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Letter of Transmittal

Date	18 December 2001
File Number	70014-052
From	Thomas D. Wells
To	NYSDEC Region 8 6274 East Avon-Lima Road Avon, New York 14414-9519
Attention	Kelly C. Cloyd, Ph.D., and Ms. Lisa LoMaestro Silvestri
Copy to	See distribution list below
Subject	Delphi Automotive Systems LLC, Site #8-28-064

Copies	Date	Description
3	12/01	Amendment No. 1 to the RI/FS Work Plan

Transmitted via ☐ First class mail ☒ Overnight express ☐ Hand delivery ☐ Other

Remarks

Dear Dr. Cloyd and Ms. Silvestri:

Enclosed please find Amendment No. 1 to the RI/FS Work Plan for the Delphi Automotive Systems LLC (Delphi) site located at 1000 Lexington Avenue in Rochester, New York. Section 1 of Amendment 1 presents clarifications and changes to the technical requirements for the project, and Section 2 presents the revised Citizen Participation Plan.

In accordance with discussions between Maura Desmond and Barry Kogut, copies of Amendment No. 1 are not being sent to Messrs. Belmore, Elliott, or Napier. Please contact me at 321-4231 if you would like me to send additional copies to those individuals or if you have any questions concerning the enclosed.

Sincerely,
Haley & Aldrich of New York

Thomas D. Wells

Distribution list:
NYSDEC Division of Env. Enforcement - Maura C. Desmond, Esq. (1 copy)
Delphi Automotive Systems - Kyle M.H. Jones, Esq. (1 copy) and Mr. Richard C. Eisenman (2 copies)
Bond, Schoeneck & King - Barry Kogut, Esq. (1 copy)

AMENDMENT NO. 1
TO:
RI/FS WORK PLAN
DELPHI AUTOMOTIVE SYSTEMS
LEXINGTON AVENUE FACILITY
ROCHESTER, NEW YORK
REGISTRY SITE #828064, EPA ID No. NYD002215234

by

Haley & Aldrich of New York
Rochester, New York

for

Delphi Automotive Systems LLC
Rochester, New York

File No. 70014-052
December 2001

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INTRODUCTION

This document presents Amendment No. 1 to the RI/FS Work Plan, Delphi Automotive Systems Facility, 1000 Lexington Avenue, Rochester, Monroe County, New York, Registry Site #828064, EPA ID No. NYD002215234 dated 26 October 2001 (the RI/FS Work Plan).

This document consists of two sections. Section 1 describes clarifications and changes to the technical requirements for the project that are specified in the RI/FS Work Plan. Section 2 presents a revised Citizen Participation Plan that replaces the Citizen Participation Plan that was included by reference in the RI/FS Work Plan as Appendix L.

Section 1 of
Amendment No. 1 to the
RI/FS Work Plan, Delphi Automotive Systems Facility, 1000 Lexington Avenue, Rochester, Monroe County, New York (26 October 2001)

The RI/FS Work Plan is amended as follows:

PCB Analyses
Change required: For samples of soil, LNAPL, and groundwater that are to be submitted to the project laboratory that will be performing analyses by CLP methods, EPA SW-846 Method 8082 analysis for PCB compounds will be substituted for PCB analysis by CLP Method OLM 4.2. Data from the substituted method 8082 analyses will be reported with full (category B level) deliverables and QA/QC documentation.

Reason for change: The two methods are similar. However, OLM 4.2 is designed as a Pesticide/PCB method. The OLM 4.2 multi-point calibration and QC samples use pesticide compounds, not PCBs. Analysis of PCBs only by method OLM 4.2, as specified in the work plan, would therefore not have PCB-specific calibration or QC.

Affected sections:
Where analysis of PCBs by OLM 4.2 is indicated in the following sections of the RI/FS work plan, substitute PCB analysis by Method 8082:

- Section 5.2.A (Soil Sampling and Analysis Program), 3rd primary bullet (TCL Polychlorinated Biphenyl Aroclors, page 55).
- Section 5.2.B.1 (Groundwater Parameters and Methods), 1st bullet (page 56).
- Section 5.2.B.2 (LNAPL Parameters and Methods), (page 57).
- Table IV.
- Quality Assurance Project Plan (QAPP, Appendix A to the RI/FS Work Plan), Sections I.D.1.E.1, first bullet (page 3), I.D.1.E.2, first bullet (page 4), I.D.2.B, third bullet (page 6), and Table I.

Health and Safety Plan (Appendix C to the RI/FS Work Plan), Section 3.8.A, Air Monitoring Scope (page 38) – Air monitoring for the presence of VOCs will be done on a continuous basis during activities that involve excavation into or handling of potentially-contaminated material. The continuous VOC monitoring will be performed using electronic VOC detectors with audible alarms that will be automatically triggered by VOC detections exceeding the action level specified in the Health and Safety Plan. The following sentence from the fourth paragraph of the referenced section is to be disregarded: "Continuous monitoring will continue until it is established that VOCs are not present or are below action levels and are stable or continuously declining."

Health and Safety Plan (Appendix C), Section 3.8.D, Air Monitoring Equipment – There is no specific discussion in this section concerning the use of Draeger tubes to monitor for benzene and vinyl chloride. Monitoring will be performed using Draeger bellows and benzene and vinyl chloride indicator tubes. Bellows are to be checked daily to insure that there are no leaks, and indicator tube packets are to be checked for expiration date prior to use. Monitoring will be performed using procedures specified by the manufacturer. Field personnel performing air monitoring are to be familiar with use of this equipment, and reference material from the manufacturer will be available onsite during its use.

Section 2 of
Amendment No. 1 to the
RI/FS Work Plan, Delphi Automotive Systems Facility, 1000 Lexington Avenue, Rochester, Monroe County, New York (26 October 2001)

Revised Citizen Participation Plan

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Citizen Participation Plan

for

Delphi Automotive Systems
Inactive Hazardous Waste Disposal Site
#8-28-064

Owner: Delphi Automotive Systems LLC

Address: 1000 Lexington Avenue
Rochester, New York

Prepared by:

Haley & Aldrich of New York

December 2001

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1. Introduction and Overview of the Citizen Participation Plan

What is a Citizen Participation Plan?

A Citizen Participation Plan, or CP Plan, provides interested citizens like you with information on how Delphi Automotive Systems (Delphi) and the New York State Department of Environmental Conservation (DEC) will involve the public during the process of investigating and remediating (cleaning up) a hazardous waste site. The plan identifies information Delphi and the DEC want to communicate to site neighbors as well as information needed from the community. Additionally, the plan is used to track public involvement activities that must be conducted according to state regulations, such as notifying residents when a cleanup plan is selected.

What information and documents are included in this plan?

- Background information about the site and investigations occurring there;
- Information on planned citizen participation activities (see page 5);
- Locations where you can find more information ("document repositories") and a list of documents available there;
- A copy of the site's page from the state's official list, or registry, of inactive hazardous waste disposal sites in New York State (presented after page 11);
- A glossary of terms and acronyms you may encounter while learning about the site (Appendix A);
- Fact sheets explaining the steps in the investigation and cleanup process (Appendix B);
- A list of people interested or involved with the site ("Mailing List", Appendix C);

The plan is periodically updated to include new fact sheets, updates of the mailing list, or changes in planned citizen participation activities.

If you would like more information on citizen participation activities, contact Lisa LoMaestro Silvestri of the New York State Department of Environmental Conservation at 585-226-2466.

2. Background Information About the Delphi Site

The Delphi site is listed on the DEC Registry of Inactive Hazardous Waste Disposal Sites as Site #8-28-064. It is designated as a class 2 site. A classification of 2 means the site poses a significant threat to public health or the environment, and action is required.

The Delphi plant is located on a 90-acre parcel of land north of Lexington Avenue in the City of Rochester, New York. The original Erie Canal had crossed the site, and much of the northern part of the site had been a widewaters basin for the canal. After the Erie Canal was replaced by the Barge Canal in 1912, fill material from unknown sources was placed in the former widewaters basin until 1937.

The site was purchased by General Motors Corporation (GM) in 1937, and construction of a manufacturing plant by GM began in that year. GM operated the facility to manufacture automotive fuel systems and other automotive components. GM's ownership of the facility and the site was transferred to Delphi in 1999 when Delphi Automotive Systems was spun off from GM. Delphi currently owns the facility.

The Delphi site is bounded on the west by Mt. Read Boulevard, on the north by Driving Park Avenue, on the northeast by an adjacent manufacturing property (American Packaging Corporation), and on the east by a railroad embankment. The portion of the site which contains the manufacturing facility is bounded on the south by Lexington Avenue. A Delphi employee parking lot is located on the south side of Lexington Avenue.

In 1981, Delphi commissioned a hydrogeologic investigation which consisted of installing 13 groundwater monitoring wells downgradient of the manufacturing building and at the upgradient and downgradient site boundaries. Groundwater monitoring data from 1981 through 1988 indicated site groundwater, including the groundwater at the northern downgradient site boundary, was contaminated with solvents, including trichloroethene (TCE) and its breakdown products. In January 1987 DEC added the site to the inactive hazardous waste disposal site registry.

In 1988, Delphi commissioned a review of the previous data and an additional investigation of hydrogeologic conditions at the site. The 1988 review and subsequent investigations were performed to determine the extent of the groundwater contaminants and identify source areas. Related investigative activities have continued to the present, all of which have been performed by Delphi on a voluntary basis.

At present there are 113 groundwater monitoring wells and pumping wells located on site, and periodic groundwater sampling has been performed each year. Soil sampling has been performed in several known and potential contaminant source areas, and soil vapor sampling has been performed to identify the extent of soil contamination in all areas of the site where TCE and related solvent compounds had been used. All previous soil and groundwater analysis data for the site have been reported to the DEC by Delphi. These data were summarized for the DEC in a report called the Data Summary Report (Haley & Aldrich of New York, September 1998). Delphi also has described the history of operations at the site in a report called the Site History Document (Haley & Aldrich of New York, February 1999). Both documents are available for public

review at the document repositories listed in Section 6 of this Citizen Participation Plan.

The previous site investigations have determined that solvent contaminants are present in the groundwater to depths of 50 feet. Soil contamination by TCE and related compounds has been found in several areas where solvent degreasers were formerly located. The previous investigations have also identified areas where contamination by lubricating and cutting oil, test fuels, and Stoddard solvent (a petroleum distillate used for testing fuel systems) is present in oil layers floating on the water table. In some areas of the site the oil layers are contaminated with polychlorinated biphenyl compounds (PCBs). In other areas the oil layers contain TCE and related compounds. The investigations have also identified an area where chromium from a former metal-plating operation is present in soil.

In order to address the issue of potential offsite migration of contaminants in groundwater, during 1992 the facility installed a groundwater migration-control, collection and treatment system. Prior to the construction of the system, the facility solicited input on the remedial design from the DEC, the Department of Health (DOH), and facility neighbors. The system has been in continuous operation since 1992, capturing groundwater along the northern site boundary and treating the captured water to destroy contaminants.

The facility has also implemented three other systems that collect and treat contaminants at three locations in the interior of the site. These include a system to recover a floating cutting-oil layer from the water table in an area at the northeast corner of the plant, a system to recover a floating layer of Stoddard solvent contaminated with PCBs from an area in the center of the site, and a soil-vapor extraction system designed to remove TCE and related compounds from soil in the area which formerly contained the largest solvent degreasing operation at the facility.

3. Upcoming Site Investigation Activities

During the upcoming Remedial Investigation (RI) and Feasibility Study (FS), Delphi will perform soil sampling at approximately 75 test borings, install and sample approximately 27 new on-site and off-site groundwater monitoring wells, continue monitoring the existing groundwater monitoring wells, perform a human health and environmental risk assessment, and perform other investigations necessary to define the nature and extent of the contamination which has been identified at the site.

The primary objective of this RI is to complete the process of defining the nature and extent of contamination at the site. The RI will also evaluate health and environmental risks associated with the identified environmental conditions. The findings of the RI and the data from previous investigations will be evaluated during the FS to identify a preferred cleanup plan for the site.

The RI/FS began in November 2001. Because the facility is an active manufacturing enterprise, completion of remedial investigations in some areas within the interior of the building may take up to five years. This schedule is necessary because in some areas where potential contamination is located beneath the facility floor slab, current manufacturing equipment and operations prevent access by investigation equipment such as drilling rigs. Operation of the four previously-implemented clean-up systems (described on page 3) will continue during the RI/FS, and other remedial measures may be taken during the RI/FS if necessary to protect human health and the environment on and off the site.

After the DEC determines that the site has been adequately investigated, the DEC, in conjunction with the New York State Department of Health (DOH), will propose a remedial action plan for the site. This plan is called a Proposed Remedial Action Plan, or PRAP. This plan will compare different cleanup options that could be taken at the site and recommend a preferred cleanup option based on a series of criteria, such as short and long-term permanence of the cleanup, cost, community acceptance, and ease of implementation. The DEC will solicit community input into the plan.

After considering all comments received, DEC will make a final decision on the cleanup plan and outline the decision in a document called a Record of Decision, or ROD. DEC will include responses to comments they receive from citizens in an appendix to the ROD. More details about the citizen participation activities that will take place during the investigation and selection of a cleanup plan can be found in the next section of this Citizen Participation Plan.

4. Citizen Participation Activities

To keep the community informed and involved in the process of investigating and cleaning up inactive hazardous waste disposal sites, the State requires several citizen participation activities. For example, when a final cleanup plan is proposed, DEC will make it available to the public and allow interested parties 30 days to review and comment on the plan. DEC will also present the proposed plan at a public meeting and gather comments from citizens at the meeting.

The following table describes these and other citizen participation activities that will take place during the investigation and determination of a cleanup plan for the Delphi site. The table also lists the stage in the process at which each activity will take place as well as tentative completion dates. Some citizen participation activities may be performed by the State, and some may be performed by Delphi. The project managers will use this table to track required citizen participation activities for the Delphi site.

Citizen Participation Activities			
ACTIVITY:	***Activity will occur at this point in the investigation/ cleanup:***	***The activity is scheduled to be completed:***	***The activity was completed:***
Delphi and DEC will set up Document Repositories, where citizens can review site-related documents, at the regional DEC office and the Lyell Branch of the Rochester Public Library	*At the beginning of the remedial investigation*	*January 2002*	
DEC will create a "Mailing List" of people interested in the site, including residents, government and media representatives, and interested civic, environmental or business groups	*At the beginning of the remedial investigation*	*January 2002*	
Delphi will create a Citizen Participation Plan and place it in Document Repositories	*At the beginning of the remedial investigation*	*January 2002*	
DEC will mail a fact sheet to the Mailing List describing activities proposed for the site	*At the beginning of the remedial investigation*	*January 2002*	
DEC will mail a fact sheet to the Mailing List describing results of the investigation	*When the RI is complete*	*To Be Determined*	
DEC will mail a fact sheet to the Mailing List describing the Proposed Remedial Action Plan (PRAP) and announcing a 30 day comment period	*After the FS has been completed and the PRAP is written*	*To Be Determined (TBD)*	
DEC will allow the public 30 days to comment on the proposed clean up plan (PRAP)	*After fact sheet announcing the PRAP is mailed*	*TBD*	
DEC will hold a public meeting to discuss the PRAP and gather public comments	*During the 30- day public comment period*	*TBD*	
DEC will mail a fact sheet to the Mailing List describing the selected remedy. DEC will place the "Record of Decision," which outlines the final remedy, at the document repositories. The Record of Decision will include responses to significant comments received during the comment period. (These responses will appear as an appendix called a "Responsiveness Summary.")	*When the Record of Decision is signed.*	*TBD*	

Additional Citizen Participation Activities:

Depending on citizen interest, Delphi or the State may also conduct more citizen participation activities than are required, such as holding additional public meetings or mailing more fact sheets to interested citizens. Community involvement is important to ensure that Delphi satisfies the needs of those living and working near the site.

