Citizen Participation Plan
for the
Buell Automatics, Inc. Brownfields Cleanup Agreement
381 Buell Road
Rochester, New York 14624

Brownfields Cleanup Agreement Index No. B8-0576-00-04A

March 2004

Prepared by:

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March 12, 2004

Mr. Bart Putzig, P.E.
New York State Department of Environmental Conservation
Division of Environmental Remediation
6274 East Avon-Lima Road
Avon, New York 14414-9519

RE: Citizen Participation Plan **16059**
Brownfield Cleanup Agreement Index No. B8-0576-00-04A
Buell Automatics, Inc.
381 Buell Road
Rochester, NY

Dear Bart:

On behalf of Buell Automatics, Inc., please find enclosed the Citizen Participation Plan (CPP) for the Buell Automatics, Inc. site located at 381 Buell Road, Rochester, New York 14624. This draft CPP is being submitted pursuant to Brownfields Cleanup Agreement Index No. B8-0576-00-04A.

Should you have any questions, or require further information, please contact me.

Sincerely,

Michael P. Storonsky
Senior Associate

Enclosure

cc: Frank Sowers, P.E. (NYSDEC – Avon)
Andrew English (NYSDEC – Albany)
James Charles Esq. (NYSDEC – Buffalo)
Gary Litwin (NYSDOH – Troy)
Mark Van Valkenberge (NYSDOH – Troy)
Joseph Albert (MCDOH – Rochester)
Ralph Van Houton (NYSDOH – Rochester)
Richard Lawton (Buell Automatics)
Jerry Greenfield, Esq. (Chamberlain, D'Amanda, Oppenheimer & Greenfield)
Linda Shaw, Esq. (Knauf Shaw LLP)
File

Table of Contents

1. Introduction and Overview of the Citizen Participation Plan

What is a Citizen Participation Plan?

A Citizen Participation Plan, or CPP, provides interested citizens like you with information on how Buell Automatics and the New York State Department of Environmental Conservation (DEC) will involve the public during the process of investigating and remediating (cleaning up) a site under the Brownfield Cleanup Program. The plan identifies information Buell Automatics and the State 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 documents are included in this plan?

- Background information about the site and investigations occurring there;
- Information on planned citizen participation activities (see pages 3 and 4);
- Locations where you can find more information ("document repositories") and a list of documents available there;
- A glossary of terms and acronyms you may encounter while learning about the site (Appendix A);
- Fact sheets that have been prepared to inform the public about the site (Appendix B);
- A list of people interested or involved with the site ("Brownfield Site Contact List"; Appendix C); and
- Fact sheets explaining the steps in the investigation and cleanup process (Appendix D).

The plan is periodically updated to include new fact sheets, additions to 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) 226-5326.

2. Background Information About the Buell Automatics Site

The Buell Automatics site is located at 381 Buell Road in the Town of Gates, County of Monroe, New York (Site). The Site location is shown in Figure 1. The site is identified as tax parcel # 135.05-1-36.1 and consists of 1.985 acres with an approximate total building area of 25,000 square feet. Prior to the 1950s, the site was reportedly used for agriculture. The initial industrial activities on the site were conducted on a 0.67-acre portion of the Site in a 13,000+/- square foot building. The original building was constructed in 1957. Additions to the structure on the original parcel were completed in 1981 and 1983. A second parcel was acquired (portion of a former bowling alley property to the north) in the late 1990's. A 12,000 square foot addition was completed in 2000.

Buell Automatics employs approximately 60 individuals in the manufacture of automatic screw machine parts. As part of their operations, Buell uses degreasing solvents to clean machined parts. Spilled solvents have leaked into soil and groundwater beneath part of the Site and a limited area of an adjacent property. The degreasing solvents contain volatile organic compounds for which the DEC has established soil cleanup objectives and groundwater standards. Petroleum based compounds have also leaked into soil and groundwater.

The following is a summary of previous investigations completed, interim remedial measures undertaken and changes in regulatory status of the Buell site to date:

- Soil Gas Investigation prepared by Lozier Architect/Engineers, Feb. 3, 1989;
- Removal of two solvent storage tanks and excavation of an adjacent drainage trench, approx. 3 ft. x 3 ft. x 75 ft., circa June 1989. The drainage trench that was excavated was located outside the building;
- Phase I Environmental Site Assessment (ESA) Report prepared by Niagara Frontier Consulting Services, Jan. 23, 1998 for the northern portion of the Buell property;
- A second Phase I ESA Report prepared by Niagara Frontier Consulting Services, Jan. 28, 1999;
- Phase II Environmental Site Assessment by C and O Technologies, July 27, 1999;
- Phase II Confirmation Testing by Sear-Brown, Sept. 17, 1999;
- Execution of Voluntary Cleanup Agreement (VCA), March 2002;
- Voluntary Investigation by Sear-Brown, March 2002 – December 2003;
- Transfer from the Voluntary Cleanup Program (VCP) to Brownfield Cleanup Program (BCP), and Interim Remedial Measure involving soil removal from beneath a portion of the building December 2003; and
- Vapor intrusion assessment at nearby building in January 2004.

The reader is referred to the November 2001 Voluntary Investigation Work Plan for additional background on the investigations that preceded execution of the VCA.

3. Upcoming Site Investigation Activities

The project objective is to investigate and cleanup soil and groundwater contamination related to activities at the Buell Automatics property. The objectives of the investigation activities are to 1) define the nature (type) and extent (area) of contamination associated with the site, 2) evaluate human and environmental exposures, and 3) obtain the information necessary to develop a cleanup plan for the contaminants.

Investigation results indicate that site related contaminants may be migrating off-site to neighboring properties to the south and west. Buell is prepared to conduct additional investigations on off-site properties to define the extent of off-site migration of contaminants. The project's environmental consultant (Sear-Brown) plans to install additional off-site wells and also intends to delineate the extent of solvent and petroleum impacts on the Site.

After the DEC, in conjunction with the New York State Department of Health (NYSDOH), determines that the site has been adequately investigated, Buell Automatics will prepare a Remedial Work Plan for the Site. The Remedial Work Plan will compare different cleanup options (alternatives analysis) that could be taken at the site and will recommend a preferred cleanup option based on several criteria, including short and long-term permanence of the cleanup, costs, and ease of implementation. DEC will solicit public input on the Remedial Work Plan.

After considering all comments received on the Remedial Work Plan, DEC will either approve the cleanup plan or require changes to the plan.

More details about the citizen participation activities that will take place during the remaining investigations 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 45 days to review and comment on the plan. If there is sufficient community interest, DEC, NYSDOH, and Buell Automatics will also present the proposed plan at a public meeting and gather comments from citizens at the meeting.

The table on the following page describes these and other citizen participation activities that will take place during the investigation and determination of a cleanup plan for the Buell Automatics 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 Buell Automatics may perform some. The project managers will use this table to track required citizen participation activities for the Buell Automatics site.

Depending on citizen interest, Buell Automatics 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 Buell Automatics satisfies the needs of those working or living near the site.

All information materials will be reviewed and approved by the State prior to release to the public. To assist the public, a glossary of terms and acronyms is presented in Appendix A and fact sheets explaining aspects of the Brownfields Cleanup Program are provided in Appendix D of the CPP.

Table 1. 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:**
Create a list of people ("Brownfields Site Contact List" or "BSCL") interested in the site, including residents, government representatives, media, and any interested civic, environmental or business groups	Before the first public notice with periodic updates		February 2002; updated December 2003
Mail fact sheet to BSCL describing VCP Investigation Work Plan			March 2002
Set up Document Repositories, where citizens can review site-related documents, at the regional DEC office and a public location near the site	Prior to the first day of a comment period or remedial action		Established at Gates Public Library December 2003
Mail fact sheet to BSCL describing IRM Work Plan	Prior to start of fieldwork		December 2003
Create a Citizen Participation Plan and place it in Document Repositories	Before the BCP remedial investigation starts	March 2004	
Mail fact sheet to BSCL describing activities proposed for the site and announcing a 30-day public comment period for the proposed Investigation Work Plan	Before the BCP remedial investigation starts	Summer 2004	
Mail a fact sheet to the BSCL describing results of the investigation	When the remedial investigation is complete	Summer 2005	
Mail a fact sheet to the BSCL describing the proposed Remedial Work Plan and announcing a 45-day public comment period	After all investigations are completed	Winter 2006	
Upon request from the public, DEC will hold a public meeting to discuss the proposed Remedial Work Plan and gather public comments	During the 45-day public comment period	To be announced	
Mail a fact sheet to the BSCL announcing the start of remedial construction	Prior to the start of construction	To be announced	
Mail a fact sheet to the BSCL announcing that remedial construction has been completed	Prior to DEC approval of the Final Engineering Report – including the Operation, Maintenance and Monitoring Plan	To be announced	
If institutional or engineering controls are necessary at the site, mail a fact sheet to the BSCL announcing the Certificate of Completion	Upon issuance of the Certificate of Completion	To be announced	

5. Site Issues and Communication Needs

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

Investigations are underway to evaluate the potential presence of soil vapors, as well as soil and groundwater contamination on nearby properties potentially impacted by the Site. As data becomes available they will be shared with the public and placed in the Document Repository.

