Department of Environmental Conservation

Division of Environmental Remediation

Record of Decision

Dowcraft - South Dow Street Site
Falconer (T) Chautauqua (C),New York
Site Number 9-07-020

March 2003

New York State Department of Environmental Conservation
GEORGE E. PATAKI, *Governor* ERIN M. CROTTY, *Commissioner*

DECLARATION STATEMENT - RECORD OF DECISION

Dowcraft - South Dow Street, Inactive Hazardous Waste Disposal Site

Falconer (T), Chautauqua (C), New York
Site No. 9-07-020

Statement of Purpose and Basis

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

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (NYSDEC) for the Dowcraft - South Dow Street inactive hazardous waste disposal site, and the public's input to the Proposed Remedial Action Plan (PRAP) presented by the NYSDEC. A listing of the documents included as a part of the Administrative Record is included in Appendix B of the ROD.

Assessment of the Site

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

Description of Selected Remedy

Based on the results of the Remedial Investigation and Feasibility Study (RI/FS) for the Dowcraft - South Dow Street site and the criteria identified for evaluation of alternatives, the NYSDEC has selected Alternative # 4, injection of a solution of potassium permanganate solution into the overburden groundwater contaminant plume, along with groundwater monitoring. The components of the remedy are as follows:

- In-situ groundwater treatment through chemical oxidation, by injection of potassium permanganate dissolved in water, through existing well points into the shallow overburden groundwater table;
- Overburden groundwater monitoring to verify the effectiveness of the treatment;

- Institutional controls will be imposed, in such form as the NYSDEC may approve, that will prevent the use of groundwater as a source of potable or process water without necessary water quality treatment as determined by the Local Health Department; and
- Annual certification to NYSDEC to certify that institutional controls remain in place.

New York State Department of Health Acceptance

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

Declaration

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

MAR 31

Date

Dale A. Desnoyers, Director
Division of Environmental Remediation

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RECORD OF DECISION

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SECTION 1: SUMMARY OF THE RECORD OF DECISION

The New York State Department of Environmental Conservation (NYSDEC) in consultation with the New York State Department of Health has selected this remedy to address the significant threat to human health and the environment created by the presence of hazardous waste at the Dowcraft, South Dow Street site, a Class 2 inactive hazardous waste disposal site. As more fully described in Sections 3 and 4 of this document, a trichloroethene (TCE) vapor degreasing operation which was used within the plant has resulted in the disposal of trichloroethene into soils and groundwater at the site, some of which has migrated from the site to areas under existing buildings directly north of the site. This disposal activity has resulted in the following significant threats:

- a significant environmental and health threat associated with the impacts of contaminants to the Jamestown Aquifer, the primary drinking water supply for the Jamestown area.

- a significant environmental threat to the Chadakoin River situated approximately 100 feet north or downgradient of the site.

In order to eliminate or mitigate the significant threats to the public health and the environment that the hazardous waste disposed at the Dowcraft Site has caused, the following remedy has been selected:

- Injection of a potassium permanganate ($KMnO_4$) solution into the overburden groundwater contaminant plume. Groundwater monitoring will be performed to monitor groundwater quality and to modify the injection process, if necessary.

The selected remedy is intended to attain the remediation goals selected for this site in Section 6, in conformity with applicable standards, criteria, and guidance (SCGs).

SECTION 2: SITE LOCATION AND DESCRIPTION

The Dowcraft property is located at 65 South Dow Street, Falconer, Chautauqua County, New York. Industrial and commercial properties occupy most of the surrounding properties in this urban setting. The property covers approximately 2.2 acres and is situated immediately east of South Dow Street and approximately 100 feet south of the Chadakoin River. The Jamestown Container manufacturing building is situated between the site and the Chadakoin River. The Dowcraft property is bounded to the north and east by the Jamestown Container Corporation (JCC) property and to the south by

property formerly owned by Conrail Railroad but now owned by the Norfolk Southern Railroad. (Figures 1 & 2)

SECTION 3: SITE HISTORY

3.1: Operational/Disposal History

The property was first developed in 1890 as a woolen mill which remained in existence until 1939 when the mill was converted into a factory which manufactured steel partitions used for offices and the telecommunications industry. This work continued until 1999 when the facility was closed and demolished after which the property was sold to Jamestown Container, the neighbor to the north. A vapor degreaser was installed in 1948 when a boiler room was moved. A sump was located directly beneath the degreaser unit. Virgin trichloroethylene (TCE) and TCE sludge were stored in a nearby storage area in the north portion of the building.

Due to the type of manufacturing process utilized at the Dowcraft plant, a large number of chemicals were stored and used within the plant. Some of these chemicals included paints, adhesives, gum cleaner, reducers, toluene, xylene and TCE.

