Department of Environmental Conservation

Division of Environmental Remediation

Record of Decision Amendment
Polymer Applications Site
Town of Tonawanda, Erie County, New York
Site Number 915044

December 2009

New York State Department of Environmental Conservation
DAVID PATERSON, *Governor* ALEXANDER GRANNIS, *Commissioner*

DECLARATION STATEMENT - RECORD OF DECISION AMENDMENT

Polymer Applications Inactive Hazardous Waste Disposal Site
Town of Tonawanda, Niagara County, New York
Site No. 915044

Statement of Purpose and Basis

The Record of Decision (ROD) Amendment presents the amended remedy for the Polymer Applications site, a Class 2 inactive hazardous waste disposal site. The selected remedial program was chosen in accordance with the New York State Environmental Conservation Law and is not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan of March 8, 1990 (40CFR300), as amended.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (the Department) for the Polymer Applications inactive hazardous waste disposal site, and the public's input on Proposed ROD Amendment presented by the Department. A listing of the documents included as a part of the Administrative Record is included in Appendix B of the ROD Amendment.

Assessment of the Site

Actual or threatened releases of hazardous waste constituents from this site, if not addressed by implementing the response action selected in this ROD Amendment, presents a current or potential significant threat to public health and/or the environment.

Description of Selected Remedy

Based on the results of the Remedial Investigation and Feasibility Study (RI/FS) for the Polymer Applications site and the criteria identified for evaluation of alternatives, the Department has selected the excavation and proper off-site treatment and disposal of all contaminated soils remaining on site which are above NYCRR Part 375 Commercial Soil Cleanup Objectives (SCOs). The components of the remedy are as follows:

- A remedial design program will be implemented to verify the components of the conceptual design and provide the details necessary for the construction and monitoring of the remedial program;

- Excavation of contaminated soils within the footprint of the bio-treatment cell;

- Treatment/disposal of soils with contaminants above LDRs at an appropriate disposal facility;

- Dismantling and reuse/salvage (as appropriate) of the air and water treatment system components of the bio-treatment cell;

- Re-sampling of shallow groundwater in the northeastern portion of the site following contaminant source removal, with implementation of long term groundwater monitoring, if necessary;

- Imposition of an institutional control in the form of an environmental easement that will require (a) limiting the use and development of the property to commercial use, which will also permit industrial use; (b) compliance with the approved site management plan; (c) restricting the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by NYSDOH; and (d) the property owner to complete and submit to the Department a periodic certification of institutional and engineering controls;

- Development of a site management plan which will include the following institutional and engineering controls: (a) continued evaluation of the potential for vapor intrusion for any buildings developed on the site, including provision for mitigation of any impacts identified; (b) monitoring of groundwater, if necessary; (c) identification of any use restrictions on the site; and

- The property owner will provide a periodic certification of institutional and engineering controls, prepared and submitted by a professional engineer or such other expert acceptable to the Department, until the Department notifies the property owner in writing that this certification is no longer needed. This submittal will: (a) contain certification that the institutional controls and engineering controls put in place are still in place and are either unchanged from the previous certification or are compliant with Department-approved modifications; (b) allow the Department access to the site; and (c) state that nothing has occurred that will impair the ability of the control to protect public health or the environment, or constitute a violation or failure to comply with the site management plan unless otherwise approved by the Department.

New York State Department of Health Acceptance

The New York State Department of Health (NYSDOH) concurs that the remedy selected for this site is protective of human health.

Declaration

The selected remedy is protective of human health and the environment, complies with State and Federal requirements that are legally applicable or relevant and appropriate to the remedial action to the extent practicable, and is cost effective. This remedy utilizes permanent solutions and alternative treatment or resource recovery technologies, to the maximum extent practicable, and satisfies the preference for remedies that reduce toxicity, mobility, or volume as a principal element.

DEC 0 9 2009

Date

Dale A. Desnoyers, Director
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RECORD OF DECISION AMENDMENT
POLYMER APPLICATIONS SITE

Town of Tonawanda / Erie County / Registry No. 915044 / December 2009

Prepared by the New York State Department of Environmental Conservation
Division of Environmental Remediation

1.0 INTRODUCTION

On March 3, 1996, the New York State Department of Environmental Conservation (Department) signed a Record of Decision (ROD) which selected a remedy to clean up the Polymer Applications Site. The March 1996 ROD required the construction of an on-site soil biological treatment cell within the eastern portion of the site. The treatment cell was constructed in 2005-2006 utilizing contaminated soils which were consolidated from impacted on-site and off-site areas. The treatment cell was operated from March 2006 until January 2007, when it was shut down after soil sampling showed no appreciable reductions in contaminants of concern. With recognition of the previous remedial efforts, the Department has selected a final remedy which requires the excavation and proper off-site disposal of all contaminated soils within the treatment cell which are above 6 NYCRR Part 375 Commercial Soil Cleanup Objectives (SCOs).

2.0 SITE INFORMATION

2.1 Site Description

The Polymer Applications site is located at 3445 River Road in the Town of Tonawanda, Erie County, New York (see Figure 1). The site is approximately 6.7 acres in size and is on the eastern side of River Road, directly across from the NRG Huntley Power Generation Station. The site is located in a heavily industrialized area and is also adjacent to the Goodyear Tire Corporation (see aerial view in Figure 2). The nearest residential area is located approximately 1,000 feet to the north along Sawyer Avenue. The Niagara River is located approximately 1,000 feet to the west of the site. Several other listed hazardous waste sites are located within 1/4 mile of the Polymer site, including the O-Cell-O site (#915148) to the north, and the Dunlop site (#915018) to the east.

The site geology is comprised of up to 13 feet of various fill materials (sand, gravel, brick, foundry sand, wood, etc.) over a thick layer (up to 50 feet) of silty clay. Shallow groundwater in these upper soils is generally limited to discontinuous perched groundwater within some of the fill. The thick silty clay layer has a low permeability, and therefore it greatly reduces the potential for contaminant migration into the deeper groundwater. Beneath the silty clay soils is a 5-12 foot thick gravelly silt layer. This layer reportedly has up to 40% sand and gravel, and it is capable of producing significant amounts of groundwater. Beneath the gravely silt layer is the Camillus Shale bedrock, which is present 50-60 feet below the ground surface. Groundwater flow direction in both the fill unit and the gravelly silt unit is to the southwest (towards the Niagara River).