As of the date of the preparation of this CP plan (December 2001), there are no additional citizen participation activities planned. Any additional activities that may be planned for this site in the future will be listed in the table below:

ACTIVITY:	***This activity will be completed:***	***This activity was completed:***

5. Site Issues and Communication Needs

This section of the Citizen Participation Plan is designed to help Delphi identify and document site-related issues important to the community near the Delphi site, as well as to identify the information needs of the community and the State. This information will help Delphi and the State to effectively implement the citizen participation requirements and to identify any additional citizen participation activities that should be conducted.

a) Below is a list of major issues that Delphi is aware are of interest to the community surrounding the Delphi Site:

1. Issues have not yet been identified by the community.

b) Below is a list of information Delphi needs from the community to assist with the site investigation and determination of an appropriate clean up:

1. Delphi believes that there are no water wells in the area. However, Delphi is interested in obtaining information on any water wells which may be present on properties in the areas around the site. Delphi would be interested in knowing about wells used for drinking water or for other purposes such as for watering lawns, for heating/cooling systems, or for washing purposes, including wells which are in active use, are occasionally used, or are no longer in use.

c) Below is a list of information Delphi wants to communicate to the community through the citizen participation program:

1. Delphi and the State welcome citizen input into the investigation and cleanup process.

2. Delphi is committed to working with the State to meet its obligations to investigate and clean up the site.

6. Document Repositories and List of Available Documents

Two locations have been established to provide the public with access to documents and other information generated for the Delphi Site:

Lyell Branch
Rochester Public Library
956 Lyell Ave.
Rochester, NY 14613
(585) 254-0790
Hours: Mon., Wed., and Fri. - 2 pm to 6 pm
Tues. - 12 noon to 8 pm
Thurs. - 10 am to 8 pm
Sat. - 12 noon to 5 pm

DEC Region 8 Office
6274 East Avon-Lima Road
Avon, NY 14414
(585) 226-2466
Hours: Mon. through Fri. - 8:30 am to 4:45 pm

The following documents are available for review at the repositories:

Document	*Date*
Citizen Participation Plan	*December 2001*
RI/FS Work Plan	*October 2001*
Amendment No. 1 to the RI/FS Work Plan	*December 2001*
Site History Document	*February 1999*
Data Summary Report	*September 1998*
Fact Sheets about the Delphi Site	*(to be made available as they are issued)*

Additional documents will be placed in the repositories and their availability will be announced to the public as they are developed. The documents are meant to remain at the repository so that anyone who is interested in the site can have access to them. If you notice a document is missing, please notify Kelly C. Cloyd, Ph.D., of the DEC at telephone number (585)226-5351.

7. List of Project Contacts for the Delphi Site

For additional information about the program to investigate the Delphi site, we encourage you to contact any of the following people:

New York State Department of Environmental Conservation:

Kelly C. Cloyd, Ph.D., Project Manager *(585) 226-5351*
Lisa LoMaestro Silvestri, Citizen Participation Specialist *(585) 226-5326*
NYSDEC
6274 East Avon-Lima Road
Avon, NY 14414-9519

*You can also call **toll-free** 1-800-342-9296. Calls are recorded 24 hours a day. Leave your name, number and a brief message and someone will get back to you shortly.*

New York State Department of Health:

David Napier, Technical Lead *(585) 423-8071*
NYSDOH
335 East Main St.
Rochester, NY 14604-2127

Monroe County Health Department:

Joseph Albert *(585) 274-6904*
Monroe County Health Department
111 Westfall Road
PO Box 92832
Rochester, NY 14692

8. List of People Potentially Interested in the Delphi Site (Mailing List)

The State or Delphi will mail fact sheets to the list of interested parties presented in Appendix C. If you would like to add someone to the list, please contact the Citizen Participation Specialist at the Region 8 office of the Department of Environmental Conservation (at the phone number shown on the previous page).

9. Site Page from DEC's Registry (Official List) of Inactive Hazardous Waste Disposal Sites in New York State

DEC maintains an official list, or "registry," of inactive hazardous waste disposal sites across New York State. The list is published annually and includes a summary of information about each site. The Delphi site is listed as site number 8-28-064. The site's report form and its site location map from the registry are provided on the following pages.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Division of Environmental Remediation

Inactive Hazardous Waste Disposal Report

April 1, 2001

Site Name: Delphi Automotive Systems — **Site Code:** 828064
Class Code: 2 — Region: 8 — County: Monroe — EPA Id: NYD002215234
Address: 1000 Lexington Avenue — City: Rochester — Zip: 14613
Latitude: 43 10' 48" — Longitude: 77 39' 28"
Site Type: Landfill — Estimated Size: 16 Acres

Site Owner / Operator Information:
Current Owner(s) Name: AC Rochester Division of GMC
Current Owner(s) Address: 1000 Lexington Ave. — Rochester — NY 14613
Owner(s) during disposal: GMC/Rochester Products
Operator(s) during disposal: GMC, Rochester Products Division
Stated Operator(s) Address: 1000 Lexington Ave. — Rochester — NY 14613
Hazardous Waste Disposal Period: From 1937 To 1968

Site Description:
This is a large manufacturing facility that first occupied this site in 1937. An area of the northern portion of the site was the "wide waters" of the old Erie Canal. This area was filled in during the 1920s and 1930s with material excavated for the construction of a "subway" which was constructed in the former canal bed. Rochester Products (now known as Delphi Automotive systems) used a portion of this area for their own filling and have since constructed buildings over most of that area. In 1981, monitoring wells were installed on the property. Samples taken from the wells revealed contamination by petroleum, chlorinated solvents and heavy metals. Floating product is present in the groundwater over a large portion of the site. In some areas, the product contains chlorinated solvents, and in some other areas it contains PCBs. Currently, the site is regulated under the RCRA program. In January of 1990, leaking degreaser units were discovered during on-site excavations. A soil vapor extraction system is in operation at one of the former degreaser areas. A blast enhanced bedrock trench has been constructed along the northern portion of the site to help stop contaminated groundwater from flowing off-site. The contaminated groundwater is being treated by a peroxidation system and an air stripper. After treatment, the water is discharged to a publicly operated treatment works (POTW). Delphi initiated a soil remediation program in 1996 which utilizes soil vapor extraction. A Consent Order for a Remedial Investigation/Feasibility Study (RI/FS) is currently being negotiated.

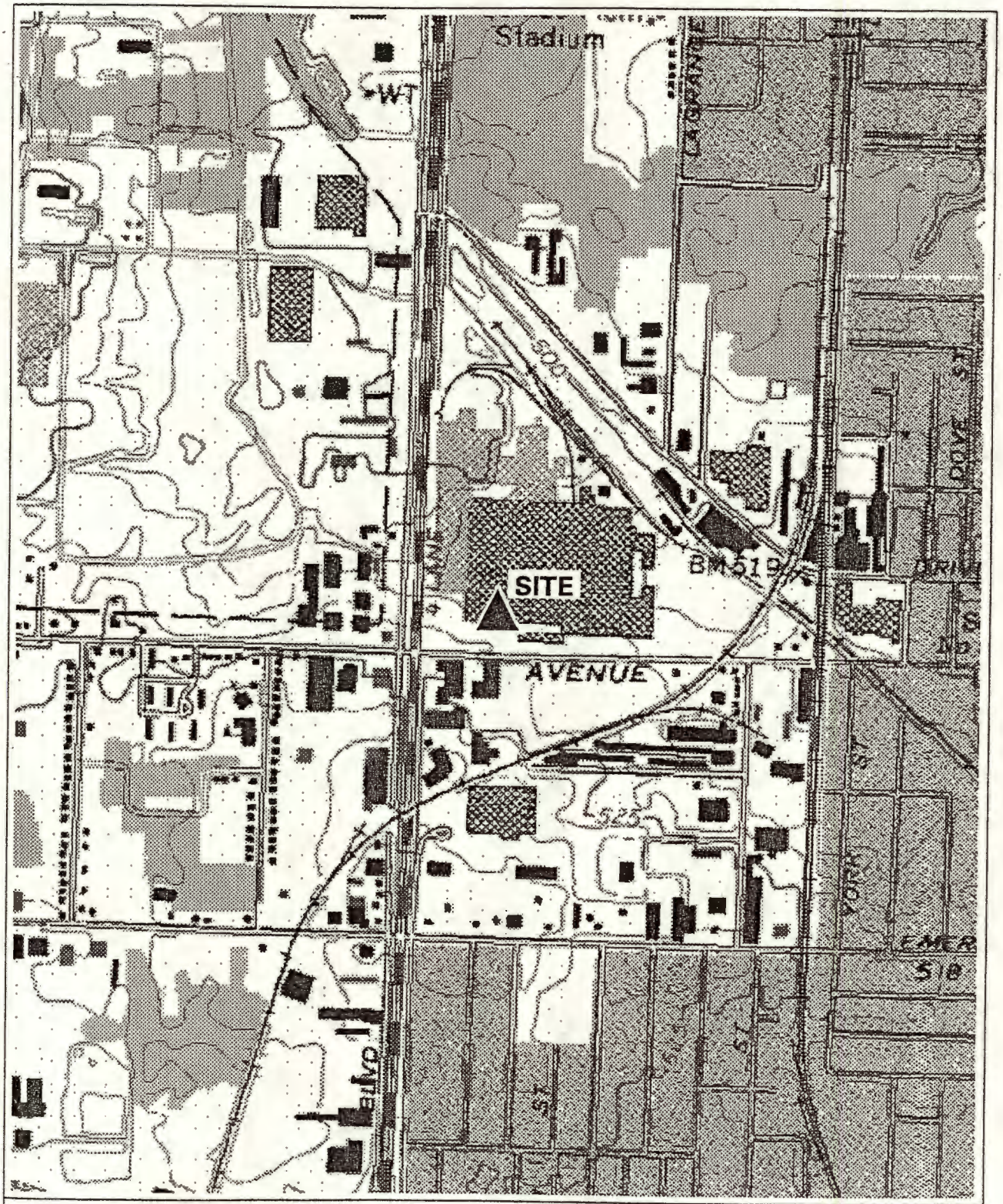
Confirmed Hazardous Waste Disposal:	Quantity:
Trichloroethylene (TCE)	unknown
Chlorinated solvents	unknown
Lead	unknown
Heavy metals	unknown
Stoddard solvent	unknown

Analytical Data Available for: Groundwater Soil
Applicable Standards Exceeded in: Groundwater
Geotechnical Information:
Soil/Rock Type: Silt and sand.
Depth to Groundwater: Range: 5 to 10 feet.

Legal Action: Type: State Consent Order -RI/FS — Status: Negotiations in Progress
Remedial Action: Complete — Nature of action: Blast enhanced bedrock GW collection trench.

Assessment of Environmental Problems:
Additional investigation is necessary to assess the extent of contamination at this site, and identify the source areas.

Assessment of Health Problems:
Exposures via drinking water are not expected because all homes in the vicinity of the site are served by public water. Access to the active facility is restricted by fencing and security, eliminating the potential for public exposure to contaminated on-site soils. Further investigation is needed to determine whether contaminants are migrating off-site in soil, air, surface water runoff, or underground utilities so that potential public exposures can be evaluated.



Site Location Map

828064 Delphi Automotive Systems

Map source: USGS 1:24,000-scale topographic quadrangles

N

0 250 500 750 1000

FEET

Scale 1:12,000

April 1, 2000

County: Monroe

Appendix A:

DEC Region 8 Citizen's Glossary of Environmental Terms and Guide to Environmental Acronyms

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New York State Department of Environmental Conservation Region 8

Citizen's Glossary of Environmental Terms

This glossary lists common terms related to New York State Department of Environmental Conservation's voluntary cleanup, brownfield, and inactive hazardous waste disposal site programs. It includes some terms used by the United States Environmental Protection Agency's (EPA) Superfund program. Glossary explanations should help you understand various environmental concepts. Some words within the definitions are in bold, which indicates that they are defined elsewhere in the glossary.

The following do not constitute the state's official use of terms and phrases for regulatory purposes, and nothing in this document should be construed to alter or supplant any other state document. The glossary includes brief definitions of some contaminants frequently found at hazardous waste sites. However, not all contaminants found at hazardous waste sites are included, nor are the listed contaminants found at every site.

Acid — Chemicals that have a high concentration of hydrogen ions. Acids have a **pH** of less than 7 on a scale of 0 to 14. Strong acids, closer to 0 on the scale are corrosive, and weak acids, with a pH closer to 7, are not. An acid is the opposite of a **base**.

Activated carbon — A highly absorbent form of carbon, formed primarily from coal and lignite, that absorbs organic compounds. "Activated carbon treatment systems" are used to remove odors and toxic substances from liquid or gaseous emissions.

Acute effects — Health effects that have a rapid onset, a short course, and pronounced symptoms and termination. A reaction that occurs shortly after exposure to a chemical.

Acute exposure — A single, short contact with a chemical. It may last a few seconds or a few hours, but no longer than a day.

Administrative order on consent — See **Consent order**

Administrative record — Part of a site's **Record of Decision** (ROD) which lists and defines documents used in the development of DEC's decision about selection of a **remedial action**.

Adsorb/ Adsorption — Molecules of gas, liquid, or dissolved solids that adhere or "stick" to the surfaces they come in contact with. Some chemicals adsorb strongly to soil particles. This differs from *absorb*: "to take up or make part of the existing whole," like a sponge absorbs (sucks up) water.

