public health and the environment in perpetuity or until released in writing by NYSDEC. It requires that the grantor of the Environmental Easement and the grantor's successors and assigns adhere to all Institutional Controls (ICs) placed on this Site by this NYSDEC-approved remedy. ICs provide restrictions on Site usage and mandate operation, maintenance, monitoring and reporting measures for the ICs. The SMP describes appropriate methods and procedures to ensure compliance with the ICs that are required by the Environmental Easement. Once the SMP has been approved by the NYSDEC, compliance with the SMP is required by the grantor of the Environmental Easement and grantor's successors and assigns.

6.1 ENVIRONMENTAL EASEMENT

An Environmental Easement, as defined in Article 71 Title 36 of the Environmental Conservation Law, is required when residual contamination is left on-Site after the Remedial Action is complete. If the Site will have residual contamination after completion of all Remedial Actions, then an Environmental Easement is required. As part of this remedy, an Environmental Easement approved by NYSDEC will be filed and recorded with the Nassau County Clerk. The Environmental Easement will be submitted as part of the SMP.

The Environmental Easement renders the Site a Controlled Property. The Environmental Easement must be recorded with the Nassau County Clerk before the Certificate of Completion can be issued by NYSDEC. Institutional Controls are required under this remedy to prevent future exposure by controlling disturbances of the contaminated soil and restricting the use of the Site to commercial or industrial use. These Institutional Controls are requirements or restrictions

placed on the Site that are listed in, and required by, the Environmental Easement. Institutional Controls can, generally, be subdivided between controls that support Engineering Controls, and those that place general restrictions on Site usage or other requirements. Institutional Controls in both of these groups are closely integrated with the SMP, which provides the methods and procedures to be followed to comply with this remedy.

The Institutional Controls that support Engineering Controls are:

- Compliance with the Environmental Easement by the Grantee and the Grantee's successors and adherence of all elements of the SMP is required;
- Groundwater monitoring must be performed as defined in the SMP;
- Data and information pertinent to Site Management for the Controlled Property must be reported at the frequency and in a manner defined in the SMP;
- On-Site environmental monitoring devices, including but not limited to, groundwater monitor wells, must be protected and replaced as necessary to ensure proper functioning in the manner specified in the SMP;

Adherence to these Institutional Controls for the Site is mandated by the Environmental Easement and will be implemented under the SMP (discussed in the next section). The Controlled Property (Site) will also have a series of Institutional Controls in the form of Site restrictions and requirements. The Site restrictions that apply to the Controlled Property are:

- Vegetable gardens and farming on the Controlled Property are prohibited;
- Use of groundwater underlying the Controlled Property is prohibited without treatment rendering it safe for intended purpose;
- All future activities on the Controlled Property that will disturb residual contaminated material are prohibited unless they are conducted in accordance with the soil management provisions in the SMP;
- The Controlled Property may be used for commercial use only, provided the long-term Engineering and Institutional Controls included in the SMP are employed;

- The Controlled Property may not be used for a higher level of use, such as restricted residential, use without an amendment or extinguishment of this Environmental Easement;
- Grantor agrees to submit to NYSDEC a written statement that certifies, under penalty of perjury, that: (1) controls employed at the Controlled Property are unchanged from the previous certification or that any changes to the controls were approved by the NYSDEC; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP. NYSDEC retains the right to access such Controlled Property at any time in order to evaluate the continued maintenance of any and all controls. This certification shall be submitted every eighteen (18) months. This 18-month statement must be certified by an expert that the NYSDEC finds acceptable.

6.2 SITE MANAGEMENT PLAN

Site Management is the last phase of remediation. The SMP will be written as a complete and independent document. Site Management continues in perpetuity or until released in writing by NYSDEC. The property owner is responsible to ensure that all Site Management responsibilities defined in the Environmental Easement and the SMP are performed.

The SMP is intended to provide a detailed description of the procedures required to manage residual contamination left in place at the Site following completion of the Remedial Action in accordance with the VCA with the NYSDEC. This includes: (1) development, implementation, and management of Institutional Controls; (2) development and implementation of monitoring systems and a Monitoring Plan; and (3) submittal of Site Management Reports, performance of inspections and certification of results, and demonstration of proper communication of Site information to NYSDEC.

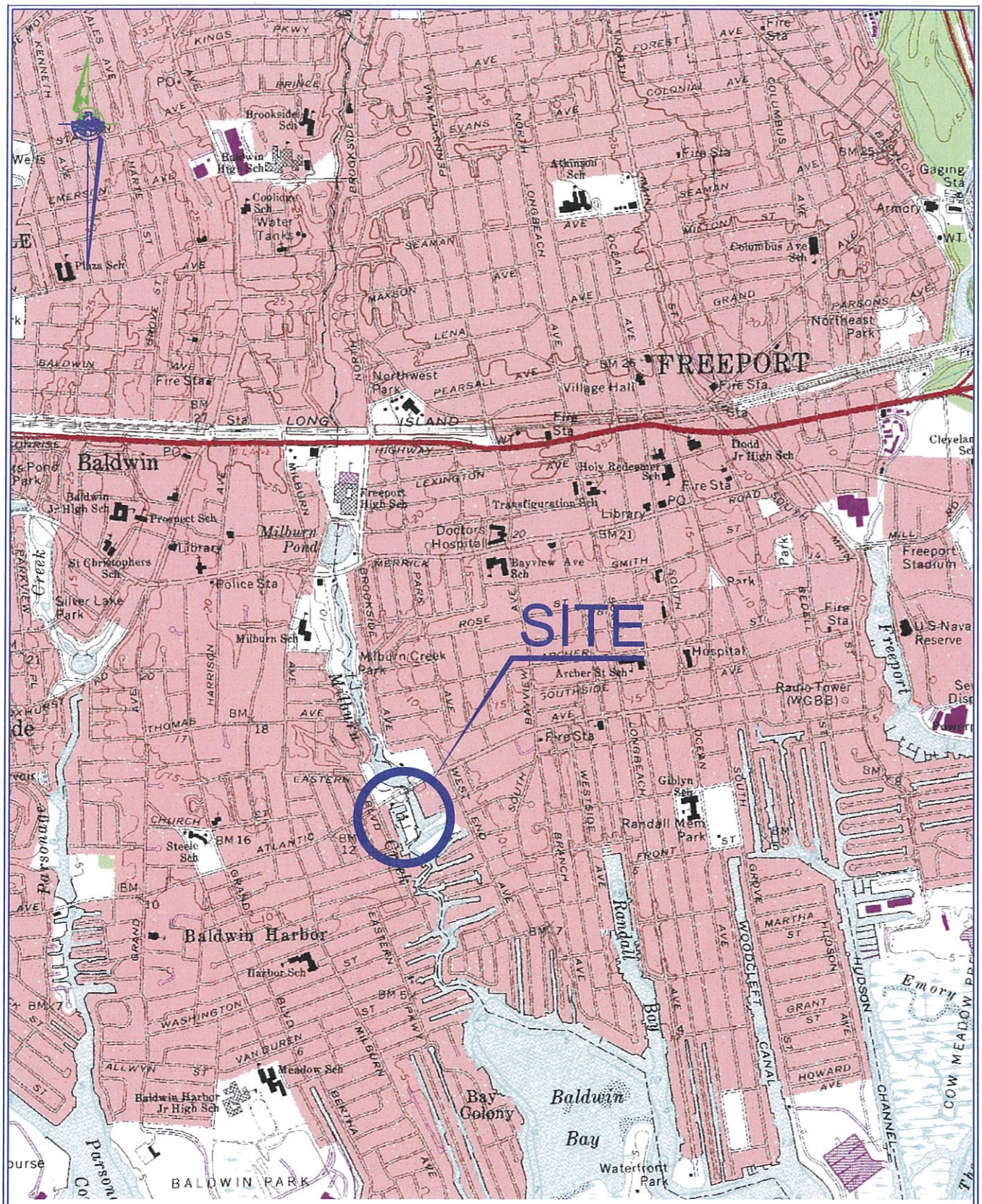
To address these needs, this SMP will include four plans: (1) an Institutional Control Plan for implementation and management of ICs; (2) a Monitoring Plan for implementation of Site Monitoring; and (3) a Site Management Reporting Plan for submittal of data, information, recommendations, and certifications to NYSDEC. The SMP will be prepared in accordance with

the requirements in NYSDEC *Draft DER-10 Technical Guidance for Site Investigation and Remediation*, and the guidelines provided by NYSDEC.

Site management activities, reporting, and IC certification will be scheduled on a certification period basis. The certification period will be eighteen (18) months.

No exclusions for handling of residual contaminated soils will be provided in the Site Management Plan (SMP). Handling of residual contaminated material will be subject to provisions contained in the SMP.

FIGURES



Mapped, edited, and published by the Geological Survey
Revised in cooperation with New York Department of Transportation
Control by USGS, USC&GS, and New Jersey Geodetic Survey

J:\Projects S-Z\sss\SSS0601\Cad\Vicinity Map.dwg

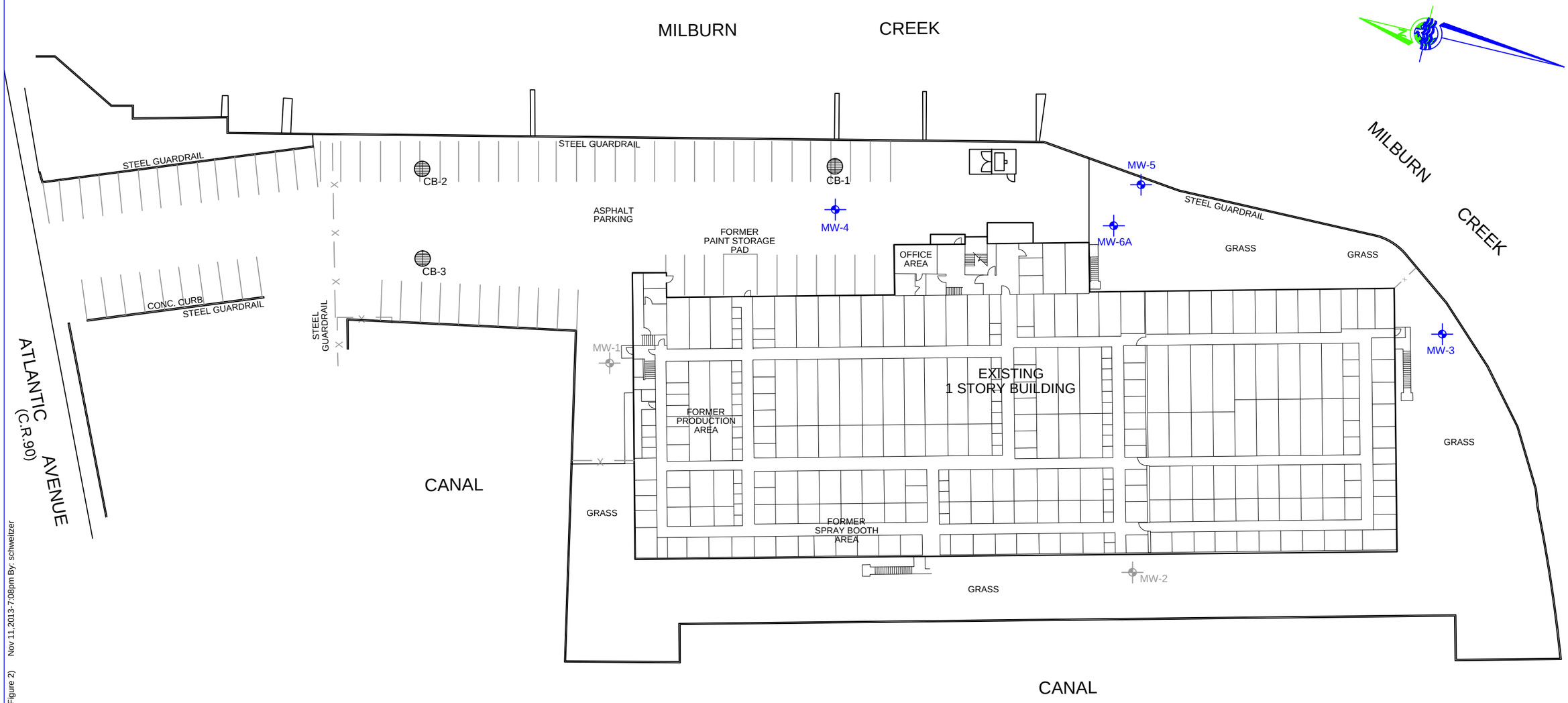
VICINITY MAP

SCALE: 1:24,000

PWGC
Strategic Environmental & Engineering Solutions
630 Johnson Ave. Suite 7 Bohemia, N.Y. 11716-2618
Ph: 631 589-6353 Fx: 631 589-8705 E-mail: info@pwgroesser.com

1170 ATLANTIC AVENUE
BALDWIN, NY 11510

Project	SSS0601
Designed by	JPR
Approved by	PWG
Drawn by	LLG
Figure No.	1
Date	10/05/06



LEGEND

- MONITORING WELL
- MONITORING WELL (NOT IN USE)
- CATCH BASIN
- CHAIN LINK FENCE
- STORAGE UNIT

BASEMAP PROVIDED BY:
ATC ASSOCIATES INC.
ENVIRONMENTAL, GEOTECHNICAL AND
MATERIALS PROFESSIONALS
104 E.25th ST. 10th FLOOR
NEW YORK, NY 10010

0 40 80
SCALE: 1" = 40'