6. Document Repository

A document repository has been established at the following location to make site documents easily accessible for the public to read and review:

Location:	Gates Public Library
Contact Name:	Judy Macknight, Reference Librarian
Address:	1605 Buffalo Road
City NY Zip:	Rochester, NY 14624
Phone Number:	585-247-6446
Hours:	M-F 10am – 9pm, Sat. 10am-5pm, Closed Sunday

Upon approval of this CPP, the various documents related to past investigations and remedial activities at this Site will be placed in this repository. Buell Automatics and the DEC encourage the public to use this repository and to review documents prior to attending public meetings whenever possible. All reports pertaining to the various investigations and the proposed remedial action at the Site will be available for review at the repository. In addition, documents will also be available in the DEC Region 8 office in Avon at the following address:

Location:	DEC – Region 8
Address:	6274 East Avon-Lima Road
City NY Zip:	Avon, New York 14414
Phone Number:	585-226-5326
Hours:	M-F 8:30 am – 4:45 pm (Please call Lisa LoMaestro Silvestri)

The following documents are available for review at the repositories (to date):

- Voluntary Investigation Work Plan, November 2001;
- Fact Sheet, March 2002(copy provided in Appendix B);
- Revised Interim Remedial Measures Work Plan and Construction Documents, December 2003;
- Fact Sheet, December 2003 (copy provided in Appendix B); and
- Citizen Participation Plan, March 2004.

As various documents become available during the investigation process, they will automatically be placed in the Document Repository. The documents are meant to remain at the repository so that anyone who is interested in the site can have access to them. These documents may include:

- Fact Sheets
- Investigation Work Plans
- Investigation Reports
- Remediation Work Plans
- Engineering Reports
- Operation, Monitoring & Maintenance Work Plans and Reports

If you notice a document is missing, please notify one of the DEC representatives identified in Section 7.0.

7.0 Project Contact Personnel

For additional information about the Buell Automatics site, we encourage you to contact one of the following people:

New York State Department of Environmental Conservation:

Frank Sowers, P.E., Project Manager — Phone Number: 585-226-5357
Lisa LoMaestro Silvestri — Phone Number: 585-226-5326
Citizen Participation Office
6274 East Avon-Lima Road
Avon, New York 14414-9519

New York State Department of Health:

Joseph Crua, Technical Lead — Phone Number: 1-800-458-1158 ext.27860
NYSDOH
547 River St.
Troy, NY 12180

Monroe County Health Department:

Joseph Albert — Phone Number: 585-274-6904
Monroe County Health Department
111 Westfall Road, PO Box 92832
Rochester, NY 14692-8932

Buell Automatics, Inc.:

Messrs. Richard Lawton and Gary Lawton — Phone Number: 585-328-7430
381 Buell Road
Rochester, NY 14624

Sear-Brown (Project Engineer):

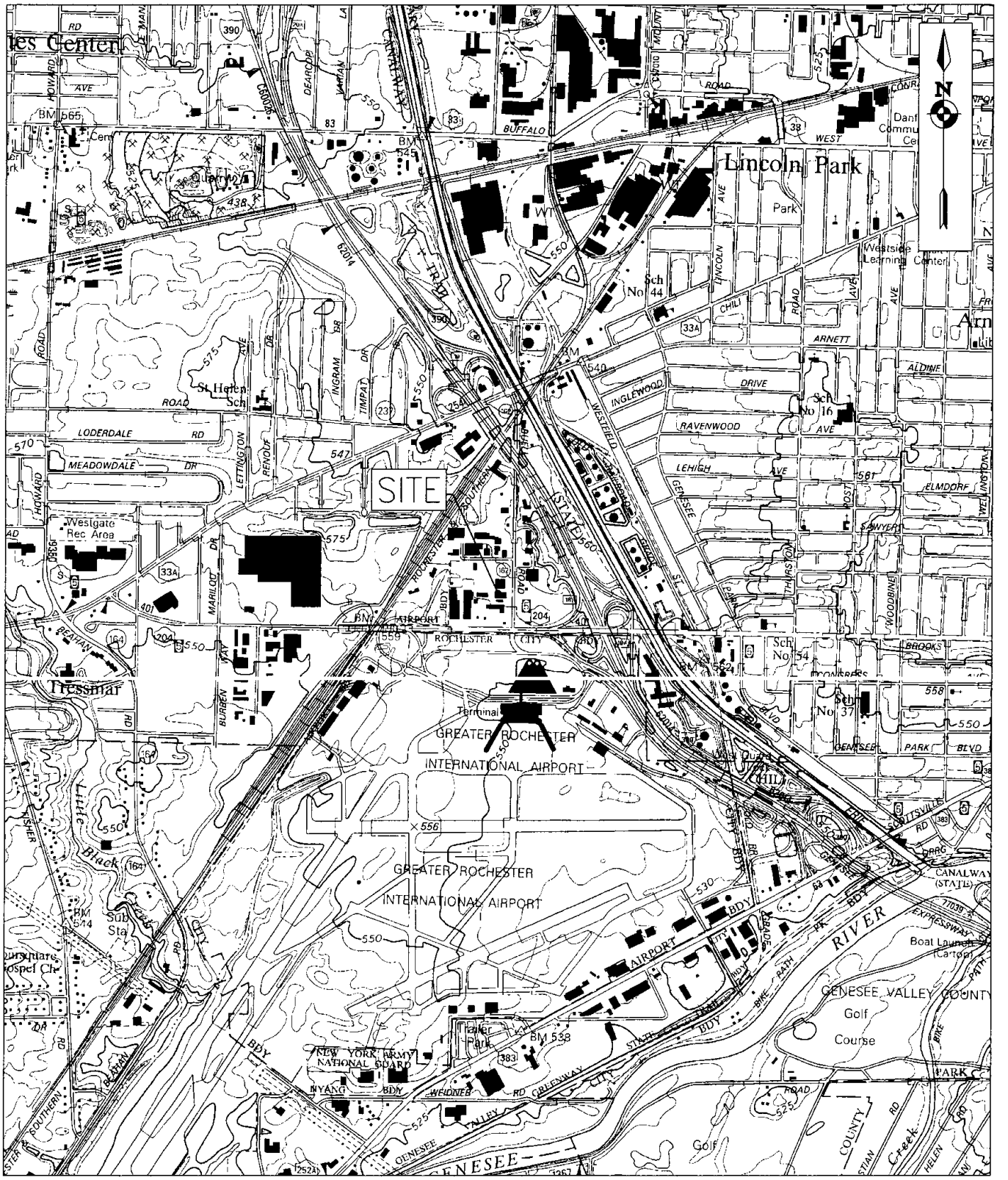
Mr. Michael P. Storonsky — Phone Number: 585-475-1440 ext. 760
85 Metro Park
Rochester, NY 14623

8. Brownfield Site Contact List

In compliance with the requirements in ECL 27-1417(b)(1), a Brownfield site contact list has been developed. A list of interested parties is presented in Appendix C. The owners and occupants of neighboring properties are also on the site contact list, but their names are not included in Appendix C out of respect for their privacy.

The site contact list will be updated periodically. If you would like to add someone to the list, please contact the DEC Project Manager Frank Sowers at (585) 226-5357.

Figures



PROJECT ENGINEER/ARCHITECT
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PROJECT MANAGER
M. STORONSKY

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SCALE
1" = 2000'

FIRST ISSUE DATE

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PROJECT
INTERIM REMEDIAL MEASURES WORK PLAN
BUELL AUTOMATICS
381 BUELL RD
ROCHESTER, NEW YORK

TITLE OF DRAWING
SITE LOCATION MAP

PROJECT NO.
16059

DRAWING NO.
FIG. 1

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Appendix A

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

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:

**The EnviroDirectory-Mid Atlantic*, Environmental Marketing Group, Cambridge, 1997-1998.

**Environmental Reporter's Handbook*, Glossary of Technical and Scientific Terms.

*New York State Department of Environmental Conservation, *New York State Hazardous Waste Site Remedial Program Fact Sheets*, June 1995.

*New York State Department of Health, *Glossary of Environmental Health Terms*, May 1991.

*United States Environmental Protection Agency, *Analysis of Selected Enhancements for Soil Vapor Extraction*, December 1997.

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	**ROD**

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

Appendix B

Appendix B: Fact Sheets About the Buell Automatics Site

New York State Department of Environmental Conservation

FACT SHEET

March 2002

Environmental Investigation Planned at Buell Automatics Site

Buell Automatics, Inc. (Buell) has signed a voluntary agreement with the New York State Department of Environmental Conservation (DEC) to perform an environmental investigation and cleanup at 381 Buell Road in the Town of Gates (see map). The investigation is being conducted through New York State's voluntary cleanup program (see box at right).

The DEC is providing this fact sheet to explain highlights of the planned investigation and how to get more information.

About the Buell Automatics Site:

Buell is located in a heavily developed commercial and industrial area of the Town of Gates, Monroe County. Since the mid-1960s, Buell has manufactured automatic screw machines and machined parts at the site. Originally, Buell operated on a 0.67 acre parcel of land, but Buell recently expanded their operations to approximately 1.98 acres.