Air sparging	Injecting air or oxygen into an **aquifer** to strip or flush **volatile** contaminants as air bubbles up through the ground water. The air is captured by a vapor extraction system. (See **soil vapor extraction system**).
Air stripping	A treatment system that removes or "strips" **volatile organic compounds** from contaminated groundwater or surface water by forcing an airstream through the water and causing the compounds to evaporate.
Ambient	The surrounding environment. Ambient usually refers to the surrounding outdoor air, water, or land.
Anaerobic	Absence of oxygen. Some organisms, such as certain soil bacteria, thrive under anaerobic conditions in soil.
Analyte	A chemical being tested for in a laboratory test.
Arsenic	An element used in wood preservatives and pesticides.
Applicable or Relevant and Appropriate Requirements (ARARs)	Any state or federal statute that pertains to protection of human life and the environment in addressing specific conditions or use of a particular cleanup technology at a **Superfund** site.
Aquifer	An underground water-bearing formation of soil or rock commonly used for drinking water.
Aquifer recharge	See **Recharge**
Aquitard	Geological formation that may contain **groundwater** but significant quantities of water will not move through it under normal conditions. May function as a **confining layer**.
Attenuation	See **Natural attenuation**
Availability session	A scheduled gathering of program staff and members of the public in a casual setting, with or without a formal presentation or agenda but usually focusing on a specific aspect of a site's remedial process.
Background, Background level	The **concentration** of a substance in air, water, or soil that occurs naturally or is the result of human activities not related to a hazardous waste site; conditions in the area near, but not affected by, a hazardous waste site. "Background samples" are often taken to compare an area's natural or pre-existing conditions to conditions at a hazardous waste site.

Barrier protection layer — A layer of soil covering a **geomembrane** designed to protect the geomembrane from wear and tear caused by the weather, animals, etc.

Base — Bases are chemicals that have a large concentration of hydroxyl (one hydrogen plus one oxygen atom) ions. A basic compound has a **pH** of more than 7 on a scale of 0 to 14. Strong bases, pH closer to 14, are corrosive. Weak bases, with pH closer to 7, are not. An **acid** can neutralize the effects of a base.

Bedrock — The continuous solid rock of the continental crust. Bedrock can be found anywhere from the surface to hundreds of feet below ground. Bedrock can be solid or it can contain numerous cracks (fractures). Groundwater and chemicals can move through fractured bedrock.

Benthic — bottom-dwelling; usually refers to aquatic life living at the bottom of a river, stream or lake.

Bentonite — A very fine clay, expansible when moist, commonly used to provide a tight seal around a monitoring well. Also used in **slurry walls**.

Bioaccumulation — The build-up of toxic materials in body tissues of fish and animals.

Bioavailability — The extent to which a substance can readily be absorbed by an organism or is ready to interact in an organism's metabolism.

Bioremediation — The **degradation** (breakdown) or stabilization of contaminants in the environment by microorganisms. There are many **remedial** techniques that use microorganisms, such as bacteria, to break down contaminants. Any of these techniques may be called bioremediation.

Biota — All the living organisms in a given area.

Borehole — Hole made with drilling equipment.

Boring — See **Soil boring**

Brownfield — Abandoned, idled, or under-used properties where expansion or redevelopment is complicated by real or perceived environmental contamination. Brownfield sites can pose environmental, legal, and financial burdens on a community and its taxpayers. New York State provides funds through the **1996 Clean Water/Clean Air Bond Act** to help municipalities that own brownfields but are not responsible for the contamination to investigate and clean up these sites. Brownfields cleaned up using Bond Act funds are also called Environmental Restoration Projects. The U.S. Environmental Protection Agency has a similar brownfield initiative.

Cap	See **Landfill cap/ Landfill cover system**
Carbon adsorption	A process by which contaminants are removed from groundwater or surface water when the water is forced through tanks containing **activated carbon**, a material that attracts the contaminants.
Carbon tetrachloride	A colorless, nonflammable liquid with a characteristic odor used as a solvent and in the synthesis of fluorocarbons.
Carcinogen	A cancer-producing substance.
Catch basin or catch-basin	1) A structure used to catch sediments for contaminant retention, often on a stream. 2) A cistern or vault at the point where a pipe from inside a factory or a street gutter discharges into a sewer, to catch bulky matters which would not pass readily through the sewer.
Carcinogenic	Capable of producing or inciting cancer.
CERCLA	See **Comprehensive Environmental Response, Compensation, and Liability Act**
Chlorinated hydrocarbons	Chemicals containing only chlorine, carbon, and hydrogen. These include some pesticides, such as DDT and heptachlor, and solvents such as **trichloroethene** and **chloroform**.
Chlorinated organics	See **Chlorinated Solvents**
Chlorinated solvents	A group of organic (carbon-containing) solvents which contain chlorine as a part of their molecular structure. Chlorinated solvents are widely used for metal parts cleaning, dry-cleaning, chemical processing, and photographic film making. Common chlorinated solvents include **chloroform, methylene chloride, carbon tetrachloride, trichloroethene, tetrachloroethene, and 1,1,1-trichloroethane**.
Chloroform	A clear, colorless liquid with a characteristic odor. Chloroform was one of the earliest general anesthetics but this use was abandoned due to toxic effects. Now it is widely used as a solvent in the production of lacquer, pharmaceuticals, fluorocarbons, and plastics.
Chronic effects	A long-term or repeated reaction that occurs after an exposure to a chemical. Chronic effects are the opposite of **acute effects**.
Citizen participation (CP)	A process to inform and involve citizens in the decision-making process during identification, assessment and **remediation** of **inactive hazardous waste sites**. This process helps to assure that sound decisions are made from environmental, human health, economic, social and political perspectives.

Citizen participation plan	A document that describes the site-specific citizen participation activities that will take place to complement the investigation and clean-up activities at a hazardous waste site. A plan may be updated or altered as public interest or the technical aspects of the program change.
Citizen participation record	A series of documents prepared at a major remedial stage which describes the citizen participation activities required at that stage. A CP record also directs a scoping process to determine if additional citizen participation activities are appropriate and feasible.
Citizen participation specialist	A DEC staff member within the Division of Public Affairs and Education who provides guidance, evaluation and assistance to help the project manager carry out the site-specific citizen participation program.
Classification	See **Site classification**
1996 Clean Water/ Clean Air Bond Act	Provides $1.75 billion for priority environmental programs to ensure further protection of New York's air, water and natural resources, $200 million of which funds the Environmental Restoration Program, also known as the **Brownfield** Program, to provide financial assistance to municipalities for the investigation and /or cleanup of municipally-owned potentially contaminated properties. The municipality may then return these properties to productive use or can market them for redevelopment.
Cleanup	Action taken to respond to a hazardous material release or threat of a release that could affect humans and/or the environment. Also called **remedial action, removal action,** response action, or corrective action.
Combustion	Burning.
Comment period	A time period for the public to review and comment on various documents and **Division of Environmental Remediation** (DER) actions. For example, a 30 day comment period is provided when DER issues a **Proposed Remedial Action Plan** (PRAP).
Community relations	The Environmental Protection Agency's program to inform and involve the public in the **Superfund** process and respond to community concerns.
Community relations plan (CRP)	The formal plan for Environmental Protection Agency community relations activities at a **Superfund** site. The CRP is designed to ensure citizen opportunities for public involvement and allow citizens the opportunity to learn about a site.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA)	A Federal law passed in 1980 and modified in 1986 by the Superfund Amendments and Reauthorization Act. CERCLA created a special tax that goes into a trust fund, commonly known as **Superfund**, to investigate and clean up abandoned or uncontrolled hazardous waste sites. Under the program, EPA can either pay for site cleanup when parties responsible for the contamination cannot be located or are unwilling or unable to perform the work; or take legal action to force parties responsible for site contamination to clean up the site or reimburse the government for the cost of cleanup.
Cone of depression/ Cone of influence	A depression in the **water table** that develops around a pumped well.
Concentration	The amount of one substance in another substance. For example, a concentration of 10 milligrams per liter means there are 10 milligrams of a substance in 1 liter of another substance.
Conceptual design	The general outline of planned actions that will be taken to address a hazardous waste site, such as building a **landfill cover system**. The conceptual design is incorporated into detailed design documents during **Remedial Design**.
Confining layer (confining bed)	A layer or bed of **impermeable** or distinctly less permeable material lying below or above one or more **aquifers**. When the confining layer lies between two aquifers, it keeps water from the upper aquifer separated, or confined, from water in the lower aquifer.
Consent order	A legal and enforceable negotiated agreement between DEC and responsible parties where **responsible parties** agree to undertake investigation and cleanup or pay for the costs of investigation and cleanup work at a site. Also called an "Order on Consent."
Construction and demolition (C&D) debris/ waste	Waste building materials, dredging materials, tree stumps, and rubble resulting from construction, remodeling, repair, and demolition of homes, commercial buildings and other structures and pavements.
Contact list	Names, addresses and/or telephone numbers of individuals, groups, organizations and media interested and/or affected by a particular hazardous waste site. The DEC mails site-related information to the contact list, also called a mailing list.
Contaminant	Any physical, chemical, biological, or radiological substance or matter that has an adverse effect on air, water, or soil.
Contamination	Microorganisms, chemicals, toxic substances, wastes, or wastewater introduced into water, air, or soil in a concentration that makes the **medium** unfit for its next intended use. Objects such as building surfaces can also contain contamination.

Contaminant mass — The volume and area of contaminants in a polluted material, such as soil or groundwater. The goal of waste cleanup is to reduce the contaminant mass (e.g., reduce the amount and area of contaminants in soil).

Contaminant plume — see **Plume**

Contract Laboratory Program (CLP) — The Environmental Protection Agency's program that approves laboratories that provide chemical testing services of known quality using a wide range of standard methods and maintaining consistent quality control.

Corrosive — Having the power to degrade or wear away a material by chemical action.

Cost recovery — A legal process where **potentially responsible parties** can be required to pay back the federal or state government for money spent on cleanup actions. Cost recovery actions usually begin after the government has completed a site cleanup.

Cover material — (1) Soil used to cover compacted solid waste in a sanitary landfill. (2) See **Landfill cap/landfill cover system**.

Cover system — See **Landfill cap/landfill cover system**

Deed notification — A notice placed on a property deed to alert future buyers about contamination on a property.

Deed restriction — A legal restriction placed on a property deed to restrict future uses of a contaminated property. For example, a deed restriction may prohibit future housing development on a contaminated industrial site, or prohibit use of contaminated groundwater on a piece of property.

Degradation products (Daughter products) — **Chlorinated solvents**, when released in the environment, will naturally degrade by microbial and physical processes in soil and/or groundwater into similar compounds that have fewer chlorine atoms. These new compounds are known as degradation products. For instance, **tetrachloroethylene**, which has 4 chlorine atoms, degrades to **trichloroethylene**, which has only 3 chloride atoms.

Degreaser — Chemical used to remove grease, usually from metal or plastic.

Delist/delisted/ delisting — Many sites that have been cleaned up are delisted, meaning they are removed from the **State's Registry of Inactive Hazardous Waste Disposal Sites**. Sites that are delisted can fall into one of three categories:

D1: No consequential amount of hazardous waste was confirmed at the site.

D2: **Remedial actions** have been completed at the site and no further action is required.

D3: Site was combined with another site on the **Registry of Inactive Hazardous Waste Disposal Sites.**

Dense Non-Aqueous Phase Liquid (DNAPL)

Liquids denser than water that represent a special class of soil and groundwater contaminants with unique behavior and problems. Since they are denser than water, DNAPLs can sink deeper into the ground and can act as a continuing source of groundwater contamination, as small amounts of the material can dissolve in groundwater.

Density

The mass of a substance per unit of volume. Substances with a density greater than 1.0 are denser than water; substances with a density less than 1.0 are lighter than water.

Dermal

By or through the skin. "Dermal contact" refers to a substance coming in contact with skin.

Desorption

The opposite of **adsorption** or absorption; molecules detach from a surface (such as soil particles).

Detection limit

The lowest concentration of a chemical that can be reliably measured by a testing method.

Dewater

(1) Remove a portion of the water in soil or sludge to dry the soil/ sludge so it can be treated or disposed of. (2) Remove or drain the water from a tank or trench.

1,1-Dichloroethane (1,1-DCA) and 1,2-Dichloroethane (1,2-DCA)

Chemicals with similar molecular structures used to produce a variety of consumer and industrial products, such as specialty chemicals and cleaning products. These chemicals are sometime found at hazardous waste sites as the **degradation products** of other chemicals, such as **trichloroethane**.

Dichloroethene or 1,1-Dichloroethene (DCE) and 1,2-Dichloroethene

Chemicals with similar molecular structures used to make specialty chemicals and pharmaceuticals. These chemicals are sometimes found at hazardous waste sites as the **degradation products** of **trichloroethene**.

Diffusion

Movement of a substance from an area of high concentration to an area of low concentration. Diffusion can also refer molecules of gas or vapor moving from a source, such as a bottle, to a receptor, such as a human nose.

Division of Environmental Enforcement

A unit within the DEC which works with the **Division of Environmental Remediation** to negotiate agreements with responsible parties for the investigation and remediation of hazardous waste sites. A negotiated agreement is contained in a **consent order**.

Division of Environmental Remediation

Formerly the Division of Hazardous Waste Remediation, a major unit within the DEC created to manage the hazardous waste site remedial program from site discovery through **Operation and Maintenance** activities. Staff include: engineers, geologists, chemists, attorneys, citizen participation specialists, environmental program specialists and support staff.

Document Repository

Typically, a DEC regional office and/or a public building, such as a library, near a particular site, at which documents related to **remedial** and **citizen participation** activities at the site are available for public review. Environmental Management Councils (EMCs), Conservation Advisory Committees (CACs) and active local groups can also serve as document repositories.

Downgradient

The direction that groundwater flows; similar to "downstream" for surface water.

Drainage Swale

See **Swale**

Drawdown

The vertical drop in the height between the water level in a well prior to pumping, and the water level in the well during pumping.

Drum

A metal or plastic container, usually with a 55 gallon capacity.

Drywell

A hole dug to a depth above the **water table** so that its bottom and sides are typically dry except when receiving fluid discharged from an industrial process. Is often filled with gravel or is reinforced with concrete blocks to form a chamber.

Dual-Phase Vacuum Extraction System

A treatment system designed to remove both contaminated groundwater and **soil gas** from a common groundwater well or wells. By removing groundwater, the system lowers the groundwater level around the well, allowing a strong vacuum to be applied to remove contaminated soil gas. The contaminated water and air can then be removed or treated and released.

Duplicate Sample

A sample taken at the same location as another sample. Both samples are tested for chemicals. Taking a duplicate sample helps to ensure that testing procedures are precise: because the samples were taken in the same location, the samples should contain similar levels of chemicals.

Effluent

Treated or untreated wastewater that flows out of a treatment plant, sewer, or industrial outfall. Generally refers to wastes discharged to **surface waters**.

Enforcement

DEC's efforts, through legal action if necessary, to compel a responsible party to perform or pay for site remedial activities.

Engineered/ engineering controls

Method of managing environmental and health risks by placing a barrier between the contamination and the rest of the site, thus limiting exposure pathways.

