Remedial Alternatives Report

For Operable Unit 7

Spaulding Fibre Site
310 Wheeler Street
Tonawanda, New York

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LIST OF ACRONYMS AND ABBREVIATIONS

amsl	above mean sea level
AOC	Area of Concern
bgs	below ground surface
CFR	Code of Federal Regulations
cm/sec	centimeters per second
Committee	Spaulding Fibre Steering Committee
COCs	chemicals of concern
cy	cubic yard
EA	Qualitative Human Health Exposure Assessment
ECIDA	Erie County Industrial Development Agency
ERP	Environmental Restoration Program
ft	feet
IRM	interim remedial measure
LiRo	LiRo Engineers, Inc.
mg/kg	milligram per kilogram
NC	no criteria
ND	non-detect
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OM&M	operation, maintenance and monitoring
OU	Operable Unit
PAHs	polycyclic aromatic hydrocarbons
PID	photoionization detector
PPE	personal protection equipment
RAOs	remedial action objectives
RAR	Remedial Alternatives Report
RCRA	Resource Conservation and Recovery Act
ROD	Record of Decision
SCGs	Standards, Criteria, and Guidance
SI	Site Investigation
SIR	Site Investigation Report
Spaulding	Spaulding Fibre Site
SVOCs	semi-volatile organic compounds
SWMU	Solid Waste Management Unit
TAGM	Technical and Administrative Guidance Memorandum
TCLP	toxicity characteristic leaching procedure
TCL/TAL	Target Compound List/Target Analyte List
TMV	toxicity, mobility or volume
TOGS	Technical and Operational Guidance Series
TSCA	Toxic Substances Control Act
USEPA	United Stated Environmental Protection Agency
VOCs	volatile organic compounds

EXECUTIVE SUMMARY

LiRo Engineers, Inc. (LiRo) is in contract agreement with the Erie County Industrial Development Agency (ECIDA) to provide a Site Investigation Report (SIR) and Remedial Alternatives Report (RAR) for the Spaulding Fibre site (Spaulding) in Tonawanda, New York. The purpose of this Remedial Alternatives Report is to identify a recommended remedial alternative for Operable Unit 7 of the Spaulding site (Site) that will eliminate or mitigate all significant threats to human health and/or the environment, to the extent practicable, caused by contaminants present due to former Site activities.

This RAR is to be used in conjunction with the SIR (May, 2008) and the Supplemental Investigation Report (September, 2008) prepared by LiRo. This RAR report has been prepared and is structured in accordance with the New York State Department of Environmental Conservation (NYSDEC) DER-10 guidance for the Environmental Restoration Program. A separate RAR for Operable Units 5 and 6 of the Spaulding site is being prepared by LiRo.

The Site remedial action goal is to eliminate or mitigate all significant threats to human health and/or the environment, to the extent practicable, caused by contaminants present due to former Site activities. In order to meet this goal, remedial action objectives (RAOs) are established on a media-specific basis to protect human health and the environment, to provide the basis for selecting appropriate technologies, and to develop remedial alternatives. For OU7 of the Spaulding site, no RAOs were developed as:

- OU7 is an undeveloped area of the Spaulding site with no historic uses.
- No contaminants exceeding SCGs were identified in soil within OU7 which could contribute to soil, air/soil vapor or groundwater contamination.
- No significant threat to human health or the environment is present.

An identification of applicable remedial technologies is presented in this report to meet the remedial goal for the Site. One remedial alternative, the No Action Alternative, was developed, described and evaluated against the seven NYSDEC evaluation criteria of: overall protection of human health and the environment, compliance with SCGs, long-term effectiveness and permanence, reduction of toxicity, mobility or volume with treatment, short-term effectiveness, implementability, and cost. Since there is no cost associated with the No Action alternative, capital and operation, maintenance and monitoring (OM&M) costs have not been developed. The recommended remedial remedy for OU7 is:

Alternative 1 - No Action.

1.0 INTRODUCTION

LiRo Engineers, Inc. (LiRo) is in contract agreement with the Erie County Industrial Development Agency (ECIDA) to provide a Site Investigation (SI) and Remedial Alternatives Report (RAR) for the Spaulding Fibre site (Spaulding) in Tonawanda, New York. Separate RAR reports have been developed combining OU5 and OU6 in one RAR, and OU7 in this RAR. The site location, 310 Wheeler Street in the City of Tonawanda, Erie County, New York, is shown on Figure 1-1. The purpose of this Remedial Alternatives Report is to identify a recommended remedial alternative for OU7 of the Site that will eliminate or mitigate all significant threats to human health and/or the environment, to the extent practicable, caused by contaminants present due to former Site activities.

1.1 Project Purpose and Report Organization

The Spaulding Fibre SI/RAR is being conducted under a New York State Department of Environmental Conservation (NYSDEC) Environmental Restoration Program (ERP) State Assistance Contract with the City of Tonawanda, Erie County and ECIDA. The Spaulding Fibre Steering Committee (Committee) is comprised by representatives of those three groups plus the Town of Tonawanda and Empire State Development Corporation. LiRo is under contract with ECIDA to plan and implement the SI/RAR. NYSDEC is responsible for oversight of the investigation as well as review and approval of project deliverables.

This Remedial Alternatives Report is structured in accordance with NYSDEC DER-10 guidance for the Environmental Restoration Program (ERP) and contains four sections. Section 1 provides an overview of the project purpose and scope and a summary of the Site Investigation Report prepared by LiRo (May, 2008) as well as the Supplemental Investigation Report prepared by LiRo (September, 2008). The rationale for the Supplemental Investigation was to more accurately evaluate the extent (area and volume) of remediation areas. Section 2 presents the remedial goal and remedial action objectives for the site, along with an identification and screening of remedial technologies which would meet the goal. A remedial alternative is presented. Section 3 describes and evaluates the remedial alternative developed for the Site. The evaluation criteria consist of: overall protection of human health and the environment; compliance with standards, criteria and guidance (SCGs), long-term effectiveness and permanence, reduction of toxicity, mobility and volume with treatment, short-term effectiveness, implementability and cost. Section 4 presents the recommendation of the remedial alternative for the Site.

1.2 Site Description and History

The Spaulding Fibre site is located at 310 Wheeler Street in the City of Tonawanda, New York on approximately 46 acres of land. Approximately 20 acres of the site are developed with former plant buildings and structures (Figure 1-2). To facilitate the site investigation, three distinct operable units (OUs) were defined at the site. Operable Unit 5 (OU5) is the former parking lot on the east side of Wheeler Street, Operable Unit 6 (OU6) is the main plant operations area, and Operable Unit 7 (OU7) is the undeveloped western portion of the site. Operable Units OU1 – OU4 refer to waste disposal areas within OU6 which are being addressed by NYSDEC under their Superfund Program. Following a review of Supplemental Investigation analytical results, which indicated that there are no OU7 contaminant SCG exceedances, the recommended remedy for OU7 is being considered under a separate RAR. (The Spaulding site description and history, and geologic and hydrogeologic information as it pertains to OU5, OU6 and OU7 is included within this RAR.)

The Spaulding site is located in a mixed land use district with commercial properties along Wheeler Street northeast of the site, industrial/commercial properties across Hackett Street to the southeast, residential properties along Dodge Avenue and Gibson Street to the northwest of the site, and commercial/residential properties across Hinds Street to the west.

The elevation at the site is approximately 600 feet above mean sea level and the ground at OU5 and OU7 slopes gently to the north-northeast. Surface drainage is through a series of swales and ditches (the configuration of which has changed over the years) and storm sewers. The Niagara River is approximately one mile north of the site. The Niagara River and municipal water treatment and supply systems provide potable water to residents and industry in the vicinity and downgradient of the Site. According to the City Water Department, the drilling of wells for potable water supply is prohibited within the City of Tonawanda limits.

A detailed summary of the previous investigation, plant operations, chemical releases and disposal practices, plant decommissioning, and a summary of the NYSDEC Record of Decision for OU1, OU2, OU3, and OU4 was presented in the SIR.

1.3 Site Geology and Hydrogeology

The stratigraphic units for the entire OU5, OU6 and OU7 areas and hydrogeology are discussed below.

1.3.1 Fill

Within the building footprint, three general types of fill were identified. The three types of fill generally consist of a black angular sandy material ranging in thickness from 1 to 10 feet. The fill thickness outside the building footprint typically ranges from 0 to 2 feet. Previous investigators have reported fill up to 17 feet thick, however. The exterior fill primarily consists of reworked silty clay with lesser amounts of sand and gravel. Concrete and brick fragments, crushed stone and cinders were encountered at several locations and at a lesser number of locations there were buttons mixed with cinders (button ash), slag, asphalt millings, foundry sand, wood debris and miscellaneous waste (i.e., plastic, litter, etc.) encountered, often mixed into the reworked silty clay. In OU7, surficial soil generally consisted of native soil or re-worked native soil.

1.3.2 Glaciolacustrine Silty Clay

This unit consists primarily of reddish brown silty clay with thin interbeds containing sand/silt/clay. During the SI, this unit was observed in the field as characteristically dry to moist; however, the sandy layers were saturated locally. The sandy layers appeared to be discontinuous laterally. The thickness of this unit reportedly ranges from 36.4 to 45.8 feet thick across the site.

1.3.3 Glacial Till

This unit consists of dark reddish brown to gray, silty clay with abundant rock fragments and gravel. This unit reportedly ranges from 0 to 5 feet in thickness. The glacial till was not observed during the SI as the maximum boring depth was 29 feet below ground surface (bgs).

1.3.4 Bedrock

Bedrock at the site was identified as dolomitic shale of the Camillus Formation. The depth to bedrock varies from 38.5 to 54.9 feet across the site and the uppermost bedrock consists of a 1.5 to 5-foot thick weathered zone. Below the weathered zone, numerous lightly to heavily-weathered shaly or gypsum-lined partings, rubble zones, and weathered gypsum and shale interbeds, along with weathered vertical fracturing, were recorded during the logging of the previous investigation bedrock well cores. The Camillus Formation is a relatively transmissive aquifer. Groundwater flow in the weathered bedrock appears to be northward to the Niagara River. The flow gradient below the weathered bedrock was undetermined due to the flat nature of groundwater contours.