In 1999, Buell performed a limited environmental investigation as a requirement for financing a planned building expansion. The investigation included the installation of soil borings and groundwater monitoring wells at various locations at the site. Chlorinated volatile organic compounds, particularly trichloroethene (TCE) and associated compounds, were detected in the groundwater outside of the south side of the building. TCE is commonly used in industry to remove oil and grease from parts. Petroleum-related compounds were also detected at concentrations above NYS soil cleanup objectives in one boring located near oil storage tanks. Buell uses oils to lubricate metal parts during machining (cutting).

Public water and sewers are used in the area. There are no known private drinking water wells or septic tanks in the vicinity of the site.

NEW YORK STATE'S VOLUNTARY CLEANUP PROGRAM

The New York State Department of Environmental Conservation's Voluntary Cleanup Program promotes the return of contaminated property to productive use. These include sites contaminated by hazardous waste, petroleum, and solid waste.

Under this program, a person or entity (such as a corporation) agrees to pay for an investigation and/or environmental cleanup of the site. If the volunteer performs a cleanup of the site, the volunteer receives a limited release from liability for the past environmental damage at the site.

Upcoming Investigation:

The purpose of the upcoming investigation is to define the nature and extent of contamination at the site. As part of the investigation, Buell will:

- evaluate surface drainage features and underground utilities to determine if they may have contributed to contaminant migration;
- test subsurface soils on the site;
- install additional groundwater monitoring wells on-site and off-site to determine the extent of groundwater contamination; and
- evaluate the potential for people to come into contact with chemicals from the site.

The investigation is expected to begin in March or early April. The investigation should be completed in about one year. Depending on the results of this investigation, additional field work may be necessary to define the extent of contamination from the site.

What Happens Next:

After the investigation is completed, Buell will submit a report to DEC. DEC, in conjunction with the New York State Department of Health (DOH), will evaluate the report and determine if additional investigation or cleanup action is necessary. Buell has committed to performing remedial (cleanup) actions if necessary, and DEC will work with them to ensure appropriate measures are taken.

For More Information:

DEC will keep you informed of progress at the site through fact sheets like this one. If there is enough interest at this time, the State will hold a public meeting to discuss the upcoming investigation. You can express your interest in attending such a meeting by calling one of the people listed below or by sending in the attached mailer.

The work plan and other documents related to this investigation are available for you to review at:

NYS Department of Environmental Conservation
Region 8 Office
6274 E. Avon-Lima Rd.
Avon, NY 14414
Hours: Monday- Friday 8:30 - 4:45
Contact: Lisa LoMaestro Silvestri for an appointment
(585) 226-5326

We encourage you to contact the representatives listed below with questions, comments or concerns. If you know someone who would like to be added to the mailing list, have them send in the attached mailer or contact one of the people listed below. You do **not** have to return the mailer if you received this fact sheet in the mail; your name will automatically remain on the mailing list.

- **•For Question About the Investigation, Contact:**

Frank Sowers, Project Manager (585) 226-5357 or
Lisa A. LoMaestro Silvestri, CPS (585) 226-5326
NYS Department of Environmental Conservation
6274 East Avon-Lima Road
Avon, NY 14414

- **•For Site-Related Health Questions, Contact:**

Joseph Crua
NYS Department of Health
Flanigan Square
547 River Street
Troy, NY 12180
(800) 458-1158 ext. 27860 or
(518) 402-7860

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

NYSDEC Mailer

Please feel free to use this mailer for any of the following purposes:

_____ 1. You would like to be placed on our Buell mailing list.
_____ 2. You would like to include the name and address of someone you know who maybe interested in receiving future fact sheets.
_____ 3. You would be interested in attending a public meeting about this site.
_____ 4. You would like to be taken off our Buell mailing list.
_____ 5. You would like to provide us with a change of name or address.
_____ 6. You would like to provide us with a comment or concern.

FOLD

Please complete the form as indicated below, fold and mail directly to the DEC.

Add the following name(s):

_____ _____
_____ _____
_____ _____

Delete the following name(s):

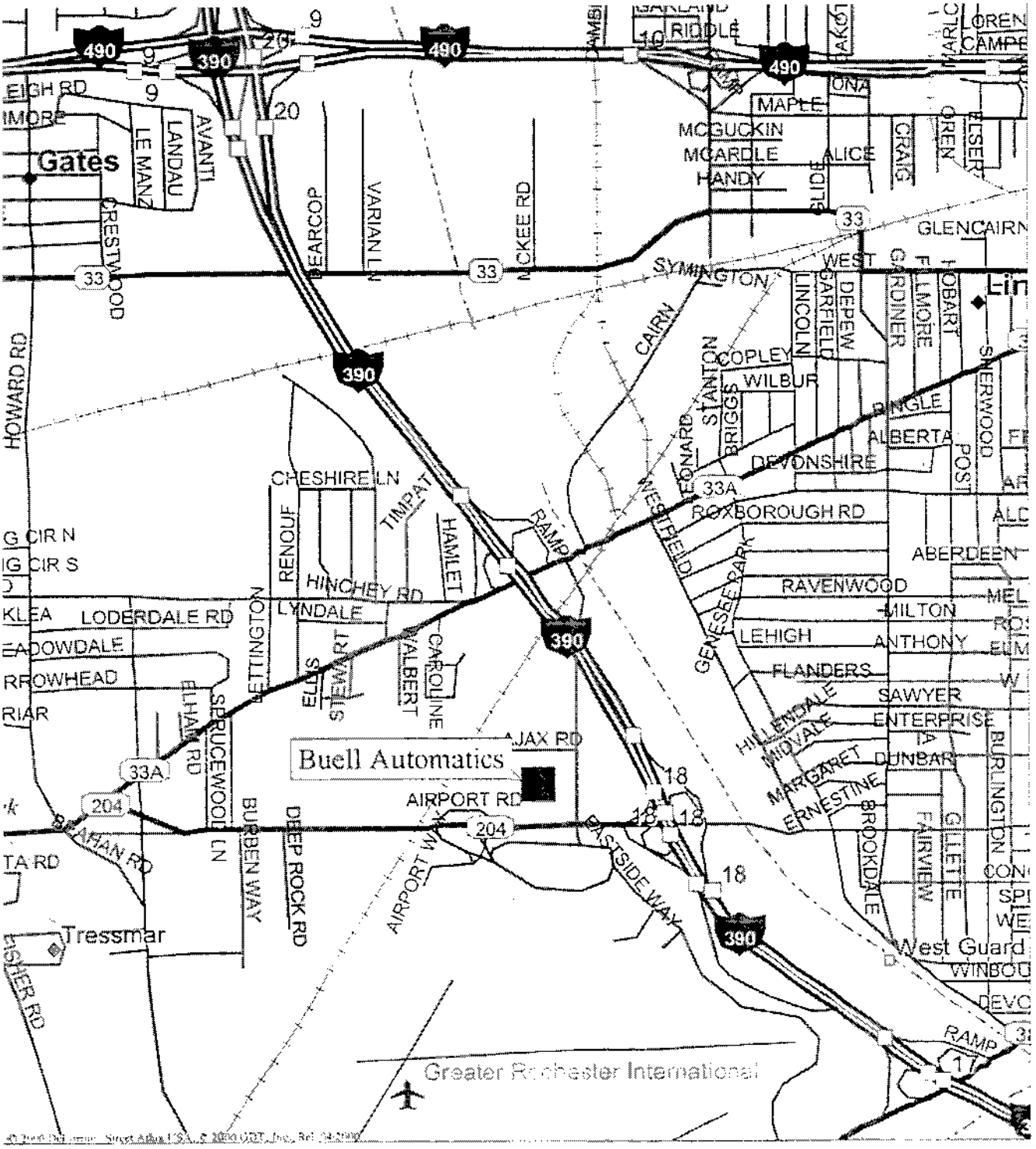
_____ _____
_____ _____
_____ _____

Make the following changes:

(Old)_____ (New)_____
_____ _____
_____ _____

FOLD

Comments or Concerns:



Buell Automatics Site, Gates (T), Monroe (C)

New York State Department of Environmental Conservation

FACT SHEET

December 2003

First Phase of Environmental Cleanup Begins at Buell Automatics Site

Buell Automatics, Inc. (Buell) will complete an Interim Remedial Measure (IRM) to remove chemically contaminated soil beneath a portion of the building located at 381 Buell Road in the Town of Gates (see map). The IRM is being conducted through New York State's Brownfield Cleanup Program.

The New York State Department of Environmental Conservation (NYSDEC), in conjunction with the New York State Department of Health and the Monroe County Health Department, is providing this fact sheet to update you on the latest activities at the site and explain how to get more information.

About the Buell Automatics Site:

Buell is located in a heavily developed commercial and industrial area of the Town of Gates, Monroe County. Since the mid-1960s, Buell has manufactured automatic screw machine parts at the site. Originally, Buell operated on a 0.67 acre parcel of land, but then expanded their operations to about 2 acres.