3.2: Remedial History

The Dowcraft facility was the subject of environmental investigations in the early 1990's due to financial restructuring of the company. A report, "Environmental Investigation - Dowcraft Corporation", April 1991, presented initial findings at the site. In April 1993, a "Remediation Plan for the Dowcraft Corporation Site" was prepared which more clearly identified the presence of trichloroethene in overburden groundwater beneath the site. In 1994 Dowcraft proceeded with an Interim Remedial Measure (IRM) consisting of a groundwater extraction and treatment system (air stripper) to address the TCE presence. This system extracted groundwater from the area of the historical vapor degreaser location and immediately downgradient from this location, and operated until the spring of 1999 when the facility was demolished. An Order on Consent was signed with the company in March 2000 to finalize investigations and develop a remediation plan. In May 2000, an additional IRM was approved by the NYSDEC which involved in-situ (in-place) chemical oxidation of TCE through the injection of potassium permanganate ($KMnO_4$) into the overburden groundwater system directly beneath the old degreaser source and immediately downgradient of this source area. Two subsequent $KMnO_4$ injections were performed in November 2000 and June 2001. In September 2000, a draft Supplemental Remedial Investigation/Focused Feasibility Study was submitted by Dowcraft and subsequently finalized in July 2002.

SECTION 4: SITE CONTAMINATION

To evaluate the contamination present at the site and to evaluate alternatives to address the significant threat to human health or the environment posed by the presence of hazardous waste, Dowcraft Corporation conducted a Remedial Investigation/Feasibility Study (RI/FS).

4.1: Summary of the Remedial Investigation

The purpose of the RI was to define the nature and extent of contamination resulting from previous activities at the site.

The RI was conducted in two phases. The first phase was conducted between August 1991 and April 1993, with an Environmental Investigation and a Interim Remediation Plan. The second phase, or Supplemental Remedial Investigation/Feasibility Study was completed in July 2002. A report entitled "Supplemental Remedial Investigation/Focused Feasibility Study" was prepared which described the field activities and findings of the RI and presented feasible remedial alternatives.

The RI included the following activities:

1) Surface soil sampling at three storage areas to determine if surface contamination was present.
2) Surface soil screening during the removal of the concrete floor at the time of demolition of the facility.
3) Installation of 21 soil borings most of which were ultimately converted to monitoring wells or purge wells. The borings were used to delineate the contaminant plume within the overburden soils and to assist in placement of purge wells.
4) Soil sampling from three drywells to determine if these were source areas for contamination.
5) Soil sampling from four test pits at the source area, and one new footing location excavation.
6) Screening of excavated soils from the installation of a new water line and a new sewer line.
7) Physical testing of soil samples from four boreholes, and visual inspection and vapor screening of soils from the bedding of the outfall to the Chadakoin River.
8) Installation, development and groundwater sampling of 15 monitoring wells, and 4 purge wells.
9) Sampling of soil gas from 29 different soil boring points.
10) Hydraulic monitoring of each monitoring and purge well.
11) Aquifer pumping tests at two of the purge wells.

To determine which media (soil, groundwater, etc.) are contaminated at levels of concern, the RI analytical data was compared to environmental Standards, Criteria, and Guidance values (SCGs). Groundwater, drinking water and surface water SCGs identified for the Dowcraft site are based on NYSDEC Ambient Water Quality Standards and Guidance Values and Part 5 of the New York State Sanitary Code. For soils, NYSDEC Technical and Administrative Guidance Memorandum (TAGM) 4046 provides soil cleanup guidelines for the protection of groundwater, background conditions, and health-based exposure scenarios. In addition, for soils, site specific background concentration levels can be considered for certain classes of contaminants. Guidance values for evaluating contamination in sediments are provided by the NYSDEC "Technical Guidance for Screening Contaminated Sediments".

Based on the RI results, after comparison to the SCGs and potential public health and environmental exposure routes, certain media and areas of the site require remediation. These are summarized below. More complete information can be found in the RI/FS Report.

Chemical concentrations are reported in parts per billion (ppb) and parts per million (ppm). For comparison purposes, where applicable, SCGs are provided for each medium.

4.1.1: Site Geology and Hydrogeology

The topography across the site slopes slightly from south-southwest to north-northeast, from an elevation of 1266.4 to an elevation of 1263.0, which is a drop of 3.4 feet. The Chadakoin River, with its southern banks within 100 feet of the northern portion of the site, is the nearest major natural water body and flows from west to east past the site.

Characterization of site geology was limited to the upper 60 feet of the overburden or soil units since contamination did not progress down beyond these units. The overburden units identified at the site included, from top to bottom: fill; sand and gravel; and silt/clay. Bedrock was not encountered.

The fill unit ranges in thickness from 2 to greater than 14 feet, with an average thickness of 8 feet. The observed makeup was cinders, sand, silt, gravel, brick, concrete, coal, slag, and metal.

The sand and gravel unit ranged from 30 to 39 feet in thickness with an average thickness of 35 feet. Its depth below ground surface ranged from about 8 to 43 feet. A lens of silt/clay, approximately 8 feet thick, was encountered at three borings within this sand and gravel unit.