2.2 Site History

Polymer Applications, Inc. operated at the site from 1968 through 1988. Its activities included the manufacture of phenolic resins, phenol-formaldehyde resins, plastics, and various rubber products for use in automotive, paint, and coatings industry.

Disposal practices at the site included the discharge of un-reacted phenols, phenolic resins, and light hydrocarbons into an onsite lagoon. Historical aerial photos also showed significant volumes of liquids within the former bermed storage tank areas. In addition, there have been several reports of spills from approximately 1977- 1988. In July 1988, a major fire severely damaged the process and tank farm areas of the site. An estimated 70,000 gallons of a phenol/solvent mixture were released during the fire.

In 1983, the Department first listed the site as a Class 2a site in the Registry of Inactive Hazardous Waste Disposal Sites in New York (the Registry). Class 2a was a temporary classification assigned to a site that had inadequate and/or insufficient data for inclusion in any of the other classifications. In 1991, the Department listed the site as a Class 2 site in the Registry of Inactive Hazardous Waste Disposal Sites in New York. A Class 2 site is a site where hazardous waste presents a significant threat to the public health or the environment and action is required.

In 1995, a State funded Remedial Investigation and Feasibility Study (RI/FS) was completed. This investigation characterized the nature and extent of onsite and off site contamination, and resulted in the March 1996 Record of Decision (ROD) for the site. An emergency removal action was also completed by the US Environmental Protection Agency (EPA) in November 1996. This removal action included the following activities: the classification, stabilization, and disposal of a large number of drums of hazardous substances; the cleaning and decontamination of chemical storage tanks; and the removal and proper disposal of all remaining hazardous substances.

A soil treatability study was performed in 1997 which indicated that the bio-treatment remedy contained in the ROD could effectively treat the site contaminants. The Remedial Design was completed in February 1999. The property owner repeatedly prevented access to the site until 2002, when a court order was issued allowing the Department access to complete the remedy. Remedy construction began in 2005 and was completed in 2006. The soil bio-treatment cell was operated until January 2007. It was shut down after sampling of the treatment cell soils indicated that there were no appreciable reductions in the contaminants of concern.

2.3 Nature and Extent of Site Contamination

As described in the original ROD and other documents, many soil and groundwater samples were collected at the site to characterize the nature and extent of contamination. The primary contaminants of concern include: volatile organic compounds (VOCs) such as xylene, toluene, benzene; semi-volatile organic compounds (SVOCs) such as phenol; and PCBs.

<u>Soils</u>

The Remedial Investigation characterized the widespread soil contamination found in on-site and off-site soils. The area of highest soil contamination was the northeast portion of the site that was the location of the former chemical storage tanks. Concentrations of total phenols in this area of the site was reported as high as 3,800 ppm, with total VOC concentrations as high as 713 ppm. PCBs were also detected in on-site surface soils in concentrations as high as 20 ppm. Due to the nature of the native silt and clay overburden, contamination was generally limited to soils within 4 feet of the surface. In addition, off-site soil concentrations were significantly lower with concentrations rapidly declining with increased distance from the site.

In 2005-2006, as part of the remedial construction, various contaminated debris, wastes, and contaminated soils were removed and disposed at appropriate off-site disposal facilities (see Section 2.6 for a complete description of the original remedy). In addition, soil was removed from five major off-site areas, and either disposed off-site or consolidated within an on-site bio-treatment cell that was constructed in the northeastern portion of the site. The cell dimensions are approximately 290 x 330 feet. The cell has an average depth of approximately 8 feet, and the volume of soils within the cell is estimated at approximately 28,000 cubic yards.

Sampling of the soils in the bio-treatment cell in 2007 indicated that construction and operation of the treatment system had not significantly reduced the contaminant concentrations of concern. After unsuccessful attempts to increase contaminant removal rates by modifying the cell operations, it was determined that the soil cleanup objectives would not be met.

A Focused Feasibility Study (FFS) was conducted in 2008 to evaluate alternatives for addressing the remaining soil contamination within the bio-treatment cell. The field activities and findings of the FFS are described in the December 2008 report entitled “Focused Feasibility Study”. Soil characterization activities included soil boring and sampling throughout the cell to determine the nature and extent of remaining soil contamination. Soil samples were obtained at various vertical depths within the cell in order to determine the range of contaminant concentrations, and estimate the volume of contaminated soil above SCOs,

The treatment cell was sampled at the 42 locations shown on Figure 3. Seven one-foot soil depth intervals were sampled at each cell location, from the 1-2 foot interval to the 7-8 foot interval below the cell surface. As shown in Figure 3 and summarized in Table 1, the principal VOCs detected above SCOs include ethylbenzene, toluene, and xylene. The principal SVOC detected above SCOs was phenol.

Since a vegetated, clean topsoil cover was constructed over the bio-treatment cell, the upper 1 foot of soil did not require sampling and characterization. As shown in Table 1, there were no contaminants of concern detected above SCGs in the 1-2 foot depth interval. There were numerous locations in each depth interval below 2 feet that had contaminants above SCGs, including: 4 locations in the 2-3 foot interval; 4 locations in the 3-4 foot interval; 4 locations in the 4-5 foot interval; 9 locations in the 5-6 foot interval; 7 locations in the 6-7 foot interval; and 4 locations in the 7-8 foot interval.

In addition to sampling and evaluations of the bio-treatment cell, a supplemental site investigation

was performed in 2007-2008 to fully characterize possible site contamination not addressed by the remedial construction. The field activities and findings are described in the December 2008 report entitled "Supplemental Site Investigation". During this work, test pits, soil borings, soil sampling, and piezometer sampling were conducted on the southwestern portion of the site. This portion of the site includes the warehouse buildings and the site frontage along River Road, which were not areas generally addressed during the remedial construction. One area identified in the southeastern portion of the site (adjacent to the decontamination pad from the remedial construction) contains a relatively small quantity of soils that contain petroleum products (see Figure 4 for location).