In 1999, Buell performed a limited environmental investigation as a requirement for financing a building expansion that was completed in 2000. Chlorinated volatile organic compounds, particularly trichloroethene (TCE) and associated compounds, were detected in the groundwater outside of the south side of the building. TCE is commonly used in industry to remove oil and grease from parts. Petroleum-related compounds were also detected at concentrations above NYS soil cleanup objectives in one boring located near oil storage and petroleum-based solvent tanks. Buell uses oils to lubricate metal parts during machining (cutting). Petroleum-based solvents are also used to clean parts.

In March 2002, Buell entered New York State's Voluntary Cleanup Program. Under this program, Buell agreed to investigate and clean up chemical contaminants associated with its operations. In December 2003, Buell entered New York State's Brownfield Cleanup Program. The Brownfield Cleanup Program was created by recent legislation and replaces the Voluntary Cleanup Program.

Public water and sewers are used in the area. There are no known private drinking water wells or septic tanks in the vicinity of the site.

About the Investigation:

Since 2002, Buell has completed a variety of environmental investigation activities. A summary of what is known and unknown about the nature and extent of the contamination is provided below:

- Elevated levels of chlorinated volatile organic compounds in the subsurface soils are primarily located in the following areas: 1) underneath the southwest section of the Buell building near a TCE degreasing machine and extending south to an adjacent property; and 2) west of the Buell building in the vicinity of a former outdoor drum storage area.

- Elevated levels of non-chlorinated volatile organic compounds (presumably associated with the use of petroleum-based solvents and cutting oils) in the subsurface soils are located underneath much of the western half of the original Buell building.
- Groundwater at Buell has been impacted by both chlorinated and non-chlorinated volatile organic compounds.
- Chlorinated volatile organic compounds appear to be migrating in groundwater from Buell towards adjacent properties to the south and west.
- The map shows the known extent of contamination that appears to be related to operations at Buell.
- The full extent of the groundwater contamination, especially to the south and west, is not known at this time.
- The full extent of soil contamination underneath the building is not known at this time.
- The full extent of the contamination associated with the former drum storage area is not known at this time.

About the Upcoming Interim Remedial Measure (IRM):

The purpose of the upcoming IRM is to physically remove some of the contaminated soils located underneath the southwestern section of the Buell building (see map). This will be accomplished by excavating (digging) an area that is approximately 25-ft long, 17-ft wide, and 6.5-ft deep. The contaminated soils will be properly disposed of off-site. The IRM is scheduled to be completed between December 20, 2003 and January 4, 2004.

What Happens Next:

The IRM is expected to provide environmental benefit, but it is not a final remedy for the site. As shown on the map, the IRM will only treat a portion of the area currently identified as impacted. The NYSDEC has notified Buell that additional testing is needed to determine the extent of the contamination. A comprehensive cleanup plan will be developed once the full extent of the contamination is defined.

For More Information:

NYSDEC will keep you informed of progress at the site through fact sheets like this one. Documents related to this site are available for you to review at the locations listed below. Available documents include the "Interim Remedial Measures Work Plan and Construction Documents, November 2003."

Gates Public Library
1605 Buffalo Road
Gates, NY 14624
(585) 247-6446
Hours: M-F 10-9, Sat. 10-5

NYS Department of Environmental Conservation
Region 8 Office
6274 E. Avon-Lima Rd.
Avon, NY 14414-9519
Hours: Monday- Friday 8:30 - 4:45
Contact: Lisa LoMaestro Silvestri for an appointment
(585) 226-5326

We encourage you to contact the representatives listed below with questions, comments or concerns. If you know someone who would like to be added to the mailing list, have them send in the attached mailer or contact one of the people listed below. You do **not** have to return the mailer if you received this fact sheet in the mail; your name will automatically remain on the mailing list. Because our mailing list includes property owners, we encourage you and building owners to share this Fact Sheet with neighbors and tenants, and/or post this Fact Sheet in a prominent area of your building for tenants, employees and visitors to view.

- **•For Question About the Investigation or IRM, Contact:**

Frank Sowers, Project Manager (585) 226-5357 or
Lisa A. LoMaestro Silvestri, Citizen Participation Specialist (585) 226-5326
NYS Department of Environmental Conservation
6274 East Avon-Lima Road
Avon, NY 14414-9519

- **•For Site-Related Health Questions, Contact:**

Joseph Crua
NYS Department of Health
Flanigan Square
547 River Street
Troy, NY 12180
(800) 458-1158 ext. 27860 or
(518) 402-7860

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

NYSDEC Mailer

Please feel free to use this mailer for any of the following purposes:

____ 1. You would like to be placed on our Buell mailing list.
____ 2. You would like to include the name and address of someone you know who maybe interested in receiving future fact sheets.
____ 3. You would like to be taken off our Buell mailing list.
____ 4. You would like to provide us with a change of name or address. If you are moving, future fact sheets are NOT automatically forwarded unless we are notified by you.
____ 5. You would like to provide us with a comment or concern.

FOLD

Please complete the form as indicated below, fold and mail directly to the DEC.

Add the following name(s):

_____ _____
_____ _____
_____ _____

Delete the following name(s):

_____ _____
_____ _____
_____ _____

Make the following changes:

(Old)_____ (New)_____
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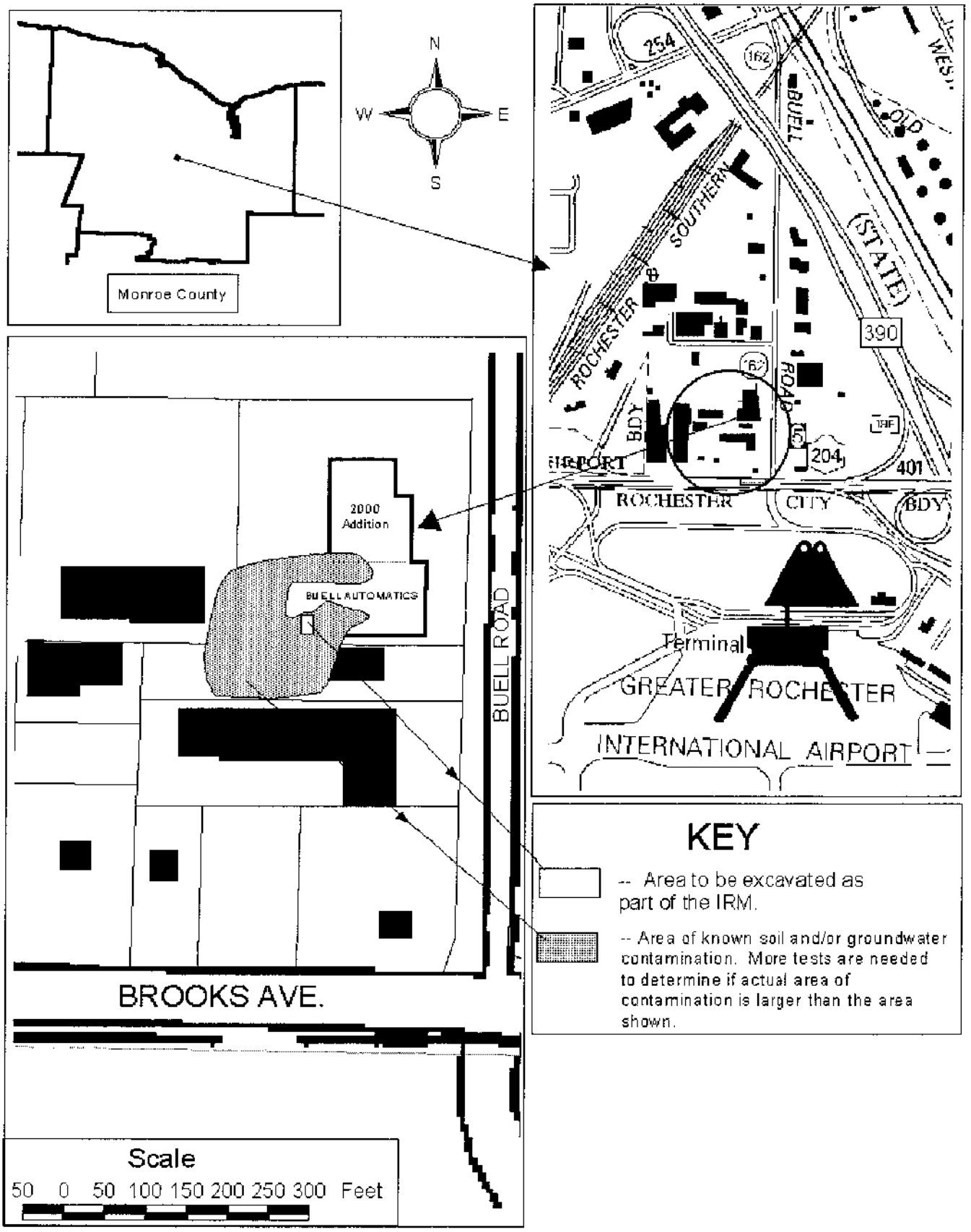
Comments or Concerns:


Monroe County
N
W
E
S
254
162
BUELL
OLD
WEST
SOUTHERN
(STATE)
390
ROCHESTER
ROAD
BDY
204
401
ROCHESTER CITY BDY
Terminal
GREATER ROCHESTER
INTERNATIONAL AIRPORT
2000 Addition
BUELL AUTOMATICS
BUELL ROAD
BROOKS AVE.
Scale
50 0 50 100 150 200 250 300 Feet
KEY
-- Area to be excavated as part of the IRM.
-- Area of known soil and/or groundwater contamination. More tests are needed to determine if actual area of contamination is larger than the area shown.