1.3.5 Groundwater Table

The Spaulding site-wide groundwater table was observed in overburden wells at elevations ranging from 606 to 586 feet above mean sea level (amsl), and approximately between 600 to 602 feet amsl within OU7. The apparent groundwater flow direction is to the northeast as shown on Figure 1-3 and the observed horizontal hydraulic gradient is approximately 0.011 feet per foot. Previous investigation slug testing has shown very low hydraulic conductivity results (10^{-7} – 10^{-8} cm/sec) for the glacial water bearing unit. Groundwater environmental sampling results are summarized in Table 1-3 and discussed in Section 1.5.2.

1.3.6 Camillus Shale Formation

The Camillus Shale Formation is part of a regional aquifer in the Erie-Niagara basin. Groundwater from this bedrock aquifer, however, is not utilized as a source of drinking water in the Tonawanda area because of naturally occurring high mineral content and the close proximity of the Niagara River, an important source of municipal drinking water throughout the Western New York area. Groundwater flow in the upper bedrock aquifer is to the north toward the Niagara River.

1.3.7 Niagara River

The Niagara River (NYSDEC Class "A" water body) is located approximately 1 mile north of the site. Two Mile Creek and Ellicott Creek (NYSDEC Class "C" water bodies) are located approximately one mile west and east of the site, respectively.

1.4 Potentially Applicable Standards, Criteria and Guidance (SCGs)

Standards, Criteria and Guidance (SCGs) are cleanup standards, standards of control, and other substantive environmental protection requirements, criteria or limitations promulgated under federal or state law that specifically address a hazardous substance, contaminant, remedial action, or location. Guidance values include non-promulgated criteria and guidelines that are not legal requirements but should be considered if determined to be applicable to the Site. SCGs are categorized as chemical-specific, location-specific, or action-specific. SCGs developed for the Site, and which are considered potentially applicable, are presented on Table 1-1.

Chemical-specific SCGs are based primarily on 6 NYCRR Part 375 Soil Cleanup Objectives for restricted residential and commercial use, or, where Part 375 cleanup objectives are listed as NC (No Criteria), utilizing the respective NYSDEC Technical and Administrative Guidance Memorandum (TAGM) #4046 soil cleanup guidance value. Analytical data from groundwater monitoring have been compared with Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values for Class GA Groundwater.

1.5 Nature and Extent of Contamination

A detailed summary of the SI data is presented in the SIR and Supplemental Investigation Report. A summary of results from OU7 is provided below. Based on the absence of soil and groundwater contamination, these media do not present an environmental concern for OU7.

1.5.1 Soil

As noted in Section 1.3, soil at OU7 consisted of silty clay. Test pit samples were analyzed during several phases of Site investigations and the results compared to soil SCGs discussed in Section 1.4. Soil data from OU7 is summarized in Table 1-2.

During the initial exterior test pit program (July 2007), there were no pesticides or PCBs detected at OU7 and *de minimis* levels of methylene chloride which were not attributable to Site operations**.** PAHs were detected in one OU7 SI composite sample (SP-9) that was collected by combining soil from a depth of 0-3' from three discrete locations (TP-31, TP-32 and TP-33) shown on Figure 1-4. The concentration of four PAH compounds marginally exceeded the SCG for restricted residential use. Because the results were anomalous compared to the other OU7 samples and no visual evidence of site impacts were observed at TP-31, TP-32 and TP-33, confirmatory Supplemental investigation samples were collected from 0-1' (cover/native) and 1'-3' (native) at each of the three soil composite sample locations. No exceedances were found in the supplemental investigation discrete samples (samples A-1, A-2 and A-3) in OU7. Therefore, PAH exceedances were not confirmed by Supplemental Investigation results and soil is not a media of concern for OU7.

1.5.2 Groundwater

A groundwater sample was obtained from monitoring well OW-12 located in southeast portion of OU7. The results were compared to the groundwater SCGs discussed in Section 1.4. Groundwater data from

OU7 is summarized in Table 1-3. There were no organic compounds detected in the OU7 groundwater sample and there were no Site-related exceedances of groundwater SCGs.

1.5.3 Air/Soil Vapor

Due to the absence of contaminants in soil or groundwater which would contribute to air and soil vapor contamination, air/soil vapor is not a media of concern for OU7.

1.6 Qualitative Exposure Assessment

The qualitative human health exposure assessment (EA) presented in the SIR was prepared in accordance with the NYSDEC Environmental Restoration Program requirements and the Draft DER-10 Guidance Document (December, 2002). The objective of the EA was to evaluate the presence of completed or potential exposure pathways in order to determine if site contamination poses an existing or potential hazard to current or future site users. The EA identified the potential for human exposures, if any, associated with chemical constituents detected in soil, groundwater, and air for the Site as a whole at OU5, OU6, and OU7. The EA addressed onsite and offsite receptors for current use, future site construction during redevelopment, and future use scenarios. The anticipated future use of the Site is for light industrial and commercial purposes.

OU7 is an undeveloped western portion of the Spaulding site. No historic use has been identified which would indicate a source of contamination. Further, the Supplemental Investigation results indicate the absence of contamination exceeding SCGs within OU7. Therefore, there are no completed exposure pathways to current or future site users for OU7.

2.0 Remedial Goal and Remedial Action Objectives

2.1 Goal and Objectives

The remedial action goal for the Site is to eliminate or mitigate all significant threats to human health and/or the environment, to the extent practicable, caused by contaminants present due to former Site activities. In order to meet this goal, remedial action objectives (RAOs) are generally established to protect human health and the environment, provide the basis for selecting appropriate technologies, and to develop remedial alternatives. RAOs are based on contaminated media, SCGs, and the results of the

qualitative human health exposure assessment. For OU7 of the Spaulding site, no RAOs were developed based on the following findings of the SIR and Supplemental Investigation:

- OU7 is an undeveloped area of the Spaulding site with no historic uses.
- No contaminants exceeding SCGs were identified in soil within OU7 which would contribute to soil, air/soil vapor or groundwater contamination.
- No significant threats to human health or the environment are present.

2.2 Remediation Areas and Volumes

Based on information presented in the SIR and the Supplemental Investigation, there are no remediation areas or volumes developed for OU7.

2.3 Interim Remedial Measure Evaluation

There are no identified areas of concern and no recommended interim remedial measures for OU7.

2.4 General Response Actions

General response actions are broad categories of remedial actions capable of satisfying the RAOs for the site. Since there are no RAOs identified for the site, only No Action is considered for OU7.

- **No Action –** A No Action alternative was developed as part of the RAR process. The Site would remain in its current state.

2.5 Identification of Technologies

There are no identified remedial technologies for the No Action alternative.

2.6 Development of Remedial Alternatives

A No Action alternative has been developed for the Site.

Alternative 1 - No Action

3.0 Description and Detailed Analysis of Alternatives

3.1 Description of Alternative

3.1.1 Alternative 1 – No Acton

Alternative 1 includes no remediation activities at the site. The site would remain in its current state. .

3.1.1.1 Size and Configuration

- There are no components associated with the No Action alternative.

3.1.1.2 Time for Remediation

- There is no time period associated with the No Action alternative.

3.1.1.3 Spatial Requirements

- There would be no spatial requirements for the No Action alternative.

3.1.1.4 Options for Disposal

- There would be no disposal requirements for this alternative.

3.1.1.5 Permit Requirements

- There would be no permits required for this alternative.

3.1.1.6 Limitations

- Because soil and groundwater meet SCGs at OU7, no environmental easement, restrictions or limitations are required.

3.1.1.7 Impacts on Fish and Wildlife Resources

- This alternative would not have an impact on fish and wildlife resources.

3.2 Description of Evaluation Criteria

Each of the alternatives is subjected to a detailed evaluation with respect to the criteria outlined in 6 NYCRR Part 375 and described below. This evaluation aids in the selection process for remedial actions in New York State.

3.2.1 Overall Protection of Public Health and the Environment

This criterion is an assessment of whether the alternative meets requirements that are protective of human health and the environment. The overall assessment is based on a composite of factors assessed under other evaluation criteria, particularly long-term effectiveness and performance, short-term effectiveness, and compliance with SCGs. This evaluation focuses on how a specific alternative achieves protection over time and how site risks are reduced. The analysis includes how the source of contamination is to be eliminated, reduced, or controlled.

3.2.2 Compliance with Standards, Criteria, and Guidance (SCGs)

This criterion determines whether or not each alternative complies with applicable environmental laws, and SCGs pertaining to the chemicals detected in contaminated media, the location of the Site, and relating to proposed technologies.

3.2.3 Long-Term Effectiveness and Permanence

This criterion addresses the performance of a remedial action in terms of its permanence and the quantity/nature of waste or residuals remaining at the Site after implementation. An evaluation is made on the extent and effectiveness of controls required to manage residuals remaining at the Site and the operation and maintenance systems necessary for the remedy to remain effective. Factors evaluated include permanence of the alternative, magnitude of the remaining risk, adequacy of controls used to manage residual contamination, and the reliability of controls used to manage residual contamination.

3.2.4 Reduction of Toxicity, Mobility or Volume with Treatment

This criterion assesses the remedial alternative's use of technologies that permanently and significantly reduce toxicity, mobility, or volume (TMV) of the contamination as their principal element. Preference is given to remedies that permanently and significantly reduce the toxicity, mobility, or volume of the wastes at the site.

3.2.5 Short-Term Effectiveness

This criterion assesses the effects of the alternative during the construction and implementation phase with respect to the effect on human health and the environment. The factors that are assessed include protection of the workers and the community during remedial action, environmental impacts that result from the remedial action, and the time required until the remedial action objectives are achieved.

3.2.6 Implementability

This criterion addresses the technical and administrative feasibility of implementing the alternative and the availability of various services and materials required during implementation. The evaluation includes the feasibility of construction and operation, the reliability of the technology, the ease of undertaking additional remedial action, monitoring considerations, activities needed to coordinate with regulatory agencies, availability of adequate equipment, services and materials, offsite treatment, and storage and disposal services.