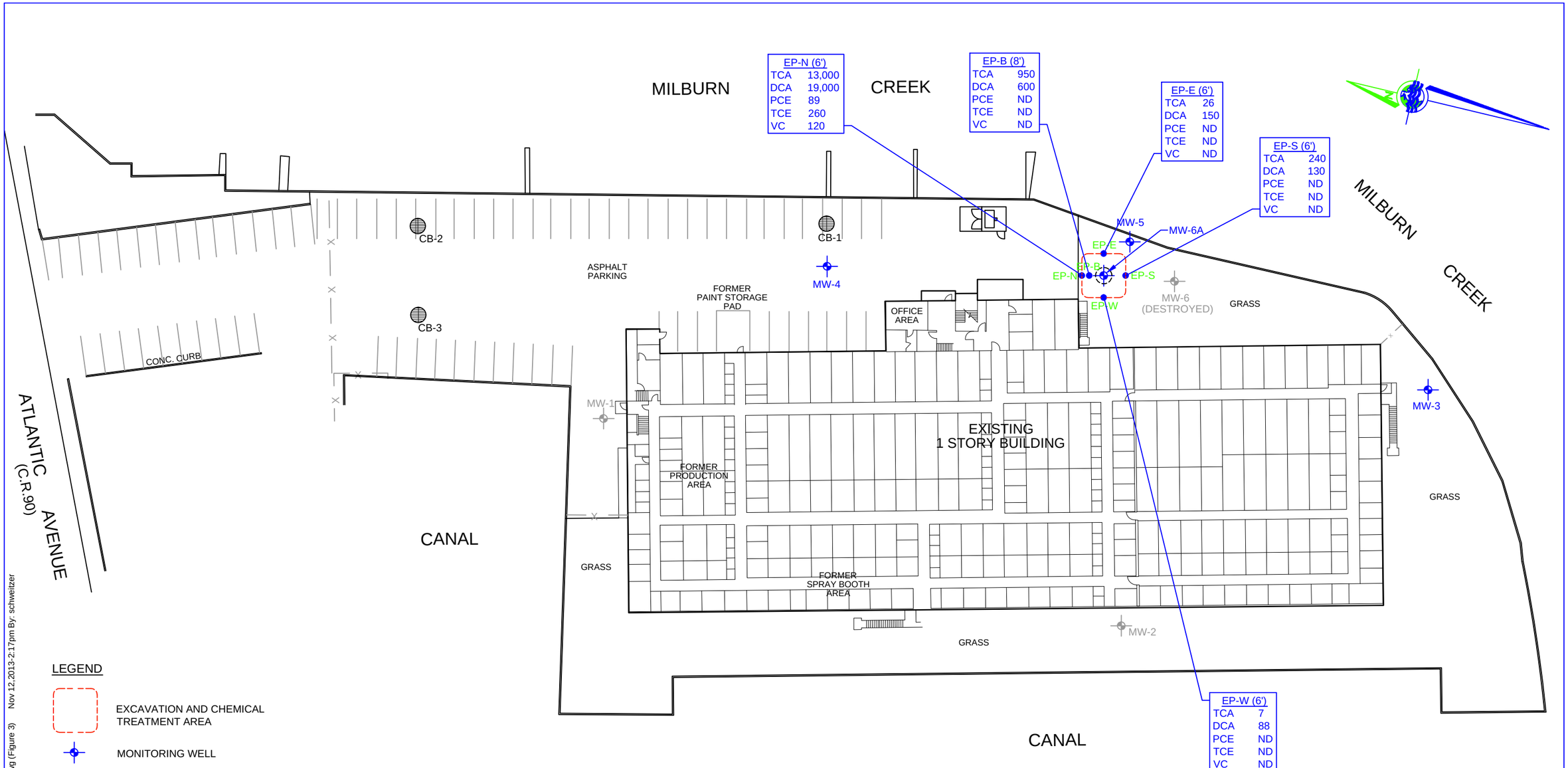
SITE PLAN
1170 ATLANTIC AVENUE
BALDWIN, NY 11510

PWGC
Strategic Environmental & Engineering Solutions
630 Johnson Ave. Suite 7 Bohemia, N.Y. 11716-2618
Ph: 631 589-6353 Fx: 631 589-8705 E-mail: info@pwgrosser.com

Project:	Designed By:	Figure No:
SSS1101	JE	2
CADD Operator:	Approved By:	Date:
DCS	PWG	11/4/13

UNAUTHORIZED ALTERATION OR ADDITION TO THIS DRAWING AND RELATED DOCUMENTS IS A VIOLATION OF SEC. 7209 OF THE N.Y.S. EDUCATION LAW

J:\Projects S-Z\SSS1101\RM\RM Work Plan\CAD\Fig 2 11-04-13.dwg (Figure 2) Nov 11,2013-7:08pm By: schweitzer



LEGEND

- EXCAVATION AND CHEMICAL TREATMENT AREA
- MONITORING WELL
- MONITORING WELL (NOT IN USE)
- FORMER LOCATION OF DRYWELL OF CONCERN
- CATCH BASIN
- CHAIN LINK FENCE
- STORAGE UNIT
- EP-N ENDPOINT SAMPLE LOCATION

Data Units = µg/kg
TCA = 1,1,1-Trichloroethane
DCA = 1,1-Dichloroethane
PCE = Tetrachloroethene
TCE = Trichloroethene
VC = Vinyl Chloride

BASEMAP PROVIDED BY:
ATC ASSOCIATES INC.
ENVIRONMENTAL, GEOTECHNICAL AND
MATERIALS PROFESSIONALS
104 E.25th ST. 10th FLOOR
NEW YORK, NY 10010

0 40 80
SCALE: 1" = 40'

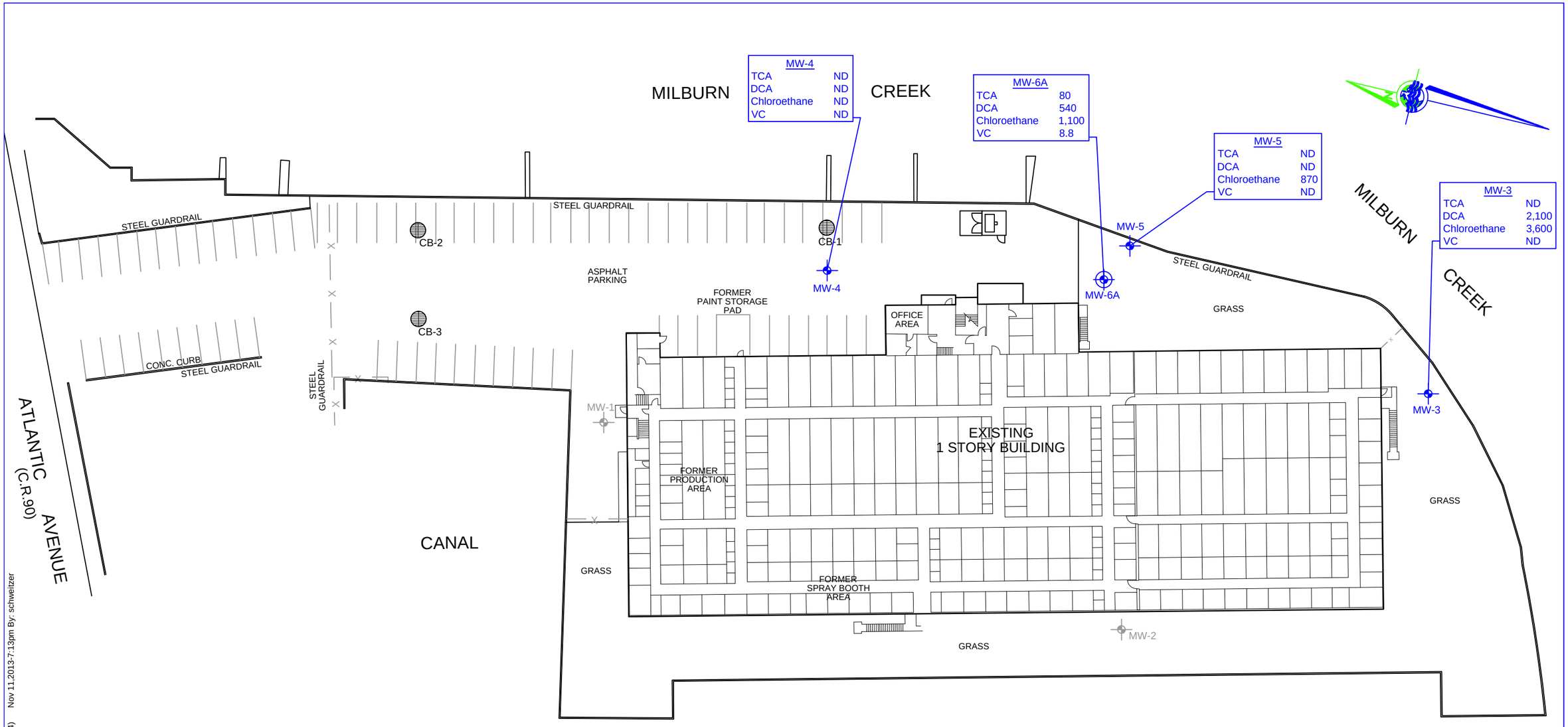
IRM SOIL ENDPOINT RESULTS
1170 ATLANTIC AVENUE
BALDWIN, NY 11510

PWGC
Strategic Environmental & Engineering Solutions
630 Johnson Ave. Suite 7 Bohemia, N.Y. 11716-2618
Ph: 631 589-6353 Fx: 631 589-8705 E-mail: info@pwgrosser.com

Project:	Designed By:	Figure No:
SSS1101	JE	3
CADD Operator: DCS	Approved By: PWG	Date: 11/01/2013

UNAUTHORIZED ALTERATION OR ADDITION TO THIS DRAWING AND RELATED DOCUMENTS IS A VIOLATION OF SEC. 7209 OF THE N.Y.S. EDUCATION LAW

J:\Projects S-Z\SSS\1101\IRM\IRM Work Plan\CAD\Fig 3 11-01-13.dwg (Figure 3) Nov 12,2013-2:17pm By: schweitzer



LEGEND

- EXISTING MONITORING WELL
- MONITORING WELL (NOT IN USE)
- DRYWELL OF CONCERN
- CATCH BASIN
- CHAIN LINK FENCE
- STORAGE UNIT

Data Units = µg/L
TCA = 1,1,1-Trichloroethane
DCA = 1,1-Dichloroethane
VC = Vinyl Chloride

BASEMAP PROVIDED BY:
ATC ASSOCIATES INC.
ENVIRONMENTAL, GEOTECHNICAL AND
MATERIALS PROFESSIONALS
104 E.25th ST. 10th FLOOR
NEW YORK, NY 10010

0 40 80
SCALE: 1" = 40'

MONITORING WELL RESULTS
JULY 2013
1170 ATLANTIC AVENUE
BALDWIN, NY 11510

PWGC
Strategic Environmental & Engineering Solutions
630 Johnson Ave. Suite 7 Bohemia, N.Y. 11716-2618
Ph: 631 589-6353 Fx: 631 589-8705 E-mail: info@pwgrosser.com

Project:	Designed By:	Figure No:
SSS1101	JE	4
CADD Operator: DCS	Approved By: PWG	Date: 11/1/13

UNAUTHORIZED ALTERATION OR ADDITION TO THIS DRAWING AND RELATED DOCUMENTS IS A VIOLATION OF SEC. 7209 OF THE N.Y.S. EDUCATION LAW

J:\Projects S-Z\SSS1101\RM\IRM Work Plan\CAD\Fig 4 - 11-01-13.dwg (Figure 4) Nov 11,2013-7:13pm By: schweitzer