Environmental Notice Bulletin	A weekly DEC publication used to announce a variety of DEC activities. The ENB announces proposals to **delist** or change the **site classification** of **hazardous waste sites**, as well as **voluntary cleanup agreements**.
Environmental Restoration Program/ Project	See **Brownfield**
1986 Environmental Quality Bond Act	An act passed in 1986 that gives New York State bonding authority of up to $1.2 billion to fund the State's share of the total cost of remediating hazardous waste sites in New York State.
Epidemiology	The study of diseases as they affect population, including the distribution of disease, the factors (e.g., age, sex, occupation) that influences this distribution; and the application of this study to control health problems.
EP Tox Test	See **Extraction Procedure**
Explanation of Significant Differences (ESD)	A document prepared by the **Division of Environmental Remediation** explaining changes to a cleanup plan called for in a **Record of Decision** and the reason for those changes.
Explosive limits	The amounts of **vapor** in air which form explosive mixtures. Explosive limits are expressed as "lower explosive limits" and "upper explosive limits;" these give the range of **vapor** concentrations in air that will explode if heat is added. Explosive limits are expressed as percent of vapor in air.
Exposure	Contact. No matter how dangerous a substance or activity, without exposure, it cannot harm you.
Exposure routes	A means by which a toxic substance can come into contact with or enter the body. The three major exposure routes are: inhalation (breathing), direct contact (touching), and ingestion (swallowing).
Ex-situ	Outside the original location. For example, contaminated that soil is dug up and removed before it is treated is being treated *ex-situ*. This is the opposite of **in-situ**.
Exceedance	Violation of the pollutant levels permitted by environmental protection standards.
Extraction procedure (EP Tox Test)	Determining toxicity by a procedure which simulates leaching; if a certain concentration of a toxic substance can be leached from a waste, that waste is considered hazardous, i.e., "EP Toxic."
Extraction well	A discharge well used to remove contaminated groundwater or air.

Feasibility Study (FS) A report examining the pros and cons of alternative methods to address contamination at a hazardous waste site. The feasibility study usually recommends a certain alternative. The FS is usually based on the results of a **remedial investigation**; together, they are commonly referred to as the RI/FS.

Federal Register A weekly publication covering federal government activity including rule making, proposed plans, response to public comments, etc..

Fill Man-made deposits of natural soils or rock products and waste materials.

Fish and wildlife impact analysis Part of a **remedial investigation** that looks at the effects or potential effects of contamination on fish and wildlife.

Flammable Catches on fire easily and burns rapidly.

Flash point The lowest temperature at which the **vapor** of a substance will catch on fire, even momentarily, if heat is applied. Provides an indication of how **flammable** a substance is.

Gas venting system A system of pipes and vents installed in a **landfill** to prevent the build up of **landfill gases**, such as methane, that could potentially explode. Sometimes the gas vents have flares on them to burn the gas as it is released into the atmosphere. At some very large landfills, the gas is collected and used to generate electricity.

Geomembrane A low **permeability** plastic sheet that is placed over a landfill to deter rain and snow from entering a landfill's waste. Geomembranes are often made from a plastic called HDPE (high density polyurethane). The geomembrane is covered with soil (**barrier protection layer**) and top soil to protect it.

Geophysical surveys Techniques used to characterize the subsurface without having to dig up large areas. Examples include seismic refraction (commonly used to determine depth to bedrock), ground-penetrating radar (used to define sub-surface structures and buried objects), and **magnetometry** (used to detect buried iron objects).

Geoprobe™ A special machine used to make **soil borings** and to create temporary **groundwater monitoring wells**.

Gram *(g)* The unit of mass in the metric system. An ounce is about 28 grams, and a pound is approximately 450 grams.

Granular activated carbon treatment A filtering system often used in small water systems and individual homes to remove **organic compounds**. See **activated carbon**.

Groundwater

Water found beneath the earth's surface that fills pores between soil particles such as sand, clay, and gravel or that fills cracks in bedrock. Precipitation that does not evaporate or runoff to surface waters **percolates** downward through soil and becomes groundwater. Groundwater flows from areas of high elevation to low elevation at generally low velocities (usually ranging from 10-1000 feet/year) and eventually discharges into surface waters such as rivers, lakes, and wetlands. Groundwater often provides a source of drinking water via wells. The chemical composition of the groundwater reflects the soil or bedrock through which it passes; groundwater dissolves minerals in the soil and bedrock. If a source of contamination exists at or below the earth's surface, percolating rainfall or snowmelt can transport contaminants downward where they can migrate with the groundwater.

Groundwater collection/ extraction and treatment system

A system of wells fitted with pumps and piping used to pump out or extract contaminated groundwater from the subsurface. Properly designed and operated systems can effectively contain a groundwater contaminant **plume** and prevent further contaminant migration.

Groundwater table

See **Water Table**

Half-life

(1) The time required for a pollutant to lose half its effect on the environment. (2) The time required for half of the atoms of a radioactive element to undergo decay. (3) The time required for the elimination of one half a total dose from the body.

Hammer mill

A high-speed machine that uses hammers and cutters to crush, grind, chip, or shred solid waste.

Hazardous ranking system (HRS)

A scoring system used to evaluate potential relative risks to public health and the environment from releases or threatened releases of hazardous materials. EPA and States use the HRS to calculate a site score (0 to 100) based on the actual or potential release of hazardous materials from a site through air, surface water, or groundwater. This score is the primary factor used to decide if a hazardous waste site should be placed on the **National Priorities List**.

Hazardous Substance

(1) Under the **Comprehensive Environmental Response, Compensation, and Liability Act**, a hazardous substance is any element, compound, mixture, solution, or substance that, when released to the environment, may present a substantial danger to the public health or welfare or to the environment, including, but not limited to, toxic and certain other pollutants under the Federal Water Pollution Control Act, **Resource Conservation and Recovery Act**, hazardous air pollutants regulated by parts of the Clean Air Act, and **Toxic Substance Control Act**. The term is much broader than the term **hazardous waste**. Sites that contain only hazardous substances are excluded from New York's **Superfund** program. (2) Any substance designated reportable by the EPA if a designated quantity of the substance is

	spilled in the waters of the United States or if it is otherwise emitted to the environment.
Hazardous substance site	A site that contains hazardous substances but does not contain hazardous waste. Therefore, it cannot receive funding or attention from the State's **Superfund** program.
Hazardous waste(s)	By-products of society that can pose a substantial or potential hazard to human health or the environment when improperly managed. To be considered hazardous waste, the waste must possess at least one of four characteristics (ignitability, corrosivity, reactivity, or toxicity) or appear on special EPA lists.
Hazardous waste site	A place where **hazardous wastes** have been dumped, buried or improperly stored. Sites range from a crest of land containing thousands of tons of chemical wastes to a few drums of solvents dumped in a vacant lot. See also **inactive hazardous waste disposal site**.
Health and safety plan	A plan included in investigation or **cleanup** work plans which outlines protective measures for site workers and the community during investigation or cleanup activities.
Health hazard	Anything which can have harmful effects on health. There can be both acute and chronic health hazards.
Health risk assessment	A process which estimates the likelihood that people who could be exposed to chemicals may have health effects. The four steps of a risk assessment are: (1) hazard identification (Can this substance damage health?), (2) dose-response assessment (What dose causes what effect?), (3) **exposure** assessment (How and how much do people contact it?), and (4) risk characterization (combining the other three steps to estimate **risk**).
Heavy metals	Metals with high atomic weights, such as mercury, chromium, cadmium, arsenic, and lead. They can damage living things at low concentrations and tend to accumulate in the food chain.
Herbicide	A chemical used to control, suppress, or kill plants, or to severely interrupt their normal growth process.
Heterogeneous	Consisting of dissimilar ingredients or constituents.
Homogeneous	Having a uniform consistency or ingredients; composed of similar ingredients.
Hydraulic	Operated, moved or effected by means of water.

Hydraulic conductivity

The rate at which water can move through a **permeable medium**.

Hydraulic gradient

In general, the direction of **groundwater** flow due to changes in the depth of the **water table**. Just as water flows downhill, water in the ground moves from areas of high elevation to areas of low elevation. The slope of the water table is the hydraulic gradient. The hydraulic gradient determines the speed of groundwater flow. A steep gradient causes groundwater to mover faster than a nearly horizontal gradient.

Hydrocarbon

Any of a series of chemical compounds that consist entirely of carbon and hydrogen.

Hydrogen Release Compound (HRC™)

Hydrogen Release Compound (HRC™) is a passive treatment option for **bioremediation** of **chlorinated solvents**. HRC™ is injected into contaminated soils. Naturally occurring microbes metabolize lactic acid released by HRC™, and produce hydrogen. The resulting hydrogen can be used to break down the chlorinated solvents. The process requires **anaerobic** conditions. Major target compounds include **perchloroethene, trichloroethene,** and **trichloroethane** as well as their breakdown products.

Hydrogeologic testing

Physical tests performed to obtain specific groundwater and geologic data. A pump test, for example, is used to determine the permeability (a measure of how readily **groundwater** flows) and storage capacity (a measure of the amount of water available) of an **aquifer**.

Hydrogeology

The geology of **groundwater**, with particular emphasis on the chemistry and movement of water.

Hydrology

The study of the movement and properties of water on the earth's surface, underground and in the atmosphere.

Impermeable

Unable to be penetrated, as by liquids. For example, an "impermeable membrane" can be a thin plastic sheet through which rainwater cannot move.

Inactive hazardous waste disposal site

A hazardous waste site where disposal of hazardous wastes has been confirmed and wastes are no longer being disposed of there ("inactive" site).

Incineration

Burning of certain types of solid, liquid, or gaseous materials under controlled conditions to destroy hazardous wastes.

Infiltration

The penetration of water through the ground surface into sub-surface soil or the penetration of water from the soil into sewer or other pipes through defective joints, connections, or manhole walls. (See: **percolation**.)

Influent	Water, wastewater, or other liquid flowing into a reservoir, basin, or treatment plant. The opposite of **effluent**.
Ingestion	Swallowing. This is one way a person can be exposed to chemicals.
Inhalation	Breathing. This is one way a person can be exposed to chemicals.
Inorganic chemicals/ compounds	Chemicals that do not contain carbon. **Metals** are inorganic chemicals.
In-Situ	In the original place. *In-situ* treatment is carried out at a hazardous waste site without having to dig up and move the contaminated material. In-situ is the opposite of **ex-situ**.
Insoluble	Incapable of being dissolved in water or another liquid.
Institutional controls	A variety of methods used to control access to a contaminated site and/or exposure to contaminants at a site. Examples of institutional controls include fencing or **deed notifications/ restrictions**.
Interim remedial measures (IRM)	Action(s) that can be conducted at a site relatively quickly to reduce the risk to people's health and the environment from a well-defined hazardous waste problem. An IRM can involve removing contaminated soil and drums, providing alternative water supplies or securing a site to prevent access.
Land Disposal Restrictions (LDR's)	Federal rules that require **hazardous wastes** to be treated before disposal on land to destroy or immobilize hazardous constituents that might migrate into soil and **groundwater**.
Landfill	Any place where wastes were disposed of by dumping waste and covering it. There are three main kinds of landfills: (1) Sanitary landfills are disposal sites for nonhazardous solid wastes at which the waste is spread in layers, compacted to the smallest practical volume, and covered with material at the end of each operating day. (2) Secure chemical landfills are disposal sites for hazardous waste. They are selected and designed to minimize the chance of release of hazardous substances into the environment. (3) Old landfills were built without modern day protections; these may contain hazardous wastes. Many of these landfills are being investigated and cleaned up under the State's remediation program.
Landfill cap/ landfill cover system	A layering of material over a landfill to deter rain and snowmelt from moving through the waste pile. A typical landfill cover will include a **geomembrane** or a layer of clay covered with a layer of low **permeability** soil, which in turn is covered by a layer of topsoil and seeded to encourage grass to grow. Landfill cover systems can also include gas vents to prevent gases such as **methane** from building up inside the landfill. The cover system is designed so rain and snowmelt is directed into a drainage ditch or

	swale.
Landfill gas	As organic wastes within a landfill break down, gases such as methane and hydrogen sulfide are produced. The production of these gases drops off over time.
Leachate	Surface or groundwater that is contaminated while moving through a landfill's wastes.
Leachate collection system	A system that gathers leachate and pumps it to the surface for treatment.
Light non-aqueous phase liquid (LNAPL)	Liquids lighter than water that represent a special class of soil and groundwater contaminants with unique behavior and problems. See also **NAPL.**
Liner	A relatively **impermeable** barrier designed to keep **leachate** inside a landfill. Liner materials include plastic and dense clay.
List / listing	When DEC adds a hazardous waste site to the **Registry of Inactive Hazardous Waste Disposal Sites**, this is called "listing" a site.
Liter	The unit of volume in the metric system. A liter is about the same as a quart.
Low Temperature Thermal Desorption	The process of heating soil anywhere between 200 and 1000°F in order to vaporize contaminants with low boiling points. The vaporized contaminants are collected and treated. The low temperatures requires less fuel than other treatment methods.
Magnetometer / magnetometer survey	A magnetometer is an instrument that can detect metal objects buried underground. When this instrument is used to look for buried drums or other metal objects at a hazardous waste site, this is called a magnetometer survey.
Maximum contaminant level	The maximum permissible level of a contaminant in water delivered to any user of a public water system. MCLs are enforceable standards.
Media/medium	Specific environments that can contain contaminants. Air, water, sediment and soil are media.
Metals	A number of chemical elements that share certain special characteristics. Many metals can be toxic in high doses and can **bioaccumulate** in the food chain. Metals sometimes found at **hazardous waste sites** include: arsenic, barium, cadmium, chromium, copper, lead, mercury, nickel, silver, and zinc.

Methane	An odorless gas produced in newer landfills as organic material (previously living things or material derived from living things) breaks down. Methane production drops off as a landfill gets older.
Methylene chloride	A colorless nonflammable liquid, with a pleasant aromatic odor, used as a solvent, paint remover, and **degreaser**.
Micrograms per kilogram (ug/kg)	A way of expressing dose: micrograms (ug) of a substance per kilogram (kg) of body weight or soil.
Micrograms per liter (ug/l)	A unit of measure: the number of micrograms of one substance in a liter of liquid. One microgram per liter means one microgram of chemical per liter of water, and is essentially equivalent to one **part per billion** (ppb). Theoretically one ug/l of a substance equals one part per billion of the substance multiplied by its **density**.
Milligrams per kilogram (mg/kg)	A way of expressing dose: milligrams (mg) of a substance per kilogram (kg) of body weight or soil.
Milligrams per liter (mg/l)	A unit of measure: the number of milligrams of one substance in a liter of liquid. One milligram per liter means one milligram of chemical per liter of water, and is essentially equivalent to one **part per million** (ppm) at very low concentrations. Theoretically one mg/l of a substance equals one part per million of the substance multiplied by its **density**.
Monitored Natural Attenuation	**Natural attentuation** that is expected to achieve site cleanup objectives within a time frame that is reasonable compared to more active cleanup methods. The natural attenuation processes are carefully monitored. Monitored Natural Attenuation is used in combination with "source control" or removing the contamination source as far as practicable.
Monitoring well	(1) A well used to obtain water quality samples or measure groundwater levels. (2) A well drilled to collect groundwater samples for testing to determine the amounts, types, and distribution of contaminants in the groundwater beneath the site. The well enables samples of groundwater to be collected at a specific horizontal and vertical location for chemical analysis. Sometimes soil samples are also collected as the well is being drilled.
National Priorities List (NPL)	The U.S. Environmental Protection Agency's list of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term **remedial** response using money from a special trust fund (**Superfund**).
Natural attenuation	Relying on natural (physical, chemical, or biological) processes to reduce mass, toxicity, mobility, volume or concentration of compounds in earth or **groundwater**. Under proper conditions, can be used for **perchloroethylene**

(PCE), **trichloroethylene** (TCE), and **trichloroethane** (TCA) at a lower cost than conventional remediation technologies.