3.2.7 Cost

Capital costs and OM&M costs are estimated for each alternative and presented on a present worth basis based on a 5% discount rate.

3.2.8 Community and State Acceptance

Concerns of the State and the Community will be addressed separately in accordance with the public participation program developed for this Site.

3.3 Detailed Analysis of Alternative

3.3.1 Alternative 1 – No Action

3.3.1.1 Overall Protection of Public Health and the Environment

Alternative 1 is protective of human health and the environment since there are no source areas and/or SCG exceedances.

3.3.1.2 Compliance with Standards, Criteria, and Guidance (SCGs)

Alternative 1 complies with cleanup criteria developed for the site as there are no existing SCG exceedances.

3.3.1.3 Long-Term Effectiveness and Permanence

Alternative 1 is an effective and permanent remedy for the Site. Residual contamination would exist at current concentrations and levels which are below SCG.

3.3.1.4 Reduction of Toxicity, Mobility or Volume with Treatment

Contaminants present at the Site are below SCGs. Alternative 1 does not further reduce the toxicity, mobility or volume of any contaminants present at the site below current levels, except through natural attenuation processes.

3.3.1.5 Short-Term Effectiveness

Alternative 1 poses no short term impacts to workers and the community from construction activities.

3.3.1.6 Implementability

Alternative 1 is readily implementable due to the lack of remedial construction activities included.

3.3.1.7 Cost

There is no cost associated with the No Action alternative.

3.4 Comparative Analysis of Alternative

No comparative analysis is provided since only one remedial alternative is considered.

4.0 Recommended Remedial Alternative

The remedial action goal for the Site is to eliminate or mitigate all significant threats to human health and/or the environment, to the extent practicable, caused by contaminants present due to former Site activities. Based on the findings of the SIR and Supplemental Investigation:

- OU7 is an undeveloped area of the Spaulding site with no historic uses.
- No contaminants exceeding SCGs were identified in soil within OU7 which would contribute to soil, air/soil vapor or groundwater contamination.
- No significant threats to human health or the environment are present.

For OU7, no remedial action objectives needed to be developed and no remedial technologies needed to be identified to meet the remedial goal. The No Action alternative meets the remedial goal and is therefore the recommended remedy for OU7 of the Spaulding site.

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TABLES

TABLE 1-1
POTENTIALLY APPLICABLE STANDARDS, CRITERIA AND GUIDANCE
SPAULDING FIBRE SITE INVESTIGATION

Division/ Agency	Title	Standard or Guidance	Requirements
DAR/ NYSDEC	Air Guide 1 – Guidelines for the Control of Toxic Ambient Air Contaminants	G	▪ Control of toxic air contaminants ▪ Screening analysis for ambient air impacts ▪ Toxicity classifications ▪ Ambient standards – short term/annual
DAR/ NYSDEC	6 NYCRR Part 200 (200.6) – General Provisions	S	▪ Prohibits contravention of Ambient Air Quality Standards or causes of air pollution
DAR/ NYSDEC	6 NYCRR Part 201 - Permits & Certificates	S	▪ Prohibits construction/operation without a permit/certificate
DAR/ NYSDEC	6 NYCRR Part 211 (211.1) – General Prohibitions	S	▪ Prohibits emissions which are injurious to human, plant, or animal life, or causes a nuisance
DAR/ NYSDEC	6 NYCRR Part 212 – General Process Emission Sources	S	▪ Establishes control requirements
DAR/ NYSDEC	6 NYCRR Part 257 – Air Quality Standards	S	▪ Applicable air quality standards
DER/ NYSDEC	TAGM HWR-89-4031 Fugitive Dust Suppression and Particulate Monitoring Program at Inactive Hazardous Waste Sites	G	▪ Dust suppression during Interim Remedial Measures/Remedial Actions
DER/ NYSDEC	TAGM HWR-92-4030 Selection of Remedial Actions at Inactive Hazardous Waste Sites	G	▪ Remedy selection criteria/evaluations
DER/ NYSDEC	TAGM HWR-92-4042 Interim Remedial Measures	G	▪ Define and track Interim Remedial Measures (IRMs)
DER/ NYSDEC	TAGM 4046 – Determination of Soil Cleanup Objectives and Levels	G	▪ Soil Cleanup Objectives
DER/ NYSDEC	6 NYCRR Part 375 – Inactive Hazardous Waste Disposal Site Remediation Program	S	▪ Remedial program requirements ▪ Private party programs; state funded programs; state assistance to municipalities ▪ Soil Cleanup Objectives
DFW/ NYSDEC	Fish and Wildlife Impact Analysis for Inactive Hazardous Waste Sites (FWIA)	G	▪ Habitat assessments ▪ Contaminant impact assessments ▪ Ecological effects of remedies ▪ Remedial requirements ▪ Monitoring ▪ Checklist
DOW/ NYSDEC	Analytical Services Protocols (ASP)	G	▪ Analytical procedures

TABLE 1-1
POTENTIALLY APPLICABLE STANDARDS, CRITERIA AND GUIDANCE
SPAULDING FIBRE SITE INVESTIGATION

Division/ Agency	Title	Standard or Guidance	Requirements
DOW/ NYSDEC	TOGS 1.1.2 – Groundwater Effluent Limitations	G	▪ Guidance for developing effluent limitations
DOW/ NYSDEC	TOGS 1.1.1 – Ambient Water Quality Standards and Guidance Values	G	▪ Compilation of ambient water quality standards and guidance values
DOW/ NYSDEC	TOGS 1.2.1 – Industrial SPDES Permit Drafting Strategy for Surface Waters	G	▪ Guidance for developing effluent and monitoring limits for point source releases to surface water
DOW/ NYSDEC	TOGS 1.3.8 – New Discharges to Publicly Owned Treatment Works	G	▪ Limits on new or changed discharges to POTWs; strict requirements regarding bioaccumulative and persistent substances; plus other considerations
DOW/ NYSDEC	6 NYCRR Part 702-15(a), (b), (c), (d) & (e)	S	▪ Empowers NYSDEC to apply and enforce guidance where there is no promulgated standard
DOW/ NYSDEC	6 NYCRR Part 700-705 – NYSDEC Water Quality Regulations for Surface Waters and Groundwater	S	▪ 700 – Definitions, Samples and Tests; ▪ 701 – Classifications for Surface Waters and Groundwaters; ▪ 702 – Derivation and Use of Standards and Guidance Values; ▪ 703 – Surface Water and Groundwater Quality Standards and Groundwater Effluent Standards
DOW/ NYSDEC	6 NYCRR Part 750-757 – Implementation of NPDES Program in NYS	S	▪ Regulations regarding the SPDES program
DSHM/ NYSDEC	6 NYCRR Part 364 – Waste Transporter Permits	S	▪ Regulates collection, transport, and delivery of regulated waste
DSHM/ NYSDEC	6 NYCRR Part 360 – Solid Waste Management Facilities	S	▪ Solid waste management facility requirements; landfill closures; construction & demolition (C&D) landfill requirements; used oil; medical waste; etc.
DSHM/ NYSDEC	6 NYCRR Part 370 – Hazardous Waste Management System: General	S	▪ Definitions and terms and general standards applicable to Parts 370-374 and 376
DSHM/ NYSDEC	6 NYCRR Part 371 – Identification and Listing of Hazardous Wastes	S	▪ Hazardous waste determinations ▪ Hazardous waste characterization values
DSHM/ NYSDEC	6 NYCRR Part 372 – Hazardous Waste Manifest System and Related Standards for Generators, Transporters and Facilities	S	▪ Manifest system and record keeping; certain management standards

TABLE 1-1
POTENTIALLY APPLICABLE STANDARDS, CRITERIA AND GUIDANCE
SPAULDING FIBRE SITE INVESTIGATION

Division/ Agency	Title	Standard or Guidance	Requirements
DSHM/ NYSDEC	6 NYCRR Part 376 – Land Disposal Restrictions	S	▪ Identifies hazardous waste restricted from land disposal
DSHM/ NYSDEC	6 NYCRR Subpart 373-1 – Hazardous Waste Treatment, Storage and Disposal Facility Permitting Requirements	S	▪ Hazardous waste permitting requirements; includes substantive requirements
DSHM/ NYSDEC	6 NYCRR Subpart 373-2 – Final Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities	S	▪ Hazardous waste management standards such as contingency plans; releases from SWMUs; closure/post closure; container management; tank management; surface impoundments; waste piles; landfills; incinerators; etc.
DSHM/ NYSDEC	6 NYCRR subpart 373-3 – Interim Status Standards for Owners and Operators of Hazardous Waste Facilities	S	▪ Similar to 373-2
OSHA/ PESH	29 CFR Part 1910.120; Hazardous Waste Operations and Emergency Response	S	▪ Health and safety
USEPA	40 CFR Part 261 – Hazardous Waste Management System; Definition of Solid Waste; Toxicity Characteristic; Final Rule; Response to Court Order Vacating Regulatory Provisions	S	▪ Hazardous waste determinations ▪ Hazardous waste characterization values