Appendix C

Appendix C: Brownfield Site Contact List

MEDIA

BOB KIRK NEWS DIRECTOR
WROC-TV 8
201 HUMBOLDT ST
ROCHESTER NY 14610

ASSIGNMENT DESK
R NEWS CHANNEL 9
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ROCHESTER NY 14620

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SUBURBAN EDITOR
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55 EXCHANGE BLVD
ROCHESTER NY 14614-2001

CORYDON IRELAND
DEMOCRAT & CHRONICLE
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ROCHESTER NY 14614-2001

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ROCHESTER BUSINESS JOURNAL
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CANANDAIGUA NY 14424

THE HONORABLE
HILLARY RODHAM CLINTON
UNITED STATES SENATE
100 STATE ST
ROOM 3280
ROCHESTER NY 14614 E

THE HONORABLE CHARLES SCHUMER
UNITED STATES SENATE
304 FEDERAL BLDG
100 STATE ST
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THE HONORABLE DAVID F GANTT
NYS ASSEMBLY
74 UNIVERSITY AVE
ROCHESTER NY 14605-2928

THE HONORABLE JAMES S ALESI
NYS SENATE
220 PACKETT'S LANDING
PO BOX 66081
FAIRPORT NY 14450

THE HONORABLE GEORGE D MAZIARZ
NYS SENATE
60 PROFESSIONAL PKWY
LOCKPORT NY 14094

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1605 BUFFALO RD
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RICHARD WARNER
TOWN CLERK
TOWN OF GATES
1605 BUFFALO RD
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46 LODERDALE RD
ROCHESTER NY 14624

COUNCILPERSON GREGORY HART
222 HINCHEY RD
ROCHESTER NY 14624

COUNCILPERSON JOHN MAGGIO
2284 LONG POND RD
ROCHESTER NY 14606

COUNCILPERSON MICHAEL ROCHE
29 BRAMBLEWOOD LANE
ROCHESTER NY 14624

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FIRE CHIEF, TOWN OF GATES
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GATES NY 14624

THOMAS ROCHE
CHIEF OF POLICE
TOWN OF GATES
1605 BUFFALO RD
ROCHESTER NY 14624

ROBERT HANLEY
PLANNING BOARD CHAIR
TOWN OF GATES
1605 BUFFALO RD
ROCHESTER NY 14624

JOHN LANTHROP
DIRECTOR OF PUBLIC
TOWN OF GATES
1605 BUFFALO RD
ROCHESTER NY 14624

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NYSDEC
ENVIRONMENTAL REMEDIATION
625 BROADWAY
ALBANY NY 12233-7010

LISA SILVESTRI
NYSDEC

LINDA VERA
NYSDEC

BART PUTZIG, PE
NYSDEC

FRANK SOWERS
NYSDEC

CAPT STEVE GEROURD
NYSDEC

JOE CRUA
NYS DEPARTMENT OF HEALTH
FLANIGAN SQUARE ROOM 300
547 RIVER ST
TROY NY 12180

MARK VAN VALKENBURG
BUREAU OF ENV INVESTIGATION
NYS DEPARTMENT OF HEALTH
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547 RIVER STREET
TROY NY 12180

DENNIS PELLETIER PRESIDENT
MONROE COUNTY LEGISLATURE
RM 407 COUNTY OFFICE BLDG
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ROCHESTER NY 14614-1476

LARRY STAUB
ACTING MONROE COUNTY CLERK'S OFFICE
101 COUNTY OFFICE BLDG
39 W MAIN ST
ROCHESTER NY 14614

JEAN KASE VP OF GOVT RELATIONS
GREATER ROCHESTER METRO CHAMBER OF COMMERCE
55 ST PAUL ST
ROCHESTER NY 14604

JIM FARR PRESIDENT
CORNELL COOPERATIVE EXTENSION - MONROE COUNTY
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ROCHESTER NY 14620

MARY LOUIS MEISENZAHL ADMINISTRATOR
MONROE COUNTY OFFICE OF EMERGENCY PREPAREDNESS
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MONROE COUNTY EMC
MCDOH
1190 SCOTTSVILLE ROAD SUITE200
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MONROE COUNTY EXECUTIVE
110 COUNTY OFFICE BLDG
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ROCHESTER NY 14614

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111 WESTFALL RD
ROCHESTER NY 14692-8932

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ROCHESTER NY 14614

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MONROE COUNTY PLANNING DEPT
8100 CITY PLACE
50 W MAIN ST
ROCHESTER NY 14614

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MONROE COUNTY SHERIFF
130 S PLYMOUTH AVE
ROCHESTER NY 14614

MARK GREENE CHAIRPERSON
MONROE COUNTY SOIL & WATER CONSERVATION DISTRICT
249 HIGHLAND AVE
ROCHESTER NY 14620

ENVIRONMENTAL ORGANIZATIONS

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55 ST PAUL ST
ROCHESTER NY 14604-1314

MICHAEL SCHADE
CITIZENS' ENVIRONMENTAL COALITION
WESTERN NEW YORK OFFICE
543 FRANKLIN ST
BUFFALO NY 14202-1109

VAL WASHINGTON EXEC DIR
ENVIRONMENTAL PLANNING LOBBY AND NY ENVIRONMENTAL INSTITUTE
353 HAMILTON ST
ALBANY NY 12210

WILLIAM LARSEN, P.E., ASSOCIATE PROF
CIVIL ENGINEERING TECHNOLOGY
RIT JAMES BOOTH BLDG
78 LOMB MEMORIAL DR
ROCHESTER NY 14623