During the supplemental site investigation, a test pit excavation near the decontamination pad encountered a 6 inch clay tile pipe. The pipe contained a liquid which appeared to be a mixture of water and a petroleum product. When broken, the clay tile pipe was completely drained of the liquid. Samples of the liquid confirmed that it was likely diluted petroleum-related compounds. Due to the dilute nature of the liquid, the soils within in the backfilled trench do not represent a contaminant source area.

Groundwater

Site groundwater occurs in two distinct zones; a shallow aquifer confined to the fill and uppermost silt unit (water level starting about 2 feet below ground surface); and a deep aquifer found in the upper bedrock and overlying gravelly unit (water level starting about 30 feet below ground surface). Of the two zones, the shallow aquifer is the most heavily contaminated by VOCs and SVOCs. Numerous on site and off site groundwater monitoring wells were installed and sampled as part of the 1994-1995 Remedial Investigation. Most of these wells were re-sampled in October 2005, immediately prior to construction of the soil bio-treatment cell. The range of contaminants detected in 2005 in the groundwater monitoring wells is detailed in Table 2.

There were no detections of contaminants of concern above standards, criteria, and guidance (SCGs) in any of the off-site wells. Of the 16 deep and shallow wells that were sampled, only two on-site wells, GW-3S and B-4S, contained contaminants of concern above SCGs. Both of these wells monitor the shallow aquifer, and both are located in the northeast portion of the site (see Figure 3).

Well GW-3S, located near the center of the contaminant source area, had the most significant groundwater contaminant concentrations. Concentrations of contaminants of concern in GW-3S were as follows: ethylbenzene at 3,800 ppb (vs. SCG of 5 ppb); toluene at 1,300 ppb (vs. SCG of 5 ppb); total xylenes at 19,000 ppb (vs, SCG of 5 ppb); and phenol at 5,400 ppb (vs. SCG of 1 ppb).

Well B-4S, located on the northeast edge of the site property, had significantly lower groundwater contaminant concentrations. Concentrations of contaminants of concern in B-4S were as follows: ethylbenzene at 180 ppb (vs. SCG of 5 ppb); total xylenes at 140 ppb (vs, SCG of 5 ppb); and phenol at 36 ppb (vs. SCG of 1 ppb).

2.4 Summary of Human Exposure Pathways

This section describes the types of human exposures that may present added health risks to persons at or around the site. A more detailed discussion of the human exposure pathways can be found in Section 5 of the August 1995 RI report, which is available for review at the document repository.

An exposure pathway describes the means by which an individual may be exposed to contaminants originating from a site. An exposure pathway has five elements: [1] a contaminant source, [2] contaminant release and transport mechanisms, [3] a point of exposure, [4] a route of exposure, and [5] a receptor population.

The source of contamination is the location where contaminants were released to the environment (any waste disposal area or point of discharge). Contaminant release and transport mechanisms carry contaminants from the source to a point where people may be exposed. The exposure point is a location where actual or potential human contact with a contaminated medium may occur. The route of exposure is the manner in which a contaminant actually enters or contacts the body (e.g., ingestion, inhalation, or direct contact). The receptor population is the people who are, or may be, exposed to contaminants at a point of exposure.

An exposure pathway is complete when all five elements of an exposure pathway exist. An exposure pathway is considered a potential pathway when one or more of the elements currently does not exist, but could in the future.

Completed pathways known to or that may exist at the site include:

- dermal contact with contaminated soils or groundwater by future site workers; and
- inhalation of organic vapors from contaminated soils.

The site is located in an industrialized area, and site access is restricted by a fence, minimizing potential human exposures to contaminants in on-site soils. Exposures to contaminated groundwater are not expected because the area is supplied with public water and no known private wells exist in the vicinity.

2.5 Summary of Environmental Assessment

Due to the heavily industrialized nature of the site and the immediate surroundings, there is a limited population of the potential receptors among wildlife. The site itself is completely surrounded by a chain-link fence, which inhibits wildlife access. Unless the contaminated soils were to be disturbed by future site development activities, only burrowing animals would come into contact with soil contamination. The 1995 Fish and Wildlife Impact Analysis concluded that there is a low likelihood of population level impacts on wildlife.

2.6 Original Remedy

Based on the results of the RI/FS for the site, the March 1996 ROD for the site included the following major elements:

- A remedial design program to verify the components of the conceptual design (biological treatment of the contaminated soils) and provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program. Uncertainties identified during the RI/FS would be resolved;

- Excavation and off-site disposal of highly contaminated on-site soils and consolidated off-site soils and sediments;

- Construction of a bio-treatment cell for the treatment of contaminated on-site soils and consolidated off-site soils and sediments;

- Installation of a shallow groundwater collection trench and two deep groundwater extraction wells;

- Construction of a groundwater treatment system with discharge to the local POTW;

- Repair and extension of the existing underground containment wall;

- Capping of the site with an asphalt cap;

- Monitoring of groundwater quality at selected wells;

- Abandoning of certain deep groundwater wells and one production well which may be contributing to deep aquifer contamination;

- Pursue appropriate institutional controls to maintain the integrity of the cap, collection system, and soil treatment system.

An emergency removal action was completed by the US Environmental Protection Agency (EPA) in November 1996. This removal action included the following activities: the classification, stabilization, and disposal of a large number of drums and containers of hazardous substances; and the cleaning and decontamination of chemical storage tanks.

2.7 Site Remedy as Constructed

During 1997 and 1998, pre-design evaluations were performed and minor modifications were recommended for some elements of the remedy contained in the 1996 ROD. The pre-design evaluations recommended the asphalt cap and the underground containment wall repair and extension be removed from the remedial design.

The 2005-2006 remedial construction followed the Final Remedial Design that was approved in 1999. Certain elements of the site had changed since the remedial design (such as the removal of tanks, additional debris and asbestos deposition on the surface of the site, etc), and several additional tasks were necessary as part of the remedial construction.