A silt/clay unit underlies the sand and gravel starting at a depth of approximately 43 feet. This unit is estimated to be 60 feet in thickness according to regional geology. This unit was found to contain a 4 foot thick fine sand lens as noted in one deep soil boring at the site.

The southern edge of the Jamestown Aquifer is located approximately one mile north of the site and is found at a depth, to the top of the aquifer, at approximately 100 to 125 feet. The Jamestown Well Field is located between one to two miles north of the site.

Groundwater is found at a depth of approximately 10 feet below ground level across the site. Review of the regional topography shows that regionally, the discharge point for shallow groundwater is the Chadakoin River. Groundwater contours developed for the site indicate that groundwater flow within the upper sand and gravel unit is to the north-northeast at approximately 2.7 feet per year. However, there appears to be a limited semi-confined aquifer system within the lower sand and gravel unit, as was indicated from a comparison of an on-site shallow monitoring well and an adjacent deep monitoring well. The gradient appears to have a slight upward movement, with water moving from the deeper zone to the shallow zone in this area.

4.1.2: Nature of Contamination

As described in the RI/FS report, soil gas samples, soil samples, groundwater samples, surface water and sediment samples were collected at the site to characterize the nature and extent of contamination. Samples were submitted for Target Compound List (TCL) volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), and Target Analyte List (TAL) metals. The category of contaminants which were found to exceed their SCGs are the VOCs. A list of Chemicals of Concern (COC) then were developed for this site

based on the actual findings in sampling and the number of exceedances of acceptable standards. The COCs for the Dowcraft site are:

- trichloroethene
- 1,2-dichloroethene
- vinyl chloride

The area of concern relative to these organic compounds is the shallow overburden groundwater at the central portion of the site.

4.1.3: Extent of Contamination

Table 1 summarizes the extent of contamination for the contaminants of concern in overburden groundwater and compares the data with the SCGs for the site. The following are the media which were investigated and a summary of the findings of the investigation.

Soil Gas Sampling

A preliminary soil gas survey was conducted at the site to determine if the source of the detected VOC contamination was predominantly in the unsaturated soils. A total of 29 soil gas measurement points were sampled at depths ranging from two (2) feet to six (6) feet below the ground surface (Figure 3). Compounds detected during this survey included trichloroethene and toluene. Trichloroethene was detected in six (6) soil gas points at concentrations ranging from 3.3 ppb to 6.9 ppb. Toluene was detected in one (1) sampling point at 0.6 ppb. There are no standard values for comparing these numbers. These soil gas points were used as an aid in determining the magnitude of the problem. The higher readings were limited to the area in the vicinity of the degreaser pit.

Surface Soils

A total of three (3) surface soil samples were collected from three exterior storage areas. The soil sampling locations were determined based on property use, both present and past. The surface soil samples were collected from between 0 and 6 inches below ground surface. Each sample was analyzed for VOCs and for metals. No VOCs were detected in these soils. The three surface soil samples exhibited elevated concentrations of chromium, copper, and zinc (115 ppm, 236 ppm, 1300 ppm, respectively) which were above Eastern USA Background levels but are indicative of a typical industrial area such as this.

Subsurface Soil Samples

Subsurface soil samples were collected from test pits TP-1 through TP-5 around the historical degreaser area after the building was demolished (Figure 4). The soil samples were collected from the unsaturated zone, at a depth of approximately 9 to 10 feet, just above or across the watertable and analyzed for volatile organic compounds. The compound cis 1,2-dichloroethene was found at TP-3 at 16.5 ppb. Trichloroethene was found at each test pit with values ranging from 2.2 to 480 ppb. All of the organic values noted at the test pits were below the Recommended Soil Cleanup Objective Levels as per TAGM 4046. The lack of appreciable contamination within the unsaturated zone at

the source area indicates that contamination likely exited the sump and moved directly into the overburden groundwater system since the bottom of the sump was located at approximately 10 feet of depth, the approximate elevation of the groundwater table.

An additional soil sample was collected from the excavation for a new building footer east of the old degreaser pit area. The sample was analyzed for volatile organics as per the list of chemicals of concern previously determined for the site. Only trichloroethene was found at a value of 35 ppb. This sample was collected from a depth of 0.5 to 3 feet below the surface.

Drywell Soil Samples

Soil samples were collected from drywells 004, 005 and 007 (Figure 2). The drywell soil samples were analyzed for TCL VOCs. Drywell 005 contained 440 ppb of 1,2-dichloroethene while drywell 004 was found to contain 120 ppb of trichloroethene. Each of these values are below the recommended soil cleanup objectives. No VOCs were detected at drywell 007.