LEAGUE OF WOMEN VOTERS
ROCHESTER METRO LEAGUE
45 EXCHANGE BLVD STE 508
ROCHESTER NY 14614

CHRIS FREDETTE
RCSI
CPU 276766
RIVER CAMPUS STA
ROCHESTER NY 14627

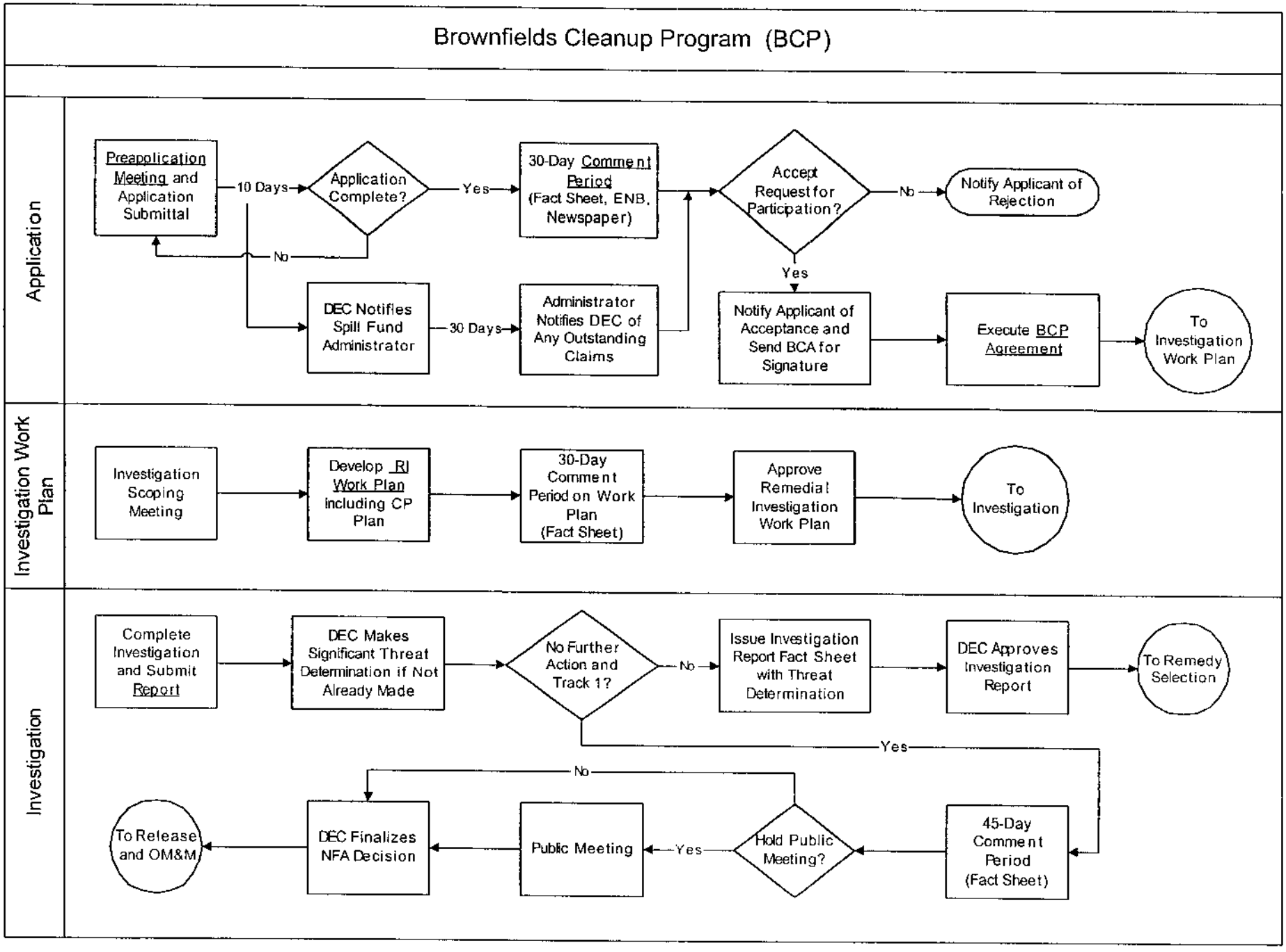
DOCUMENT REPOSITORY

JUDY MACKNIGHT, DIRECTOR
GATES PUBLIC LIBRARY
1605 BUFFALO ROAD
GATES NY 14624

Appendix D

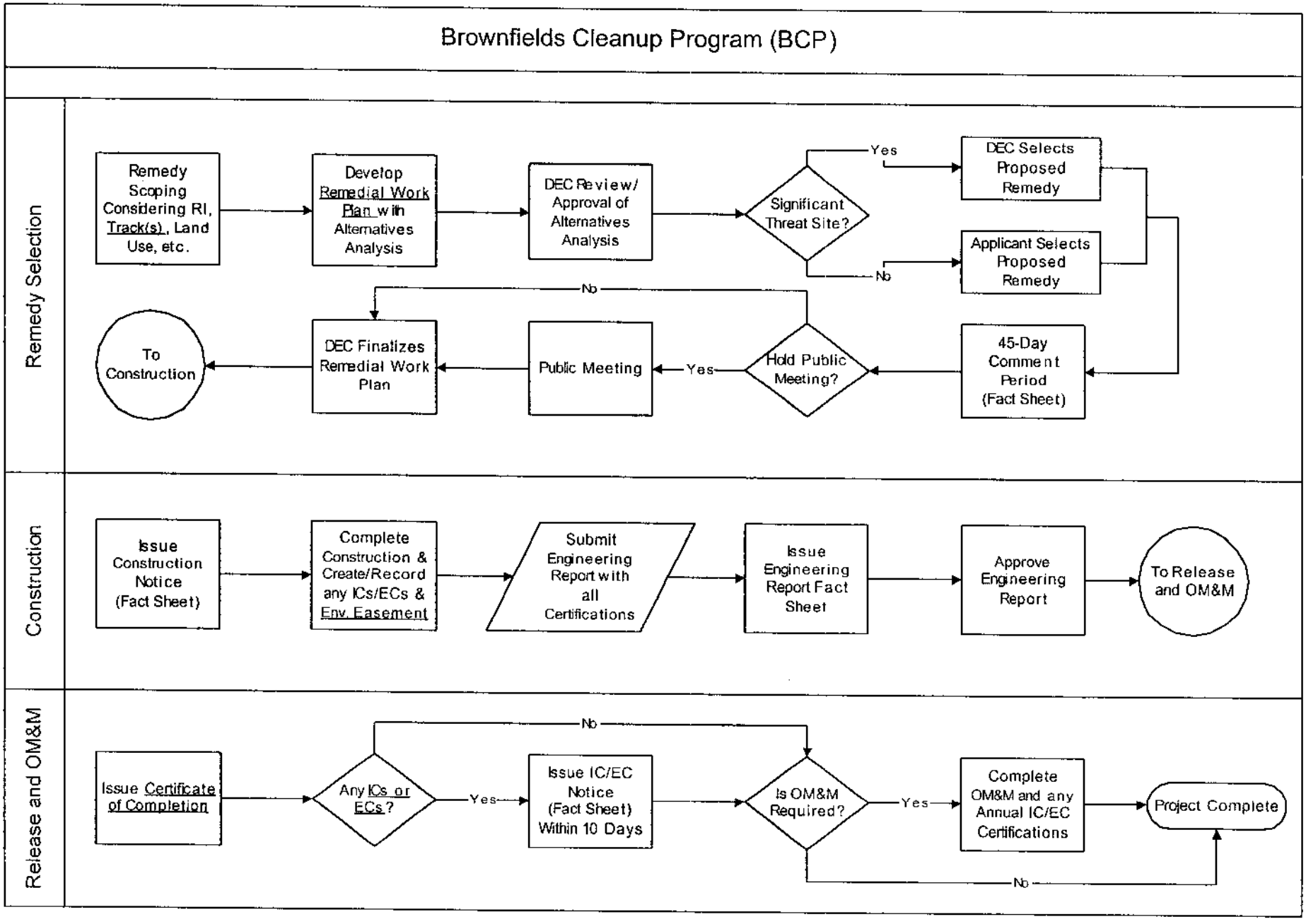
Appendix D: Fact Sheets
Explaining the Brownfields Cleanup Program

Brownfields Cleanup Program (BCP)



Underlined Topics are Links to Fact Sheets

11/20/03



Underlined Topics are Links to Fact Sheets

11/20/03

FACT SHEET

Brownfields Cleanup Program (BCP)
KEY DEFINITIONS
(see also ECL §27-1405)

Brownfield
A "Brownfield" is any real property where redevelopment or re-use may be complicated by the presence or potential presence of a hazardous waste, petroleum, pollutant, or contaminant (see also the "Eligibility" Fact Sheet).

Applicant
An "Applicant" is a person whose request to participate in the Brownfield Cleanup Program has been accepted by the Department.

Volunteer
A "Volunteer" is an applicant who is not liable for disposal of hazardous waste or discharge of petroleum at the site, or whose liability arises solely from site ownership acquired after the disposal/discharge of hazardous waste or petroleum provided that the Party has taken reasonable steps to:

- stop any continuing release,
- prevent any threatened future release; and
- prevent or limit human, environmental, or natural resource exposures to any previously released hazardous substance.

Participant
A "Participant" is an applicant who was the owner or operator of the site at the time of disposal of hazardous waste or discharge of petroleum, or who is otherwise responsible for the contamination.

Contamination
"Contamination" is the presence of a hazardous waste or petroleum in any environmental media, including soil, surface water, groundwater, air, soil vapor or indoor air.

Permanent Remedy
A "Permanent Remedy" is a cleanup or remedy that would allow a site to be used for any purpose without restriction and without reliance on the long-term employment of institutional or engineering controls.

FACT SHEET

Brownfields Cleanup Program (BCP)
ELIGIBILITY

(see also ECL §§27-1405, 1407)

Eligible Sites

An eligible site is any real property, the redevelopment or reuse of which may be complicated by the presence or potential presence of a hazardous waste, petroleum, pollutant, or contaminant, EXCEPT:

1. Sites listed as Class 1 or 2 in the Registry of Inactive Hazardous Waste Disposal Sites (Class 2 sites owned by a Volunteer are eligible until 7/1/05);
2. Sites on the USEPA National Priorities List (NPL);
3. Hazardous waste treatment, storage, or disposal facilities (TSDFs) permitted under ECL §27-0901 ("interim status" facilities are eligible);
4. Sites subject to a cleanup order or Stipulation under Article 12 of the Navigation Law (oil spill prevention, control, and compensation) or under Title 10 of ECL Article 17 (control of the bulk storage of petroleum); or
5. Sites subject to any on-going state or federal enforcement actions regarding solid/hazardous waste or petroleum.

Eligible Parties

All parties are eligible EXCEPT:

1. those subject to a state/federal enforcement action regarding the site; or
2. those subject to an outstanding claim by the Spill Fund.

3. The Department can deny eligibility if it determines that a party has:
   a. been determined to have violated ECL Article 27 (collection, treatment and disposal of refuse and other solid waste);
   b. previously been denied entry into the BCP;
   c. committed a negligent or intentionally tortious act regarding hazardous waste or petroleum;
   d. been convicted of a violent felony, fraud, bribery, perjury, theft, or an offense against public administration;
   e. knowingly falsified statments or concealed material facts in a matter before the Department; or
   f. committed an act or failed to act in a way that could be the basis for denial of a BCP application.

FACT SHEET

Brownfields Cleanup Program (BCP)
PREAPPLICATION MEETING

The Department strongly encourages all applicants to schedule a preapplication meeting with Department staff to review the benefits, requirements, and procedures for completing a project in the BCP. Holding preapplication meetings helps projects to be completed more quickly and efficiently. Recommended participants include the Applicant, Applicant's consultant and counsel, the Department's Project Manager, Project Supervisor, Project Attorney, and a representative of the NYS Department of Health (DOH).

Topics Covered

- Overview of BCP - general description and typical time frames
- Application/Agreement Process
- Investigation Work Plan, Field Work, and Reporting
- Remedy Selection
- Citizen Participation

Handouts (copies provided on compact disk)

- BCP Handbook
- Citizen Participation Handbook
- Example Fact Sheets
- BCP Application
- BCP Agreement
- Investigation Scoping Checklist
- Technical Guidance for Site Investigation and Remediation

Scheduling a Preapplication Meeting

To schedule a BCP preapplication meeting, contact the Department's Brownfields Coordination Section to obtain the name, address, and phone number for the most convenient Regional BCP representative.