During the 2005-2006 remedial construction, the following major activities were performed:

- Removal and off-site disposal (as hazardous waste) of 3,537 tons of contaminated concrete;

- Removal and off-site disposal (as hazardous waste) of approximately 4,250 tons of contaminated soils;

- Removal and off-site disposal (as non-hazardous waste) of approximately 4,270 tons of contaminated soils;
- Removal and off-site disposal of approximately 16 tons of non-friable asbestos;
- Removal and off-site disposal of approximately 2 tons of friable asbestos;
- Removal and off-site disposal of 4 drums of hazardous transformer oil;
- Removal and off-site disposal of 22 drums of non-hazardous transformer oil;
- Removal and off-site disposal of numerous drums of hazardous and non-hazardous chemicals remaining in site warehouse;
- Removal of 5,257 cubic yards of contaminated soils from off-site areas and consolidation into the on-site bio-treatment cell;
- Installation of two deep (approximately 65 feet below grade) overburden groundwater recovery wells to extract potentially impacted deep aquifer groundwater;
- Construction and operation of a bio-treatment cell and air and groundwater treatment system for the treatment of contaminated soils and groundwater.

3.0 DESCRIPTION OF SELECTED CHANGES

3.1 New Information

The bio-treatment cell was designed to initially operate a vapor extraction mode, and then to operate in air injection mode. The design was based upon pilot testing which indicated that a significant reduction in VOC concentrations (approximately 34%) could be expected within 3 months of full scale vapor extraction operations. The pilot testing also indicated that when the treatment system was subsequently switched over to the air injection mode, soil cleanup objectives for VOCs and SVOCs could be achieved in 12-16 months.

Following construction, the treatment cell was operated continuously from April 2006 until January 2007. In January 2007, operation of the treatment cell was suspended to evaluate the effectiveness of the treatment system. Sampling of cell soils at that time indicated that no significant reductions in VOC concentrations had occurred. The lack of contaminant reductions was attributed to the low permeability soils within the bio-treatment cell.

In April 2007, a field test work plan was prepared to determine if operation of the bio-treatment cell could be modified to achieve greater VOC reductions. From June through August 2007, under ideal operating conditions, the bio-treatment cell was operated in an “enhanced” operational mode. During this “enhanced” operational period, the full vapor extraction capacity was applied to only 25% of the cell volume. At the conclusion of the test, additional soil samples were collected from locations similar to the pre-test sampling locations. The results of the post-test soil samples

indicated that no significant soil contaminant reductions had occurred during the "enhanced" bio-treatment cell operations. The results of the test are documented in the October 2007 "Biocell Field Test Report".

A Focused Feasibility Study (FFS) was performed in 2008 to evaluate additional remedial alternatives to address the contaminated soils within the bio-treatment cell. The field activities and findings of the FFS are described in the December 2008 FFS Report. The FFS included an August 2008 soil sampling effort which provided horizontal and vertical contaminant characterization of the cell (see Section 2.3 and Table 1). Based upon data from the FFS, it is estimated that 10,150 cubic yards of contaminated soils remain on site that are above Part 376 Land Disposal Restrictions (LDRs). Left untreated, the soil contaminants will likely prevent future use of the site, and will continue to serve as a source of site groundwater contamination.

3.2 Selected Changes

Due to the inability of the soil bio-treatment system to effectively treat the soil, the soil bio-treatment system will be decommissioned and the remaining soils above Part 376 LDRs will be removed and treated/disposed at an appropriate off-site disposal facility. The major factors considered in making this change are as follows:

- The original remedy effectively removed contaminated soils from the off-site areas and consolidated these materials within the confines of the on-site bio-treatment cell. The only remaining site contaminants are the contaminated soils and shallow groundwater within the confines of the on-site cell.

- The Department recognizes the inherent uncertainties with further attempts to perform on-site treatment of the contaminated soils. The impacted soils are primarily silt and clay, and removal of organic contaminants from such soils is problematic.

- The use of LDRs as soil cleanup objectives, while somewhat more restrictive than Part 375 Commercial Use SCOs (Table 3), will ensure that all soils are removed from the site that would be regulated as hazardous waste. Since these soil cleanup criteria will also meet Commercial Use SCOs, the site will be suitable for future commercial and industrial uses.

- After removal of the remaining contaminant source area, the groundwater in the northeastern portion of the site will be re-sampled and future groundwater monitoring will be performed as needed to assess the effectiveness of the remedy.

- An Environmental Easement can limit the future use of the site to commercial or industrial uses.

4.0 EVALUATION OF SELECTED CHANGES

4.1 Remedial Goals

Goals for the cleanup of the site were established in the original ROD. The goals selected for this site are:

- Eliminate the potential for direct human or animal contact with the contaminated on-site and off-site soils;

- Mitigate the impacts of contaminated groundwater to the environment (i.e. prevent off site migration of groundwater);

- Prevent, to the extent practicable, impacts from site contaminants to the site groundwater;

- Achieve, to the extent practicable, groundwater quality SCGs; and

- Eliminate the threat to surrounding surface water quality by preventing discharges from contaminated site soils.

4.2 Evaluation Criteria

The criteria used to compare the remedial alternatives are defined in the regulation that directs the remediation of inactive hazardous waste sites in New York State (6 NYCRR Part 375). For each criterion, a brief description is provided. A detailed discussion of the evaluation criteria and comparative analysis is contained in the Focused Feasibility Study.

The first two evaluation criteria are called threshold criteria and must be satisfied in order for an alternative to be considered for selection.

1. Protection of Human Health and the Environment. This criterion is an overall evaluation of each alternative's ability to protect public health and the environment.

The remedy will remove and treat/dispose of the contaminated soils at a permitted off-site facility. This will ensure protection of human health and the environment. The original remedy was only partially protective of human health and the environment. It was successful in consolidating the contaminated site soils within the bio-treatment cell, which reduced the chances of exposures to contaminants. However, since the contaminated soils are still present on the site, there are still potential threats to human health and the environment. The March 2005 groundwater sampling indicates that there is no off-site migration of contaminated groundwater. Groundwater impacts are limited to a localized area in the immediate vicinity of the contaminant source material. Future groundwater monitoring will ensure continued protection of human health and the environment.

2. Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether a remedy will meet environmental laws, regulations, and other standards and criteria. In addition, this criterion includes the consideration of guidance which the Department has determined to be applicable on a case-specific basis.

The most significant SCGs include: 6NYCRR Part 375 - Environmental Remediation Programs; 6NYCRR Part 376 - Land Disposal Restrictions (LDRs); and 6NYCRR Part 700-705 Water Quality Standards. In 1996, the original ROD used NYSDEC Division of Environmental Remediation TAGM-4046- "Determination of Soil Cleanup Objectives and Cleanup Levels" for the soil cleanup objectives. These cleanup objectives were superseded in December 2006 by the soil cleanup objectives contained in 6NYCRR Part 375 (see Table 1).

The removal and off-site treatment/disposal of the remaining contaminated soils will comply with all soil related SCGs. Prior to off-site disposal, the stockpiled soils will be sampled and characterized for appropriate disposal. Since Polymer Applications was a manufacturer of phenolic compounds and used phenol and xylene as raw materials, the contaminated soil must be regulated as a hazardous waste prior to disposal. Prior to land disposal, Part 376 LDRs require such material to be treated to concentrations below 10 times the Universal Treatment Standard (10x UTS). The treatment standard for phenol and xylene (10x UTS) is 62 ppm and 300 ppm, respectively (see Table 3). Therefore all material to be disposed off-site will need to be treated to meet these criteria. By removing all contaminated soils above Part 376 LDR treatment standards, all hazardous waste soils will be removed from the site.

The March 2005 groundwater monitoring data indicates that the only significant impact to groundwater is in the shallow groundwater zone in the immediate vicinity of the contaminant source area. Removal of the contaminant source area soils are expected to substantially reduce or eliminate the shallow groundwater contamination. Following source area removal, the shallow groundwater in this area of the site will be re-sampled, and periodically monitored as needed, to ensure the effectiveness of the remedy on reducing groundwater impacts.

The next five "primary balancing criteria" are used to compare the positive and negative aspects of each of the remedial strategies.

3. Short-term Effectiveness. The potential short-term adverse impacts of the remedial action upon the community, the workers, and the environment during the construction and/or implementation are evaluated. The length of time needed to achieve the remedial objectives is also estimated and compared against the other alternatives.

There will be limited short term impacts on the nearby businesses and the workers from the removal and off-site treatment/disposal of contaminated soils from the treatment cell. These limited impacts (dust, etc.) will be mitigated by proper controls and construction techniques. The short term impacts expected are similar in nature to what was experienced during construction of the original remedy, but they will be shorter in duration. Removal and disposal of soils from the site is estimated to take 3-4 months to complete.

4. Long-term Effectiveness and Permanence. This criterion evaluates the long-term effectiveness of the remedial alternatives after implementation. If wastes or treated residuals remain on-site after the selected remedy has been implemented, the following items are evaluated: 1) the magnitude of the remaining risks, 2) the adequacy of the engineering and/or institutional controls intended to limit the risk, and 3) the reliability of these controls.

All soils within the treatment cell above LDRs will be treated (at the disposal facility) prior to disposal at a permitted facility. Shallow groundwater will be re-sampled after the source area materials were removed. If residual groundwater contaminants are present, the shallow groundwater will be monitored in the future to ensure that any contaminants continue to attenuate. An environmental easement on the site would ensure that future site uses were consistent with the cleanup.

The original remedy required operation and maintenance of the bio-cell treatment system to treat soil contaminants. After a sufficient operational duration had passed, subsequent soil testing indicated that the system was incapable of achieving SCGs as designed and constructed. As such, the original remedy did not provide for long term effectiveness and permanence.

5. Reduction of Toxicity, Mobility or Volume. Preference is given to alternatives that permanently and significantly reduce the toxicity, mobility or volume of the wastes at the site.

The removal of contaminated soils from the site will eliminate all hazardous waste soils from the site. The treatment of the hazardous waste soils prior to disposal at a permitted facility will reduce the toxicity, mobility, and volume of site contaminants within the soil. The removal of the source area will eliminate further groundwater impacts. If there are any residual contaminants within the shallow groundwater after source area removal, these contaminants will likely be reduced through natural biological degradation processes.

The original remedy was successful at reducing the mobility of the site contaminants through consolidation and incorporation of off-site contaminants within the treatment cell. However, it was unsuccessful in significantly reducing the toxicity and volume of site contaminants.

6. Implementability. The technical feasibility and administrative feasibility of implementing each alternative are evaluated. Technical feasibility includes the difficulties associated with the construction of the remedy and the ability to monitor its effectiveness. For administrative feasibility, the availability of the necessary personnel and materials is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, institutional controls, and so forth.

The equipment and materials needed for excavation, transport, and disposal of soil are readily available. Adequate commercial capacity is available to treat and dispose of contaminated soils. No significant technical or administrative difficulties have been identified.

The original remedy construction was implementable, but the soil treatment technology proved ineffective.

7. Cost-Effectiveness. Capital costs and annual operation, maintenance, and monitoring costs are estimated for each alternative and compared on a present worth basis. Although cost-effectiveness is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the other criteria, it can be used as the basis for the final decision.

The estimated cost of removal and treatment/disposal of the soils within the bio-treatment cell is $5,500,000. If future long term groundwater monitoring is required, those costs will be relatively minor, on the order of $2,000/year.

This final criterion is considered a modifying criterion and is considered after evaluating those above. It is focused upon after public comments on the proposed ROD Amendment have been received.

8. Community Acceptance. Concerns of the community regarding the RI and Focused Feasibility reports and the Proposed ROD Amendment have been evaluated. The

Responsiveness Summary (Appendix A) presents the public comments received. Other than 1 letter in support of the proposed ROD Amendment, no other significant public comments were received.

5.0 SUMMARY OF SELECTED CHANGES

Based on the Administrative Record (Appendix B) and the discussion presented below, the Department has selected a final remedy which requires the excavation and proper off-site disposal of all contaminated soils within the treatment cell which are above 6 NYCRR Part 375 Commercial Soil Cleanup Objectives (SCOs).