TABLE 1-2
SPAULDING FIBRE SITE
SUMMARY OF SOIL RESULTS - OPERABLE UNIT 7
VOCS AND SVOCS IN TEST PIT SOIL SAMPLES

Sample Number Date Sampled Sample Depth (in bgs) Sample Location Sample Type	NYSDEC TAGM Value	NYSDEC Part 375 Unrestricted Use	NYSDEC Part 375 Restricted Residential	NYSDEC Part 375 Restricted Commercial	SP-9 7/25/07 0'-3' OU7 Native	SP-10 7/25/07 0'-3' OU7 Native	SP-11 7/25/07 0'-3' OU7 Native	SP-12 7/24/07 0'-3' OU7 Fill & Native	SP-13 7/24/07 0'-3' OU7 Native	SP-14 7/24/07 0'-3' OU7 Native	SP-15 7/24/07 0'-3' OU7 Native	SP-16 7/24/07 0'-3' OU7 Native
Volatile Organic Compounds (mg/kg or ppm)												
Acetone	0.2	0.05	100	500	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	0.1	0.05	100	500	**0.074 JB**	ND	ND	ND	ND	ND	ND	ND
Semivolatile Organic Compounds (mg/kg or ppm)												
2,4-Dimethylphenol	NC	NC	NC	NS	ND	ND	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene	36.4	NC	NC	NC	ND	ND	ND	ND	ND	ND	ND	ND
2-Methylphenol	0.1	0.33	100	500	ND	ND	ND	ND	ND	ND	ND	ND
3+4-Methylphenols	0.9	0.33	100	500	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthene	50	20	100	500	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthylene	41	100	100	500	ND	ND	ND	ND	ND	ND	ND	ND
Aniline	0.1	NC	NC	NC	ND	ND	ND	ND	ND	ND	ND	ND
Anthracene	50	100	100	500	0.36 J	ND	ND	ND	ND	ND	ND	ND
Benzaldehyde	NC	NC	NC	NC	ND	ND	ND	ND	ND	ND	ND	ND
Benzo[a]anthracene	0.224	1	1	5.6	1.5 J	ND	ND	ND	ND	ND	ND	ND
Benzo[a]pyrene	0.061	1	1	1	**1.3 J**	ND	ND	ND	ND	ND	ND	ND
Benzo[b]fluoranthene	1.1	1	1	5.6	1.8 J	ND	ND	ND	ND	ND	ND	ND
Benzo[g,h,i]perylene	50	100	100	500	1 J	ND	ND	ND	ND	ND	ND	ND
Benzo[k]fluoranthene	1.1	0.8	3.9	56	0.63 J	ND	ND	ND	ND	ND	ND	ND
bis(2-Ethylhexyl)phthalate	50	NC	NC	NC	ND	0.17 J	ND	ND	ND	ND	ND	ND
Caprolactam	NC	NC	NC	NC	ND	ND	ND	ND	ND	ND	ND	ND
Carbazole	NC	NC	NC	NC	ND	ND	ND	ND	ND	ND	ND	ND
Chrysene	0.4	1	3.9	56	2	0.15 J	ND	ND	ND	ND	ND	ND
Dibenz[a,h]anthracene	0.014	0.33	0.33	0.56	ND	ND	ND	ND	ND	ND	ND	ND
Dibenzofuran	6.2	7	59	350	ND	ND	ND	ND	ND	ND	ND	ND
Diethylphthalate	7.1	NC	NC	NC	ND	ND	ND	ND	ND	ND	ND	ND
Dimethylphthalate	2	NC	NC	NC	ND	ND	ND	ND	ND	ND	ND	ND
Di-n-butylphthalate	8.1	NC	NC	NC	ND	0.33 J	0.18 J	0.25 J	ND	0.096 J	ND	ND
Fluoranthene	50	100	100	500	3.8	ND	ND	ND	ND	ND	ND	ND
Fluorene	50	30	100	500	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobenzene	0.41	NC	NC	NC	ND	ND	ND	ND	ND	ND	ND	ND
Indeno[1,2,3-cd]pyrene	3.2	0.5	0.5	5.6	0.99 J	ND	ND	ND	ND	ND	ND	ND
Naphthalene	13	12	100	500	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	50	100	100	500	2.2	ND	ND	ND	ND	ND	ND	ND
Phenol	0.03	0.33	100	500	ND	ND	ND	ND	ND	ND	ND	ND
Pyrene	50	100	100	500	3.1	ND	ND	ND	ND	ND	ND	ND
Total SVOC TICs					3.17	2.295	2.139	2.53	1.5	1.68	1.6	1.4

Notes:
NC = No criteria; ND = Not detected above laboratory MDL
B = Compound detected in method blank; J = Analyte is positively identified with concentration qualified as estimated value
Shaded = Result exceeds the 6 NYCRR Part 375 Unrestriced Use Objective
Underline = Result exceeds the 6 NYCRR Part 375 Restricted-Residential Objective
Bold = Result exceeds the 6 NYCRR Part 375 Commercial Objective

TABLE 1-2
SPAULDING FIBRE SITE
SUMMARY OF SOIL RESULTS - OPERABLE UNIT 7
PESTICIDES, PCBS AND METALS IN TEST PIT SOIL SAMPLES

Sample Number Date Sampled Sample Depth (in bgs) Sample Location Sample Type	NYSDEC TAGM Value	NYSDEC Part 375 Unrestricted Use	NYSDEC Part 375 Restricted Residential	NYSDEC Part 375 Restricted Commercial	SP-9 7/25/07 0'-3' OU7 Native	SP-10 7/25/07 0'-3' OU7 Native	SP-11 7/25/07 0'-3' OU7 Native	SP-12 7/24/07 0'-3' OU7 Fill & Native	SP-13 7/24/07 0'-3' OU7 Native	SP-14 7/24/07 0'-3' OU7 Native	SP-15 7/24/07 0'-3' OU7 Native	SP-16 7/24/07 0'-3' OU7 Native
Pesticides (mg/kg of ppm)												
None Detected	NA	NA	NA	NA								
PCBs (mg/kg or ppm)												
None Detected	NA	NA	NA	NA								
Metals (mg/kg or ppm)												
Aluminum	SB	NC	NC	NC	14500 J	15600 J	15400 J	13200	15900	16600	18000	15000
Antimony	SB	NC	NC	NC	0.393 U	0.408 U	0.414 U	0.383 U	0.4 U	0.401 U	0.403 U	0.392 U
Arsenic	7.5/SB	13	16	16	2.54	3.26	5.22	3.96	3.83	2.97	5.81	3.43
Barium	300/SB	350	400	400	126 J	113 J	122 J	99.4	97.5	162	139	120
Beryllium	0.16/SB	7.2	72	590	0.695	0.771	0.798	0.597	0.693	0.818	0.848	0.644
Cadmium	1/SB	2.5	4.3	9.3	0.341 J	0.36 J	0.74 J	0.391 J	0.452 J	0.708 J	0.727 J	0.414 J
Calcium	SB	NC	NC	NC	26100 J	25000 J	19900 J	31900	24200	27600	34500	37200
Chromium	10/SB	30	180	1,500	19.4 J	21.1 J	23.7 J	19.3	19.6	19.9	23.9	19.8
Cobalt	30/SB	NC	NC	NC	10.8	9.79	15.3	8.44	9.3	9.69	12.9	9.37
Copper	25/SB	50	270	270	26.2	23.7	26	27.8	21.8	22	24	20.4
Iron	2000/SB	NC	NC	NC	23200 J	24600 J	27200 J	20200	23300	23400	27400	22900
Lead	SB	63	400	1,000	28.8 J	19.3 J	30.9 J	30.2	20.8	18.7	17.3	15.4
Magnesium	SB	NC	NC	NC	11000 J	9140 J	7630 J	11200	7340	11200	12500	11700
Manganese	SB	1,600	2,000	10,000	635 J	616 J	1110 J	534	490	1120	860	627
Mercury	0.1	0.18	0.81	2.8	0.038	0.052	0.053	0.069	0.054	0.038	0.028	0.033
Nickel	13/SB	30	310	310	23.7 J	24.8 J	23.1 J	21	20.9	20.8	28.2	21.7
Potassium	SB	NC	NC	NC	1870 J	2110 J	1760 J	1970	1700	2030	2830	2170
Selenium	2/SB	3.9	180	1,500	0.208 U	0.216 U	0.219 U	0.203 U	0.212 U	0.213 U	0.214 U	0.207 U
Silver	SB	2	180	1,500	0.58	0.431 J	0.219 U	0.203 U	0.212 U	0.213 U	0.214 U	0.207 U
Sodium	SB	NC	NC	NC	185	149	294	249	180	153	225	183
Thallium	SB	NC	NC	NC	2.18 U	2.27 U	2.3 U	2.13 U	2.22 U	2.23 U	2.24 U	2.18 U
Vanadium	150/SB	NC	NC	NC	29 J	31.1 J	34.6 J	27.4	31.4	30.6	34.7	29.3
Zinc	20/SB	109	10,000	10,000	108 J	134 J	175 J	164	107	104	92.9	84.5
Cyanide	SB	27	27	27	0.577 U	0.6 U	0.608 U	0.58 U	0.59 U	0.59 U	0.59 U	0.58 U

Notes:
NA = Not applicable; NC = No criteria; ND or U = Not detected above laboratory MDL
J = Analyte is positively identified with concentration qualified as estimated value
Shaded = Result exceeds the 6 NYCRR Part 375 Unrestriced Use Objective
Underline = Result exceeds the 6 NYCRR Part 375 Restricted-Residential Objective
Bold = Result exceeds the 6 NYCRR Part 375 Commercial Objective

TABLE 1-2
SPAULDING FIBRE SITE
SUMMARY OF SOIL RESULTS - OPERABLE UNIT 7
SUPPLEMENTAL SI TEST PIT SOIL SAMPLES

Sample Number **Date Sampled** **Sample Depth (in bgs)** **Sample Location** **Sample Type**	**NYSDEC TAGM Value**	**NYSDEC Part 375 Unrestricted Use**	**NYSDEC Part 375 Restricted Residential**	**NYSDEC Part 375 Restricted Commercial**	**A-1 6/24/2008 0'-1' OU7 Native**	**A-1 6/24/2008 1'-3' OU7 Native**	**A-2 6/24/2008 0'-1' OU7 Native**	**A-2 6/24/2008 1'-3' OU7 Native**	**A-3 6/24/2008 0'-1' OU7 Native**	**A-3 6/24/2008 1'-3' OU7 Native**
Semivolatile Organic Compounds (mg/kg or ppm)										
Acenaphthylene	41	100	100	500	ND	ND	ND	ND	ND	ND
Acenaphthene	50	20	100	500	ND	ND	ND	ND	ND	ND
Anthracene	50	100	100	500	ND	ND	ND	ND	ND	ND
Benzo[a]pyrene	0.061	1	1	1	ND	ND	ND	ND	ND	ND
Benzo[g,h,i]perylene	50	100	100	500	ND	ND	ND	ND	ND	ND
Benzo[a]anthracene	0.224	1	1	5.6	ND	ND	ND	ND	ND	ND
Benzo[b]fluoranthene	1.1	1	1	5.6	0.044 J	ND	ND	ND	ND	ND
Benzo[k]fluoranthene	1.1	0.8	3.9	56	ND	ND	ND	ND	ND	ND
Chrysene	0.4	1	3.9	56	ND	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene	0.014	0.33	0.33	0.56	ND	ND	ND	ND	ND	ND
Fluorene	50	30	100	500	ND	ND	ND	ND	ND	ND
Fluoranthene	50	100	100	500	0.053 J	ND	ND	ND	0.047 J	ND
Indeno(1,2,3-cd)pyrene	3.2	0.5	0.5	5.6	ND	ND	ND	ND	ND	ND
Naphthalene	13	12	100	500	ND	ND	ND	ND	ND	ND
Phenanthrene	50	100	100	500	ND	ND	ND	ND	ND	ND
Pyrene	50	100	100	500	0.049 J	ND	ND	ND	0.044 J	ND