New York State Department of Health

Agency within the executive branch of New York State government which: determines potential risk from environmental exposure at hazardous waste sites; conducts health-related community outreach around sites; and reviews remedial actions to assure that public health concerns are addressed.

New York State Department of Law

Agency within the executive branch of New York State government which takes the lead on hazardous waste site litigation. Litigation can involve negotiations and court action with responsible parties to clean up sites; natural resources damage claims, and recovery of remedial costs.

New York State Registry of Inactive Hazardous Waste Disposal Sites

See **Registry of Inactive Hazardous Waste Disposal Sites in New York State**

Non-aqueous phase liquids (NAPL)

Liquids, commonly a mixture of several different chemicals, that are either denser or less dense than water. **Dense NAPL** (DNAPL), such as chlorinated solvents, will sink if it enters groundwater; less dense, or **light NAPL** (LNAPL), such as gasoline, will float on the water table. NAPL in the subsurface can be a persistent source of groundwater contamination due to its low **solubility** and **viscosity**.

Occupational exposure limits

Maximum allowable concentrations of toxic substances in workroom air for workers.

Odor threshold

The lowest concentrations of a substance's **vapor**, in air, that can be smelled. Odor thresholds are highly variable, depending on the individual who breathes the substance and the nature of the substance.

Operable unit

An administrative term used to identify a portion of a site that can be addressed by a distinct investigation and/or cleanup approach. For example, groundwater contamination at a site may be considered as one operable unit, and soil contamination at the same site may be dealt with as a second operable unit. An operable unit can receive specific investigation, and a particular remedy may be proposed. A **Record of Decision** is prepared for each operable unit.

Operation and maintenance (O&M)

The period following construction of a **remedy** during which elements of the remedy must be operated and maintained. For example, after a groundwater collection and treatment system is installed (the **remedial construction** phase), operation of the groundwater collection system and treatment of the water would be part of the "Operation and Maintenance" phase of the remedial program. Activities could also include site

inspections, groundwater well monitoring and other sampling.

Order on Consent — See **Consent Order**

Organic — (1) In chemistry, any compound containing carbon. (2) Referring to or derived from living organisms.

Organic compounds — Chemicals that contain carbon.

Overburden — The rock and soil in the ground above **bedrock**.

Oxidizer — (1) A substance (compound) that will accept electrons from another compound, thus changing (oxidizing) the other compound. (2)A material which may cause combustible materials to ignite without the aid of an external ignition source (such as flame) or which, when mixed with combustible materials, increases the rate of burning of these materials.

Part 375 — The portion of New York State regulations governing **inactive hazardous waste disposal sites**.

Part 360 — New York State landfill regulations, including some regulations related to old landfills that contain hazardous waste.

Particulates — Fine liquid or solid particles such as dust, smoke, mist, fumes, or smog, found in air or emissions.

Parts per billion (ppb) — The concentration of a substance of air, water or soil. One ppb means that there is one part of a substance for every billion parts of the air, water or soil in which it is measured. One ppb is about one drop of dye in 18,000 gallons of water or about one second in 32 years. One ppb is 1,000 times less than one **part per million**.

Parts per million (ppm) — The concentration of a substance in air, water or soil. One ppm means that there is one part of a substance for every million parts of the water or soil in which it is measured. One ppm is about one drop of dye in 18 gallons of water, about one inch in 16 miles, or one penny in $10,000.

Parts per trillion (ppt) — The concentration of a substance in air, water or soil. One ppt means that there is one part of a substance for every trillion parts of the water or soil in which it is measured. One ppt is 1,000 times less than one **part per billion**.

PCBs (polychlorinated biphenyls) — A group of toxic, persistent chemicals used in transformers for insulating purposes, in gas pipeline systems as a lubricant, and in some florescent light ballasts. The sale of PCBs was banned by law in 1979, but many old transformers still contain them.

Perchloroethene — See **Tetrachloroethene**

Percolate/ percolation	The movement of water through a porous substance such as soil.
Permeable/ permeability	The rate at which liquids pass through soil or other materials in a specified direction. Water moves easily through a "high permeability" soil (such as gravel) and very slowly through a "low permeability" soil (such as clay).
Pesticide	Substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest. Some pesticides can accumulate in the food chain and/or contaminate the environment if misused.
pH	A measure of the acidity or alkalinity (how basic) of a liquid or solid material. It is related to the number of hydrogen ions in a substance.
Photo ionization detector (PID)	A hand-held instrument used to measure the overall level of **volatile organic compounds** in air.
Piezometer	An instrument used to measure the elevation of the **water table**, i.e. how far below the surface groundwater is located.
Plume	An area of chemicals moving away from its source in a feather-like (hence the name, plume) shape. A plume, for example, can be a column of smoke drifting away from a chimney. An area of dissolved chemicals moving with groundwater is called a "groundwater contaminant plume."
Polychlorinated biphenyls	See **PCBs**
Polycyclic aromatic hydrocarbons (PAHs)	A group of over 100 different chemicals that form during the incomplete burning of coal, oil and gas, garbage, or other organic substances like tobacco or charbroiled meat. PAHs are usually found as a mixture containing two or more of these compounds, such as soot. Some PAHs are manufactured. PAHs are found in coal tar, crude oil, creosote, and roofing tar, but a few are used in medicines or to make dyes, plastics, and pesticides. Most do not dissolve easily in water and stick tightly to soil particles.
Polynuclear aromatic hydrocarbons (PAHs)	See **polycyclic aromatic hydrocarbons**
Porosity	The percentage of the total volume of a given body of rock that is pore space. It is the portion of void (air) space in rock, soil, or sediment.
Potable	Drinkable.

Potentially responsible party (PRP)	Persons identified by the EPA under **CERCLA** or by New York State law as being responsible for the contamination at a hazardous waste site. By law, PRPs may be generators, present or former owners or operators of a site, or transporters of the hazardous substances.
PRAP	See **Proposed Remedial Action Plan**
Precipitation	(1) Rain or snow. (2) Removal of solids from liquid waste so that the hazardous solid portion can be disposed of safely.
Preliminary site assessment (PSA)	A PSA is the **Division of Environmental Remediation**'s first investigation of a site. A PSA is performed to determine if a site meets New York State's definition of an **inactive hazardous waste disposal site** by confirming the presence of hazardous waste and determining if the site poses a significant threat to public health or the environment.
Presumptive remedy	Cleanup technique(s) that can be applied to hazardous waste sites with common characteristics. For example, old municipal landfills built without a liner often have similar characteristics. EPA has developed a "presumptive remedy" for this type of site. Essentially, EPA said "Here's a site similar in all key ways to many other sites we've cleaned up. Wouldn't it make sense to use that cleanup approach here too?"
Project manager	A DEC staff member within the **Division of Environmental Remediation** (usually an engineer, geologist, or hydrogeologist) responsible for the **remedial program** at a hazardous waste site. The project manager works with the Division of Public Affairs and Education as well as fiscal and legal staff to accomplish site-related goals and objectives.
Proposed Remedial Action Plan (PRAP)	A document outlining alternatives considered by the Division of Environmental Remediation for the **remediation** of a hazardous waste site and highlighting the alternative preferred by DEC. The PRAP is based on information developed during the site's **Remedial Investigation** and **Feasibility Study**. The PRAP is reviewed by the public and other state agencies.
Public hearing	A formal hearing at which the public has the opportunity to submit comments and testimony on proposed actions for the public record.
Public meeting	A scheduled gathering of DEC staff and the public to give and receive information, ask questions and discuss concerns.
Publicly owned treatment works (POTW)	A wastewater system, owned by a municipality, state, or tribe that is used for the collection, treatment, and/or disposal of sewage. Usually POTW refers specifically to the sewage treatment plant.

Pump and treat	A method used to collect and treat contaminated groundwater. Typically, groundwater is collected in a well or trench and pumped to a treatment system.
Quality assurance (QA)/ quality control (QC)	A system of procedures, checks, audits, and corrective actions to ensure that environmental sampling and testing are of the highest achievable quality.
Reactivity	The ability of a substances to undergo change, usually by combining with another substance or by breaking down. Certain conditions, such as heat and light, may cause a substance to become more reactive. Highly reactive substances may explode.
Real-time monitoring	During construction or investigation activities, continuous monitoring of air with equipment that gives immediate read-outs; that is, samples don't need to be sent to a laboratory to obtain results.
Recharge	The replenishment of **groundwater** by infiltration of rain and snow through the soil.
Reclassification	A process by which the Division of Environmental Remediation redefines the threat posed by a hazardous waste site to public health and the environment by developing and assessing site information and, based on findings and conclusions, assigning the site a new classification code (see **Site Classification**).
Record of Decision (ROD)	A document which provides the definitive record of the cleanup alternative that will be used to **remediate** a hazardous waste site. The ROD is based on the **Remedial Investigation / Feasibility Study** and public comment.
Registry of Inactive Hazardous Waste Disposal Sites in New York State	Often referred to as "the Registry," this is a compilation of all known and suspected hazardous waste sites (meeting certain criteria) in New York State. The Registry is compiled in a series of documents published every spring and can be purchased by the public. The document included a one page description and map of each site.
Remedial/ remediate/ remediation	Refers to any procedures or strategies used to address a hazardous waste site. For example, a Remedial Investigation determines what areas of a site need to be addressed (cleaned up or remediated), a **proposed remedial action plan** describes remedial actions (cleanup methods or corrective actions) that have been recommended for a specific site; remediation of a site could include removing contaminated soil.
Remedial action (RA)	Action taken to remove, destroy, reduce, or prevent the spread of contamination at a hazardous waste site.

Remedial alternatives report (RAR)

In New York State's **Brownfield** program, a RAR is the equivalent of a **feasibility study**.

Remedial construction

The physical development, assembly and implementation of the alternative selected to **remediate** a site. For example, remedial construction could include installing a groundwater collection and treatment system. Construction follows a **remedial design** stage.

Remedial design (RD)

The process following finalization of a **Record of Decision** in which plans and specifications are developed for the implementation of the alternative selected to remediate (clean up) a site.

Remedial Investigation (RI)

Studies designed to gather the data necessary to determine the type (nature) and extent (location) of contamination at a **hazardous waste site.** The RI is usually performed at the same time as a **Feasibility Study** in a process known as the "RI/FS." This process is designed to:

- Establish criteria for cleaning up the site.
- Identify and screen cleanup alternatives for remedial action; and
- Analyze in detail the technology and costs of the alternatives.

Remedial program

DEC's efforts to investigate and clean up **inactive hazardous waste disposal sites**. A remedial program is designed to correct or "cure"(remedy) releases or potential releases of hazardous materials into the environment. DEC takes several steps as part of each site's remedial program: it investigates contamination **(Remedial Investigation)**, analyzes different methods to address threats posed by the site **(Feasibility Study)**, proposes a cleanup plan **(Proposed Remedial Action Plan)**, selects a final plan **(Record of Decision)**, and designs and implements the plan **(Remedial Design** and **Remedial Construction)**.

Remediation

See **remedial**

Remedy

Actions taken to prevent or mitigate the release of hazardous materials into the environment at **hazardous waste sites** and **brownfield** sites. The word "remedy" is used in the sense of a "cure" or "corrective action."

Removal action

Often less burdensome and extensive than **remedial actions**, a removal action is intended to be a quick, temporary response to a release or the threat of release of a hazardous material at a hazardous waste site. A removal action could involve removing drums of hazardous material, contaminated soil or contaminated sediment and taking these items to a proper disposal facility.

Residual / residue

The quantity of a substance, its degradation products, and/or its metabolites remaining on or in the soil or groundwater. "Residual contamination" usually refers to low levels of chemicals that may be left in soil, bedrock or

groundwater after cleanup of hazardous wastes.

Resource Conservation and Recovery Act (RCRA) — Federal law governing the treatment, storage, handling, disposal, and overall management of solid and hazardous wastes.

Responsible parties — See **Potentially responsible parties**

Responsiveness summary — A formal or informal written summary and response by the DEC to public questions and comments. A responsiveness summary is prepared following a public meeting about a **Proposed Remedial Action Plan** and may also be prepared after other public meetings. The responsiveness summary may list and respond to each question, or summarize and respond to questions in categories.

Reverse osmosis — A type of pressurized filtration system in which water is forced through a semipermeable membrane that allows the passage of water but restricts many contaminants.

Riprap — Large fragments of broken rock, thrown together irregularly or fitted together (as on the down-stream face of a dam). Its purpose is to prevent erosion by waves or currents and thereby preserve a surface, slope, or underlying structure. It is used for irrigation channels, river-improvement works, spillways at dams, and sea walls for shore protection.

Risk — The chance of an injury, illness, or death caused by exposure to a hazard.

Risk assessment — The qualitative and quantitative evaluation performed in an effort to define the risk posed to human health and/or the environment by the presence or potential presence and/or use of specific pollutants.

ROD — See **Record of Decision**

Sampling — Small amounts of air, water, or soil are obtained and tested to determine the levels of different hazardous chemicals contained in them.

Sanitary landfill — See **Landfill**

Saturated zone — A subsurface area in which all pores and cracks in rock and/or soil are filled with water.

Scrubber — A device for removing unwanted gases or particles from an air stream by spraying the air with liquid (usually water) or forcing air through a series of baths. Scrubbers are often put on smoke stacks.

Sediment

Soil, sand, and minerals washed by rain from land into water that accumulates on the bottom of ditches, streams, rivers and lakes.

Selected alternative

(1) The cleanup alternative selected by the state as the most feasible. (2) The cleanup alternative selected for a site on the **National Priorities List** based on technical feasibility, permanence, reliability, and cost.

Semi-volatile organic compounds (SVOCs)

Chemicals similar to **volatile organic compounds** but that do not evaporate as readily. **Polynucleated aromatic hydrocarbons** are semi-volatile compounds.

Site classification

DEC assigns **inactive hazardous waste disposal sites** classifications established by state law, as follows:

- Class1 - A site causing or presenting an imminent danger of causing irreversible or irreparable damage to the public health or environment - immediate action required.
- Class 2 - A site posing a significant threat to the public health or environment - action required.
- Class 2a - A temporary classification for a site that has inadequate and/or insufficient data for inclusion in any of the other classes.
- Class 3 - Site does not present a significant threat to the public health or the environment - action may be deferred.
- Class 4 - A site which has been properly closed - requires continued management.
- Class 5 - A site which has been properly closed, with no evidence of present or potential adverse impact - no further action required.

Site Investigation/ Remedial Alternatives Report (SI/RAR)

In New York's **Brownfield** program, this is the equivalent of a **Remedial Investigation / Feasibility Study** report. The site investigation is similar to a Remedial Investigation, and the Remedial Alternatives Report is similar to a Feasibility Study.