The selected change is necessary since the existing bio-treatment cell was not effective in treating the soil contaminants as designed. Field testing has concluded that operational modifications to the treatment cell cannot achieve the SCOs within a predictable and reasonable time frame. The changes to the Polymer Applications remedy include:

- Excavation with off-site treatment/disposal of contaminated soils above LDRs within the bio-treatment cell;
- Off site disposal of cell piping, wiring, and other system components that cannot be re-used;
- Dismantling and reuse/salvage of air and water treatment system components;
- Re-sampling of shallow groundwater following source area removal, with long term groundwater monitoring if necessary;
- Development of a Site Management Plan; and
- Pursue an Environmental Easement to ensure that future use of the site is restricted to use which is compatible with commercial uses.

The excavation and off site treatment/disposal of contaminated soils will be protective of human health and the environment, achieve the soil cleanup objectives, and do so with a short time frame (less than 6 months). It will also be effective and will result in the permanent reduction in toxicity, mobility, and volume of soil contaminants.

The estimated present worth cost to carry out the amended remedy is $5,500,000. The annual operation and maintenance cost, including any potential groundwater monitoring, is estimated at $2,000. The construction costs for the original remedy were approximately $4,773,000.

The elements of the amended remedy are as follows:

1. A remedial design program to verify the components of the conceptual design and provide the details necessary for the construction and monitoring of the remedial program;
2. Excavation of contaminated soils within the footprint of the bio-treatment cell;
3. Treatment/disposal of soils with contaminants above LDRs at an appropriate disposal facility;

4. Dismantling and reuse/salvage (as appropriate) of the air and water treatment system components of the bio-treatment cell;

5. Re-sampling of shallow groundwater in the northeastern portion of the site following contaminant source removal, with implementation of long term groundwater monitoring, if necessary;

6. Imposition of an institutional control in the form of an environmental easement that will require (a) limiting the use and development of the property to commercial use, which will also permit industrial use; (b) compliance with the approved site management plan; (c) restricting the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by NYSDOH; and (d) the property owner to complete and submit to the Department a periodic certification of institutional and engineering controls;

7. Development of a site management plan which will include the following institutional and engineering controls: (a) continued evaluation of the potential for vapor intrusion for any buildings developed on the site, including provision for mitigation of any impacts identified; (b) monitoring of groundwater (if necessary); (c) identification of any use restrictions on the site; and

8. The property owner will provide a periodic certification of institutional and engineering controls, prepared and submitted by a professional engineer or such other expert acceptable to the Department, until the Department notifies the property owner in writing that this certification is no longer needed. This submittal will: (a) contain certification that the institutional controls and engineering controls put in place are still in place and are either unchanged from the previous certification or are compliant with Department-approved modifications; (b) allow the Department access to the site; and (c) state that nothing has occurred that will impair the ability of the control to protect public health or the environment, or constitute a violation or failure to comply with the site management plan unless otherwise approved by the Department.

6.0 HIGHLIGHTS OF COMMUNITY PARTICIPATION

A public comment period on the Proposed Record of Decision was held from October 5, 2009 – November 3, 2009 to provide an opportunity for the public to comment on the proposed changes. A public meeting was also held on October 14, 2009. A Fact Sheet was prepared which announced the public comment period and the availability of the proposed ROD Amendment and the other site documents at the local document repository. The Fact Sheet was sent to local residents, business owners, elected officials, and the local media. Comments received during the public comment period were summarized and included in Appendix A of this ROD Amendment.

Table 1

Polymer Applications Site
2008 Soil Sampling of Bio-Treatment Cell

	COMPOUND			
Soil Depth in Feet	**Ethylbenzene (ppm)**	**Toluene (ppm)**	**Xylenes (total) (ppm)**	**Phenol (ppm)**
1-2	ND - 17	ND - 1.8	ND - 22	ND - 490
2-3	ND - 760	ND - 540	ND - 2,100	ND - 1,500
3-4	ND - 1,200	ND - 220	ND - 7,900	ND - 140
4-5	ND - 3,100	ND - 200	ND - 13,000	ND - 73
5-6	ND - 3,000	ND - 340	ND - 1,400	ND - 240
6-7	ND - 2,300	ND - 160	ND - 3,400	ND - 1,800
7-8	ND - 690	ND - 7.4	ND - 4,400	ND - 370
Cleanup Objective - Unrestricted	1 ppm	0.7 ppm	0.26 ppm	0.33 ppm
Number of locations above Unrestricted Use SCOs	36 of 42	29 OF 42	41 of 42	37 of 42
Cleanup Objective - Commercial Use	390 ppm	500 ppm	500 ppm	500 ppm
Number of locations above Commercial Use SCOs	15 of 42	1 of 42	15 of 42	2 of 42

Table 2

Polymer Applications Site
Nature and Extent of Groundwater Contamination
October 2005 Sampling

GROUNDWATER	Contaminants of Concern	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	ethylbenzene	ND[d] - 3,800	5	2 of 16
	toluene	ND - 1,300	5	1 of 16
	xylenes (total)	ND - 720	5	2 of 16
Semivolatile Organic Compounds (SVOCs)	phenol	ND - 5,400	1[c]	2 of 16

Notes: [a] ppb = parts per billion, which is equivalent to micrograms per liter, ug/L, in water;
[b] SCG = standards, criteria, and guidance values;
[c] 1 ppb= standard applies to sum of phenolic compounds (i.e. Total Phenols)
[d] ND = non-detect