Notes:
NC = No criteria
ND = Not detected above laboratory MDL
J = Analyte is positively identified with concentration qualified as estimated value
Shaded = Result exceeds the 6 NYCRR Part 375 Unrestriced Use Objective
Underline = Result exceeds the 6 NYCRR Part 375 Restricted-Residential Objective
Bold = Result exceeds the 6 NYCRR Part 375 Commercial Objective

TABLE 1-2
SPAULDING FIBRE SITE
SUMMARY OF SOIL RESLTS - OPERABLE UNIT 7
SURFACE SOIL SAMPLE RESULTS

Sample Number Date Sampled Sample Depth (in bgs) Sample Location Sample Type	NYSDEC TAGM Value	NYSDEC Part 375 Unrestricted Use	NYSDEC Part 375 Restricted Residential	NYSDEC Part 375 Restricted Commercial	68 3/20/08 0"-2" OU7 Topsoil	69 3/20/08 0"-2" OU7 Topsoil	70 3/20/08 0"-2" OU7 Topsoil
Semivolatile Organic Compounds (mg/kg or ppm)							
2,4-Dimethylphenol	NC	NC	NC	NC	ND	ND	ND
3+4-Methylphenols	0.9	0.33	100	500	ND	ND	ND
Acenaphthene	50	20	100	500	ND	ND	ND
Anthracene	50	100	100	500	ND	ND	ND
Benzo[a]pyrene	0.061	1	1	1	ND	ND	ND
Benzo[g,h,i]perylene	50	100	100	500	ND	ND	ND
Benzo[a]anthracene	0.224	1	1	5.6	ND	ND	ND
Benzo[b]fluoranthene	1.1	1	1	5.6	ND	ND	ND
Benzo[k]fluoranthene	1.1	0.8	3.9	56	ND	ND	ND
bis(2-Ethylhexyl)phthalate	50	NC	NC	NC	ND	ND	ND
Chrysene	0.4	1	3.9	56	ND	ND	ND
Di-n-butylphthalate	8.1	NC	NC	NC	ND	ND	0.058
Dibenzofuran	6.2	7	59	350	ND	ND	ND
Dibenzo(a,h)anthracene	0.014	0.33	0.33	0.56	ND	ND	ND
Fluorene	50	30	100	500	ND	ND	ND
Fluoranthene	50	100	100	500	ND	ND	ND
Indeno(1,2,3-cd)pyrene	3.2	0.5	0.5	5.6	ND	ND	ND
Phenanthrene	50	100	100	500	ND	ND	ND
Pyrene	50	100	100	500	ND	ND	ND
Pesticides (ug/kg of ppb)							
None Detected	NA	NA	NA	NA			
PCBs (mg/kg or ppm)							
None Detected	NA	NA	NA	NA			
Metals (mg/kg or ppm)							
Aluminum	SB	NC	NC	NC	14200	16500	14800
Antimony	SB	NC	NC	NC	ND	ND	ND
Arsenic	7.5/SB	13	16	16	5	8.3	7.1
Barium	300/SB	350	400	400	112	113	110
Beryllium	0.16/SB	7.2	72	590	0.74	0.92	0.81
Cadmium	1/SB	2.5	4.3	9.3	1.1	1.5	1.3
Calcium	SB	NC	NC	NC	7550	2680	2430
Chromium	10/SB	30	180	1,500	20.6	28.8	21.4
Cobalt	30/SB	NC	NC	NC	8.2	12.6	9.4
Copper	25/SB	50	270	270	19.6	41.5	23
Iron	2000/SB	NC	NC	NC	22200	29200	23800
Lead	SB	63	400	1,000	27.1	52.8	38
Magnesium	SB	NC	NC	NC	5500	4200	3630
Manganese	SB	1,600	2,000	10,000	410	1060	547
Mercury	0.1	0.18	0.81	2.8	0.03	0.077	0.058
Nickel	13/SB	30	310	310	20.7	26.4	22.1
Potassium	SB	NC	NC	NC	2420	2120	1450
Selenium	2/SB	3.9	180	1,500	2.3	2.4	2.4
Silver	SB	2	180	1,500	ND	ND	ND
Sodium	SB	NC	NC	NC	116 J	121 J	92.9 J
Thallium	SB	NC	NC	NC	ND	ND	ND
Vanadium	150/SB	NC	NC	NC	31.3	41.1	34.8
Zinc	20/SB	109	10,000	10,000	94.9	307	120
Cyanide	SB	27	27	27	ND	ND	ND

Notes:
NA = Not applicable; NC = No criteria; ND = Not detected above laboratory MDL
J = Analyte is positively identified with concentration qualified as estimated value
* Surface PCB criteria = 1 ppm; Subsurface PCB criteria = 10 ppm
Shaded = Result exceeds the 6 NYCRR Part 375 Unrestriced Use Objective
Underline = Result exceeds the 6 NYCRR Part 375 Restricted-Residential Objective

TABLE 1-2
SPAULDING FIBRE SITE
SUMMARY OF SOIL RESULTS OPERABLE UNIT 7
NYSDEC TEST PIT SAMPLES

Sample Number Date Sampled Sample Depth (ft bgs) Sample Location Sample Type	NYSDEC TAGM Value	NYSDEC Part 375 Unrestricted Use	NYSDEC Part 375 Restricted Residential	NYSDEC Part 375 Restricted Commercial	SP-7 10/29/2004 0'-3' TP-1 thru TP-4 Native	SP-8 10/29/2004 0'-3' TP- 5 thru TP-8 Native	SP-9 10/29/2004 0'-3' TP- 9 thru TP-12 Native
Volatile Organic Compounds (ug/kg or ppb)							
Benzene	60	60	4,800	44,000	ND	3.0	ND
Ethylbenzene	5,500	1,000	41,000	390,000	ND	1.0	ND
Toluene	1,500	700	100,000	500,000	ND	4.0	ND
Xylene-Total	1,200	260	100,000	500,000	4.0	8.0	4.0
Semivolatile Organic Compounds (mg/kg or ppm)							
None Detected	NA	NA	NA	NA			
Pesticides (ug/kg of ppb)							
None Detected	NA	NA	NA	NA			
PCBs (mg/kg or ppm)							
None Detected	NA	NA	NA	NA			
Metals (mg/kg or ppm)							
Aluminum	SB	NC	NC	NC	13,000	9,300	12,000
Antimony	SB	NC	NC	NC	ND	ND	ND
Arsenic	7.5/SB	13	16	16	5.9	ND	ND
Barium	300/SB	350	400	400	110	78.0	92.0
Beryllium	0.16/SB	7.2	72	590	0.6	0.5	0.6
Cadmium	1/SB	2.5	4.3	9.3	ND	ND	ND
Calcium	SB	NC	NC	NC	54,000	45,000	50,000
Chromium	10/SB	30	180	1,500	19.0	13.0	17.0
Cobalt	30/SB	NC	NC	NC	9.0	6.0	9.0
Copper	25/SB	50	270	270	21.0	17.0	22.0
Iron	2000/SB	NC	NC	NC	24,000	18,000	23,000
Lead	SB	63	400	1,000	16.0	13.0	17.0
Magnesium	SB	NC	NC	NC	15,000	14,000	16,000
Manganese	SB	1,600	2,000	10,000	550	500	610
Mercury	0.1	0.18	0.81	2.8	ND	ND	ND
Nickel	13/SB	30	310	310	21.0	14.0	22.0
Potassium	SB	NC	NC	NC	2,000	1,300	1,900
Selenium	2/SB	3.9	180	1,500	11.0	ND	ND
Silver	SB	2	180	1,500	ND	ND	ND
Sodium	SB	NC	NC	NC	150	110	130
Thallium	SB	NC	NC	NC	ND	ND	ND
Vanadium	150/SB	NC	NC	NC	27.0	20.0	26.0
Zinc	20/SB	109	10,000	10,000	89.0	79.0	100

Notes:
NA = Not applicable; NC = No criteria; ND = Not detected above laboratory MDL
Shaded = Result exceeds the 6 NYCRR Part 375 Unrestriced Use Objective
Underline = Result exceeds the 6 NYCRR Part 375 Restricted-Residential Objective