TABLES

TABLE 1

1170 Atlantic Avenue

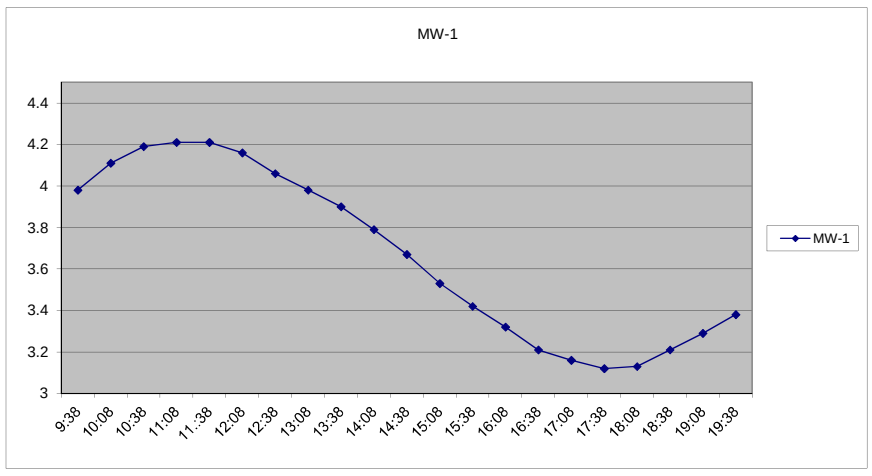
Baldwin, New York

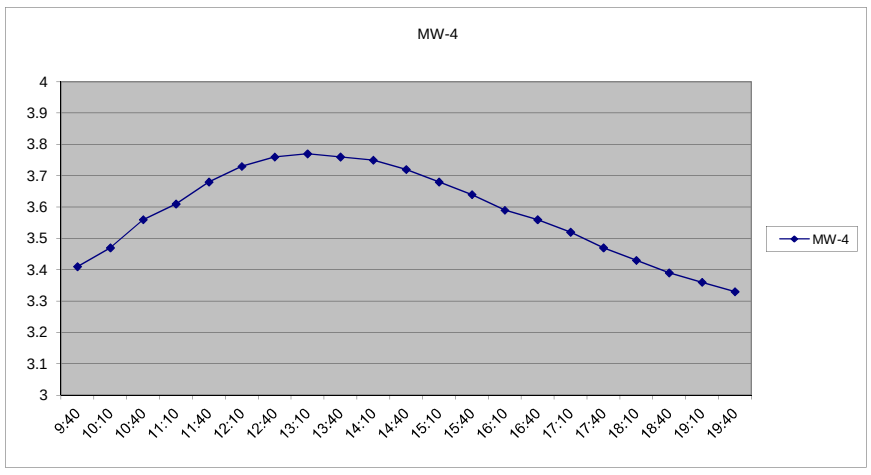
TIDAL WATER LEVEL MEASUREMENTS

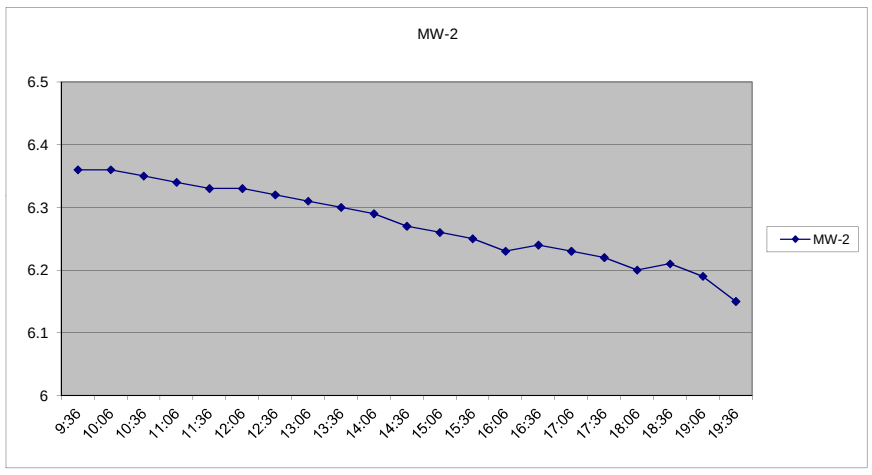
November 28, 2007

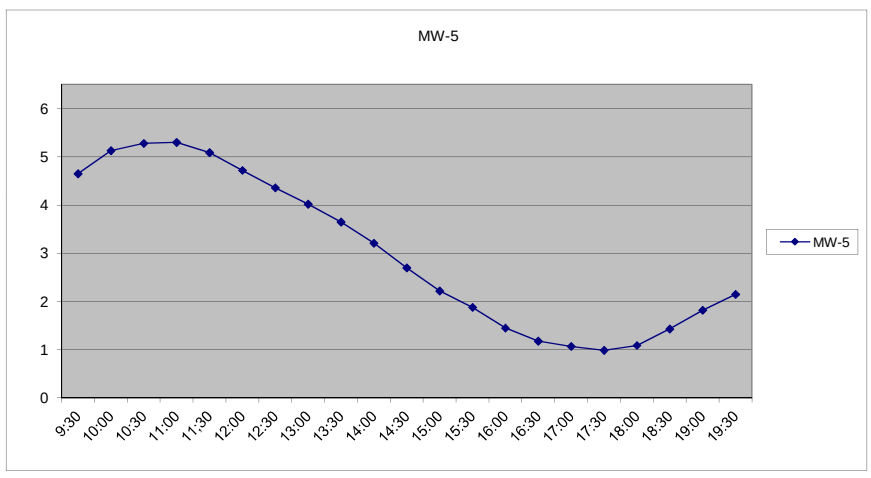
MW-1				MW-2				MW-3				MW-4				MW-5				MW-6			
TIME	DTW	casing	GW elev	TIME	DTW	casing	GW elev	TIME	DTW	casing	GW elev	TIME	DTW	casing	GW elev	TIME	DTW	casing	GW elev	TIME	DTW	casing	GW elev
8:38	4.81	8.53	3.72	8:36	2.3	8.68	6.38	8:34	3.46	7.91	4.45	8:40	4.41	7.76	3.35	8:30	3.76	7.71	3.95	8:32	3.79	8.12	4.33
9:38	4.55	8.53	3.98	9:36	2.32	8.68	6.36	9:34	3.43	7.91	4.48	9:40	4.35	7.76	3.41	9:30	3.06	7.71	4.65	9:32	3.57	8.12	4.55
10:08	4.42	8.53	4.11	10:06	2.32	8.68	6.36	10:04	3.38	7.91	4.53	10:10	4.29	7.76	3.47	10:00	2.58	7.71	5.13	10:02	3.43	8.12	4.69
10:38	4.34	8.53	4.19	10:36	2.33	8.68	6.35	10:34	3.3	7.91	4.61	10:40	4.2	7.76	3.56	10:30	2.43	7.71	5.28	10:32	3.28	8.12	4.84
11:08	4.32	8.53	4.21	11:06	2.34	8.68	6.34	11:04	3.27	7.91	4.64	11:10	4.15	7.76	3.61	11:00	2.41	7.71	5.3	11:02	3.24	8.12	4.88
11.:38	4.32	8.53	4.21	11:36	2.35	8.68	6.33	11:34	3.25	7.91	4.66	11:40	4.08	7.76	3.68	11;30	2.62	7.71	5.09	11:32	3.23	8.12	4.89
12:08	4.37	8.53	4.16	12:06	2.35	8.68	6.33	12:04	3.24	7.91	4.67	12:10	4.03	7.76	3.73	12:00	2.99	7.71	4.72	12:02	3.27	8.12	4.85
12:38	4.47	8.53	4.06	12:36	2.36	8.68	6.32	12:34	3.26	7.91	4.65	12:40	4	7.76	3.76	12:30	3.35	7.71	4.36	12:32	3.33	8.12	4.79
13:08	4.55	8.53	3.98	13:06	2.37	8.68	6.31	13:04	3.29	7.91	4.62	13:10	3.99	7.76	3.77	13:00	3.69	7.71	4.02	13:02	3.42	8.12	4.7
13:38	4.63	8.53	3.9	13:36	2.38	8.68	6.3	13:34	3.32	7.91	4.59	13:40	4	7.76	3.76	13:30	4.06	7.71	3.65	13:32	3.51	8.12	4.61
14:08	4.74	8.53	3.79	14:06	2.39	8.68	6.29	14:04	3.36	7.91	4.55	14:10	4.01	7.76	3.75	14:00	4.5	7.71	3.21	14:02	3.62	8.12	4.5
14:38	4.86	8.53	3.67	14:36	2.41	8.68	6.27	14:34	3.39	7.91	4.52	14:40	4.04	7.76	3.72	14:30	5.01	7.71	2.7	14:32	3.75	8.12	4.37
15:08	5.00	8.53	3.53	15:06	2.42	8.68	6.26	15:04	3.41	7.91	4.5	15:10	4.08	7.76	3.68	15:00	5.49	7.71	2.22	15:02	3.9	8.12	4.22
15:38	5.11	8.53	3.42	15:36	2.43	8.68	6.25	15:34	3.44	7.91	4.47	15:40	4.12	7.76	3.64	15:30	5.83	7.71	1.88	15:32	4.03	8.12	4.09
16:08	5.21	8.53	3.32	16:06	2.45	8.68	6.23	16:04	3.47	7.91	4.44	16:10	4.17	7.76	3.59	16:00	6.26	7.71	1.45	16:02	4.16	8.12	3.96
16:38	5.32	8.53	3.21	16:36	2.44	8.68	6.24	16:34	3.48	7.91	4.43	16:40	4.2	7.76	3.56	16:30	6.53	7.71	1.18	16:32	4.32	8.12	3.8
17:08	5.37	8.53	3.16	17:06	2.45	8.68	6.23	17:04	3.5	7.91	4.41	17:10	4.24	7.76	3.52	17:00	6.64	7.71	1.07	17:02	4.4	8.12	3.72
17:38	5.41	8.53	3.12	17:36	2.46	8.68	6.22	17:34	3.51	7.91	4.4	17:40	4.29	7.76	3.47	17:30	6.72	7.71	0.99	17:32	4.46	8.12	3.66
18:08	5.4	8.53	3.13	18:06	2.48	8.68	6.2	18:04	3.53	7.91	4.38	18:10	4.33	7.76	3.43	18:00	6.62	7.71	1.09	18:02	4.47	8.12	3.65
18:38	5.32	8.53	3.21	18:36	2.47	8.68	6.21	18:34	3.53	7.91	4.38	18:40	4.37	7.76	3.39	18:30	6.28	7.71	1.43	18:32	4.43	8.12	3.69
19:08	5.24	8.53	3.29	19:06	2.49	8.68	6.19	19:04	3.52	7.91	4.39	19:10	4.4	7.76	3.36	19:00	5.89	7.71	1.82	19:02	4.37	8.12	3.75
19:38	5.15	8.53	3.38	19:36	2.53	8.68	6.15	19:34	3.52	7.91	4.39	19:40	4.43	7.76	3.33	19:30	5.56	7.71	2.15	19:32	4.25	8.12	3.87

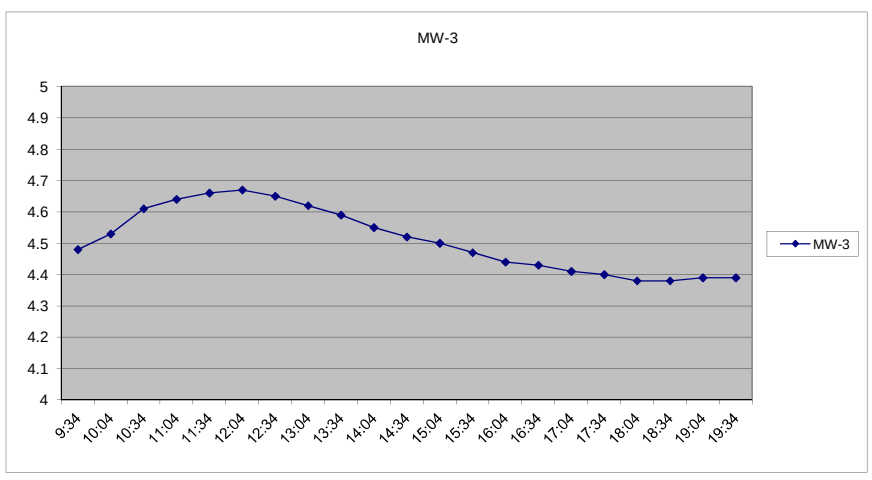
Station	Elev.
MW-1	8.53
MW-2	8.68
MW-3	7.91
MW-4	7.76
MW-5	7.71
MW-6	8.12

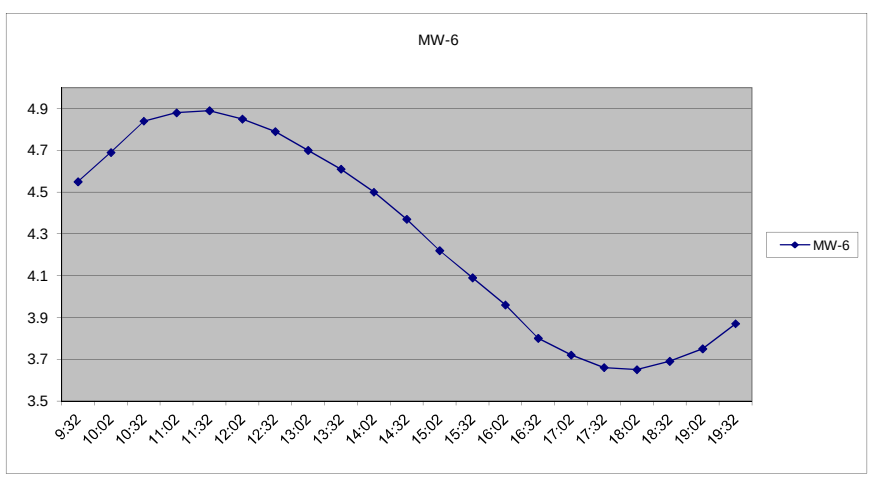












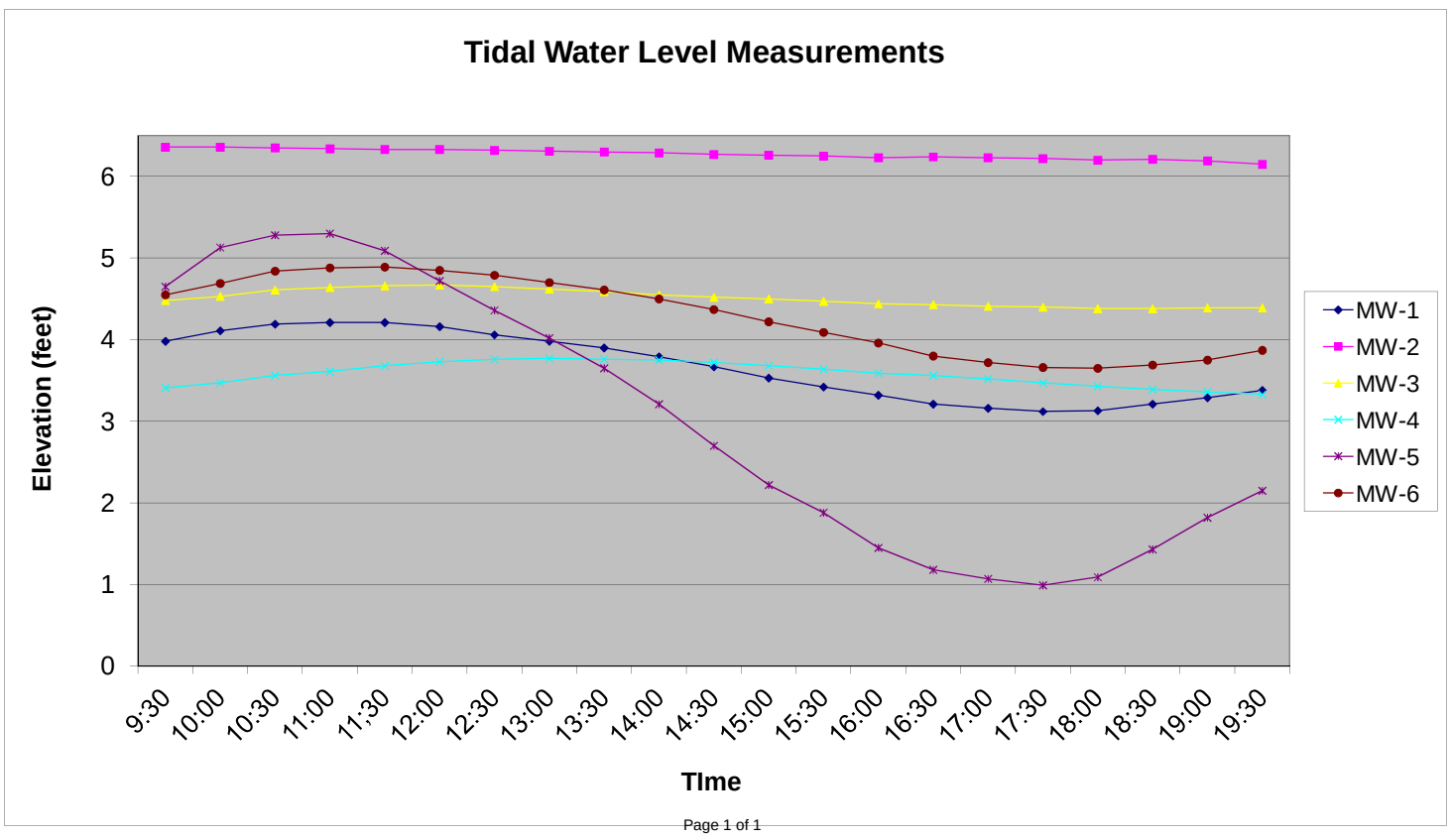


Table 2

Analytical Results for Endpoint Soil Samples - Volatile Organic Compounds (EPA Method 8260)