Sediments

Three (3) sediment samples were taken from along the south shore of the Chadakoin River (Figure 2). One upstream of Outfall 002; one at the discharge point of Outfall 002; and one downstream the site. Each sample was analyzed for TCL VOCs. No VOCs were detected in any of the sediment samples.

Surface Water

Three (3) surface water samples were obtained concurrently with the sediment samples as noted above. These samples were collected from along the south shore of the Chadakoin River and were analyzed for TCL VOCs. No VOCs were detected in any of the surface water samples. A sample of the Outfall 002 discharge water was also collected in May 1992. There were no VOCs in the discharge water at the time of sampling. This was a monitored outfall under the State Pollution Discharge Elimination System (SPDES) and is no longer in use or monitored.

Groundwater

A total of twenty monitoring wells and three purge wells are in place at the site. Two additional boreholes were drilled for stratigraphy verification and one time soil and groundwater sampling (Figure 5).

The monitoring wells and purge wells are installed into the saturated zone of the overburden soils. Seventeen shallow wells are installed to an average depth of 15 feet below ground. Five deep wells are installed to a maximum depth of 60 feet below ground. The purge wells are installed between 22 feet and 42 feet below ground.

All of the monitoring and purge wells were sampled for TCL VOCs and metals and/or general parameters. Four of these wells were additionally sampled for semi-volatile organic compounds

(SVOCs) and PCBs to determine if these compounds were of concern at this site. Two wells were sampled for Total Petroleum Hydrocarbons and were found to be non-detect.

Volatile organic compounds initially found in groundwater at the site, with their associated maximum concentration in parts per billion (ppb), included trichloroethene (320,000), 1,2-dichloroethene (1,900), vinyl chloride (160), tetrachloroethene (17), 1,1,1-trichloroethane (51), and 1,1-dichloroethane (12). The groundwater standard for these compounds is 5 ppb, except for vinyl chloride which is 2 ppb.

The only semi-volatile compound found to exceed groundwater standards was bis(2-ethylhexyl)phthalate (9.1 ppb), which was found at one well, and could have been the artifact from a sampling glove. The standard for this compound is 5 ppb.

Four metals were found in groundwater which exceeded groundwater standards. The maximum concentrations noted, in ppb were, iron (18,500), lead (60), manganese (4,430), and sodium (45,700). Their respective groundwater standards are, 300, 25, 300, and 20,000 ppb. All metals analyses were for total concentrations. A review of the findings of metals at various wells including the deep well ESI-2D, indicate that these metals are naturally occurring and therefore, are not considered to be COCs for the site. Lead is slightly above standards and may be naturally occurring or a result of area wide industrial activity.

A plume of the chemicals of concern originates from the degreaser area and has affected the shallow overburden groundwater. The plume extends from the degreaser area to the north, under the Jamestown Container Corporation building and up to the area of the Chadakoin River. This is an area of approximately one acre. The rate of movement is approximately 2 to 3 feet per year to the north. Sampling in the river has not shown any impact to date.

4.2: Interim Remedial Measures

An Interim Remedial Measure (IRM) is conducted at a site when a source of contamination or exposure pathway can be effectively addressed before completion of the RI/FS. Two separate IRMs have been conducted at this site. From 1994 to 1999, an overburden groundwater extraction system was operated by Dowcraft. The system consisted of two extraction wells (PW-2 and PW-3) and provided on-site treatment via air stripping with discharge to the local Publically Owned Treatment Works (POTW). Then in April 2000, after demolition of the building, Dowcraft requested an IRM for the Site which consisted of the application of a potassium permanganate ($KMnO_4$) solution for in-situ chemical oxidation of the chemicals of concern (COC). The IRM was approved by NYSDEC in May 2000 and treatment events were conducted on three separate occasions, May 2000; November 2000; and June 2001. The IRM consisted of the injection of a water solution of between 2.8 and 3.7 percent $KMnO_4$ into the overburden soils in the plume (Figure 6). An approved monitoring program gauged the effectiveness of the program.

In summary, there has been a significant reduction in TCE concentrations as a result of the pumping of groundwater and the $KMnO_4$ treatment. At the termination of groundwater extraction efforts, contaminant values as high as 62,500 ppb (TCE) remained in the source area well (PW-3R) and levels as high as 6,850 ppb existed downgradient of the source area. After the completion of the

third $KMnO_4$ injection into the source and contaminant plume areas in June 2001, sampling results from November 2001 indicated that the TCE level at the source area well (PW-3R) dropped 88%, and that two wells immediately downgradient also had reductions in TCE levels of 71% (ESI-2) and 84 % (PW-2). An increase in TCE further downgradient in the plume occurred and was expected because of the movement of groundwater as a result of the injection process at the source area. This will be addressed as part of the final remedy.

Table 2 presents TCE concentrations from December 1999, prior to any $KMnO_4$ injection, and then for September 2001 and November of 2001, after the 3rd injection which was in June 2001.