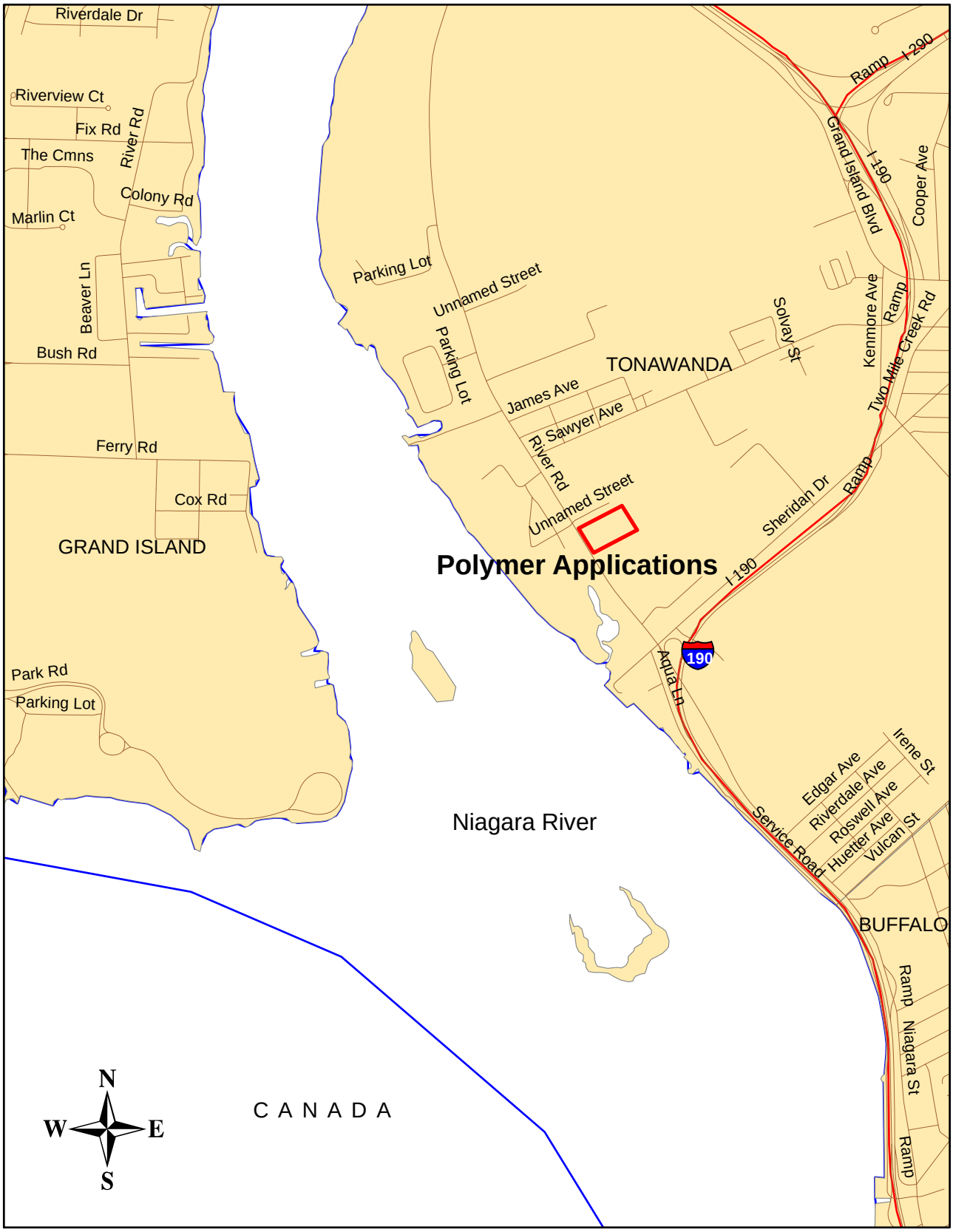
Table 3

6NYCRR Part 376
Maximum Concentrations for Land Disposal (10 x UTS)

Compound	Soil Treatment Standard (10xUTS)	Part 375 Commercial Use SCOs
Xylene	300 ppm	500 ppm
Phenol	62 ppm	500 ppm

UST - Universal Treatment Standards

Figure 1
Polymer Applications
Site Location



Approximate Scale: 1 inch = 2000 feet

Figure 2
Polymer Applications

Approximate Scale: 1 inch = 800 feet

LEGEND

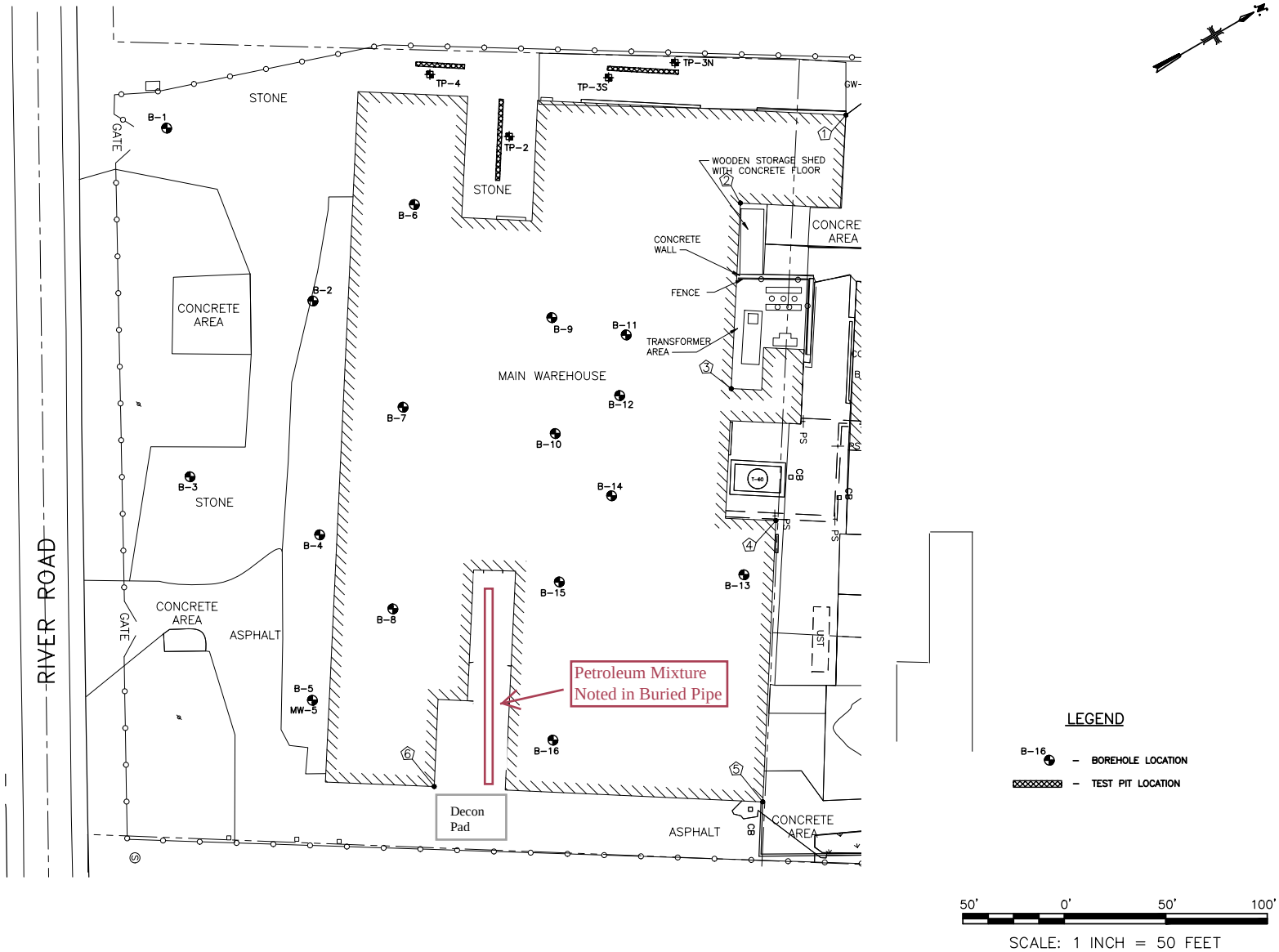
- Original Site Building/Remnant
- Bio-Treatment Cell Vapor/Water Treatment Building
- +GB-07 2007/2008 Soil Boring Location
- Groundwater Monitoring Well
- Toe of Bio-Treatment Cell Slope
- Bio-Treatment Cell Piping
- Overhead Electrical Power Lines
- Perimeter Fence