1170 Atlantic Avenue, Baldwin, New York

Client Sample ID: Sample Depth: Laboratory ID: Sampling Date:	Unrestricted Use SCO (2)	Residential SCO(3)	Restricted Residential SCO(3)	Commercial SCO(3)	Industrial SCO(3)	EP-N 6' 10/25/2011	EP-S 6' 10/25/2011	EP-E 6' 10/25/2011	EP-W 6' 10/25/2011	EP-B 8' 10/25/2011
Volatile Organic Compounds - USEPA Method 8260 - ug/kg										
1,1,1-Trichloroethane	680	100,000[a]	100,000[a]	500,000[b]	1,000,000[c]	**13000**	240	26	6.6	**950**
1,1,1,2 Tetrachloroethane	NS	NS	NS	NS	NS	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	NS	35,000	NS	NS	NS	ND	ND	ND	ND	ND
1,1,2 Trichloroethane	NS	NS	NS	NS	NS	8	ND	ND	ND	ND
1,1,2-Trichlorotrifluoroethane	NS	NS	NS	NS	NS	ND	ND	ND	ND	ND
1,1 Dichloroethane	270	19,000	26,000	240,000	480,000	**19000**	130	150	88	**600**
1,1 Dichloroethene	330	100,000[a]	100,000[a]	500,000[b]	1,000,000[c]	**520**	13	ND	ND	58
1,1 Dichloropropene	NS	NS	NS	NS	NS	ND	ND	ND	ND	ND
1,2,3 Trichlorobenzene	NS	NS	NS	NS	NS	ND	ND	ND	ND	ND
1,2,3 Trichloropropane	NS	NS	NS	NS	NS	ND	ND	ND	ND	ND
1,2,4,5 Tetramethylbenzene	NS	NS	NS	NS	NS	8.4J	ND	ND	ND	ND
1,2,4-Trichlorobenzene	NS	NS	NS	NS	NS	ND	ND	ND	ND	ND
1,2 Dibromo 3 chloropropane	NS	NS	NS	NS	NS	ND	ND	ND	ND	ND
1,2 Dibromoethane	NS	NS	NS	NS	NS	ND	ND	ND	ND	ND
1,2 Dichlorobenzene	1,100	100,000[a]	100,000[a]	500,000[b]	1,000,000[c]	1.6J	ND	ND	ND	ND
1,2 Dichloroethane	20[c]	2,300	3,100	30,000	60,000	ND	ND	ND	ND	ND
1,2 Dichloropropane	NS	NS	NS	NS	NS	ND	ND	ND	ND	ND
1,3 Dichlorobenzene	2,400	17,000	49,000	280,000	560,000	ND	ND	ND	ND	ND
1,3 Dichloropropane	NS	NS	NS	NS	NS	ND	ND	ND	ND	ND
1,4 Dichlorobenzene	1,800	9,800	13,000	130,000	250,000	ND	ND	ND	ND	ND
1,4 Diethylbenzene	NS	NS	NS	NS	NS	17	ND	ND	ND	ND
2,2 Dichloropropane	NS	NS	NS	NS	NS	ND	ND	ND	ND	ND
2-Butanone	120	100,000[a]	100,000[a]	500,000[b]	1,000,000[c]	47	ND	ND	ND	ND
2-Hexanone	NS	NS	NS	NS	NS	ND	ND	ND	ND	ND
4 Ethyltoluene	NS	NS	NS	NS	NS	17	ND	ND	ND	ND
4-Methyl-2-pentanone	NS	NS	NS	NS	NS	ND	ND	ND	ND	ND
Acetone	50	100,000[a]	100,000[a]	500,000[b]	1,000,000[c]	38	ND	ND	ND	ND
Acrylonitrile	NS	NS	NS	NS	NS	ND	ND	ND	ND	ND
Benzene	60	2,900	4,800	44,000	89,000	ND	ND	ND	ND	ND
Bromobenzene	NS	NS	NS	NS	NS	ND	ND	ND	ND	ND
Bromochloromethane	NS	NS	NS	NS	NS	ND	ND	ND	ND	ND
Bromodichloromethane	NS	NS	NS	NS	NS	ND	ND	ND	ND	ND
Bromoform	NS	NS	NS	NS	NS	ND	ND	ND	ND	ND
Bromomethane	NS	NS	NS	NS	NS	ND	ND	ND	ND	ND
Carbon Disulfide	NS	100,000	NS	NS	NS	48	ND	ND	ND	ND
Carbon Tetrachloride	760	1,400	2,400	22,000	44,000	ND	ND	ND	ND	ND
Chlorobenzene	1,100	100,000[a]	100,000[a]	500,000[b]	1,000,000[c]	ND	ND	ND	ND	ND
Chloroethane	NS	NS	NS	NS	NS	450J	2.5J	9.7	14	ND
Chloroform	370	10,000	49,000	350,000	700,000	ND	ND	ND	ND	ND
Chloromethane	NS	NS	NS	NS	NS	ND	ND	ND	ND	ND
c-1,2-Dichloroethene	250	59,000	100,000[a]	500,000[b]	1,000,000[c]	33	ND	ND	ND	ND
c-1,3-Dichloropropene	NS	NS	NS	NS	NS	ND	ND	ND	ND	ND
Cyclohexane	NS	NS	NS	NS	NS	ND	ND	ND	ND	ND
Dibromochloromethane	NS	NS	NS	NS	NS	ND	ND	ND	ND	ND
Dibromomethane	NS	NS	NS	NS	NS	ND	ND	ND	ND	ND
Dichlordifluoromethane	NS	NS	NS	NS	NS	ND	ND	ND	ND	ND
Ethyl Benzene	1,000	30,000	41,000	390,000	780,000	12	ND	ND	ND	ND
Ethyl ether	NS	NS	NS	NS	NS	ND	ND	ND	ND	ND
Hexachlorobutadiene	NS	NS	NS	NS	NS	ND	ND	ND	ND	ND
Isopropylbenzene	NS	100,000	NS	NS	NS	2.4J	ND	ND	ND	ND
m + p Xylene	260	100,000[a]	100,000[a]	500,000[b]	1,000,000[c]	46	ND	ND	ND	ND
Methyl Acetate	NS	NS	NS	NS	NS	ND	ND	ND	ND	ND
ter.ButylMethylEther	930	62,000	100,000[a]	500,000[b]	1,000,000[c]	ND	ND	ND	ND	ND
Methylcyclohexane	NS	NS	NS	NS	NS	ND	ND	ND	ND	ND
Methylene Chloride	50	51,000	100,000[a]	500,000[b]	1,000,000[c]	8.2J	6.8J	6.2J	ND	ND
n-Butylbenzene	NS	NS	NS	NS	NS	5.9	ND	ND	ND	ND
n Propylbenzene	3,900	100,000[a]	100,000[a]	500,000[b]	1,000,000[c]	4.9	ND	ND	ND	ND
o Chlorotoluene	NS	NS	NS	NS	NS	ND	ND	ND	ND	ND
o Xylene	260	100,000[a]	100,000[a]	500,000[b]	1,000,000[c]	18	ND	ND	ND	ND
p Chlorotoluene	NS	NS	NS	NS	NS	ND	ND	ND	ND	ND
p Isopropyltoluene	NS	NS	NS	NS	NS	2.9J	ND	ND	ND	ND
sec-Butylbenzene	11,000	100,000[a]	100,000[a]	500,000[b]	1,000,000[c]	3.6	ND	ND	ND	ND
Styrene	NS	NS	NS	NS	NS	ND	ND	ND	ND	ND
t-1,3-Dichloropropene	NS	NS	NS	NS	NS	ND	ND	ND	ND	ND
tert-Butylbenzene	5,900	100,000[a]	100,000[a]	500,000[b]	1,000,000[c]	ND	ND	ND	ND	ND
Tetrachloroethene	1,300	5,500	19,000	150,000	300,000	89	ND	ND	ND	ND
Toluene	700	100,000[a]	100,000[a]	500,000[b]	1,000,000[c]	150	0.84J	ND	ND	ND
t-1,2-Dichloroethene	190	100,000[a]	100,000[a]	500,000[b]	1,000,000[c]	ND	ND	ND	ND	ND
t 1,4 Dichloro 2 butene	NS	NS	NS	NS	NS	ND	ND	ND	ND	ND
Trichloroethene	47	10,000	21,000	200,000	400,000	**260**	2.4J	ND	ND	ND
Trichlorofluoromethane	NS	NS	NS	NS	NS	ND	ND	ND	ND	ND
Vinyl Acetate	NS	NS	NS	NS	NS	ND	ND	ND	ND	ND
Vinyl Chloride	20	210	900	13,000	27,000	**120**	ND	ND	ND	ND
1,3,5-trimethylbenzene	8400	47000	52000	190000	380000	8.5J	ND	ND	ND	ND
1,2,4-trimethylbenzene	3600	47000	52000	190000	380000	28	ND	ND	ND	ND
Naphthalene	NS	NS	NS	NS	NS	71	4.1J	49	15	350
1,2,4,5-Trimethylbenzene	NS	NS	NS	NS	NS	ND	ND	ND	ND	ND
Methylisobutylketone	NS	NS	NS	NS	NS	ND	ND	ND	ND	ND

Notes:

NS - Not Specified

MDL - Method Detection Limit

(1) NYSDEC Recommended Soil Cleanup Objectives (RSCO), Technical and Administrative Guidance Memorandum (TAGM) #4046, 12/0

(2) NYSDEC 6 NYCRR Environmental Remediation Programs Part 375 Unrestriced Use of Soil Cleanup Objective Table 375-6.8a 12/06

(3) NYSDEC 6 NYCRR Environmental Remediation Programs Part 375 Restriced Use of Soil Cleanup Objective Table 375-6.8b 12/06

a - The SCO for residential, restricted residential and ecological resources use were capped at a maximum value of 100 ppm

b - The SCOs for commercial use were capped at a maximum value of 500 ppm.

c - The SCOs for industrial use and the protection of groundwater were capped at a maximum value of 1000 ppm.

f - For constituents where the calculated SCO was lower than the rural soil background concentration, the rural soil background concentration is used as the Track 2 SCO value for this use of the site.

SCOs from DEC Policy CP-51 / Soil Cleanup Guidance, October 2010, included.

J - Estimated Value. Concentration is above the detection limit, but below the reporting limit.

U - The analyte was analyzed for, but was not detected above the reported sample quantification limit. The assocaited numerical value is the sample quantitation limit.