Brownfields Coordination Section

New York State Department of Environmental Conservation
625 Broadway
Albany, NY 12233-7012
(518) 402-9711

FACT SHEET

Brownfields Cleanup Program (BCP)
BROWNFIELD CLEANUP AGREEMENTS
(see also ECL §27-1409)

A Brownfield Cleanup Agreement ("BCA") is required for all parties who wish to participate in the Brownfield Cleanup Program. By executing a BCA, an Applicant makes a commitment to undertake certain remedial activities under the Department's oversight. The obligations incurred by an Applicant under a BCA depend to some degree upon the Applicant's status as either a Participant or a Volunteer. A BCA may be terminated by an Applicant at any time upon written notification to the Department; the Department may terminate a BCA if the Applicant fails to substantially comply with the terms and conditions of the BCA. The main elements of a BCA are:

- Description of the Site;
- Description of the Applicant, Including Status as a Participant or a Volunteer;
- Submission and Implementation of a Citizen Participation Plan;
- Development and Implementation of Work Plans;
- Submission and Review of Final Reports;
- Submission of Annual Reports;
- Enforcement as a Contractual Agreement;
- Payment of State Costs
- Liability Limitation;
- Reservation of Rights;
- Waiver of Claims Against the Spill Fund;
- Indemnification;
- Change of Use;
- Environmental Easement;
- Progress Reports;
- Communications;
- Termination;
- Dispute Resolution; and
- Miscellaneous Provisions Including a Permit Exemption.

FACT SHEET

Brownfields Cleanup Program (BCP)
CITIZEN PARTICIPATION
(see also ECL §27-1417)

Citizen participation activities occur at several milestones during a BCP project.

When BCP Application Deemed Complete

- Develop public contact list and establish a document repository;
- Publish a notice of Applicant's request to participate in the BCP in a local newspaper, the Environmental Notice Bulletin (ENB), and to those on the public contact list;
- 30-day public comment period; and
- Develop CP Plan before beginning investigation.

Before DER Finalizes Remedial Investigation Work Plan

- Notice and fact sheet to contact list describing plan, and
- 30-day public comment period.

Before DER Approves Proposed Remedial Investigation Report

- Notice and fact sheet to contact list describing the RI Report.

Before DER Finalizes Proposed Remedial Work Plan

- Notice and fact sheet to contact list describing plan;
- 45-day public comment period; and
- Public meeting, if requested.

Before Applicant Starts Construction

- Notice to contact list announcing the start of construction.

Before DER Approves Final Engineering Report

- Notice and fact sheet to contact list describing the engineering report (the report describes any institutional or engineering controls included in the remedy).

Certificate of Completion (when institutional/engineering controls are used)

- Notice and fact sheet to contact list describing such controls within 10 days of issuance of certificate.

Technical Assistance Grants (TAGs)

- TAGs of up to $50,000 are available to qualifying community groups to obtain independent technical assistance for significant threat BCP sites.

FACT SHEET

Brownfields Cleanup Program (BCP)
INVESTIGATION WORK PLANS AND REPORTS

(see also ECL §§27-1411, 1415(2))

Goals of a BCP Remedial Investigation

- Define the nature and extent of site contamination in all media both laterally and vertically (Participants must also define any off-site contamination that has migrated from the site);
- Identify contaminant source areas;
- Assess contaminant fate and transport including but not limited to the existing and potential impacts of groundwater contamination on public/private water supplies, surface water, air, soil vapor, and indoor air quality; and
- Produce data of sufficient quantity and quality to support the development of an acceptable Remedial Work Plan or a determination that remediation is not necessary.

Typical Remedial Investigation Work Plan Contents

- Introduction and Purpose
- Site History and Description
- Objectives, Scope, and Rationale
- Field Activities Plan
- QA/QC Plan
- Health and Safety Plans
- Reporting and Schedule
- CP Activities (investigation work plans are subject to 30-day public comment prior to Department approval)

Typical Remedial Investigation Report Contents

- Introduction
- Site History and Description
- Description of Work Completed
- Nature and Extent of Contamination
- Comparison with Standards, Criteria, and Guidance
- Data Useability
- Contaminant Fate and Transport
- Qualitative Human and Fish/Wildlife Exposure Assessments
- Summary and Conclusions (including the need for remediation)

Previous Investigations

In some cases, Applicants have completed partial or full site remedial investigations prior to entry into the BCP. For partial investigations, the Department will determine if the data are useable. For full investigation reports, the Department will determine if the investigation goals and requirements of the BCP have been met or if additional work is needed before a remedy can be selected.

FACT SHEET

Brownfields Cleanup Program (BCP)
CLEANUP TRACKS AND TABLES
(see also ECL §§27-1415(4,6))

The Brownfield Cleanup Program law provides for a multi-track approach (see below) to the remediation of soil contamination. Full use of the multi-track approach depends upon the creation of numerical soil cleanup objectives to be developed by the New York State Departments of Environmental Conservation (NYSDEC) and Health (NYSDOH). Generic tables will be developed in the regulations for three land use scenarios: unrestricted, commercial, and industrial. Regulations will also be developed that explain how to calculate soil cleanup objectives for the three land use scenarios taking into account site-specific soil data and conditions. Until the soil cleanup numbers are developed, the Department will not use the tracks but will evaluate unrestricted and site-specific proposed remedies on a case-by-case basis.

Track 1 – Unrestricted Use: Generic Soil Cleanup Table
- Site can be used for any purpose
- Land/groundwater use restrictions or institutional/engineering controls (IC/ECs) cannot be employed to obtain the remedial action objectives for the site. (Volunteers who have acted to reduce groundwater contamination to asymptotic levels and who otherwise conform with Track 1 may employ groundwater use restrictions.)

Track 2 – Restricted Use: Generic Soil Cleanup Tables
- Land use and groundwater use restrictions are allowed.
- Cannot rely upon IC/ECs to prevent exposures to soil contamination at levels exceeding those specified in the corresponding soil cleanup table
- Uses generic soil cleanup table for the applicable land use scenario; does not use site-specific soil data

Track 3 – Restricted Use: Site-Specific Soil Cleanup Regulations
- Land use and groundwater use restrictions are allowed
- Cannot rely upon IC/ECs to prevent exposures to soil contamination at levels exceeding those specified in the corresponding soil cleanup table
- Uses site-specific data to generate soil cleanup objectives

Track 4 – Restricted Use: Site-Specific Evaluation
- Land use and groundwater use restrictions are allowed
- Can rely upon IC/ECs to prevent exposures to soil contamination
- If soil contamination presents exposure risks above specified levels, the NYSDEC and NYSDOH must find that the cleanup would be protective.
- Contaminated soil must be covered by material that meets the requirements of the generic soil cleanup table for the applicable site use:
  - one foot for commercial/industrial uses
  - two feet for residential uses

FACT SHEET

Brownfields Cleanup Program (BCP)
REMEDIAL WORK PLANS

(see also ECL §§27-1411, 1413, 1415)

After completion of a remedial investigation showing the need for site remediation, a remedial work plan can be developed. The remedial work plan must include an Alternatives Analysis. For large/complex projects, remedial work plans can be given conceptual approval by the Department before detailed plans and specifications are developed.

Typical Remedial Work Plan Contents

- Introduction and Purpose
- Summary of Site Contamination
- Remedial Action Objectives
- Alternatives Analysis
- Plans and Specifications (can be submitted separately for large/complex projects.)
- Institutional/Engineering Controls (IC/ECs) and Annual Certifications
- Health and Safety Plans
- Quality Assurance/Control Plan
- Schedule
- Reporting
- Project Organization

Features of Alternatives Analysis

- An unrestricted remedy is always evaluated (see also fact sheet titled, "Cleanup Tracks and Tables").
- If a remedy is proposed that relies upon IC/ECs, the Department can require the evaluation of additional alternatives in some cases. The viability and reliability of any IC/ECs must be evaluated (see also fact sheet titled, "Institutional and Engineering Controls").
- An alternatives analysis contains fewer steps than a feasibility study. The main features of an alternatives analysis include:
  - Description of Alternative(s) and Identification of Proposed Remedy
  - Detailed Analysis: under each of nine remedy selection factors (overall protectiveness, conformance to standards, criteria, and guidance, short-term effectiveness/impacts, etc.), each alternative is evaluated against the factor and compared to any other alternative(s) under consideration. The removal/control of source areas and the stabilization of groundwater plumes must be evaluated.
  - Summary of Proposed Remedy: the alternatives analysis concludes with a summary of the main factors that led to the selection of the proposed remedy and a listing of the elements of the remedy.

Remedial work plans are subject to 45-day public comment periods and in some cases, public meetings.

FACT SHEET

Brownfields Cleanup Program (BCP)
INSTITUTIONAL AND ENGINEERING CONTROLS (IC/ECs)

(see also ECL §§27-1405, 1415(7))

"**Institutional Control**" shall mean any non-physical means of enforcing a restriction on the use of real property that limits human or environmental exposure, restricts the use of groundwater, provides notice to potential owners, operators, or members of the public, or prevents actions that would interfere with the effectiveness of a remedial program or with the effectiveness and/or integrity of operation, maintenance, or monitoring activities at or pertaining to a brownfield site.