Sludge

A semi-solid residue from any of a number of industrial processes or air or water treatment processes. Sludge can be a hazardous waste.

Slurry

A watery mixture that does not contain a significant amount of dissolved materials.

Slurry Wall

An underground wall designed to stop groundwater flow; constructed by digging a trench and backfilling it with a **slurry** rich in bentonite clay.

Soil boring

A circular hole made in the ground by an auger or mechanical drill rig to collect soil samples deep in the ground. Representative samples are collected for testing to see if the subsoil has been contaminated. Sometimes these borings are converted into groundwater monitoring wells.

Soil gas — Air in the spaces between soil particles. Contaminants can be trapped in this air.

Soil gas survey — A method for investigating underground distributions of **volatile organic compounds** (VOCs) by looking for their vapors in the shallow **soil gas**. The presence of VOCs in shallow soil gas indicates the VOCs may be in the unsaturated (dry) soil or in the groundwater below the probe. This survey is used to trace the outline of a contaminant **plume** and help determine the best location to install groundwater monitoring wells.

Soil Vapor Extraction System (SVE) — An **in-situ** remediation technique that applies a vacuum to a series of wells ("vapor extraction wells") and induces air flow through contaminated soil. As the air migrates through the soil, **volatile organic compounds** (VOCs) volatilize (evaporate) and move with the air to the extraction wells where they are removed from the subsurface. If the concentration of VOCs in the extracted air is high, the air maybe treated by a carbon adsorption system before being released to the atmosphere. In some cases, **dual phase vacuum extraction** is used to treat both groundwater and the overlying soil.

Solid waste — Non-liquid, non-soluble materials ranging from municipal garbage to industrial wastes that contain complex, and sometimes hazardous, substances. Solid wastes also include sewage sludge, agricultural refuse, demolition wastes, and mining residues.

Solubility — The amount of a substance that can be dissolved in water or (sometimes) another substance.

Solvent — A substance (usually a liquid) capable of dissolving one or more other substances. For example, paint remover is a paint solvent.

Sorb — To take up and hold by either **adsorption** or absorption.

Source area — An area from which groundwater contamination is believed to originate. For example, Company A spilled a 55 gallon drum of **trichloroethene** (TCE) onto the ground near a loading dock at their facility. The TCE spread through the soil and contaminated groundwater around the facility. Because the contamination originated in the loading dock area, this area is the "source area." Over time, the highly concentrated TCE in the source area would continue to slowly spread through groundwater and soil, acting as a continuous "source" of groundwater contamination. Thus, the most effective way to slow down and prevent further spreading of contamination would be to address the source area.

SPDES permit (pronounced **SPEEDIES**) — See **State Pollution Discharge Elimination System permit**

Split samples

A soil sample from a hazardous waste site that is divided between the **potentially responsible parties (PRPs)** and the DEC or the Health Department. It functions as a system of checks and balances since both the PRPs and the DEC analyze their half of the sample. The results of the two analyses can then be compared.

Split-spoon Sample

A sample of **unconsolidated** material taken by driving a sampling device (split spoon) into the soil ahead of a drill bit in a **soil boring**. A split-spoon sampler is typically driven into the soil by repeatedly dropping a weight.

Standards, criteria and guidance values (SCGs)

Values that indicate acceptable or normal levels of various contaminants in the environment. These values are used to establish cleanup goals at hazardous waste sites. Depending on the chemical, the values are developed by the U.S. Environmental Protection Agency, DEC and/or the New York State Department of Health.

State assistance contract (SAC)

In DEC's **brownfield** program, the official agreement between a municipality and the state that outlines both party's responsibility for a brownfield investigation and/or cleanup.

State Pollution Discharge Elimination System (SPDES) permit

A permit issued by the DEC as part of the SPDES program, which is designed to maintain New York's waters with reasonable standards of purity. State law requires a SPDES permit before construction or use of an outlet or discharge pipe for wastewater discharging into **surface water** or **groundwater**, and for construction or operation of disposal systems such as sewage treatment plants.

Sump

A pit or tank that catches liquid runoff for drainage or disposal.

Superfund

Federal and state programs to investigate and clean up inactive hazardous waste disposal sites. The federal program gives the U.S. Environmental Protection Agency the funding and authority to investigate, rank and conduct or supervise cleanup of sites on the **National Priority List**. New York State's program gives DEC the same authority to deal with sites that do not qualify for the federal superfund list, but meet certain other qualifications.

Superfund Amendments and Reauthorization Act (SARA)

Modifications to **CERCLA** enacted in 1986. Sometimes referred to as the "Right to Know Law," it requires, among other things, that industry provide the government with information on the use and release of certain chemicals into the environment. This information is then made available to the public.

Surface water

All water naturally open to the atmosphere. Refers to water in rivers, lakes, reservoirs, streams, impoundments, seas, estuaries, and so on.

Swale

A slight depression, sometimes swampy, in the midst of generally level land.

Technical and Administrative Guidance Memorandum (TAGM)	An official internal **Division of Environmental Remediation** document that outlines divisional policies or recommended guidance for topics such as determining cleanup goals at **hazardous waste sites.**
Technical Assistance Grant Program (TAG Program)	A federal grant program that provides funds for qualified citizens' groups to hire independent technical advisors to help them understand and comment on technical decisions relating to federal **Superfund** cleanup actions.
Technical and Operational Guidance Series (TOGs)	DEC Division of Water's documents listing water quality standards and guidance values.
Test pit	A small excavation at a hazardous waste site. Investigators dig test pits to get an idea of subsurface conditions at hazardous waste sites.
Tetrachloroethene (Perchloroethene)	A clear, colorless, non-flammable liquid with a characteristic odor. It is a widely used solvent, especially as a dry cleaning agent and as a **degreaser.**
Threshold	A dose or exposure below which there is no measurable adverse effect.
Title 3 program/ project	Part of New York State's Superfund program whereby the State pays 75 percent of eligible costs for **remediation** of municipally owned hazardous waste sites and the municipality pays 25 percent.
Toxicity	The degree of danger posed by a substance to animal or plant life.
Toxicity Characteristic Leaching Procedure	Laboratory test used to determine the mobility of organic and inorganic contaminants present in liquid, solid, and multiphase wastes. If an extract from a representative sample is shown to contain any contaminant in an amount exceeding the levels allowed by regulations, the waste is banned for **land disposal** unless properly treated.
Toxic substances	A chemical or mixture that may present an unreasonable risk of injury to health or the environment.
Toxic Substances Control Act (TSCA) of 1976	A federal law that provides for testing of manufactured substances to determine toxic or otherwise harmful characteristics and regulation of the manufacture, distribution, use, and disposal of regulated substances.
Treatability studies	(1) Tests of potential cleanup technologies conducted in a laboratory. (2) Pilot-scale type tests conducted at hazardous wastes sites to determine if a treatment technology will work for that site's particular set of environmental conditions.

Treatment, storage, and disposal facility (TSDF)	A site where a hazardous substance is treated, stored or disposed of. TSDF facilities are regulated by EPA and states under the **Resource Conservation and Recovery Act.**
1,1,1-Trichloroethane (1,1,1 TCA)	Colorless, non-flammable, man-made liquid **solvent** used as a **degreaser**, a dry-cleaning agent, and a propellant.
Trichloroethene *or* Trichloroethylene (TCE)	A colorless, man-made liquid used primarily as a solvent for removing grease from metal. It has a variety of other uses such as a dry cleaning solvent and in the production of other chemicals. It generally gets into drinking water by improper waste disposal.
Unconfined aquifer	An **aquifer** in which water is not contained by an **impermeable** layer of rock or soil. The water level in the aquifer may rise or fall according to the volume of water stored, which varies according to seasonal cycles of natural recharge.
Unsaturated zone	The area of soil and rock between the land surface and the **water table**. The spaces between soil particles (pore spaces) in the unsaturated zone contain mostly air, but water occurs there as soil moisture.
Vadose zone	The underground zone between the land surface and the water table; essentially the **unsaturated zone**.
Vapor	The gas given off by a solid or liquid substance at ordinary temperatures.
Vinyl chloride	A colorless gas used in the manufacture of polyvinyl chloride and other resins, and as a chemical intermediate and as an industrial solvent. Vinyl chloride is a **carcinogen**.
Viscosity	The property of a fluid describing its resistance to flow.
Volatile	Description of any substance that evaporates easily.
Volatile organic compounds (VOCs)	Carbon-containing chemicals which readily evaporate (cleaning solvents, gasoline, etc.). Many common industrial chemicals are VOCs, including **trichloroethene**, **1,1,1-trichloroethane**, and **tetrachloroethene**.
Voluntary cleanup agreement	A legal document signed by DEC and another party (volunteer) for investigation and/or cleanup of a contaminated site. In return for cleaning up the site, the volunteer receives a limited liability release for past environmental contamination of the site.
Voluntary cleanup program	A program designed to promote voluntary cleanup of contaminated sites including inactive hazardous waste sites, hazardous substance sites, petroleum contaminated sites and solid waste disposal sites, whereby the volunteer enters into a **Voluntary Cleanup Agreement** with the DEC.

Waste	(1) Unwanted materials left over from a manufacturing process. (2) Refuse from places of human or animal habitation.
Water-bearing zone	The area underground in which pores and cracks in rock and/or soil are normally filled with water. Therefore, if a well is drilled into this area, water can be drawn out on a regular basis.
Water table	The level of groundwater; the boundary between the **unsaturated zone** and the **saturated zone**. The water-table generally reflects surface topography and varies with changes in land surface elevations.
Weir	(1) A wall or plate in a open channel to measure the flow of water. (2) A wall or obstruction used to control flow from settling tanks, clarifiers, or a drainage system to ensure a uniform flow rate.
Wetlands	An area that is regularly saturated by surface water or groundwater. Examples of wetlands include swamps, bogs, fens, marshes, and estuaries.

References

This glossary and list of acronyms was assembled from various EPA sources, in addition to the following:

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This glossary was compiled for DEC by Stacie E. Cornelius, DEC Citizen Participation Office Intern with assistance from Region 8 Citizen Participation staff, November, 1998. Updated by Intern Sam Edmonds, December, 1999. Additional updates June, 2000.

Guide to Environmental Acronyms

This list of acronyms include abbreviations for agency names, chemicals, units of measure, and various documents and technical terms. Many of these terms are also defined in the *Region 8 Citizen's Glossary of Environmental Terms.*

AG	Attorney General
AOC	Area of Concern
ARARs	Applicable or Relevant and Appropriate Requirements
AST	Above-Ground Storage Tank
ATSDR	Agency for Toxic Substances and Disease Registry *(Federal)*
C&D	Construction & Demolition
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act of 1980 *(Federal)*
CO	Consent Order
COC(s)	Contaminant(s) of Concern
CP	Citizen Participation
CPP	Citizen Participation Plan
CPS	Citizen Participation Specialist
DDT	Dichloro-diphenyltrichloroethane (*pesticide*)
DEC	Department of Environmental Conservation *(New York State)*
DEE	Division of Environmental Enforcement (*within DEC*)
DEP	Division of Environmental Permits *(within DEC)*
DER	Division of Environmental Remediation *(within DEC)*
DFWMR	Division of Fish, Wildlife and Marine Resources *(within DEC)*
DNAPL	Dense Non-Aqueous Phase Liquid
DOD	Department of Defense*(Federal)*
DOH	Department of Health *(New York State)*
DOL	Department of Law *(New York State)*
DOT	Department of Transportation *(New York State)*
DOW	Division of Water *(within DEC)*
ECL	Environmental Conservation Law *(New York State)*
EIS	Environmental Impact Statement
ELAP	Environmental Laboratory Accreditation Program
ENB	Environmental Notice Bulletin
EPA	United States Environmental Protection Agency
EQBA	1986 Environmental Quality Bond Act *(New York State "Superfund")*
ESD	Explanation of Significant Differences *(DEC document)*
F&W	Division of Fish & Wildlife *(within DEC)*
FOIA	Freedom of Information Act *(Federal)*
FOIL	Freedom of Information Law *(New York State)*

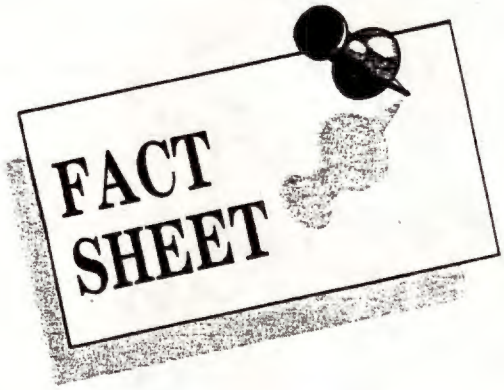
FS	Feasibility Study
FSF	Federal Superfund
FY	Fiscal Year
GPM	Gallons Per Minute
HASP	Health and Safety Plan
HDPE	High-Density Polyethylene (*plastic*)
HRS	Hazard Ranking System
ICM	Interim Corrective Measures
ICMI	Interim Corrective Measures Implementation
IIWA	Immediate Investigation Work Assignment
IRM	Interim Remedial Measure
LEL	Lowest Effect Level
LNAPL	Light Non-aqueous Phase Liquid
mg/kg	Milligrams per Kilogram
mg/l	Milligrams per Liter
MW	Monitoring Well (*groundwater*)
NAPL	Non-Aqueous Phase Liquid
ND	Non-detect (*not detected*)
NIOSH	National Institutes of Occupational Safety and Health
NPL	National Priorities List (*EPA list*)
NYCRR	New York Codes, Rules and Regulations
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
O&M	Operation & Maintenance
OSHA	Occupational Safety and Health Administration (U.S.)
OU	Operable Unit
PAH	Polynucleated Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyls
PCE	Perchloroethene (*Tetrachloroethene*)
PID	Photoionization Detector
POTW	Publicly Owned Treatment Works (*sewage or water treatment plant*)
ppb	Parts per Billion
ppm	Parts per Million
ppt	Parts per Trillion
PRAP	Proposed Remedial Action Plan *(DEC document)*
PRP	Potentially Responsible Party
PRS	Priority Ranking System
PSA	Preliminary Site Assessment
QA/QC	Quality Assurance/Quality Control
RA	Remedial Action
RAS	Remedial Action Selection Report
RAR	Remedial Alternatives Report
RCRA	Resource Conservation and Recovery Act *(Federal)*
RD	Remedial Design
RHWRE	Regional Hazardous Waste Remediation Engineer
RI	Remedial Investigation

RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision *(DEC document)*
RP	Responsible Party
SAC	State Assistance Contract
SARA	Superfund Amendments and Reauthorization Act (*Federal*)
SCGs	Standards, Criteria and Guidance Values
SI	Site Investigation
SI/RAR	Site Investigation/Remedial Alternatives Report
SPDES	State Pollution Discharge Elimination System
SSMB	State Superfund Management Board
SVE	Soil Vapor Extraction or Soil Vacuum Extraction
SVOCs	Semi-volatile Organic Compounds
2,4,5-T	2,4,5-trichlorophenoxyacetic acid (*pesticide*)
TAG	Technical Assistance Grant *(Federal)*
TAGM	Technical and Administrative Guidance Memorandum *(DEC)*
TCA	Trichloroethane
TCE	Trichloroethene or Trichloroethylene
TCLP	Toxicity Characteristic Leaching Procedure
TLV	Threshold Limit Value
TOGS	Technical and Operational Guidance series *(DEC)*
TSCA	Toxic Substances Control Act *(Federal)*
TSDF	Treatment, Storage and Disposal Facility
TWA	Time-weighted Average
ug/kg	Micrograms per Kilogram
ug/l	Micrograms per Liter
USGS	United States Geological Survey
UST	Underground Storage Tank
VCP	Voluntary Cleanup Program
VOC	Volatile Organic Compound

Appendix B:

Fact Sheets Explaining the Investigation and Cleanup Stages of the Hazardous Waste Site Program

HALEY & ALDRICH



Remedial Investigation/ Feasibility Study

The Department of Environmental Conservation (DEC), along with the Departments of Health (DOH) and Law (DOL), is responsible for ensuring the cleanup of inactive hazardous waste sites across the state. Under New York State's Hazardous Waste Site Remedial Program, the process begins with the discovery of a potential hazardous waste site and follows a path of thorough investigation, enforcement, remedial action selection, design, construction and monitoring. This fact sheet highlights one stage in the comprehensive process, the **Remedial Investigation/Feasibility Study (RI/FS).**

RI/FS begins when hazardous waste contamination is confirmed.