Bold / Shaded text denotes concentrations exceeding NYSDEC Unrestricted Use SCO

TABLE 3
HISTORICAL GROUNDWATER ANALYTICAL RESULTS FOR
VOLATILE ORGANIC COMPOUNDS
EPA METHOD 8260

1170 Atlantic Avenue - Baldwin, New York

Compound	NYSDEC	MW-1	MW-2	MW-3							MW-4						
	Standards	4/9/08	4/9/08	4/9/08	7/20/10	10/25/10	5/30/12	8/29/12	12/3/12	7/12/13	4/9/08	7/20/10	10/25/10	5/30/12	8/29/12	12/3/12	7/12/13
VOCs by 8260 - ug/L																	
1112Tetrachloroethane	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
111 Trichloroethane	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1122Tetrachloroethane	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
112 Trichloro-122 trifluoroet	5	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND	ND	ND	ND	NA	ND	NA
112 Trichloroethane	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1 Dichloroethane	4	ND	ND	**680**	**43.9**	**7.08**	**2300**	**460**	**180**	**2100**	2.3	ND	ND	ND	ND	ND	ND
1,1 Dichloroethene	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloropropene	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
123-Trichlorobenzene	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
123-Trichloropropane	0.04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1245 Tetramethylbenzene	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
124-Trichlorobenzene (v)	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
124-Trimethylbenzene	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
12 Dibromo 3 chloropropan	0.04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2 Dibromoethane	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2 Dichlorobenzene (v)	3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.77 J	ND	ND	ND
1,2 Dichloroethane	0.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.34 J	ND
1,2 Dichloropropane	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
135-Trimethylbenzene	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3 Dichlorobenzene (v)	3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichloropropane	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4 Dichlorobenzene (v)	3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,2-Dichloropropane	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	NS	ND	ND	ND	ND	ND	ND	28 J	ND	68 J	ND	ND	ND	ND	ND	1.3 J	ND
2-Chloroethyl vinyl ether	NS	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND	ND	ND	ND	NA	ND	NA
2-Chlorotoluene	5	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	NA
2-Hexanone	50*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Chlorotoluene	5	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	NA
4-Isopropyltoluene	5	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	NA
4-Methyl-2-pentanone	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	50*	ND	ND	ND	ND	ND	22 J	37 J	ND	ND	ND	ND	ND	3.0 J	3.6 J	14	ND
Acrylonitrile	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromobenzene	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromochloromethane	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	50*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	50*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Disulfide	60***	ND	ND	ND	ND	ND	ND	31 J	ND	ND	ND	ND	ND	ND	1.4 J	ND	ND
Carbon Tetrachloride	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodifluoromethane	NS	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND	ND	ND	ND	NA	ND	NA
Chloroethane	5	ND	ND	ND	**417**	**139**	**2200**	**730**	**2400**	**3600**	ND	ND	ND	ND	ND	ND	ND
Chloroform	7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
c-1,2-Dichloroethene	5	ND	ND	ND	ND	ND	20 J	ND	ND	44 J	ND	ND	ND	ND	ND	ND	ND
c-1,3Dichloropropene	0.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlordifluoromethane	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Benzene	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m + p Xylene	5	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	NA
ter.ButylMethylEther	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.74 J	ND
Methylene Chloride	5	4.5 B	4.1 B	4.6 B	ND	ND	ND	ND	ND	ND	4.3 B	ND	ND	ND	ND	ND	ND
Naphthalene(v)	10*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.9 J	ND
n-Butylbenzene	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
o Xylene	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
p Diethylbenzene	NS	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	NA
p-Ethyltoluene	NS	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	NA
sec-Butylbenzene	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	5	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	NA
TAME		ND	ND	ND	ND	ND	ND	NA	ND	NA	ND	ND	ND	ND	NA	ND	NA
t-Butyl alcohol	NS	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND	ND	ND	ND	NA	ND	NA
tert-Butylbenzene	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
t-1,2-Dichloroethene	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
t-1,3Dichloropropene	0.4 [(1)]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	2	ND	ND	ND	ND	ND	13 J	ND	ND	24 J	ND	ND	ND	ND	ND	ND	ND

Notes:
** - NYSDEC Ambient Water Quality Standards and Guidance Values 6/1998
*** - NYSDEC Ambient Water Quality Standards and Guidance Values, Addendum April 2000
* - Guidance Value
< - Indicates the compound was analyzed but not detected
NS - No Standard
Bold/shaded- Indicated exceedance of the NYSDEC Groundwater Standard
(1) Applies to sum of cis and trans 1,3
J - Estimated Value
B - Estimated Value
NA - Not Analyzed

TABLE 3
HISTORICAL GROUNDWATER ANALYTICAL RESULTS FOR
VOLATILE ORGANIC COMPOUNDS
EPA METHOD 8260

1170 Atlantic Avenue - Baldwin, New York

Compound	NYSDEC Standards	MW-5								MW-6			MW-6A			
		4/9/08	5/7/09	7/20/10	10/25/10	5/30/12	8/29/12	12/3/12	7/12/13	4/9/08	7/20/10	10/25/10	5/30/12	8/29/12	12/3/12	7/12/13
VOCs by 8260 - ug/L																
1112Tetrachloroethane	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
111 Trichloroethane	5	**390**	**250**	2.23	**14.7**	ND	ND	ND	ND	1.1	ND	ND	**87**	**62**	**18**	**80**
1122Tetrachloroethane	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
112 Trichloro-122 trifluoroe	5	ND	ND	ND	ND	ND	NA	ND	NA	ND	ND	ND	ND	NA	ND	NA
112 Trichloroethane	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1 Dichloroethane	4	**1800**	**2100**	**2450**	**1270**	24 J	ND	ND	ND	**6.5**	ND	ND	**500**	**430**	**210**	**540**
1,1 Dichloroethene	5	11	3.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.8	ND	1.2 J	ND
1,1-Dichloropropene	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
123-Trichlorobenzene	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
123-Trichloropropane	0.04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1245 Tetramethylbenzene	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
124-Trichlorobenzene (v)	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
124-Trimethylbenzene	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
12 Dibromo 3 chloropropan	0.04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2 Dibromoethane	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2 Dichlorobenzene (v)	3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2 Dichloroethane	0.6	ND	ND	ND	ND	ND	**1.4**	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2 Dichloropropane	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
135-Trimethylbenzene	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3 Dichlorobenzene (v)	3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichloropropane	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4 Dichlorobenzene (v)	3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,2-Dichloropropane	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	NS	ND	ND	ND	ND	26 J	ND	ND	16 J	ND	ND	ND	ND	31 J	ND	ND
2-Chloroethyl vinyl ether	NS	ND	ND	ND	ND	ND	NA	ND	NA	ND	ND	ND	ND	NA	ND	NA
2-Chlorotoluene	5	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	NA
2-Hexanone	50*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Chlorotoluene	5	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	NA
4-Isopropyltoluene	5	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	NA
4-Methyl-2-pentanone	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	50*	ND	ND	ND	ND	ND	2.3 J	ND	ND	ND	ND	ND	ND	25 J	ND	ND
Acrylonitrile	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	1	ND	0.61 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.22 J
Bromobenzene	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromochloromethane	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	50*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	50*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Disulfide	60***	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodifluoromethane	NS	ND	ND	ND	ND	ND	NA	ND	NA	ND	ND	ND	ND	NA	ND	NA
Chloroethane	5	**560**	**970**	**1420**	**701**	**2200**	**2200**	**1700**	**870**	ND	ND	ND	**940**	**580**	**1100**	**1100**
Chloroform	7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
c-1,2-Dichloroethene	5	4.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.8 J	ND	ND	ND
c-1,3Dichloropropene	0.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlordifluoromethane	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Benzene	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m + p Xylene	5	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	NA
ter.ButylMethylEther	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	5	4.6 B	7.3 B	ND	ND	ND	ND	ND	ND	3.8 B	<0.39	<0.39	ND	ND	ND	ND
Naphthalene(v)	10*	ND	ND	ND	ND	**80**	2.4 J	ND	ND	ND	ND	ND	**13**	ND	ND	ND
n-Butylbenzene	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
o Xylene	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
p Diethylbenzene	NS	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	NA
p-Ethyltoluene	NS	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	NA
sec-Butylbenzene	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	5	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	NA
TAME		ND	ND	ND	ND	ND	NA	ND	NA	ND	ND	ND	ND	NA	ND	NA
t-Butyl alcohol	NS	ND	ND	ND	ND	ND	NA	ND	NA	ND	ND	ND	ND	NA	ND	NA
tert-Butylbenzene	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
t-1,2-Dichloroethene	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
t-1,3Dichloropropene	0.4 (1)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	5	2.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.27 J
Trichlorofluoromethane	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	2	ND	**31**	**19.6**	ND	ND	ND	ND	ND	ND	ND	ND	**5.4**	8.0 J	3.9 J	**8.8**

APPENDIX A

STANDARDS, CRITERIA, AND GUIDANCE (SCGS)

1.0 SCGS FOR SITE CHARACTERIZATION AND REMEDIAL INVESTIGATION

The following standards and criteria typically will apply to Site Characterizations and Remedial Investigations conducted in New York State:

- 6 NYCRR Part 371 - Identification and Listing of Hazardous Wastes
- 6 NYCRR Part 375 - Inactive Hazardous Waste Disposal Sites
- 6 NYCRR Parts 700-706 - Water Quality Standards (June 1998)
- 6 NYCRR Part 182 - Endangered & Threatened Species of Fish & Wildlife
- 6 NYCRR Part 608 - Use and Protection of Waters
- 6 NYCRR Part 661 - Tidal Wetlands - Land Use Regulations
- 6 NYCRR Part 663 - Freshwater Wetlands Maps and Classification
- 6 NYCRR Parts 700-706 - Water Quality Standards (June 1998)
- 6 NYCRR Part 257 - Air Quality Standards
- 10 NYCRR Part 5 of the State Sanitary Code - Drinking Water Supplies (May 1998)
- 29 CFR Part 1910.120 - Hazardous Waste Operations and Emergency Response
- 6 NYCRR Part 175 - Special Licenses and Permits--Definitions and Uniform Procedures

The following guidance typically applies to Site Characterizations and Remedial Investigations conducted in New York State:

- TAGM 4046 - Determination of Soil Cleanup Objectives and Cleanup Levels (January 1994)
- STARS #1 - Petroleum-Contaminated Soil Guidance Policy
- SPOTS #14 - Site Assessments at Bulk Storage Facilities (August 1994)
- TOGS 1.1.1 - Ambient Water Quality Standards & Guidance Values and Groundwater Effluent Limitations

- Fish and Wildlife Impact Analysis for Inactive Hazardous Waste Sites (October 1994)
- Technical Guidance for Screening Contaminated Sediments (January 1999)
- Niagara River Biota Contamination Project: Fish Flesh Criteria for Piscivorus Wildlife (July 1987)
- Wildlife Toxicity Assessment for Cadmium in Soils (May 1999)
- Air Guide 1 - Guidelines for the Control of Toxic Ambient Air Contaminants
- The 10 ppt Health Advisory Guideline for 2,3,7,8-TCDD in Sportfish Flesh
- The 1 ppm Health Advisory Guideline for Cadmium in Sportfish Flesh
- Criteria for the Development of Health Advisories for Sportfish Consumption
- NYSDOH Indoor Air Sampling & Analysis Guidance (August 8, 2001 or subsequent update)
- NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York (draft October 2004 or subsequent final draft)
- DER Interim Strategy for Groundwater Remediation at Contaminated Sites in New York State

2.0 SCGS FOR REMEDY SELECTION

The following standards and criteria typically apply to the remedy selection process conducted in New York State:

- 6 NYCRR Part 375 - Inactive Hazardous Waste Disposal Sites
- 6 NYCRR Part 376 - Land Disposal Restrictions
- 6 NYCRR Part 608 - Use and Protection of Waters
- 6 NYCRR Part 661 - Tidal Wetlands - Land Use Regulations
- 6 NYCRR Part 663 - Freshwater Wetlands - Permit Requirements
- 6 NYCRR Parts 700-706 - Water Quality Standards (June 1998)
- 19 NYCRR Part 600 - Waterfront Revitalization and Coastal Resources

The following guidance typically applies to the remedy selection process conducted in New York State:

- TAGM 4044 - Accelerated Remedial Actions at Class 2, Non-RCRA Regulated Landfills (March 1992)
- TAGM 4051 - Early Design Strategy (August 1993)
- Citizen Participation in New York's Hazardous Waste Site Remediation Program: A Guidebook (June 1998)
- TAGM 3028 - "Contained In" Criteria for Environmental Media: Soil Action Levels (August 1997)
- Freshwater Wetlands Regulations - Guidelines on Compensatory Mitigation (October 1993)
- Air Guide 1 - Guidelines for the Control of Toxic Ambient Air Contaminants
- Technical Guidance for Screening Contaminated Sediments (January 1999)
- USEPA Office of Solid Waste and Emergency Response Directive 9355.047FS Presumptive Remedies: Policy and Procedures (September 1993)
- USEPA Office of Solid Waste and Emergency Response Directive 9355.048FS Presumptive Remedies:
- Site Characterization and Technology Selection for CERCLA sites with Volatile Organic Compounds in Soils (September 1993)
- USEPA Office of Solid Waste and Emergency Response Directive 9355.049FS Presumptive Remedy for CERCLA Municipal Landfills (September 1993)

4.0 SCGS FOR REMEDIAL ACTION

The following standards and criteria typically apply to Remedial Actions conducted in New York State:

- 29 CFR Part 1910.120 - Hazardous Waste Operations and Emergency Response
- 40 CFR Part 144 - Underground Injection Control Program
- 10 NYCRR Part 67 – Lead

- 12 NYCRR Part 56 - Industrial Code Rule 56 (Asbestos)
- 6 NYCRR Part 175 - Special Licenses and Permits--Definitions and Uniform Procedures
- 6 NYCRR Part 361 - Siting of Industrial Hazardous Waste Facilities
- 6 NYCRR Part 371 - Identification and Listing of Hazardous Wastes (November 1998)
- 6 NYCRR Part 372 - Hazardous Waste Manifest System and Related Standards for Generators, Transporters and Facilities (November 1998)
- 6 NYCRR Subpart 373-4 - Facility Standards for the Collection of Household Hazardous Waste and Hazardous Waste from Conditionally Exempt Small Quantity Generators (November 1998)
- 6 NYCRR Subpart 374-1 - Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities (November 1998)
- 6 NYCRR Subpart 374-3 - Standards for Universal Waste (November 1998)
- 6 NYCRR Part 375 - Inactive Hazardous Waste Disposal Sites (as amended January 1998)
- 6 NYCRR Part 376 - Land Disposal Restrictions
- 19 NYCRR Part 600 - Waterfront Revitalization and Coastal Resources
- 6 NYCRR Part 608 - Use and Protection of Waters
- 6 NYCRR Part 661 - Tidal Wetlands - Land Use Regulations
- 6 NYCRR Part 663 - Freshwater Wetlands - Permit Requirements
- 6 NYCRR Parts 700-706 - Water Quality Standards (June 1998)
- 6 NYCRR Part 750 through 758 - Implementation of NPDES Program in NYS (“SPDES Regulations”)
- Technical Guidance for Screening Contaminated Sediments (January 1999)

The following guidance typically applies to Remedial Actions conducted in New York State:

- TAGM 4013 - Emergency Hazardous Waste Drum Removal/ Surficial Cleanup Procedures (March 1996)
- TAGM 4046 - Determination of Soil Cleanup Objectives and Cleanup Levels (January 1994)
- TAGM 4059 - Making Changes To Selected Remedies (May 1998)
- STARS #1 - Petroleum-Contaminated Soil Guidance Policy
- STARS #2 - Biocell and Biopile Designs for Small-Scale Petroleum-Contaminated Soil Projects
- TAGM 3028 - "Contained In" Criteria for Environmental Media: Soil Action Levels (August 1997)
- Citizen Participation in New York's Hazardous Waste Site Remediation Program: A Guidebook (June 1998)
- TOGS 1.1.1 - Ambient Water Quality Standards & Guidance Values and Groundwater Effluent Limitations
- TOGS 1.3.8 - New Discharges to Publicly Owned Treatment Works
- TOGS 2.1.2 - Underground Injection/Recirculation (UIR) at Groundwater Remediation Sites
- Air Guide 1 - Guidelines for the Control of Toxic Ambient Air Contaminants
- State Coastal Management Policies
- OSWER Directive 9200.4-17 - Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites (November 1997)
- NYSDOH Environmental Health Manual CSFP-530 - "Individual Water Supplies - Activated Carbon Treatment Systems"

5.0 SCGS FOR SITE MANAGEMENT

The following standards and criteria typically apply to Site Management activities conducted in New York State:

- 6 NYCRR Part 175 - Special Licenses and Permits--Definitions and Uniform Procedures

The following guidance typically applies to Site Management activities conducted in New York State:

- Groundwater Monitoring Well Decommissioning Procedures (May 1995)
- The activity is a component of a program selected by a process complying with the public participation requirements of section 1.10, to the extent applicable.
- NYSDOH Environmental Health Manual CSFP-530 - “Individual Water Supplies - Activated Carbon Treatment Systems”

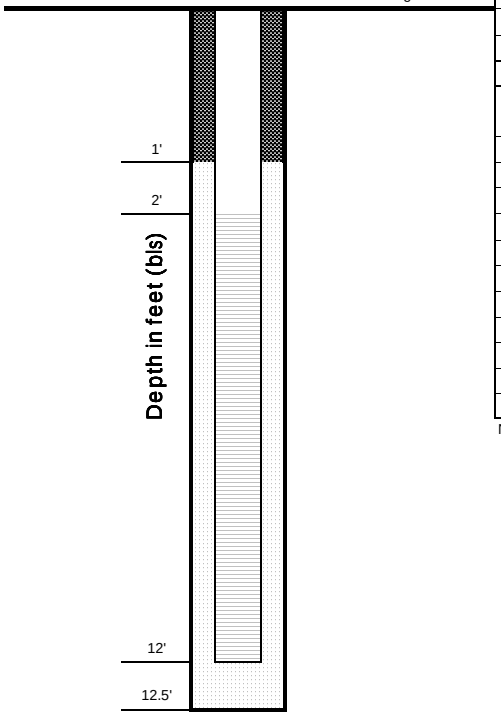
APPENDIX B

MONITORING WELL CONSTRUCTION LOGS

P.W. Grosser Consulting

Monitoring Well Construction and Development Log

MW Designation:	**MW-3**	**Logged By:**	IB
Site Address:	1170 Atlantic Avenue, Baldwin, NY	**Project Manager:**	JE
Project Name:	Safeguard	**PWGC Project Number:**	SSS1101
Drilling Contractor:	Associated Environmental	**Driller Name:**	John / Ryan
Drilling Method:	Hollow Stem Augers	**Borehole Diameter:**	5"
Soil Sampling Method:	NA	**Total Borehole Depth (bls):**	12.5'
Drilling Fluid:	NA	**Fluid Loss During Drilling:**	NA
Start Time:	11:05	**Completion Time:**	11:40
Start Date:	5/8/2012	**Completion Date:**	5/8/2012
Surveyor:	PWGC	**Survey Date:**	5/30/2012



Well Purpose:	Monitoring	Well Material:	Schedule 40 PVC
Well Diameter:	2"		
Screen Slot:	10	Development Date:	NA
Static DTP (bmp):	N/A	Development Method:	NA
Static DTW (bmp):	4.33	Pumping Duration:	NA
Static DTB (bmp):	11.8	Water Removed:	NA

Notes:

Legend:

- #2 sand filter pack
- bentonite pellets
- native fill
- bentonite / cement grout
- well screen
- well riser

Notes:

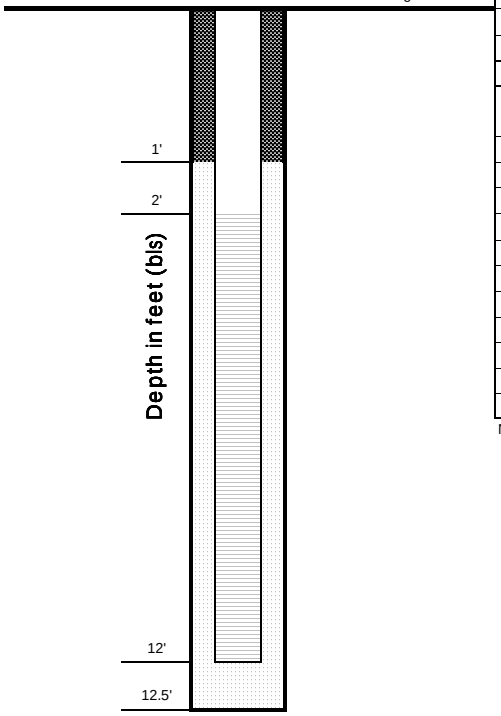
bls = below level surface

bmp = below measuring point

P.W. Grosser Consulting

Monitoring Well Construction and Development Log

MW Designation:	**MW-5**	**Logged By:**	IB
Site Address:	1170 Atlantic Avenue, Baldwin, NY	**Project Manager:**	JE
Project Name:	Safeguard	**PWGC Project Number:**	SSS1101
Drilling Contractor:	Associated Environmental	**Driller Name:**	John / Ryan
Drilling Method:	Hollow Stem Augers	**Borehole Diameter:**	5"
Soil Sampling Method:	NA	**Total Borehole Depth (bls):**	12.5'
Drilling Fluid:	NA	**Fluid Loss During Drilling:**	NA
Start Time:	9:52	**Completion Time:**	10:22
Start Date:	5/8/2012	**Completion Date:**	5/8/2012
Surveyor:	PWGC	**Survey Date:**	5/30/2012



Well Purpose:	Monitoring	Well Material:	Schedule 40 PVC
Well Diameter:	2"	Reference Elevation:	-4.81
Screen Slot:	10	Development Date:	NA
Static DTP (bmp):	N/A	Development Method:	NA
Static DTW (bmp):	5.05	Pumping Duration:	NA
Static DTB (bmp):	11.37	Water Removed:	NA

Notes:

Legend:

- #2 sand filter pack
- bentonite pellets
- native fill
- bentonite / cement grout
- well screen
- well riser

Notes:

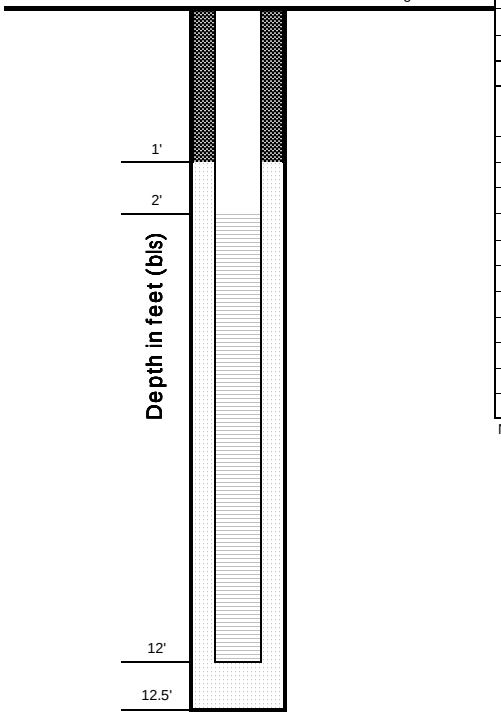
bls = below level surface

bmp = below measuring point

P.W. Grosser Consulting

Monitoring Well Construction and Development Log

MW Designation:	**MW-6A**	**Logged By:**	IB
Site Address:	1170 Atlantic Avenue, Baldwin, NY	**Project Manager:**	JE
Project Name:	Safeguard	**PWGC Project Number:**	SSS1101
Drilling Contractor:	Associated Environmental	**Driller Name:**	John / Ryan
Drilling Method:	Hollow Stem Augers	**Borehole Diameter:**	5"
Soil Sampling Method:	NA	**Total Borehole Depth (bls):**	12.5'
Drilling Fluid:	NA	**Fluid Loss During Drilling:**	NA
Start Time:	8:45	**Completion Time:**	9:30
Start Date:	5/8/2012	**Completion Date:**	5/8/2012
Surveyor:	PWGC	**Survey Date:**	5/30/2012



Well Purpose:	Monitoring	Well Material:	Schedule 40 PVC
Well Diameter:	2"	Reference Elevation:	-3.25
Screen Slot:	10	Development Date:	NA
Static DTP (bmp):	N/A	Development Method:	NA
Static DTW (bmp):	5	Pumping Duration:	NA
Static DTB (bmp):	12.1	Water Removed:	NA

Notes:

Legend:

- #2 sand filter pack
- bentonite pellets
- native fill
- bentonite / cement grout
- well screen
- well riser

Notes:

bls = below level surface

bmp = below measuring point

APPENDIX C

MONITORING WELL SAMPLING LOGS

P.W. GROSSER CONSULTING, INC.

Monitoring Well Sampling Log

SITE INFORMATION

SITE ID/PROJECT NUMBER:	SSS1101		
SAMPLING POINT	MW-3	SAMPLED BY	BB
DATE SAMPLED	7/9/2013	TIME SAMPLED	10:56
STATIC WATER ELEVATION (feet)	4.29	TOTAL WELL DEPTH (feet)	11.83
WELL DIAMETER (inches)	2		

SAMPLING INFORMATION

PURGE METHOD	grundfos pump	SAMPLE METHOD	grundfos pump
PURGE RATE (GPM)	see below	PURGE TIME (Min)	see below
SAMPLE APPEARANCE	Turbid	ODORS OBSERVED	Brackish Odor
ANALYSIS	VOCs 8260	LABORATORY	ALPHA
DATE SHIPPED	7/10/2013	SHIPPING METHOD	Currier

SAMPLING PARAMETERS

Time	Flow Rate (mL/min)	pH	Cond. (mS/cm)	Turbidity (NTU)	ORP (mV)	Temp. (ºC)	DO
10:32	250	6.88	18.0	271	-333	19.70	5.61
10:34	250	6.85	17.2	274	-340	19.54	4.06
10:36	250	6.83	16.8	290	-359	19.57	3.14
10:38	250	6.78	15.7	361	-367	19.92	2.35
10:40	250	6.76	14.2	504	-362	20.85	1.62
10:42	250	6.77	13.1	193	-398	22.11	1.10
10:44	250	6.78	13.0	141	-399	22.39	1.03
10:46	250	6.77	13.1	94.0	-383	22.69	0.89
10:48	250	6.76	13.1	82.2	-394	22.85	0.81
10:50	250	6.75	13.0	76.7	-429	23.04	0.79
10:52	250	6.74	12.9	78.0	-449	23.31	0.69
10:54	250	6.74	13.1	83.1	-462	23.62	0.65
10:56	250	6.73	13.2	88.6	-469	23.63	0.63

Notes:

Flow Rate - between 200 - 500 mL/min
pH - ±0.1
Conductivity - ±3%
ORP - ±10 mV
DO - ±10%
Turbidity - ±10%

P.W. GROSSER CONSULTING, INC.

Monitoring Well Sampling Log

SITE INFORMATION

SITE ID/PROJECT NUMBER:	SSS1101		
SAMPLING POINT	MW-4/DUP001	SAMPLED BY	BB
DATE SAMPLED	7/9/2013	TIME SAMPLED	9:42
STATIC WATER ELEVATION (feet)	3.58	TOTAL WELL DEPTH (feet)	10.7
WELL DIAMETER (inches)	2		

SAMPLING INFORMATION

PURGE METHOD	grundfos pump	SAMPLE METHOD	grundfos pump
PURGE RATE (GPM)	see below	PURGE TIME (Min)	see below
SAMPLE APPEARANCE	Clear	ODORS OBSERVED	Brackish Odor
ANALYSIS	VOCs 8260	LABORATORY	ALPHA
DATE SHIPPED	7/10/2013	SHIPPING METHOD	Currier

SAMPLING PARAMETERS

Time	Flow Rate (mL/min)	pH	Cond. (mS/cm)	Turbidity (NTU)	ORP (mV)	Temp. (ºC)	DO
9:22	250	6.28	8.11	292	-281	25.57	1.57
9:24	250	6.10	4.57	201	-267	27.18	1.26
9:26	250	6.08	3.81	144	-258	27.92	1.31
9:28	250	6.10	3.79	115	-254	28.05	1.33
9:30	250	6.12	3.83	84.4	-251	28.18	1.31
9:32	250	6.14	3.91	53.3	-249	28.33	1.28
9:34	250	6.19	3.99	65.1	-249	28.48	1.17
9:36	250	6.21	4.80	63.5	-251	28.67	1.12
9:38	250	6.22	5.10	62.4	-251	28.82	1.05
9:40	250	6.23	5.68	58.3	-253	28.94	0.99

Notes:

Flow Rate - between 200 - 500 mL/min

pH - ±0.1

Conductivity - ±3%

ORP - ±10 mV

DO - ±10%

Turbidity - ±10%

P.W. GROSSER CONSULTING, INC.