4.3: Summary of Human Exposure Pathways:

This section describes the types of human exposures that may present health risks to persons at or around the site. A more detailed discussion of the health risks can be found in Section 9.0 of the RI report.

An exposure pathway is the manner by which an individual may come in contact with a contaminant. The five elements of an exposure pathway are 1) the source of contamination; 2) the environmental media and transport mechanisms; 3) the point of exposure; 4) the route of exposure; and 5) the receptor population. These elements of an exposure pathway may be based on past, present, or future events.

One pathway which potentially exists at this site is through the inhalation of soil vapors which may migrate into buildings along the northern portion of the site.

Confined, heated work spaces could accumulate measurable concentrations of volatile contaminants. A soil gas survey conducted early in the investigation and subsequent soil sampling along with soil vapor screening have shown that there are very low or negligible concentrations of chemicals of concern in the vadose zone soils except for the immediate area around the old degreaser unit. Potential health risks to industrial workers or trespassers exposed to site ambient or indoor air are considered insignificant.

If the contaminants in groundwater were left unattended there would be a threat to the Jamestown Aquifer which is approximately one mile to the north. The City of Jamestown and surrounding communities depend on this aquifer as a potable water source.

4.4: Summary of Environmental Exposure Pathways

This section summarizes the types of environmental exposures and ecological risks which may be presented by the site. The Environmental Risk Assessment included in the RI presents a more detailed discussion of the potential impacts from the site to fish and wildlife resources.

The terrestrial setting around the site provides a poor ecological habitat for the vast majority of potential environmental receptors. The site consists of areas covered by gravel, concrete, asphalt, and buildings, with very little environmentally attractive vegetative areas. There are no known terrestrial species which occupy the site or use it as a nesting or feeding area. The Chadakoin River, situated

to the north of the site is the only environmental receptor of mention. To date there have been no chemicals detected in sediments or river water. Groundwater flow is toward the Chadakoin River. If the groundwater plume were allowed to enter the Chadakoin River without the implementation of any remedial measures, there could be an adverse impact on aquatic life.

SECTION 5: ENFORCEMENT STATUS

Potentially Responsible Parties (PRPs) are those who may be legally liable for contamination at a site. This may include past or present owners and operators, waste generators, and haulers. The Potential Responsible Party (PRP) for this site, documented to date, is the Dowcraft Corporation.

The NYSDEC and the Dowcraft Corporation entered into a Consent Order on March 15, 2000. The Order obligated Dowcraft Corporation to implement a Remedial Investigation/Feasibility Study. Upon issuance of the Record of Decision the NYSDEC will approach the PRP to implement the selected remedy under an Order on Consent.

Although some remedial activity has already taken place at this site the formal enforcement history has been limited to:

Date: **3/15/2000**

Index: **B9-500-96-08**

Subject: **Order on Consent for Development and Implementation of a Remedial Investigation/Feasibility Study**

SECTION 6: SUMMARY OF THE REMEDIATION GOALS

Goals for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375-1.10. The overall remedial goal is to meet all (SCGs) and be protective of human health and the environment. At a minimum, the remedy selected must eliminate or mitigate all significant threats to public health and/or the environment presented by the hazardous waste disposed at the site through the proper application of scientific and engineering principles.

The goals selected for this site are:

- Treat the source area of groundwater contamination by oxidation of the contaminants, in place;
- Prevent exposure of human receptors to contaminated groundwater in the sand and gravel unit under the site;
- Prevent or mitigate, to the maximum extent practicable, COC migration via groundwater so that releases from the underlying sand and gravel unit to the Chadakoin River do not exceed applicable SCGs;

- Prevent or mitigate, to the maximum extent practicable, the migration of contaminated groundwater to off-site areas;
- Restore on-Site groundwater in the sand and gravel unit to the maximum extent practicable which will not result in exceedances of applicable SCGs; and
- Monitor the groundwater in a manner to verify the effectiveness of the remedial actions.

SECTION 7: SUMMARY OF THE EVALUATION OF ALTERNATIVES

The selected remedy must be protective of human health and the environment, be cost effective, comply with other statutory laws and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable. Potential remedial alternatives for the Dowcraft site were identified, screened and evaluated in the report entitled "Supplemental Remedial Investigation Report/ Focused Feasibility Study", dated July 2002.

A summary of the detailed analysis follows. As presented below, the time to implement reflects only the time required to implement the remedy, and does not include the time required to design the remedy, procure contracts for design and construction or to negotiate with responsible parties for implementation of the remedy.

7.1: Description of Remedial Alternatives

The potential remedies are intended to address the contaminated overburden groundwater at the site. Six alternatives have been selected for detailed review, with a 30 year duration basis for implementation.

Alternative 1 - No Further Action

Present Worth:	$ 0
Capital Cost:	$ 0
Annual O&M:	$ 0
Time to Implement	NA

The No Further Action alternative provides no active remedial measures to improve environmental conditions at the site. This alternative recognizes remediation of the site conducted under the previously completed IRM. Natural attenuation and biodegradation would be relied upon to reduce COC concentrations in groundwater. This alternative would leave the site in its present condition and would not provide for any short term additional remedial action.