TABLE 1-2
SPAULDING FIBRE SITE
SUMMARY OF SOIL RESULTS - OPERABLE UNIT 7
SOIL BORING SAMPLES

Sample Number	NYSDEC	NYSDEC	NYSDEC	NYSDEC	64 F		64 N				68 N				69 N			
Date Sampled	TAGM	Part 375	Part 375	Part 375	10/24/2007		10/24/2007				10/25/2007				10/25/2007			
Sample Depth (ft bgs)	Value	Unrestricted	Restricted	Restricted	0'-1'		3'-4'				8'-9'				7'-8'			
Sample Location		Use	Residential	Commercial	OU7 Ditch		OU7 Ditch				OU7				OU7			
Sample Type					Native		Native				Native				Native			
I=Initial, D1=Dilution					I		D1		I		D1		I		D1		I	
Volatile Organic Compounds (mg/kg or ppm)																		
Methylene Chloride	0.1	0.05	100	500	0.018	JB	ND		0.02	JB	ND		ND		ND		ND	
Semivolatile Organic Compounds (mg/kg or ppm)																		
Bis(2-ethylhexyl) Phthalate	50	NC	NC	NC	ND		ND		0.093	JB	ND		ND		ND		ND	
Di-n-butylphthalate	8.1	NC	NC	NC	ND		ND		ND		ND		0.3	J	ND		ND	
Formaldehyde	NC	NC	NC	NC	2.35		ND		0.453		ND		ND		ND		ND	
Naphthalene	13	12	100	500	ND		ND		ND		ND		ND		ND		ND	
PCBs (mg/kg or ppm)																		
Total PCBs	1 or 10*	0.1	1	1	ND		ND		ND									
Metals (mg/kg or ppm)																		
Aluminum	SB	NC	NC	NC	9940		5800		5300		9030		8820		8970		8510	
Antimony	SB	NC	NC	NC	ND		ND		ND		ND		ND		ND		ND	
Arsenic	7.5/SB	13	16	16	2.8		ND		2		ND		1.07		ND		1.22	
Barium	300/SB	350	400	400	93.7		50.4		63.7		81.5		86.6		72.2		76.2	
Beryllium	0.16/SB	7.2	72	590	0.7	N	0.8	JN	0.38	N	0.802	J	0.406		0.767	J	0.397	
Cadmium	1/SB	2.5	4.3	9.3	ND		ND		0.19	J	1.52	J	1.71		1.71	J	1.63	
Calcium	SB	NC	NC	NC	8410		80900		55426.98	OR	68400		48970.28	OR	67800		47560.76	OR
Chromium	10/SB	30	180	1,500	13.3	N	6.2	N	7.2	N	15.7		13		14.3		12.5	
Cobalt	30/SB	NC	NC	NC	8.5	N	2.9	JN	5.8	N	9.75	J	8.09		7.61	J	6.99	
Copper	25/SB	50	270	270	21	N	17	N	15.8	N	19.5		19.6		17.7		17.7	
Cyanide	SB	27	27	27	ND		ND		ND		ND		ND		ND		ND	
Iron	2000/SB	NC	NC	NC	21800		14600		13100		18700		15800		18500		15200	
Lead	SB	63	400	1,000	39	N	36.3	N	33.9	N	15.4		13.2		10.7		9.5	
Magnesium	SB	NC	NC	NC	6620		21100		17000		19500		16800		20500		17200	
Manganese	SB	1,600	2,000	10,000	530		557		451		617		510		581		468	
Mercury	0.1	0.18	0.81	2.8	0.021		ND		0.01	J	ND		0.007	J	ND		ND	
Nickel	13/SB	30	310	310	20.9	N	12.5	JN	12.6	N	17.7		16.1		15.3		15.1	
Potassium	SB	NC	NC	NC	1090		1140		1450		1770		2440		1640		2300	
Selenium	2/SB	3.9	180	1,500	0.47	JN	ND		ND		ND		ND		ND		ND	
Silver	SB	2	180	1,500	ND		ND		ND		ND		ND		ND		ND	
Sodium	SB	NC	NC	NC	ND		1290	N*	416	N*	348	J	363		ND		350	
Thallium	SB	NC	NC	NC	ND		ND		ND		ND		ND		ND		ND	
Vanadium	150/SB	NC	NC	NC	25.6	N	2.7	JN	14.9	N	21.8		19.8		20.7		18.6	
Zinc	20/SB	109	10,000	10,000	ND		ND		ND		81.6		73.9		80.2		70.8	

Notes:
NC = No criteria; ND = Not detected above laboratory MDL
B = Compound detected in method blank; J = Analyte is positively identified with concentration qualified as estimated value
N = Spike sample recovery outside of control limits; OR = Out of calibration range
P = two GC columns differ >25%; * = Duplicate analysis not within control limits
Blanks = compound not analyzed
Shaded = Result exceeds the 6 NYCRR Part 375 Unrestriced Use Objective
Underline = Result exceeds the 6 NYCRR Part 375 Restricted-Residential Objective
Bold = Result exceeds the 6 NYCRR Part 375 Commercial Objective

TABLE 1-2
SPAULDING FIBRE SITE
SUMMARY OF SOIL RESULTS - OPERABLE UNIT 7
SOIL BORING SAMPLES

Sample Number Date Sampled Sample Depth (ft bgs) Sample Location Sample Type I=Initial, D1=Dilution	NYSDEC TAGM Value	NYSDEC Part 375 Unrestricted Use	NYSDEC Part 375 Restricted Residential	NYSDEC Part 375 Restricted Commercial	70 N 10/25/2007 0'-1' OU7 Native D1	70 N 10/25/2007 0'-1' OU7 Native I	70 N 10/25/2007 3'-4' OU7 Native I	78 F 10/24/2007 0'-1' OU7 Ditch Native I	78 N 10/24/2007 3'-4' OU7 Ditch Native D1	78 N 10/24/2007 3'-4' OU7 Ditch Native I
Volatile Organic Compounds (mg/kg or ppm)										
Methylene Chloride	0.1	0.05	100	500	ND	ND	ND	ND	ND	0.018 J
Semivolatile Organic Compounds (mg/kg or ppm)										
Bis(2-ethylhexyl) Phthalate	50	NC	NC	NC	ND	ND	ND	0.097 JB	ND	ND
Di-n-butylphthalate	8.1	NC	NC	NC	ND	ND	ND	ND	ND	ND
Formaldehyde	NC	NC	NC	NC	ND	ND	ND	1.25	ND	1.65
Naphthalene	13	12	100	500	ND	0.086 J	0.089 J	ND	ND	ND
PCBs (mg/kg or ppm)										
Total PCBs	1 or 10*	0.1	1	1				ND	ND	ND
Metals (mg/kg or ppm)										
Aluminum	SB	NC	NC	NC	18900	17500	16800	17200	18900	16600
Antimony	SB	NC	NC	NC	ND	ND	ND	ND	ND	ND
Arsenic	7.5/SB	13	16	16	ND	2.95	1.58	3.3	ND	2.2
Barium	300/SB	350	400	400	156	151	120	142	94.8	95.4
Beryllium	0.16/SB	7.2	72	590	1.3 J	0.83	0.703	0.86 N	1.8 JN	0.75 N
Cadmium	1/SB	2.5	4.3	9.3	1.95 J	2.67	2.03	ND	ND	ND
Calcium	SB	NC	NC	NC	57200		2390	35200	57600	42500 OR
Chromium	10/SB	30	180	1,500	29.8	25.8	22.3	23.8 N	27 N	25.7 N
Cobalt	30/SB	NC	NC	NC	16.3	14.2	13.7	14.5 N	10.1 JN	12 N
Copper	25/SB	50	270	270	28.2	28.6	12	28.4 N	27.7 N	26.9 N
Cyanide	SB	27	27	27	ND	ND	ND	1.9	ND	ND
Iron	2000/SB	NC	NC	NC	32300	26800	25900	32100	38400	30800
Lead	SB	63	400	1,000	11.9	11.6	13.5	46.1 N	56.1 N	43.3 N
Magnesium	SB	NC	NC	NC	15700	13200	4410	12400	15500	12800
Manganese	SB	1,600	2,000	10,000	788	633	570	511	625	504
Mercury	0.1	0.18	0.81	2.8	ND	0.016	0.035	0.02	ND	0.015
Nickel	13/SB	30	310	310	33.9	30.1	17.5	39 N	39.7 N	31.6 N
Potassium	SB	NC	NC	NC	2010	2790	1460	3250	3800	3780
Selenium	2/SB	3.9	180	1,500	ND	ND	ND	ND	ND	ND
Silver	SB	2	180	1,500	ND	ND	ND	ND	ND	ND
Sodium	SB	NC	NC	NC	ND	321	213	537 N*	1160 N*	586 N*
Thallium	SB	NC	NC	NC	ND	ND	ND	ND	ND	ND
Vanadium	150/SB	NC	NC	NC	37.1	33.8	33.1	39.7 N	36.8 N	37.5 N
Zinc	20/SB	109	10,000	10,000	81.4	72.6	73	74.4	91.5	85.4