Monitoring Well Sampling Log

SITE INFORMATION

SITE ID/PROJECT NUMBER:	SSS1101		
SAMPLING POINT	MW-5/MS/MSD	SAMPLED BY	BB
DATE SAMPLED	7/9/2013	TIME SAMPLED	13:12
STATIC WATER ELEVATION (feet)	3.81	TOTAL WELL DEPTH (feet)	7:26
WELL DIAMETER (inches)	2		

SAMPLING INFORMATION

PURGE METHOD	grundfos pump	SAMPLE METHOD	grundfos pump
PURGE RATE (GPM)	see below	PURGE TIME (Min)	see below
SAMPLE APPEARANCE	Clear	ODORS OBSERVED	No Odor
ANALYSIS	VOCs 8260	LABORATORY	ALPHA
DATE SHIPPED	7/10/2013	SHIPPING METHOD	Currier

SAMPLING PARAMETERS

Time	Flow Rate (mL/min)	pH	Cond. (mS/cm)	Turbidity (NTU)	ORP (mV)	Temp. (ºC)	DO
12:20	250	7.16	4.090	error	-109	24.25	1.01
12:22	250	7.06	4.120	error	-122	25.41	0.50
12:24	250	7.07	4.190	error	-135	25.28	0.46
12:26	250	7.07	4.210	error	-140	25.32	0.44
12:28	250	7.08	4.210	error	-147	25.67	0.42
12:30	250	7.08	4.220	error	-150	25.70	0.41
12:32	250	7.09	4.210	error	-150	25.62	0.40
12:34	250	7.09	4.210	error	-157	25.60	0.42
12:36	250	7.09	4.210	error	-158	25.47	0.42
12:38	250	7.09	4.200	1000	-159	25.77	0.40
12:40	250	7.09	4.200	953	-161	26.12	0.40
12:42	250	7.09	4.040	814	-155	24.84	0.43
12:44	250	7.07	4.14	864	-151	23.84	0.44
12:46	250	7.08	4.22	error	-162	24.62	0.38
12:48	250	7.10	4.25	error	-168	24.48	0.38
12:50	250	7.10	4.21	1000	-168	24.48	0.38
12:52	250	7.10	4.21	1000	-168	24.5	0.38
12:54	250	7.10	4.23	850	-169	24.84	0.37
12:56	250	7.10	4.23	619	-170	25.05	0.39
12:58	250	7.10	4.23	589	-170	25.06	0.39
13:00	250	7.09	4.24	488	-171	25.36	0.40
13:02	250	7.09	4.24	483	-171	25.68	0.40
13:04	250	7.09	4.24	463	-171	25.88	0.39
13:06	250	7.09	4.24	430	-171	25.98	0.47
13:08	250	7.09	4.24	410	-171	26.22	0.41
13:10	250	7.10	4.27	341	-174	27.76	0.40

Notes:

Flow Rate - between 200 - 500 mL/min

pH - ±0.1

Conductivity - ±3%

ORP - ±10 mV

DO - ±10%

Turbidity - ±10%

P.W. GROSSER CONSULTING, INC.

Monitoring Well Sampling Log

SITE INFORMATION

SITE ID/PROJECT NUMBER:	SSS1101		
SAMPLING POINT	MW-6A	SAMPLED BY	BB
DATE SAMPLED	7/9/2013	TIME SAMPLED	12:07
STATIC WATER ELEVATION (feet)	4.03	TOTAL WELL DEPTH (feet)	11.94
WELL DIAMETER (inches)	2		

SAMPLING INFORMATION

PURGE METHOD	grundfos pump	SAMPLE METHOD	grundfos pump
PURGE RATE (GPM)	see below	PURGE TIME (Min)	see below
SAMPLE APPEARANCE	Clear	ODORS OBSERVED	No Odor
ANALYSIS	VOCs 8260	LABORATORY	ALPHA
DATE SHIPPED	7/10/2013	SHIPPING METHOD	Currier

SAMPLING PARAMETERS

Time	Flow Rate (mL/min)	pH	Cond. (mS/cm)	Turbidity (NTU)	ORP (mV)	Temp. (ºC)	DO
11:29	250	7.36	4.44	error	-173	22.80	8.31
11:31	250	7.29	4.42	error	-176	22.43	5.13
11:33	250	7.26	4.39	error	-178	22.35	3.84
11:35	250	7.24	4.41	error	-180	22.31	3.00
11:37	250	7.19	4.36	error	-186	22.12	1.58
11:39	250	7.17	4.34	error	-189	22.05	1.21
11:41				Cleaned Horiba Probe			
11:43	250	7.12	4.11	error	-164	25.47	1.24
11:45	250	7.15	4.11	635	-177	24.11	0.01
11:47	250	7.14	4.20	428	-182	22.32	0.76
11:49	250	7.13	4.20	338	-184	21.96	0.70
11:51	250	7.12	4.22	272	-185	21.92	0.65
11:53	250	7.12	4.22	193	-186	21.76	0.61
11:55	250	7.11	4.21	157	-181	21.77	0.59
11:57	250	7.11	4.22	177	-187	21.81	0.55
11:59	250	7.10	4.23	99.1	-187	21.86	0.53
12:01	250	7.10	4.23	72.6	-188	21.89	0.51
12:03	250	7.10	4.23	68.4	-188	21.88	0.50
12:05	250	7.10	4.22	57.2	-188	21.90	0.49

Notes:

Flow Rate - between 200 - 500 mL/min
pH - ±0.1
Conductivity - ±3%
ORP - ±10 mV
DO - ±10%
Turbidity - ±10%

APPENDIX D

COMMUNITY PARTICIPATION PLAN

New York State Department of Environmental Conservation

Voluntary Cleanup Program

Citizen Participation Plan

for the

Former Watermark Designs Facility
VCP Site No.: V00523

1170 Atlantic Avenue
Baldwin, New York 11510

November 2013

Contents

Section **Page Number**

1. What is New York's Voluntary Cleanup Program?.....3

2. Citizen Participation Activities.....3

3. Major Issues of Public Concern.....8

4. Site Information 9

5. Investigation and Cleanup Process.....11

Appendix A Project Contacts and Locations of Reports and Information 16

Appendix B Site Contact List.....18

Appendix C Site Location Map 19

* * * * *

Note: The information presented in this Citizen Participation Plan was current as of the date of its approval by the New York State Department of Environmental Conservation. Portions of this Citizen Participation Plan may be revised during the site's investigation and cleanup process.

Applicant: **Safeguard Self Storage ("Applicant")**
Site Name: **Safeguard Storage ("Site")**
Site Address**: 1170 Atlantic Avenue, Baldwin, New York 11510**
Site County: **Nassau**
Site Number: **V00523**

1. What is New York's Voluntary Cleanup Program?

New York's Voluntary Cleanup Program (VCP) works with private developers to encourage the voluntary cleanup of contaminated properties known as "brownfields" so that they can be reused and developed. These uses include recreation, housing, and business.

A *brownfield* is any real property that is difficult to reuse or redevelop because of the presence or potential presence of contamination. A brownfield typically is a former industrial or commercial property where operations may have resulted in environmental contamination. A brownfield can pose environmental, legal, and financial burdens on a community. If a brownfield is not addressed, it can reduce property values in the area and affect economic development of nearby properties.

The VCP is administered by the New York State Department of Environmental Conservation (NYSDEC) which oversees Applicants that conduct brownfield site investigation and cleanup activities. An Applicant is a person who has requested to participate in the VCP and has been accepted by NYSDEC. The VCP contains investigation and cleanup requirements, ensuring that cleanups protect public health and the environment. When NYSDEC certifies that these requirements have been met, the property can be reused or redeveloped for the intended use.

For more information about the VCP, go online at: http://www.dec.ny.gov/chemical/8442.html .

2. Citizen Participation Activities

Why NYSDEC Involves the Public and Why It Is Important

NYSDEC involves the public to improve the process of investigating and cleaning up contaminated sites, and to enable citizens to participate more fully in decisions that affect their health, environment, and social well being. NYSDEC provides opportunities for citizen involvement and encourages early two-way communication with citizens before decision makers form or adopt final positions.

Involving citizens affected and interest in site investigation and cleanup programs is important for many reasons. These include:

- Promoting the development of timely, effective site investigation and cleanup programs that protect public health and the environment;

- Improving public access to, and understanding of, issues and information related to a particular site and that site's investigation and cleanup process;

- Providing citizens with early and continuing opportunities to participate in NYSDEC's site investigation and cleanup process;

- Ensuring that NYSDEC makes site investigation and cleanup decisions that benefit from input that reflects the interests and perspectives found within the affected community; and

- Encouraging dialogue to promote the exchange of information among the affected/interested public, State agencies, and other interested parties that strengthens trust among the parties, increases understanding of site and community issues and concerns, and improves decision making.

This Citizen Participation (CP) Plan provides information about how NYSDEC will inform and involve the public during the investigation and cleanup of the site identified above. The public information and involvement program will be carried out with assistance, as appropriate, from the Applicant.

Project Contacts

Appendix A identifies NYSDEC project contact(s) to which the public should address questions or request information about the site's investigation and cleanup program. The public's suggestions about this CP Plan and the CP program for the site are always welcome. Interested people are encouraged to share their ideas and suggestions with the project contacts at any time.

Locations of Reports and Information

The locations of the reports and information related to the site's investigation and cleanup program also are identified in Appendix A. These locations provide convenient access to important project documents for public review and comment. Some documents may be placed on the NYSDEC web site. If this occurs, NYSDEC will inform the public in fact sheets distributed about the site and by other means, as appropriate.

Site Contact List

Appendix B contains the site contact list. This list has been developed to keep the community informed about, and involved in, the site's investigation and cleanup process. The site contact list will be used periodically to distribute fact sheets that provide updates about the status of the

project. These will include notifications of upcoming activities at the site (such as fieldwork), as well as availability of project documents and announcements about public comment periods. The site contact list includes, at a minimum:

- Chief executive officer and planning board chairperson of each county, city, town and village in which the site is located;
- Residents, owners, and occupants of the site and properties adjacent to the site;
- The public water supplier which services the area in which the site is located;
- Any person who has requested to be placed on the site contact list;
- The administrator of any school or day care facility located on or near the site for purposes of posting and/or dissemination of information at the facility; and
- Location(s) of reports and information.

The site contact list will be reviewed periodically and updated as appropriate. Individuals and organizations will be added to the site contact list upon request. Such requests should be submitted to the NYSDEC project contact(s) identified in Appendix A. Other additions to the site contact list may be made at the discretion of the NYSDEC project manager, in consultation with other NYSDEC staff as appropriate.

CP Activities

The table at the end of this section identifies the CP activities, at a minimum, that have been and will be conducted during the site investigation and cleanup program. The flowchart in Appendix D shows how these CP activities integrate with the site investigation and cleanup process. The public is informed about these CP activities through fact sheets and notices distributed at significant points during the program. Elements of the investigation and cleanup process that match up with the CP activities are explained briefly in Section 5.

- **Notices and fact sheets** help the interested and affected public to understand contamination issues related to a site, and the nature and progress of efforts to investigate and clean up a site.

- **Public forums, comment periods and contact with project managers** provide opportunities for the public to contribute information, opinions and perspectives that have potential to influence decisions about a site's investigation and cleanup.

The public is encouraged to contact project staff at any time during the site's investigation and cleanup process with questions, comments, or requests for information.

This CP Plan may be revised due to changes in major issues of public concern identified in Section 3 or in the nature and scope of investigation and cleanup activities. Modifications may include additions to the site contact list and changes in planned CP activities.

Technical Assistance Grant

NYSDEC must determine if the site poses a significant threat to public health or the environment. This determination generally is made using information developed during the investigation of the site, as described in Section 5.

If the site is determined to be a significant threat, a qualifying community group may apply for a Technical Assistance Grant (TAG). The purpose of a TAG is to provide funds to the qualifying group to obtain independent technical assistance. This assistance helps the TAG recipient to interpret and understand existing environmental information about the nature and extent of contamination related to the site and the development/implementation of a remedy.

An eligible community group must certify that its membership represents the interests of the community affected by the site, and that its members' health, economic well-being or enjoyment of the environment may be affected by a release or threatened release of contamination at the site.

For more information about TAGs, go online at http://www.dec.ny.gov/regulations/2590.html

Note: The table identifying the citizen participation activities related to the site's investigation and cleanup program follows on the next page:

Citizen Participation Requirements (Activities)	Timing of CP Activities
Before NYSDEC Approves Remedial Work Plan (RWP):	
• Distribute fact sheet to site contact list about proposed RWP and announcing 45-day public comment period • Public meeting by NYSDEC about proposed RWP (if requested by affected community or at discretion of NYSDEC project manager) • Conduct 45-day public comment period	Before NYSDEC approves RWP. Forty-five day public comment period begins/ends as per dates identified in fact sheet. Public meeting would be held within the 45-day public comment period.
Before Applicant Starts Cleanup Action:	
• Distribute fact sheet to site contact list that describes upcoming cleanup action	Before the start of cleanup action.
After Applicant Completes Cleanup Action:	
• Distribute fact sheet to site contact list that announces that cleanup action has been completed and that summarizes the Final Engineering Report • Distribute fact sheet to site contact list announcing issuance of Certificate of Completion (COC)	At the time NYSDEC approves Final Engineering Report. These two fact sheets are combined if possible if there is not a delay in issuing the COC.

3. Major Issues of Public Concern

This section of the CP Plan identifies major issues of public concern that relate to the Site. Additional major issues of public concern may be identified during the course of the Site's investigation and cleanup process.

The site was operated by Lightalarms Electronics Corporation (LEC) between 1983 and 1998 to manufacture emergency lighting equipment. LEC utilized a solvent dip tank containing 1,1,1-trichloroethane, a chlorinated volatile organic compound (VOC), to clean metal parts in preparation for paint. The results of subsurface investigations performed at the site indicate that the VOCs were discharged to an on-site drywell, which leached into the subsurface.

Remediation has occurred at the site in order to remove the VOCs. The results of the most recent sampling events indicate that residual VOCs remain in the site's soil and groundwater.