The RI/FS follows preliminary site investigations by DEC and DOH that verify hazardous wastes are present and that the wastes pose a significant threat to public health and the environment.

DEC and DOH gather detailed site information work toward an effective remedial action.

DEC's Division of Hazardous Waste Remediation or the responsible party under an enforceable consent order carries out an RI/FS to determine the nature and extent of contamination. DEC, along with DOH, uses the RI/FS information to select a remedial action that effectively eliminates the threat posed by the site. The RI/FS results in a Record of Decision (ROD) describing the cleanup that will be carried out and documents the decisions that led to the chosen remedial action.

The state initiates a variety of activities to inform and involve the public during the remedial process.

Throughout the remedial process, the state encourages public involvement. The public plays a key role in the RI/FS to help shape the final remedial decision. Public meetings, newsletters, fact sheets and project documents contribute to the exchange of information and provide opportunity for comment.

produced by
New York State Department of Environmental Conservation
in cooperation with
New York State Departments of Health and Law

The state achieves successful hazardous waste remediation with the cooperationof many groups

State engineers, geologists, chemists and health specialists work with consultants, contractors, municipalities, potentially responsible parties and citizens to investigate the contamination and develop appropriate remedial actions. The RI/FS process requires a detailed examination of a site to fully understand its impact on public health and the environment before deciding on a remedial action. The process can take up to two years to complete.

The sections below describe how the state reaches a remedial action decision.

Remedial Investigation (RI)

The RI defines the threat to public health and the environment.

The responsible party or DEC performs an RI at each Class 2 inactive hazardous waste site after preliminary investigations have shown that contaminants pose a significant threat to public health or the environment. Through extensive sampling and laboratory analyses, the RI identifies the length, depth and width of contamination, defines the pathways of migration and measures the degree of contamination in surface water, groundwater, soils, air, plants and animals. Information gathered during the RI fully describes the hazardous waste problem at the site so that the appropriate remedial action can be developed.

DOH evaluates ways people may be exposed to hazardous waste.

DOH reviews and recommends activities that will be performed during the RI to ensure that a complete picture of potential health impacts is understood. Such activities include identifying the ways contamination can reach people, either through direct contact, eating, drinking or breathing.

Feasibility Study (FS)

Remedial action choices are developed during the FS.

The Feasibility Study uses RI information to develop alternative remedial actions that will eliminate the threat to public health or the environment posed by the site. Wherever feasible, the state selects a remedy, such as destruction, that permanently reduces or eliminates the contamination.

The state evaluates the remedial alternatives to reach a balanced decision that protects people and the environment.

The responsible party and DEC screen each alternative to make sure the remeday is technically suitable for the site. Following the initial screening, DEC and DOH weigh the remaining alternatives against a number of other conditions, including:

- overall protection of public health and the environment;
- reduction in toxicity, mobility and volume of hazardous waste (e.g., by thermal destruction, biological or chemical treatments or containment wall construction);
- long-term effectiveness and permanence;
- short-term effectiveness and potential impacts during remediation;
- implementation and technical reliability;
- compliance with statutory requirements;
- community acceptance; and
- cost.

DEC prepares the proposed remedial action plan for public comment.

The outcome of the selection process is the recommendation of a remedy that best satisfies a combination of these conditions. The remedy becomes part of a proposal that is presented to the public for comment.

Proposed Remedial Action Plan and Public Comment

The state presents the proposed remedial action plan to the public.

After the RI/FS is completed, DEC and DOH hold a public meeting to propose the remedial solution. The Proposed Remedial Action Plan (PRAP) summarizes the decision that led to the recommended remedial action by discussing each alternative and the reasons for choosing or rejecting it.

Public comment can make a difference in the remedial action plan.

The public is encouraged to review the PRAP and make comments either at the meeting or during the comment period that follows. The comments are reviewed and compiled in a Responsiveness Summary and modifications to the proposed remedial action may be made. Additional public notice is required if a modified remedial action differs significantly from the earlier selection.

The final remedial decision is documented in the record of decision.

DEC drafts a Record of Decision (ROD) which includes the selected remedial action, the Responsiveness Summary and a bibliography of documents that were used to reach the remedial decision. DOH and DOL have an opportunity to comment on the draft ROD before final DEC approval. When the ROD is finalized, remedial design and construction can now begin.

For a full explanation of the ROD, see the companion fact sheet, "Record of Decision."

For More Information

- about the RI/FS, remedy selection process, or citizen participation, call DEC's 24-hour toll-free hazardous waste remediation information line at 1 (800) 342-9296.
- If you have questions about the health impacts of a hazardous waste site, contact the Department of Health's Help Liaison Program (HeLP) at 1 (800) 458-1158, extension 402.

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New York State
Department of Environmental Conservation

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December 1994

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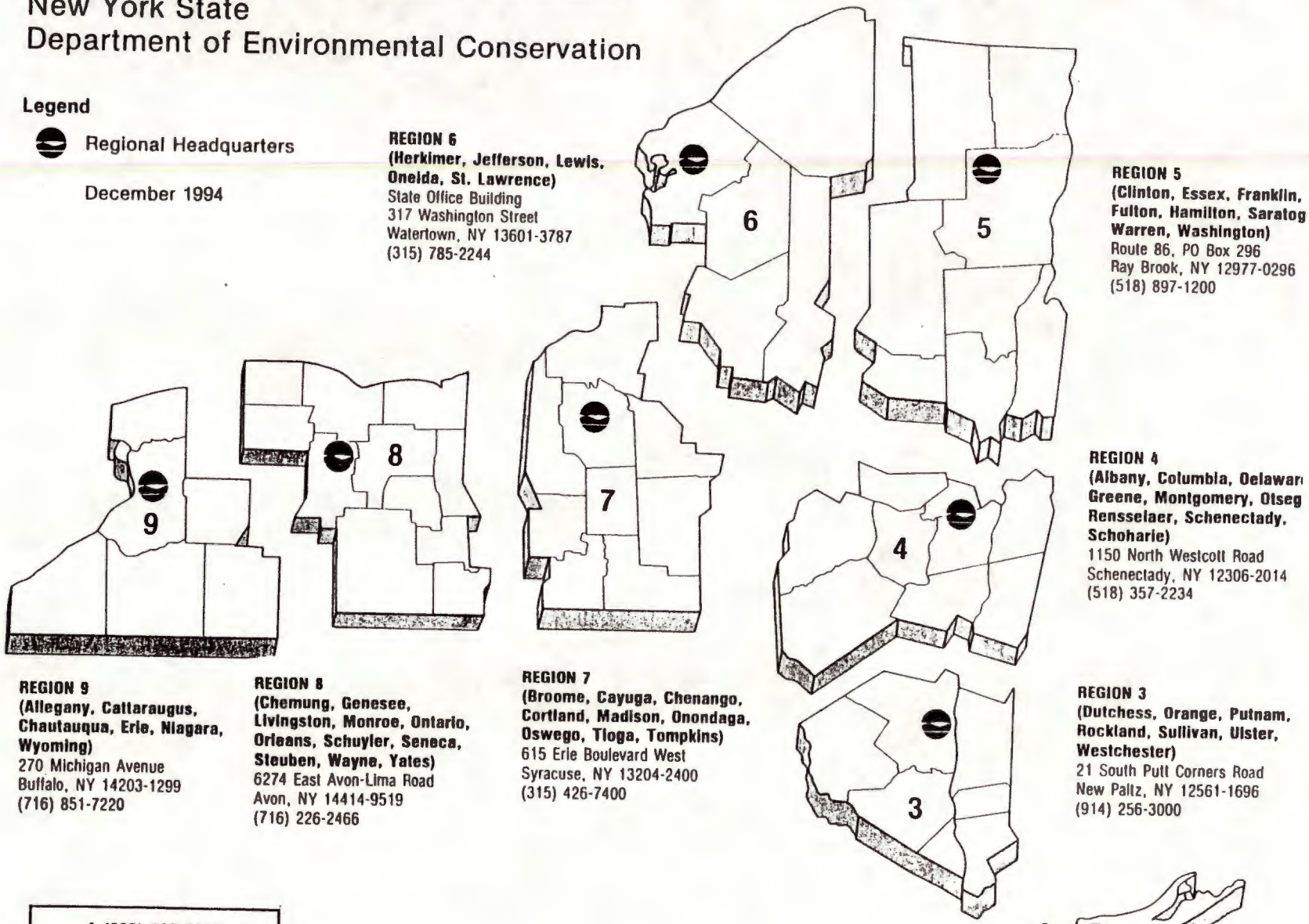

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HAZARDOUS WASTE REMEDIATION

New York State Department of Environmental Conservation July 1995

Fact Sheet

INTERIM REMEDIAL MEASURES

New York State's Hazardous Waste Site Remedial Program begins with the discovery of a potential hazardous waste site and follows a path of investigation, enforcement, remedial action selection, design, construction and monitoring. This fact sheet highlights the Interim Remedial Measure (IRM), a remedial action.

IRM defined

An IRM is a discrete set of planned actions, used for both emergency and non-emergency situations, that can be conducted without the extensive investigation and evaluation of a Remedial Investigation/Feasibility Study (RI/FS).

An IRM can be part of or the full remediation of a site

An IRM is designed to be a permanent part of the final remedy. Sometimes, an IRM achieves the remedial goal for a site and no further action is required. When an IRM constitutes the entire remedy, DEC drafts a Proposed Remedial Action Plan (PRAP) that proposes no further action at the site and solicits public comment.

An IRM provides a quick solution to a defined problem

An IRM is extremely adaptable. It covers a variety of activities, large and small, to remediate an array of diverse, well-defined problems at a site. Some of these problems may be contaminated soils, surface and groundwater, debris, sediments and drinking water supplies and buried and abandoned drums of waste and bulk storage tanks.

Remedial activities carried out under an IRM include:

Removing wastes and contaminated materials, including contaminated soil, sediments and groundwater.

Erecting access controls, such as fences.

Removing drums of waste and bulk storage tanks.

Constructing diversion ditches, groundwater collection systems, leachate collection systems, gas venting systems.

Pumping and treating contaminated groundwater.

Treating contaminated soil onsite using innovative technologies such as soil vapor extraction.

Installing individual drinking water filter systems.

Demolishing and removing contaminated buildings.

IRMs provide better protection of public health and the environment

Because of their versatility and the relative speed with which they are applied, IRMs accelerate remedial projects and the sooner sites are remediated, the sooner the public and the environment are protected. In addition, accelerated remedial projects often mean reduced remedial costs.

DEC discusses IRMs with the affected communities

In emergencies, IRMs must be implemented quickly to be most effective, making it impractical to hold public meetings and comment periods prior to the IRM actions. For time critical IRMs, the Project Manager prepares a fact sheet describing the IRM for distribution to local officials. The Regional Citizen Participation Specialist (CPS) sends the fact sheet to interested parties and residents adjacent to the site. If time does not permit mailing the fact sheet prior to implementation of the IRM, the CPS may telephone the information to local officials and conduct door-to-door notification to residents.

For non-emergencies, the Project Manager, with the assistance of the Regional CPS, conducts an information meeting to explain the proposed IRM and listen to comments from local officials and the public.

At the issuance of a PRAP, CPSs make sure that the document is available to residents and interested parties and invite them to comment on the proposed remedial action. A Responsiveness Summary, prepared by the CPSs and the Project Manager, is issued to reply to the public comments and the Record of Decision is signed.

State and federal agencies and PRPs carry out IRMs

DEC carries out IRMs at State-funded sites. PRPs (potentially responsible parties) perform IRMs at their sites under consent orders. EPA (the federal Environmental Protection Agency) carries out IRMs, calling them Emergency Response Actions, at sites on the National Priorities List. Municipalities conduct IRMs at municipally-owned sites with partial funding from Title 3 grants.

DEC also carries out emergency actions at non-registry sites

DEC's emergency response actions, such as drum removals, are carried out to prevent, mitigate or remedy environmental damage at sites not listed in the registry of hazardous waste sites.

For further information, call 1-800-342-9296

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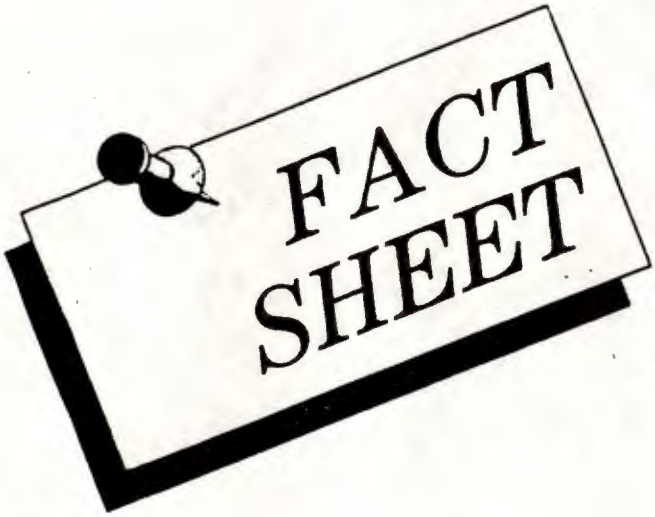
New York State Hazardous Waste Site Remedial Program



Record of Decision

The Department of Environmental Conservation (DEC), along with the Departments of Health (DOH) and Law (DOL), is responsible for ensuring the cleanup of inactive hazardous waste sites across the state. Under New York State's Hazardous Waste Site Remedial Program, the process begins with the discovery of a potential hazardous waste site and follows a path of thorough investigation, enforcement, remedial action selection, design, construction and monitoring. This fact sheet highlights one stage in the comprehensive process, the **Record of Decision.**

The ROD contains results of the remedial invsetigation and remedy selection process.