Alternative 2 - Institutional Controls and Monitoring

Present Worth:	$ 131,000
Capital Cost:	$ 15,000
Annual O&M:	$ 3,215
Time to Implement:	1 month

Alternative 2 includes the implementation of institutional controls to restrict exposure to contaminated groundwater and monitoring of the site groundwater. A Deed Restriction or Record of Notice would be added as an addendum to an existing deed for the site. Long-term groundwater monitoring would be performed to evaluate the reduction in concentrations of contamination at the site from natural attenuation and biodegradation.

Alternative 3 - Extraction Well System With On-site Groundwater Treatment

Present Worth:	$ 581,000
Capital Cost:	$ 93,000
Annual O&M:	$ 33,215
Time to Implement:	2 - 3 months

Alternative 3 would employ an extraction well system designed to contain and recover contaminated groundwater. The system would consist of the extraction wells utilized in the IRM, and an air stripping system with discharge of treated water to the local POTW. The system would be required to demonstrate an inward hydraulic gradient in the area exhibiting elevated COC concentrations, and a decrease in the concentration of the COCs in the groundwater within the plume. Potential human exposure to contaminated groundwater during operation of the collection/treatment system would be controlled by implementing institutional controls until Remedial Action Objectives have been achieved.

Alternative 4 - In-Situ Chemical Oxidation

Present Worth:	$ 160,000
Capital Costs:	$ 43,200
Annual O&M:	$ 7,900
Time to Implement:	2-3 weeks

In-situ chemical oxidation of the COCs in groundwater using $KMnO_4$ began in May 2000 and is continuing. The $KMnO_4$, dissolved in water, would be injected into the COC plume in a manner similar to that used during the IRM. Groundwater monitoring would be performed to verify the remaining chemical mass, to evaluate the presence of $KMnO_4$ remaining in groundwater to complete the restoration of the groundwater, and to modify the injection scenario, if necessary.

Monitoring would be performed during the implementation of the in-situ treatment and following its completion. The monitoring program would consist of semi-annual collection of samples from eleven wells within and downgradient of the COC plume and from within the Chadakoin River. The monitoring program would also include measurement and evaluation of water table and surface water elevations to track groundwater flow patterns. Institutional controls, such as restrictions/notifications on subsurface construction and the withdrawal of groundwater from the site, would be implemented to provide for the long term protection of site occupants.

Alternative 5 - In-Situ Air Sparging/Soil Vapor Extraction

Present Worth:	$ 337,000

Capital Costs:	$ 120,750
Annual O&M:	$ 48,620
Time to Implement:	3 months

The injection of air into the groundwater COC plume would volatilize the COCs, thereby removing them from the groundwater. Air would be injected through sparge points spaced approximately 30 feet on center throughout the source area. The sparge points would be constructed such that air is diffused at the bottom of the sand/gravel or sand unit so that air flows upward through the entire COC plume.

A Soil Vapor Extraction (SVE) system would be required to remove the stripped VOCs from the vadose zone. The SVE points would be located in similar locations as the sparge points. Groundwater monitoring would be performed during the implementation of the in-situ treatment program and for a short time following its completion. The monitoring program would consist of the semi-annual collection of samples from eight wells within and downgradient of the COC plume. Groundwater monitoring would also include measurement and evaluation of water table and surface water elevations to track groundwater flow patterns. Institutional controls as identified in Alternative 4 would be implemented to provide for the long term protection of site occupants.

Alternative 6 - <u>In-Situ Steam Sparging</u>

Present Worth:	$340,000
Capital Cost:	$138,000
Annual O&M:	$ 54,700
Time to Implement:	3 months

The injection of steam into the groundwater COC plume would volatilize the COCs, thereby removing them from the groundwater. Steam would be injected through sparge points spaced approximately 30 feet on center throughout the source area. The sparge points would be constructed such that steam is diffused at the bottom of the sand/gravel or sand unit so that air flows upward through the entire COC plume. Vapor extraction points would be installed in the vadose zone soils above the sparge points to capture the volatilized COCs. The extracted vapors would then be treated using vapor phase carbon.

Groundwater monitoring would be performed during the implementation of the in-situ treatment program and following its completion. The monitoring program would consist of the semi-annual collection of samples from eight wells within and downgradient of the COC plume. Groundwater monitoring would also include measurement and evaluation of water table and surface water elevations to track groundwater flow patterns. Institutional controls as identified in Alternative 4 would be implemented to provide for the long term protection of site occupants.