In order to keep the public informed, fact sheets will be provided to the individuals on the site contact list throughout the VCP process according to the schedule attached as Appendix D. The site contact list is subject to change based upon community needs and discussions with the NYSDEC. The information can also be obtained by reviewing documents in the document repository, or by speaking with the project contacts listed in Appendix A.

4. Site Information

Site Description

Location: 1170 Atlantic Avenue, Baldwin, New York, Nassau County **Setting:** suburban
Site Size: 2.7 acres
Adjacent Properties: residential and commercial

The subject site (VCP Site # V00523) consists of a 2.7-acre parcel of land on the south side of Atlantic Avenue in the Hamlet of Baldwin, Town of Hempstead, Nassau County, New York. The property is identified on Nassau County Tax maps as Section 54, Block 46, Lot 62. The property is improved with a 44,600 square foot two-story steel frame commercial building with sheet metal siding. The building is currently used for self storage. The interior is divided into individual self storage units ranging in size from 25 to 300 square foot spaces. The remainder of the site consists of asphalt-paved driveway/parking areas and grass.

History of Site Use, Investigation, and Cleanup

The site was reportedly built up from the Milburn Creek streambed. The creek was rerouted around the resulting peninsula. The site is bounded on four sides by wooden bulkheads, except for the site's access driveway at the northeast corner of the property. The property's soil is apparently comprised of dredge spoils from the stream bed of Milburn Creek.

The property is generally neighbored by commercial and residential properties. East of the site, across Milburn Creek, are commercial structures and residential structures which are currently under construction. South of the site, across Milburn Creek, is a boat storage yard. North of the site is a portion of a boat canal connected to Milburn Creek, followed by a commercial building facing Atlantic Avenue. West of the site, across a boat canal connected to Milburn Creek, is a residential area.

The site was used as a boat storage and repair yard dating back to at least 1941. In 1974, the currently-existing building was constructed and used as an indoor tennis facility. The site usage of the building changed in 1983 (according to building department records), as Lightalarms Electronics Corporation (LEC) took over the site. LEC manufactured emergency lighting equipment at this facility until the operation moved in 1998. LEC was known to have used paints and solvents in their operation. LEC's operations included the use of a spray booth, with a permitted exhaust to the outside, to spray paint light fixtures and other components. Xylene and toluene were reported to have been used to clean the paint spray guns. Prior to painting, the facility utilized a solvent dip tank containing 1,1,1-trichloroethane to clean metal parts in preparation for paint.

5. Investigation and Cleanup Process

Application

The Applicant has applied for and been accepted into New York's Voluntary Cleanup Program (VCP). The Applicant was not the owner of the site at the time of the disposal or discharge of contaminants. The Applicant must characterize the nature and extent of contamination on-site.

The Applicant proposes that the site will continue to be used for commercial purposes.

To achieve this goal, the Applicant has conducted investigation and cleanup activities at the site with oversight provided by the NYSDEC. The Voluntary Cleanup Agreement (VCA) executed by the NYSDEC and the Applicant sets forth the responsibilities of each party in conducting these activities at the site.

Investigation

The Applicant completed a Remedial Investigation (RI). This investigation was performed with NYSDEC oversight. The Applicant has submitted an RI Report documenting the RI. The RI determined that:

1) Residual VOC impact remains in soils and groundwater at the subject site.
2) VOC vapors are not intruding into the subject site's building.
3) VOCs have not migrated off-site.
4) VOCs at the site are attenuating through a natural process of reductive dechlorination.

Based on the findings of the RI, the NYSDEC determined that further action was warranted for the subject site.

An Interim Remedial Measure (IRM) was conducted at the site to remove additional VOC-impacted soil and chemically treat residual VOCs in groundwater. Post-IRM sampling indicated that Residual VOC impact remains in soils and groundwater at the subject site and VOCs are attenuating through a natural process of reductive dechlorination.

Final Remedy Selection

The Applicant is submitting this CP Plan as part of a cleanup plan, officially called a Remedial Action Work Plan. The Remedial Action Work Plan describes the Applicant's proposed remedy for addressing contamination related to the site.

When the Applicant submits a proposed Remedial Action Work Plan for approval, the NYSDEC would announce the availability of the proposed plan for public review during a 45-day public comment period.

Cleanup Action

NYSDEC will consider public comments, and revise the draft cleanup plan if necessary, before approving the proposed remedy. The New York State Department of Health (NYSDOH) must concur with the proposed remedy. After approval, the proposed remedy becomes the selected remedy.

The Applicant may then design and perform the cleanup action to address the site contamination. The NYSDEC and the NYSDOH will oversee the activities. When the Applicant completes cleanup activities, a Final Engineering Report (FER) will be prepared to certify that cleanup requirements have been achieved or will be achieved within a specific time frame. The NYSDEC will review the report to determine that the cleanup is protective of public health and the environment for the intended use of the Site.

Certificate of Completion

When the NYSDEC is satisfied that cleanup requirements have been achieved or will be achieved for the site, it will approve the FER. The NYSDEC will then issue a Certificate of Completion (COC) to the Applicant. The COC states that cleanup goals have been achieved, and relieves the Applicant from future liability for site-related contamination, subject to certain conditions. The Applicant is eligible to redevelop the site after it receives a COC.

Site Management

Site management is the last phase of the site cleanup program. This phase begins when the COC is issued. Site management may be conducted by the Applicant under NYSDEC oversight, if contamination will remain in place. Site management incorporates institutional and engineering controls required to ensure that the remedy implemented for the site remains protective of public health and the environment. Significant activities are detailed in a Site Management Plan (SMP).

An institutional control is a non-physical restriction on use of the site, such as a deed restriction that would prevent or restrict certain uses of the property. An institutional control may be used when the cleanup action leaves contamination that makes the Site suitable for some, but not all, uses.

Site management also may include the operation and maintenance of a component of the remedy, such as a system that is pumping and treating groundwater. Site management continues until the NYSDEC determines that it is no longer needed.

Appendix A
Project Contacts and Locations of Reports and Information

Project Contacts

For information about the site's investigation and cleanup program, the public may contact any of the following project staff:

New York State Department of Environmental Conservation (NYSDEC):

Robert DeCandia
Project Manager
NYSDEC
Division of Environmental Remediation
625 Broadway
Albany, NY 12233-7016
Tel: (518) 402-9693
Email: rddecand@gw.dec.state.ny.us

New York State Department of Health (NYSDOH):
Dawn Hettrick
Project Manager
NYSDOH
Bureau of Environmental Exposure &
Investigation
Empire State Plaza
Corning Tower Room 178
Albany, NY 12237
Tel: (518) 402-7860
Email: deh02@health.state.ny.us

Locations of Reports and Information

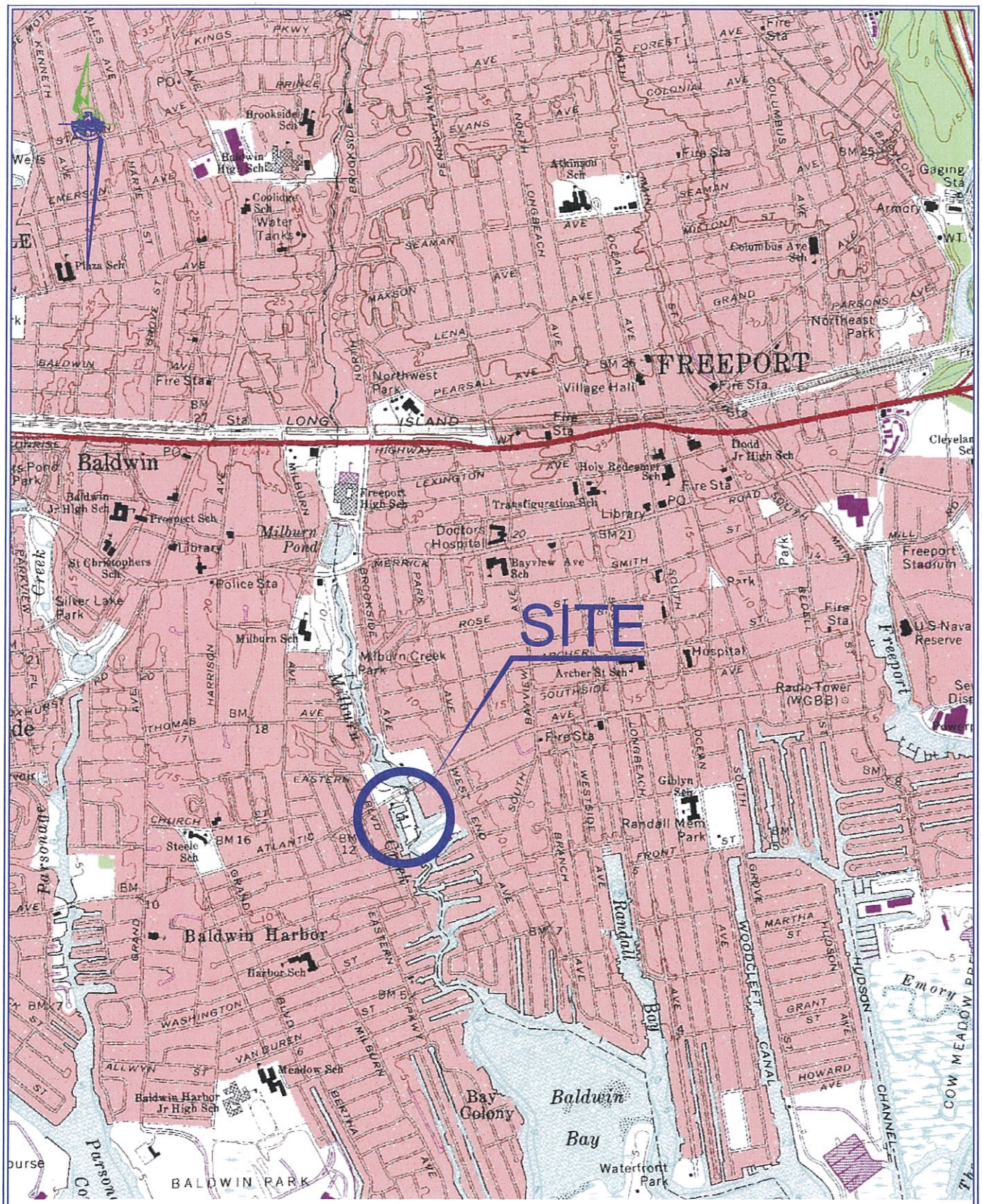
The facilities identified below are being used to provide the public with convenient access to important project documents:

Baldwin Public Library
2385 Grand Ave
Baldwin, NY 11510
Phone: (516) 223-6228

Appendix B
Site Contact List

Street	City	State	ZIP
1199 STEELE BLVD	BALDWIN	NY	11510
1193 STEELE BLVD	BALDWIN	NY	11510
1177 STEELE BLVD	BALDWIN	NY	11510
1165 STEELE BLVD	BALDWIN	NY	11510
1170 STEELE BLVD	BALDWIN	NY	11510
2971 EASTERN BLVD	BALDWIN	NY	11510
1182 STEELE BLVD	BALDWIN	NY	11510
2916 EASTERN BLVD	BALDWIN	NY	11510
2920 EASTERN BLVD	BALDWIN	NY	11510
2924 EASTERN BLVD	BALDWIN	NY	11510
2928 EASTERN BLVD	BALDWIN	NY	11510
2932 EASTERN BLVD	BALDWIN	NY	11510
2938 EASTERN BLVD	BALDWIN	NY	11510
2942 EASTERN BLVD	BALDWIN	NY	11510
2946 EASTERN BLVD	BALDWIN	NY	11510
2908 EASTERN BLVD	BALDWIN	NY	11510
2847 ATLANTIC AVE	BALDWIN	NY	11510
2965 EASTERN BLVD	BALDWIN	NY	11510
2959 EASTERN BLVD	BALDWIN	NY	11510
2955 EASTERN BLVD	BALDWIN	NY	11510
2947 EASTERN BLVD	BALDWIN	NY	11510
2927 EASTERN BLVD	BALDWIN	NY	11510
2915 EASTERN BLVD	BALDWIN	NY	11510
2941 EASTERN BLVD	BALDWIN	NY	11510
2921 EASTERN BLVD	BALDWIN	NY	11510
2935 EASTERN BLVD	BALDWIN	NY	11510
2909 EASTERN BLVD	BALDWIN	NY	11510
598 RAY ST	FREEPORT	NY	11520
2796 ATLANTIC AVE	BALDWIN	NY	11510
2744 ATLANTIC AVE	BALDWIN	NY	11510
69 ANCHOR ST	FREEPORT	NY	11520
99 ANCHOR ST	FREEPORT	NY	11520
98 ANCHOR ST	FREEPORT	NY	11520
580 RAY ST	FREEPORT	NY	11520
596 RAY ST	FREEPORT	NY	11520
80 ANCHOR ST	FREEPORT	NY	11520
571 ATLANTIC AVE	FREEPORT	NY	11520
577 ATLANTIC AVE	FREEPORT	NY	11520
2972 EASTERN BLVD	BALDWIN	NY	11510
2847 ATLANTIC AVE	BALDWIN	NY	11510

Appendix C
Site Location Map



Mapped, edited, and published by the Geological Survey
Revised in cooperation with New York Department of Transportation
Control by USGS, USC&GS, and New Jersey Geodetic Survey

J:\Projects S-Z\sss\SSS0601\Cad\Vicinity Map.dwg

VICINITY MAP

SCALE: 1:24,000

PWGC
Strategic Environmental & Engineering Solutions
630 Johnson Ave. Suite 7 Bohemia, N.Y. 11716-2618
Ph: 631 589-6353 Fx: 631 589-8705 E-mail: info@pwgroesser.com

1170 ATLANTIC AVENUE
BALDWIN, NY 11510

Project	SSS0601
Designed by	JPR
Approved by	PWG
Drawn by	LLG
Figure No.	1
Date	10/05/06