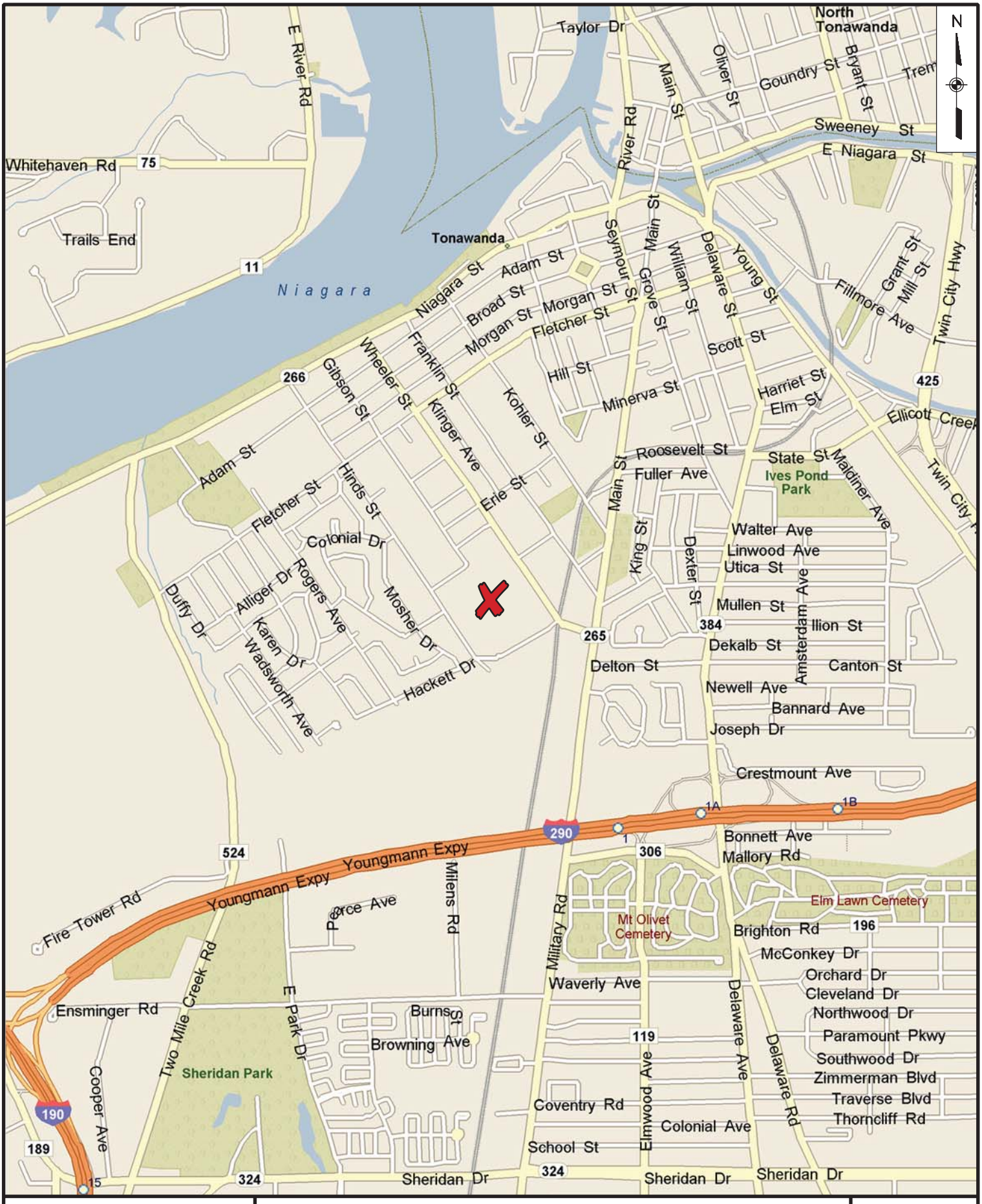
Notes:
NC = No criteria; ND = Not detected above laboratory MDL
B = Compound detected in method blank; J = Analyte is positively identified with concentration qualified as estimated value
N = Spike sample recovery outside of control limits; OR = Out of calibration range
P = two GC columns differ >25%; * = Duplicate analysis not within control limits
Blanks = compound not analyzed
Underline = Result exceeds the TAGM 4046 when the Part 375 SCO is NC
Shaded = Result exceeds the 6 NYCRR Part 375 Unrestriced Use Objective
Shaded = Result exceeds the 6 NYCRR Part 375 Unrestriced Use and Restricted-Residential Objectives

TABLE 1-3
GROUNDWATER ANALYTICAL RESULTS
SPAULDING FIBRE SITE INVESTIGATION
PAGE 1 OF 1

Sample ID: Date Sampled:	NYSDEC Groundwater Quality Standards and Guidance Values June 1998 Ambient Water Quality Standards for Class GA Groundwater	OW-12 12/19/2007
VOCs (ug/L)	**Concentration in ug/L**	**Concentration in ug/L**
Vinyl Chloride	2	ND
Acetone	50	ND
Carbon Disulfide	60	ND
trans-1,2-Dichloroethene	5	ND
1,1-Dichloroethane	5	ND
cis-1,2-Dichloroethene	5	ND
2-Butanone	50	ND
2-Hexanone	50	ND
Methanol (mg/L)	NE	NA
Ethanol (mg/L)	NE	NA
SVOCs (ug/L)	**Concentration in ug/L**	**Concentration in ug/L**
Caprolactam	NE	ND
Formaldehyde (ug/L)	8	NA
bis(2-Ethylhexyl)phthalate	5	ND
PCBs (ug/L)	**Concentration in ug/L**	**Concentration in ug/L**
Total PCBs	0.09	ND
Metals (ug/L)	**Concentration in ug/L**	**Concentration in ug/L**
Aluminum	NE	48.1 J
Antimony	3	ND
Arsenic	25	ND
Barium	1000	13.6 J
Beryllium	3	0.9 J
Cadmium	10	ND
Calcium	NE	20400
Chromium	50	1.48 J
Cobalt	NE	ND
Copper	200	ND
Iron	300*	**2840**
Lead	25	ND
Magnesium	35000	**132000**
Manganese	300*	15
Mercury	2	ND
Nickel	NE	3.52 J
Potassium	NE	6510
Selenium	10	3.14 J
Silver	50	0.66 J
Sodium	20000	**78900**
Thallium	4	ND
Vanadium	NE	ND
Zinc	300	33.5
Cyanide	100	ND

Notes:
* Standard for Sum of Iron and Manganese = 500 ug/L
ND = Not detected above laboratory MDL
NE = Not Established
B = Compound detected in method blank
D = Sample dilution
J = Estimated Value
Bold = Result exceeds NYSDEC groundwater standard

FIGURES



REV-1

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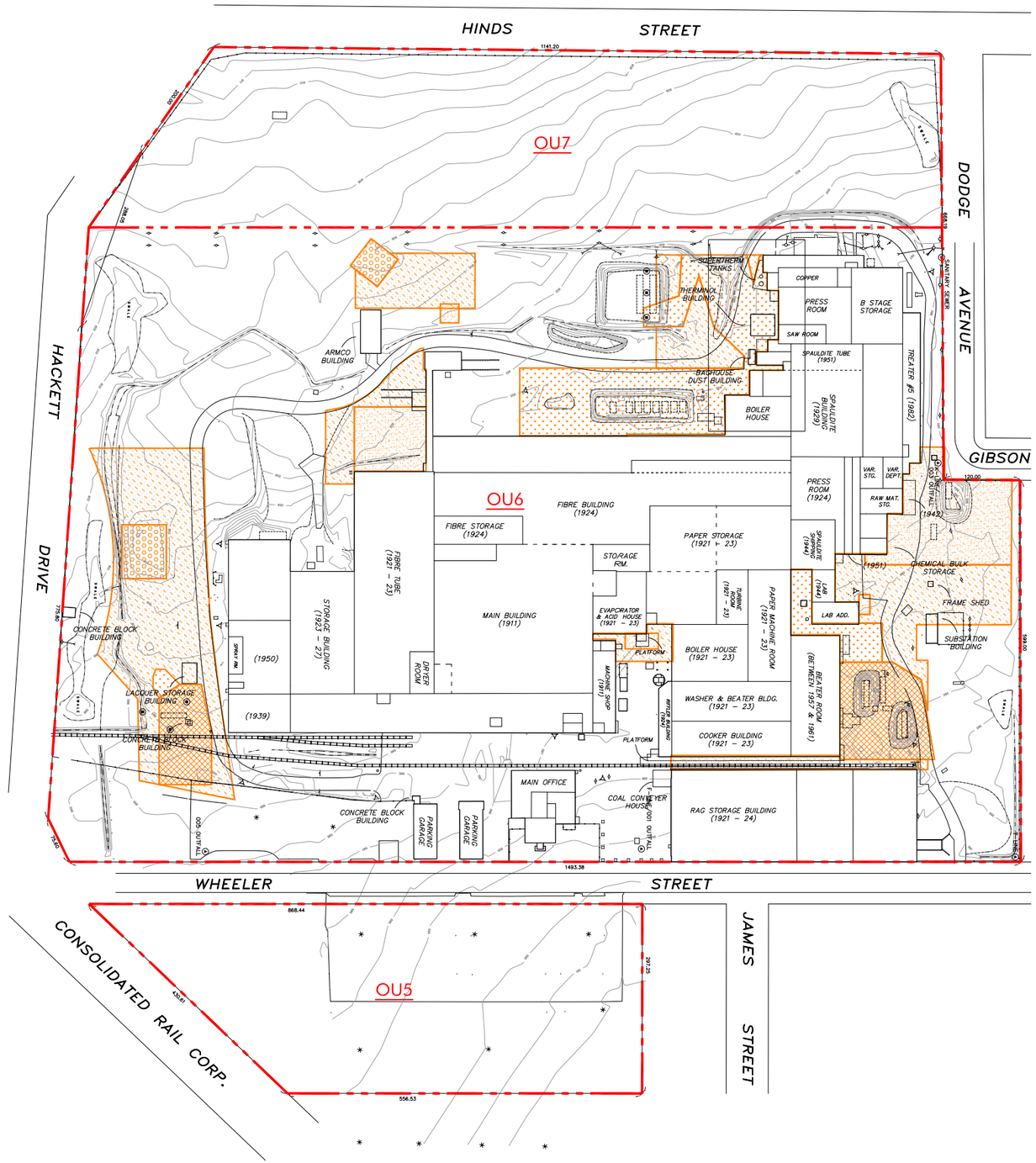
690 Delaware Ave.
Buffalo, NY 14209

SPAULDING FIBRE SITE LOCATION MAP

FIGURE NO.