The Record of Decision (ROD) presents the remedial action for an inactive hazardous waste site and documents the information and rationale used to arrive at the decision.

The ROD is the culmination of extensive investigations and a remedy selection that identifies a solution to remove the threat of harm from public health and the environment. (For more on this , see fact sheet "Remedial Investigation/Feasibility Study.") It serves as the definitive record of the remedial action decision for the site and as a convenient reference to other documents that were developed during the remedial process.

DEC's deputy commissioner gives the final approval to the ROD.

The Deputy Commissioner for the Office of Environmental Remediation signs the final ROD following public comment and departmental review of the proposed remedial action plan. The project moves on to remedial design and construction.

produced by
New York State Department of Environmental Conservation
in cooperation with
New York State Departments of Health and Law

The ROD summarizes information used to select the remedial action.

ROD Contents

Each ROD produced for a hazardous waste site contains information about the site that identifies the problem and describes the remedial solution. In addition, the decision-making process that yielded the remedial action is documented to demonstrate that the appropriate solution was selected. The ROD contains:

- *site location, description and history:* provides valuable insight into the previous use of the site and identifies vulnerable areas in the surrounding environment, such as residential areas and protected wetlands, groundwater, etc.
- *problem identification:* describes the nature and extent of contamination and the pathways through which contaminants move in the environment.
- *status of enforcement actions:* provides the enforcement history and current status for the site.
- *goals for remedial action:* describes the overall goal of remediation, protection of human health and the environment, and remedial goals specific to each site—for example, preventing contaminated groundwater migration.
- *discussion of remedial alternatives:* presents each potential remedial action, including a "no action" alternative, to show that technical, legal, environmental and public concerns are met.
- *the selected remedial action:* describes the planned remedy.
- *Responsiveness Summary:* documents public comments about the selected remedy. Modifications to the remedial action based on public comment are identified in the summary.
- *Administrative Record:* references reports and other documents developed during investigation and remedial selection.

Amended remedial decisions require additional review and public input.

Amendments to the ROD

Changes to the final remedial action may occur in two cases:

1) if the ROD specifically provides for later addition of documents and reserves a portion of the decision to a later time; or,
2) if new and significant information is received or generated after the ROD is finalized.

An amended ROD must go through additional review and public comment periods.

For More Information

- about the Record of Decision and the remedy selection process, or citizen participation activities, call DEC's 24-hour toll-free hazardous waste remediation information line at 1 (800) 342-9296.

HAZARDOUS WASTE REMEDIATION

New York State Department of Environmental Conservation June 1995

Fact Sheet

DESIGN/CONSTRUCTION

New York State's Hazardous Waste Site Remedial Program begins with the discovery of a potential hazardous waste site and follows a path of investigation, enforcement, remedial action selection, design, construction and monitoring. This fact sheet highlights the Design and Construction phase of the program.

The Remedial Design spells out the technical requirements of the construction.

The remedial design details the size, scope and character of a site's remediation — the planned action that will, at a minimum, protect public health and the environment. It translates information from the Remedial Investigation/Feasibility Study, the Record of Decision and additional data gathered during design preparation into clear, precise facts and numbers.

Key participants are PRPs, state and federal agencies.

Potentially Responsible Parties (PRPs) are legally responsible for site remediation. For many sites, remedial work is carried out by PRPs with DEC oversight. The PRPs are responsible for completion and long-term performance of the remedy. For other sites, remedial work is carried out by DEC or EPA.

DEC ensures that all remedial designs effectively protect the environment and conform to the recommendations of the Records of Decision and consent orders.

The NYS Department of Health (DOH) ensures that all remedial designs effectively protect the public and contain community health and safety considerations that must be implemented during construction.

Design elements include quality control, assurance and contingency plans.

Construction Quality Control (CQC)

A planned system of inspections that is used to directly monitor and control the quality of a construction project. CQC, usually carried out by the contractor, is necessary to achieve quality in the constructed system.

Construction Quality Assurance (CQA)

A planned system of activities to provide assurance to the owner and the permitting agency that all aspects of remedial construction meet design requirements. CQA includes inspections, verifications, audits, tests and evaluations of materials and workmanship to determine and document the quality of the remedial construction.

Contingency Plan

The contingency plan protects the local community which may be affected by an accident or emergency caused by remedial activities. Contingency plans may include:

-Name of person responsible for responding in an emergency.

-Schedule for meeting with local, state and federal agencies, the community, local emergency agencies and hospitals.

-First aid and medical information.

-Air monitoring plan if a human health risk exists through inhalation of specified pollutants.

-Spill control and countermeasures plan to prevent contamination of soil, water, air, structures, equipment or material from the discharge of wastes due to spills; to contain the spill and remove and properly dispose of media contaminated from the spill.

Citizen participation activities, which begin when the site is identified, continue through the Design/Construction phases.

When the remedial design is finalized, a fact sheet describing the proposed remedial action is distributed to the community and other interested people. The fact sheet also contains a construction schedule, explanations of the roles of the PRP and DEC, details of the contingency plan and descriptions of potential inconveniences such as excess traffic and noise. A public meeting or availability session may also be held to discuss schedules, changes in traffic patterns, location of monitoring equipment and how the public will be kept informed on progress. CP staff ensure that all relevant documents about the site remediation are placed in repositories for public review.

At the completion of construction, another fact sheet announcing the end of construction and describing any Operation and Maintenance activities that may have been specified in the Record of Decision (ROD) is distributed to the community.

Remedial construction is carefully monitored.

Key Participants

DEC's remedial project manager attends progress meetings to discuss status of and changes in the project, test results, other findings and upcoming activities. The manager ensures that construction is not endangering public health, monitors quality assurance, coordinates remedial activities and promotes citizen participation.

The PRP's or DEC's consulting engineer and inspectors test and inspect the constructor's work, confirm that test data are properly recorded and validated. Their main responsibility is to verify that construction conforms to the approved design documents.

DEC oversight ensures that the construction meets all the requirements of the approved design.

No work is performed at a site until DEC has approved the workplan. Oversight consists of two types—office and field. Office oversight includes the review, evaluation and comment on all submittals, reports, data, etc. generated by remedial activities. Field oversight is site-dependent and includes consent order requirements, construction according to approved plan, public health and environmental concerns, public sensitivity and the potential for pollutant migration.

Final inspection ensures that all aspects of the design have been met by the construction.

Acceptance of the remedial work signals the next step in the remedial program — site reclassification.

Sites are often reclassified after remedial construction

Site reclassification signals the conclusion of the remedial construction.

Following remediation, a site usually is reclassified from Class 2, which called for remedial action to protect public health or the environment, to:

-Class 4, requiring continued operation, maintenance and monitoring.

or

-Class 5, requiring no operation, maintenance and monitoring.

or if all hazardous wastes have been removed, the site may be removed (delisted) from the Registry of Inactive Hazardous Waste Sites.

Operation and Maintenance may be included in the remedial program.

Included in some remedies are monitoring requirements which are included in Operation and Maintenance (O&M) Plans. O&M includes visual inspections and upkeep and can include sampling.

For more information, call 1-800-342-9296

Appendix C:

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4800 DEWEY AVE
ROCHESTER NY 14612

LEGRANGE PROPERTIES INC
139 FOREMAN DR
ROCHESTER NY 14616

L SON ASSOCIATES
199 LAGRANGE AVE
ROCHESTER NY 14613

AJL TOOL & MANUFACTURING
110 HOLLEDER PARKWAY
ROCHESTER NY 14615

RAIN FLOORIST CARPET CLEANING
517 BIRR ST
ROCHESTER NY 14613-1343

RONNIE'S BARBER SHOP
568 DRIVING PARK AVE
ROCHESTER NY 14613-1537

CHRISTOFF MARKETS
602 DRIVING PARK AVE
ROCHESTER NY 14613-1504

RIVERSIDE GROUP
655 DRIVING PARK AVE
ROCHESTER NY 14613-1566

FLOWER CITY TISSUE MILLS CO
700 DRIVING PARK AVE
ROCHESTER NY 14613-1590

J T CONCESSIONS
740 DRIVING PARK AVE
ROCHESTER NY 14613-1534

CAMBRIDGE MANAGEMENT SVC
740 DRIVING PARK AVE
ROCHESTER NY 14613-1534

LE CESSE CONSTRUCTION CO
740 DRIVING PARK AVE
ROCHESTER NY 14613-1534

AFTEK INC
740 DRIVING PARK AVE # 6
ROCHESTER NY 14613-1578

NESCO SERVICE CO
740 DRIVING PARK AVE
ROCHESTER NY 14613

NORTHEST BINGO CTR
740 DRIVING PARK AVE
ROCHESTER NY 14613-1534

OPKOR INC
740 DRIVING PARK AVE
ROCHESTER NY 14613-1534

AACAM MFG INC
740 DRIVING PARK AVE
ROCHESTER NY 14613-1534

AMERICAN PACKAGING CORP
777 DRIVING PARK AVE
ROCHESTER NY 14613-1591

KING'S EXPRESS
864 DRIVING PARK AVE
ROCHESTER NY 14613-1507

WATKINS MOTOR LINES
900 DRIVING PARK AVE
ROCHESTER NY 14613-1508

ILO'S SHOP
900 DRIVING PARK AVE
ROCHESTER NY 14613-1508

ROCHESTER DISTRIBUTING
UNLIMITED
970 DRIVING PARK AVE
ROCHESTER NY 14613-1508

PANALPINA INC
970 DRIVING PARK AVE
ROCHESTER NY 14613-1508

CONTAINERPORT INC
970 DRIVING PARK AVE
ROCHESTER NY 14613-1508

BRIDGE TERMINAL TRANSPORT
970 DRIVING PARK AVE
ROCHESTER NY 14613-1508

YOUNGBLOOD DISPOSAL SYSTEM
INC
101 LAGRANGE AVE
ROCHESTER NY 14613-1511

GAGE-LINE TECHNOLOGY INC
121 LAGRANGE AVE
ROCHESTER NY 14613-1511

COMMERCIAL PLASTICS & SUPPLY
195 LAGRANGE AVE
ROCHESTER NY 14613-1511

METRO CIRCUITS
205 LAGRANGE AVE
ROCHESTER NY 14613-1576

POOL TECHNOLOGY INC &
LEXINGTON ANSWERING SERVICE
673 LEXINGTON AVE
ROCHESTER NY 14613-1805

LEX BAR & GRILL
688 LEXINGTON AVE
ROCHESTER NY 14613-1806

CLARKE LAWN & LANDSCAPE
720 LEXINGTON AVE
ROCHESTER NY 14613-1808

K-9 TRAINING INC
1425 MOUNT READ BLVD # 210
ROCHESTER NY 14606-2841

BUTLER INTERNATIONAL INC
1425 MOUNT READ BLVD # 100
ROCHESTER NY 14606-2841

NORANDEX INC
1465 MOUNT READ BLVD
ROCHESTER NY 14606-2821

WESCO DISTRIBUTION INC
1523 MOUNT READ BLVD
ROCHESTER NY 14606-2823

T & G SPEED SHOP
145 LAGRANGE AVE
ROCHESTER NY 14613-1511

HILLYARD-THE CLEANING
RESOURCE
195 LAGRANGE AVE
ROCHESTER NY 14613

EDDIE'S SERVICE STATION
673 LEXINGTON AVE
ROCHESTER NY 14613-1805

TWO W TREE SVC INC
673 LEXINGTON AVE
ROCHESTER NY 14613-1805

MARSHALL BOXES INC
715 LEXINGTON AVE
ROCHESTER NY 14613-1807

WARP DRIVE SUSPENSION
720 LEXINGTON AVE
ROCHESTER NY 14613-1808

MAKE A WISH FOUNDATION-WNY
1425 MOUNT READ BLVD # 150
ROCHESTER NY 14606-2841

FIREFIGHTERS LOCAL 1071
1425 MOUNT READ BLVD # 15
ROCHESTER NY 14606-2841

CALIFORNIA COLLISION
1517 MOUNT READ BLVD
ROCHESTER NY 14606-2823

O'BRIEN & GERE OPERATIONS INC
1523 MOUNT READ BLVD
ROCHESTER NY 14606-2823

KAMAN INDUSTRIAL TECHNOLOGIES
157 LAGRANGE AVE
ROCHESTER NY 14613-1511

ROESSEL & CO INC
199 LAGRANGE AVE
ROCHESTER NY 14613-1593

MR BLACKTOP ASPHALT PAVING
673 LEXINGTON AVE
ROCHESTER NY 14613-1805

SALFORMICOLA CONSTRUCTION CO
673 LEXINGTON AVE
ROCHESTER NY 14613-1805

A ROYAL ENVIRONMENTAL INC
720 LEXINGTON AVE
ROCHESTER NY 14613-1808

INSUL-SASH OF AMERICA
1425 MOUNT READ BLVD # 100
ROCHESTER NY 14606-2841

NORTHEASTERN SECURITY SVC INC
1425 MOUNT READ BLVD # 210
ROCHESTER NY 14606-2841

INFOTEK SUPPORT SVC LTD
1425 MOUNT READ BLVD # 10
ROCHESTER NY 14606-2841

AAMCO TRANSMISSIONS
1521 MOUNT READ BLVD
ROCHESTER NY 14606-2823

BECKER MOVERS
1523 MOUNT READ BLVD # B
ROCHESTER NY 14606-2823

PRIME TECH SALES INC
1545 MOUNT READ BLVD
ROCHESTER NY 14606-2823

TRU FORM MFG CORP
1545 MOUNT READ BLVD
ROCHESTER NY 14606-2823

THRU-WAY SPRING
1609 MOUNT READ BLVD
ROCHESTER NY 14606-2825

WASTE MANAGEMENT OF NEW YORK
1661 MOUNT READ BLVD
ROCHESTER NY 14606-2825

AA ENVIRONMENTAL SVC
1765 MOUNT READ BLVD
ROCHESTER NY 14606-2827

BUILD TECH
1765 MOUNT READ BLVD
ROCHESTER NY 14606-2827

W J GRINDER ROOFING CO
1765 MOUNT READ BLVD
ROCHESTER NY 14606-2827

COPPERSMITH HOMES INC
1765 MOUNT READ BLVD
ROCHESTER NY 14606-2827

ELECTRONIC MEDIA SOLUTIONS INC
1850 MOUNT READ BLVD
ROCHESTER NY 14606

A W FARRELL & SONS
40 RAMONA ST
ROCHESTER NY 14613-1558

AMERICAN DIABETES ASSN
20 RAMONA ST
ROCHESTER NY 14613-1558

DEFT COMPUTER SOLUTIONS INC
30 RAMONA ST
ROCHESTER NY 14613-1558

FAIRPORT MECHANICAL CORP
126 RAMONA ST
ROCHESTER NY 14613-1548

STEPHEN JONES CONTRACTING
130 RAMONA ST
ROCHESTER NY 14613-1548