7.2 <u>Evaluation of Remedial Alternatives</u>

The criteria used to compare the potential remedial alternatives are defined in the regulation that directs the remediation of inactive hazardous waste sites in New York State (6 NYCRR Part 375). For each of the criteria, a brief description is provided, followed by an evaluation of the alternatives

against that criterion. A detailed discussion of the evaluation criteria and comparative analysis is included in the Feasibility Study.
The first two evaluation criteria are termed threshold criteria and must be satisfied in order for an alternative to be considered for selection.

1. Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether or not a remedy will meet applicable environmental laws, regulations, standards, and guidance. The most significant SCGs for this project are presented in Table 3.

Neither Alternative 1 (No Further Action) nor Alternative 2 (Institutional Controls and Monitoring), would comply with the chemical-specific SCGs. Alternative 3 (Collection, Containment and Treatment), would comply with chemical-specific SCGs over time, through the collection of groundwater and subsequent treatment of the collected groundwater. Alternative 4 (In-Situ Chemical Oxidation), would comply with the chemical-specific SCGs in the shortest time frame. The effective treatment of the COCs in-situ is expected to improve groundwater quality within the treatment area in an attempt to meet the applicable standards. Alternatives 5 (In-Situ Air Sparging) and Alternative 6 (In-Situ Steam Sparging) would also be expected to attain groundwater quality standards but in a longer time frame. In addition, Alternatives 5 and 6 may necessitate above ground treatment systems to control emissions.

All alternatives would comply with applicable action-specific and location-specific SCGs, however, treatment of air emissions from the air stripper in Alternative 3 or the SVE systems in Alternatives 5 and 6 may be required to comply with air regulations.

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

Alternative 1 (No Action) provides no immediate protection to human health or the environment beyond that achieved through long term natural attenuation of the COCs.

Alternative 2 (Institutional controls) would provide a measure of protection to human health through the prevention of the use of contaminated groundwater at the site. Alternatives 1 and 2 would provide the same level of protection to the environment.

Alternative 3 (Pump & Treat) would be protective of human health and the environment through the collection and containment of the COC plume and the enforcement of institutional controls.

Alternative 4 (Chemical Oxidation) would provide a high level of protection in the shortest period of time. During the treatment process institutional controls would provide protection to human health.

Alternatives 5 (Air Sparge) and 6 (Steam Sparge) would provide a high level of protection to human health and the environment in a relatively short period of time. During actual treatment activities protection of human health would be provided through the enforcement of institutional controls.

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

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

There would be no increased short term risk to workers or the community with the implementation of Alternatives 1 and 2.

There would not be any exposure to contamination from extraction well installation for Alternative 3 since the extraction wells are already in place. The installation of hardware associated with a groundwater pumping and treatment system can be managed safely.

Low potential risk would be associated with Alternatives 4, 5 and 6, primarily during the installation of injection, sparge, or extraction points. The points would be installed using standard drilling techniques which have been demonstrated to present little or no risk.

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

Alternative 1 would result in no further remedial action therefore the residual risks would not be reduced any further. The remediation goals would not be met and a permanent remedy would not be implemented. Alternative 2 (institutional controls) would reduce remaining risks and makes this alternative somewhat effective in the long term.

Alternatives 3, 4, 5 and 6 would provide effectiveness and permanence in the prevention of migration of contaminated groundwater through the collection and/or treatment of the water and vapors. The remediation goals would be achieved by each of these alternatives; however, Alternative 4 would achieve its effectiveness in the shortest period of time.

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

Neither Alternative 1 nor 2 would reduce the toxicity, mobility or volume of the COCS in groundwater beyond that which would be achieved through natural attenuation.

Alternative 3 would reduce the mobility of the COCs through the maintenance of hydraulic containment via groundwater extraction. The extraction and treatment of groundwater from the source area would accelerate the reduction in toxicity and volume by removing groundwater with the highest concentrations of COCs.

Alternatives 3, 4, 5 and 6 would permanently reduce the COCs and thereby eliminate toxicity and volume. Through the application of treatment at the plume boundary, mobility of the COC plume would be controlled.

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

Alternative 1 would be the most easily implemented since there would be no on-site work involved. Alternative 2 would be similar to Alternative 1 except that on-site monitoring wells would need to be maintained and could limit future use of the areas where they are located.

Alternative 4 would require the use of temporary on-site holding tanks and hoses, which would be required during the actual treatment. Monitoring wells would be required for long term monitoring.

Alternatives 5 and 6 would be more difficult to implement than Alternative 4. Air distribution and vapor extraction systems would be required to be installed below grade. Above ground equipment would be required while treatment is underway. Alternative 6 would also require provision for a source of steam. Monitoring wells would be required until the treatment has been demonstrated to be effective which is estimated to be approximately 7 years.

Alternative 3 would be the most difficult to implement. Underground force mains would be required from extraction wells, an on-site shelter would be required for housing of the treatment system, and monitoring and extraction wells would need to be maintained until the applicable groundwater standards have been achieved which, has been estimated to take approximately 30 years.