New York State Department of Environmental Conservation
DIVISION OF ENVIRONMENTAL REMEDIATION

Polymer Applications Site
Town of Tonawanda, Erie County

Figure 3
Bio-Treatment Cell and 2007-08 Soil Sampling Locations

DATE	SITE NO.	
JUNE 2009	915044	NOT TO SCALE



MALCOLM PIRNIE

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

POLYMER APPLICATIONS (SITE #915044)

TONAWANDA, NEW YORK

BOREHOLE / TEST PIT SAMPLE LOCATION MAP

SCALE: 1"=50'

MALCOLM PIRNIE, INC.

FEBRUARY 2008

FIGURE 4

APPENDIX A

Responsiveness Summary

RESPONSIVENESS SUMMARY

Polymer Applications Site
Town of Tonawada, NigaraCounty, New York
Site No. 915044

The Proposed Amendment to the Polymer Applications Record of Decision (ROD amendment), was prepared by the New York State Department of Environmental Conservation (the Department) in consultation with the New York State Department of Health (NYSDOH) and was issued to the document repositories on October 2, 2009. The Proposed ROD Amendment outlined the remedial measure proposed for the contaminated soils remaining at the Polymer Applications site.

The release of the proposed ROD Amendment was announced by sending a notice to the public contact list, informing the public of the opportunity to comment on the proposed remedy.

A public meeting was held on October 14, 2009, which included a presentation of the Supplemental Remedial Investigations and Focused Feasibility Study, as well as a discussion of the proposed ROD amendment remedy. The meeting provided an opportunity for citizens to discuss their concerns, ask questions and comment on the proposed remedy. These comments have become part of the Administrative Record for this site. The public comment period for the proposed ROD Amendment ended on November 3, 2009.

This responsiveness summary responds to all questions and comments raised during the public comment period.

One comment letter, dated October 15, 2009, was received from the Town of Tonawanda Planning Board Chairman, and it supported the proposed ROD Amendment. It reads:

"I would like to comment on the Polymer Applications Site of behalf of the Town of Tonawanda Planning Board. First, we are glad to see DEC moving forward with the clean up of this site which has been a problem for the Town since 1988."

"The Town's Comprehensive Plan calls for this area to be industrial in nature, but the Comprehensive Plan and a Waterfront Plan studying the River Road area in particular, were viewing this corridor as a source of job creating, revenue producing industry. In its current state, the Polymer Applications Site, like many other properties in this corridor are not producing investment, jobs or revenue."

"We encourage the NYSDEC to continue with the proposed remediation which plans to take all the contaminated material off site. This is the best approach to insuring that redevelopment is possible in the future. Please keep us informed as this project moves forward."

APPENDIX B

Administrative Record

Administrative Record

Polymer Applications Site
Site No. 915044

1. Proposed Record of Decision Amendment for the Polymer Applications site, dated October 2009, prepared by the Department.

2. Focused Feasibility Report, dated December 2008, prepared by URS.

3. Supplemental Site Investigation, dated December 2008, prepared by Malcolm Pirnie.

4. Biocell Field Test Report, dated October 2007, prepared by URS.

5. Final Remediation Report Addendum – Operation and Maintenance, dated Feb. 2007, prepared by URS.

6. Final Remediation Report for Construction Phase Engineering Services, dated January 2007, prepared by URS.

7. Notice of Violation and Order to Comply, dated may 3, 2005, issued by the New York State Department of Labor.

8. Decision and Order of United States District Court (01-CV-196A), dated June 18, 2004, issued by Honorable Richard J. Arcara.

9. Contract Documents (for Construction), dated January 1999, prepared by Parsons Engineering Science.

10. Preliminary Remedial Design Report, dated October 1998, prepared by Parsons Engineering Science.

11. Pre-Design Report, dated August 1998, prepared by Parsons Engineering Science.

12. Final Ex-Situ Bioventing Test Results Report, dated February 1998, prepared by Parsons Engineering Science.

13. Record of Decision, dated February 1996, prepared by the Department.

14. Proposed Remedial Action Plan, dated November 1995, prepared by the Department.

15. Feasibility Study Report, dated November 1995, prepared by Engineering-Science.

16. Remedial Investigation Report, dated August 1995, prepared by Engineering-Science.

17. Preliminary Site Assessment Report (Phase II), dated June 1991, prepared by Engineering-Science.