"**Engineering Control**" shall mean any physical barrier or method employed to actively or passively contain, stabilize, or monitor hazardous waste or petroleum, restrict the movement of hazardous waste or petroleum to ensure the long-term effectiveness of a remedial program, or eliminate potential exposure pathways to hazardous waste or petroleum. Engineering controls include, but are not limited to, pavement, caps, covers, subsurface barriers, vapor barriers, slurry walls, building ventilation systems, fences, access controls, provision of alternative water supplies via connection to an existing public water supply, adding treatment technologies to such water supplies, and installing filtration devices on private water supplies.

Features and Requirements

- If an IC/EC is used as a component of a site cleanup plan, the Remedial Work Plan must include:
  - a complete description of the IC/ECs and the mechanisms that will be used to implement, maintain, monitor, and enforce such restrictions and controls, both by the applicant and by any state and local government
  - an evaluation of the reliability, viability, and costs of the long-term implementation, maintenance, monitoring, and enforcement of any IC/EC.
- Financial assurance for the long-term maintenance, monitoring, and enforcement of IC/ECs may be required by the Department.
- Any EC must be used in conjunction with an IC.
- The final remediation report must include a certification that any IC/ECs are included in an environmental easement that has been duly recorded.
- An annual certification, unless agreed otherwise in writing by the Department, must be submitted to the Department that the IC/ECs are in place and protective of public health and the environment.
- The Department must create, update, and maintain a data base available to the public of sites using IC/ECs.
- Any proposal for a change in site use must include an evaluation of the impacts of the change on the viability, reliability, and effectiveness of any IC/ECs.

FACT SHEET

Brownfields Cleanup Program (BCP)
ENVIRONMENTAL EASEMENTS
(see also ECL Article 71, Title 36)

An Environmental Easement is an enforcement mechanism used for property where the remedial program leaves residual contamination that makes the property suitable for some, but not all uses, or includes engineering controls that must be maintained to be effective. The purpose of the Environmental Easement is to ensure that such use restrictions or engineering controls remain in place. An Environmental Easement:

- can only be created by the property owner (the "grantor") through a written instrument recorded in the appropriate county recording office. It can only be granted to the State (the "grantee") and can only be extinguished or amended by a written instrument executed by the Commissioner of the Department of Environmental Conservation and duly recorded;
- is binding upon all subsequent owners and occupants of the property. The deed or deeds for the property (as well as any other written instruments conveying any interest in the property) must contain a prominent notice that it is subject to an Environmental Easement;
- may be enforced in perpetuity against the grantor, subsequent owners of the property, lessees, and any person using the property by its grantor, by the State, or by the municipality in which the property is located.

Additionally,

- The Department may revoke the Certificate of Completion issued to any person who intentionally violates an Environmental Easement.
- The State is authorized to enter and inspect any property subject to an Environmental Easement to ensure compliance with the restrictions. The Department may promulgate regulations establishing forms, standards, and procedures for environmental easements.
- A copy of each Environmental Easement must be included in the database established for all brownfield sites.
- The Department must provide a copy of each Environmental Easement, as well as any documents that modify or terminate such easement, to the municipalities in which the property is located.
- The municipalities must notify the Department upon receipt of an application for a building permit or any another application that affects land use or development so that the Department may determine whether the application is consistent with the terms of the Environmental Easement. The municipality may not approve the application unless the Department determines that the approval would be consistent with purpose of the environmental easement.

FACT SHEET

Brownfields Cleanup Program (BCP)
CERTIFICATE OF COMPLETION
(see also ECL §27-1419)

A Certificate of Completion is issued by the Commissioner once it is determined that remediation requirements have been achieved or will be achieved under an approved Work Plan. Upon issuance of a Certificate of Completion, the Applicant:

- has no liability to the State for hazardous waste or petroleum at or emanating from the Site (excluding liability for Natural Resource Damages for Participants and subject to certain reopeners for all applicants); and
- is eligible for tax credits (a Certificate of Completion is referred to as a Remediation Certificate in the Tax Law).

Issuance of a Certificate of Completion is based upon a review of a Final Engineering Report which contains:

1. a description of the remedial activities completed;
2. a certification that remediation requirements have been or will be achieved in accordance with approved timeframes;
3. site boundaries;
4. a description of any institutional/engineering controls (IC/ECs) to be used, including mechanisms to implement, maintain, monitor, and enforce them;
5. a certification that any land use restrictions, IC/ECs, and/or any requirements for remedy operation, maintenance, and monitoring (OM&M) are contained in a duly recorded Environmental Easement and that local governments are notified;
6. a certification that an OM&M Plan for any engineering controls employed at the Site has been approved by the Department; and
7. a certification that any required financial assurance mechanisms have been executed.

A Certificate of Completion may be modified or revoked, following notice to the Applicant and an opportunity for a hearing, if:

- the Applicant has not complied with the terms and conditions of the BCA;
- the Applicant misrepresented a material fact in the Application as to its eligibility or in a certification that the cleanup levels required under the BCA were reached; or
- there is good cause for modification or revocation.

A Certificate of Completion may not be issued to any Participant who has not resolved any liability to the Spill Fund under the Navigation Law for the site. Following issuance of a Certificate of Completion, a Volunteer waives any right it may have to make a claim against the Spill Fund with respect to the site. A format for the Certificate of Completion will be developed in conjunction with the Department of Taxation and Finance.

FACT SHEET

Brownfields Cleanup Program (BCP)
LIABILITY LIMITATION
(see also ECL §27-1421)

Subsequent to issuance of a Certificate of Completion, an Applicant has no liability to the State for hazardous waste or petroleum at and/or emanating from the Site, subject to certain exceptions and re-openers. Volunteers receive a release for Natural Resource Damages but Participants do not.

This liability limitation applies to the Applicant's successors and assigns who take title to, develop, or otherwise occupy the Site, provided;

- such successors and assigns are not responsible for the disposal or discharge of hazardous waste or petroleum, unless they were parties to the BCA; and
- such successors and assigns act with due care and in good faith to adhere to the requirements of the BCA.

The State reserves all of its rights concerning any further investigation and/or remediation the Department deems necessary due to:

1. contamination at, on, under, or migrating from the Site that creates conditions that are no longer protective of public health or the environment;
2. noncompliance with the terms of the BCA, the Remedial Work Plan, and/or the Certificate of Completion;
3. fraud committed by the Applicant in connection with its application or its participation in the BCP;
4. a finding by the Department that the Remedial Program implemented at the Site is no longer protective of public health or the environment due to a change in an environmental standard, factor, or criteria upon which the Remedial Work Plan or no further action determination was based;
5. a change in the Site's use that would create conditions not protective of public health or the environment (a Volunteer who remediates a site to unrestricted conditions is not subject to this reopener); or
6. failure of the Applicant to make substantial progress toward redevelopment of the Site within three years or if the Applicant unreasonably delays redevelopment considering the size, scope and nature of the proposed development.

A notice must be filed as a Declaration of Covenant with the recording officer of the county in which the Site is located within 30 days of:

- the effective date of the Certificate of Completion; or
- the date Applicant acquires title to the Site, whichever is later.

The Applicant receives contribution protection for work performed under the BCP.

FACT SHEET

Brownfields Cleanup Program (BCP)
TAX CREDITS

(see also Tax Law §§21, 22, 23, 187-g, 187-h, 187-i, 208, 210, 606, 612, 683, 687, 1083, 1087, 1453, 1456, 1503, 1511 and Insurance Law §3447)

Tax credits are available to parties who perform remedial activities under the Brownfield Cleanup Program. The tax credits will offset costs associated with real property taxes, site preparation, property improvements, on-site groundwater cleanup costs, and environmental insurance premiums. A Certificate of Completion stating that remediation requirements for the Site have been achieved must be issued by the Commissioner of the Department of Environmental Conservation in order to trigger eligibility for the tax credits. The tax credits will start to accrue upon signing of the Brownfield Cleanup Agreement and become effective in the tax year beginning April 1, 2005.

Brownfield redevelopment tax credits are available in the amount of 10% for individual taxpayers and 12% for businesses; this percentage is increased to 12% for individual taxpayers and 14% for businesses if the Site has been cleaned up to unrestricted conditions. Further, an additional 8% is available if half of the Site is in an "En-Zone" (see below). These credits include the following components:

- Site preparation credit for investigation and remediation costs;
- Tangible property credit for costs associated with the development or redevelopment of the site, including buildings and structural components; and
- On-Site groundwater remediation credit.

There is a credit for real property taxes for qualified sites. The amount of the credit is based upon the number of jobs created as a result of redevelopment. The credit is increased four-fold if the site is within an En-Zone.

There is also a credit for environmental remediation insurance of up to $30,000 or 50% of the cost of the premium, whichever is lesser.

En-Zones - A list of Environmental Zones will be created by the Commissioner of Economic Development no later than December 31, 2003. To be designated as an En- Zone, the area must have had, as of the 2000 census, a poverty rate of at least 20% and an unemployment rate of at least 1.25 times the statewide average.