1-1

REV-1



LEGEND

- OU1: REGULATED WASTES (STATE SUPERFUND–EXCLUDED FROM PROJECT SCOPE)
- OU2: PCB CONTAMINATED WASTES – IRM AREAS (STATE SUPERFUND–EXCLUDED FROM PROJECT SCOPE)
- OU3: PETROLEUM CONTAMINATED WASTES (STATE SUPERFUND–EXCLUDED FROM PROJECT SCOPE)
- OU4: MULTIPLE CONTAMINANT WASTES (STATE SUPERFUND–EXCLUDED FROM PROJECT SCOPE)
- EXPANDED AREA OF CONTAMINATED WASTES (STATE SUPERFUND–EXCLUDED FROM PROJECT SCOPE)
- PROPERTY LIMIT/AREA DEMARCATION

100 0 100
SCALE IN FEET

NO.	DATE	DESCRIPTION

REVISIONS

LiRo Engineers, Inc.
690 Delaware Ave.
Buffalo, New York

PROJ. ENG.:
DESIGNED BY:
CHECKED BY:
DRAWN BY:

CLIENT:

ECIDA

(FOR THE SPAULDING FIBRE COMITTEE)

DATE: SEPTEMBER 2008
SCALE: AS SHOWN

JOB TITLE AND LOCATION:
SPAULDING FIBRE SITE INVESTIGATION

LIRO JOB NO.: 07–25–306A
SHEET OF

DRAWING TITLE:
SPAULDING SITE BUILDING PLAN

FIGURE NO.
1-2

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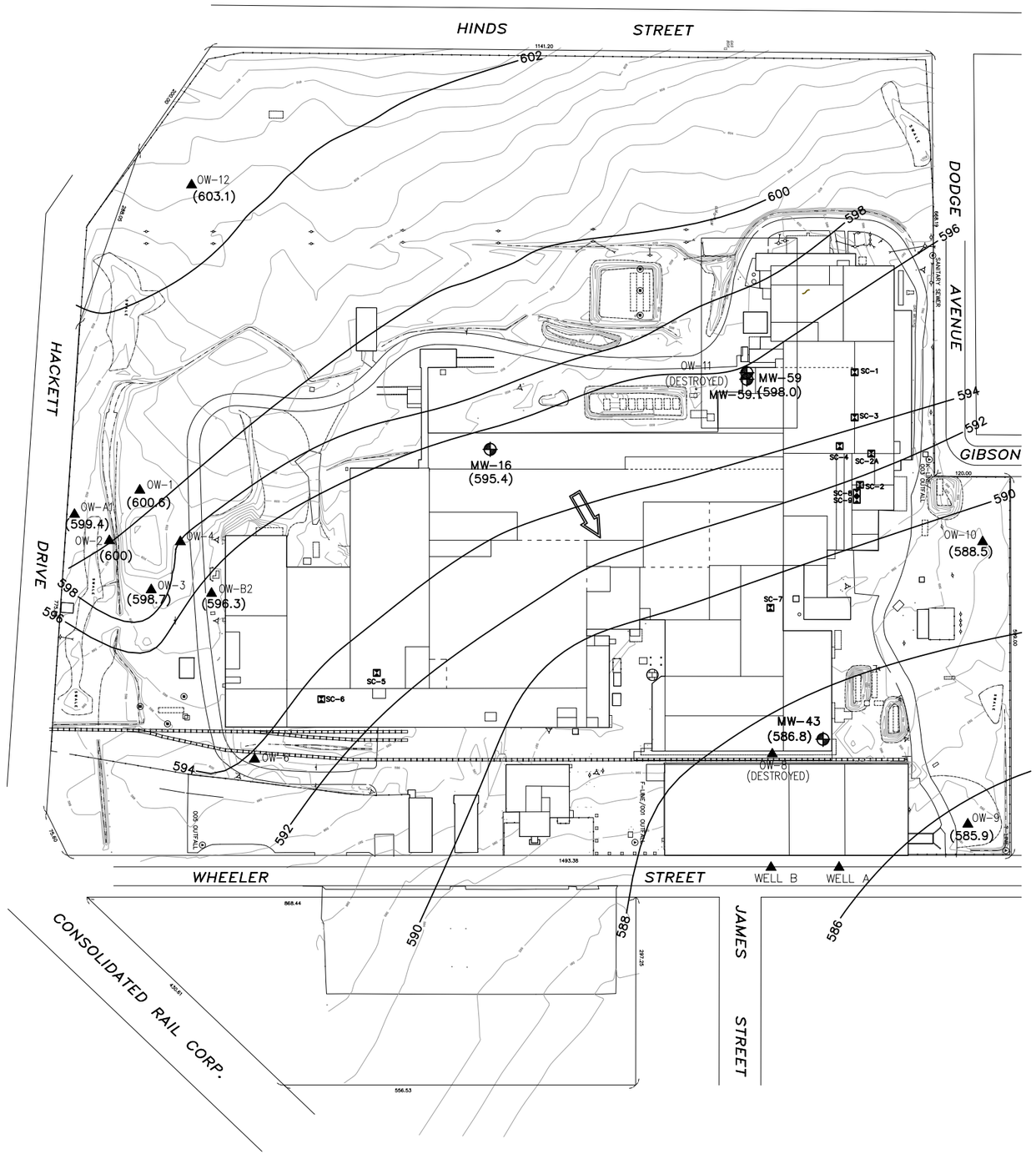
REV-1



LEGEND

- OW-1 ▲ OVERBURDEN RI MONITORING WELL
- ⊕ LIRO MONITORING WELL
- (600.60) GROUNDWATER ELEVATION (FT AMSL)
- GROUNDWATER CONTOUR
- GROUNDWATER FLOW DIRECTION

OW-3		
2-methylphenol	0.25	0.1

SAMPLE I.D.
GUIDANCE CRITERIA (ug/L)
DETECTED CONC. (ug/L)
CONTAMINANT

100 0 100
SCALE IN FEET

WARNING

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NO.	DATE	DESCRIPTION
REVISIONS		

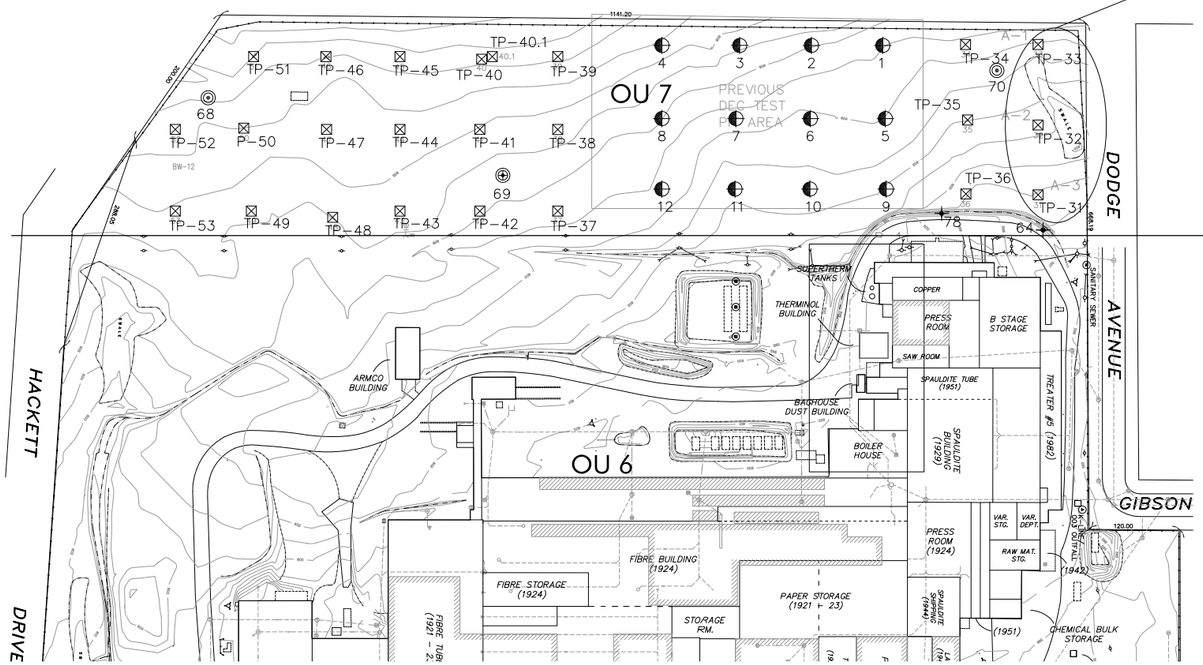
LiRo Engineers, Inc.
690 Delaware Ave.
Buffalo, New York

PROJ. ENG.: AMM	CLIENT: ECIDA (FOR THE SPAULDING FIBRE COMITTEE)	JOB TITLE AND LOCATION: SPAULDING FIBRE SITE INVESTIGATION AND REMEDIAL ALTERNATIVES REPORT	LIRO JOB NO.: 07-25-306A
DESIGNED BY:			SHEET OF: 1 1
CHECKED BY:		DRAWING TITLE: OVERBURDEN GROUNDWATER CONTOURS	FIGURE NO.: 1-3
DRAWN BY: ES	DATE: SEPTEMBER 2008	SCALE: AS SHOWN	

J:\07\25306A Spaulding\CAD\RAR\OU7\Spaulding Groundwater SCG Exceedances.dwg, 11/11/2008 4:15:04 PM, ES

REV-1

SP-9 (comp TP-31, TP-32, TP-33)		
benzo(a)anthracene	1.5	1
benzo(a)pyrene	1.3	1
benzo(b)fluoranthene	1.8	1
indeneo[1,2,3-cd]pyrene	0.99	0.5



LEGEND

- LIRO ADDITIONAL TEST PIT LOCATIONS
- LIRO TEST PIT LOCATION
- LIRO DRILL (HSA) LOCATION
- LIRO JACKHAMMER LOCATION
- LIRO GEOPROBE LOCATION
- LIRO MONITORING WELL LOCATION
- PREVIOUS RI OVERBURDEN WELL LOCATION
- PREVIOUS RI BEDROCK WELL LOCATION

18F (1–2)		
2–methylphenol	0.25	0.1

SAMPLE I.D.
GUIDANCE CRITERIA (mg/kg)
DETECTED CONC. (mg/kg)
CONTAMINANT

NOTE: LISTED SCG IS RESTRICTED–RESIDENTIAL OR COMMERCIAL USE CRITERIA

100 0 100
SCALE IN FEET

WARNING

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NO.	DATE	DESCRIPTION
REVISIONS		

LiRo Engineers, Inc.
690 Delaware Ave.
Buffalo, New York

PROJ. ENG.:	AMM
DESIGNED BY:	
CHECKED BY:	
DRAWN BY:	ES

CLIENT: The City of Tonawanda

DATE: SEPTEMBER 2008
SCALE: AS SHOWN

JOB TITLE AND LOCATION: SPAULDING FIBRE SITE AND SUPPLEMENTAL INVESTIGATIONS

LIRO JOB NO.: 08–49–446
SHEET OF

DRAWING TITLE: RESTRICTED RESIDENTIAL AND COMMERCIAL EXCEEDANCES OPERABLE UNIT 7

FIGURE NO. 1-4

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