7. Cost. Capital and operation and maintenance costs are estimated for each alternative and compared on a present worth basis. Although cost is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the remaining criteria, cost effectiveness can be used as the basis for the final decision. The costs for each alternative are presented in Table 2.

This final criterion is considered a modifying criterion and is taken into account after evaluating those above. It is evaluated after public comments on the Proposed Remedial Action Plan have been received.

The cost associated with the implementation of the remedial alternatives is lowest for Alternative 1, No Further Action ($0) and increases successively for Alternatives 2, 4, 5, 6, and 3. The net present worth costs for Alternatives 2, 4, 5, 6, and 3 are $131,000, $160,000, $337,000, $340,000, and $581,000, respectively.

The costs of Alternatives 4, 5, and 6 are dependent on the effectiveness of the treatments. The longer the projected treatment, the higher the cost from the proposed estimate. The cost of Alternative 3 is affected by the length of the monitoring period.

8. **Community Acceptance** - Concerns of the community regarding the RI/FS reports and the Proposed Remedial Action Plan have been evaluated. The responsiveness summary (Appendix A) presents the public comments received and the manner in which the Department addressed the concerns raised. In general, the comments received were in support of the remedy and pertained to clarifications in the decision process.

SECTION 8: SUMMARY OF THE SELECTED REMEDY

Based on the Administrative Record (Appendix B) and the discussion presented below, the NYSDEC has selected Alternative 4 as the remedy for this site. Alternative 4 includes:

- Injection of a potassium permanganate ($KMnO_4$) solution into the overburden groundwater contaminant plume;
- Groundwater monitoring would be performed to monitor groundwater quality and to modify the injection process, if necessary.

In-situ chemical oxidation of the chemicals of concern in groundwater using Potassium Permanganate ($KMnO_4$) began in May 2000 and continued through July 2001. During that time three injections of $KMnO_4$, in solution, were performed. It is estimated that one additional treatment event will be necessary to consume the source area chemical load, by introducing 6,600 pounds of $KMnO_4$ into the overburden groundwater plume. Groundwater monitoring will be performed to verify the remaining chemical mass, evaluate the presence of $KMnO_4$ remaining in groundwater to complete the restoration of the groundwater, and provide for additional applications of the $KMnO_4$, if necessary. Monitoring will be performed during the implementation of the in-situ treatment and following its completion. The monitoring program will consist of semi-annual or annual collection of samples from eleven wells within and downgradient of the COC plume and from within the Chadakoin River. The monitoring program will also include measurement and evaluation of water table and surface water elevations to track groundwater flow patterns. Institutional controls will be implemented to provide for the long term protection of site occupants.

The selection of Alternative 4 is based on the evaluation of the six alternatives developed for this site. With the exception of the No Action alternative, each of the alternatives will comply with the threshold criteria. Alternative # 2 (Institutional Controls/Monitoring) will be protective of human health, however it may not be fully protective of the environment and does not minimize the volume of untreated COCs. The four remaining alternatives are similar with respect to meeting the required criteria for protection of human health and the environment. Each of these alternatives will reduce the amount of COCs at the site to acceptable levels. The main difference is the amount of time to reach acceptable levels of COCs and the cost involved. Alternative # 3 (Extraction Well System) is the most costly and will take the longest to meet acceptable criteria. Long term operation, maintenance and monitoring make this the most expensive alternative. Alternatives # 5 (In-Situ Air Sparging) and # 6 (In-Situ Steam Sparging) will achieve acceptable criteria within six to seven years and are less costly than Alternative # 3. Pilot testing will be necessary to determine the effectiveness of each sparging system. Steam sparging is more costly since it involves an added heating system. As with Alternative # 3, an appreciable amount of plumbing, pumps and compressors will be necessary and will need to be housed in a secure facility. Frequent inspections and monitoring of

these systems will be necessary during active remedial operation. Alternative # 4 (In-Situ Chemical Oxidation) will be an extension of an on-going Interim Remedial Measure which has already proved to be effective. It is the least costly of the four aggressive alternatives, and can be implemented in the shortest amount of time.

The estimated present worth cost to implement the selected remedy is $160,000 and the estimated annual operation and maintenance cost is $ 7,900 per year.

The elements of the selected remedy are as follows:

1. In-Situ groundwater treatment through chemical oxidation, by injection of potassium permanganate dissolved in water, through existing well points into the shallow overburden groundwater table;
2. Overburden groundwater monitoring to verify the effectiveness of the treatment;
3. Institutional controls will be imposed, in such form as the NYSDEC may approve, that will prevent the use of groundwater as a source of potable or process water without necessary water quality treatment as determined by the Local Health Department; and
4. Annual certification to NYSDEC to certify that institutional controls remain in place.

SECTION 9: HIGHLIGHTS OF COMMUNITY PARTICIPATION

As part of the remedial investigation process, a number of Citizen Participation activities were undertaken to inform and educate the public about conditions at the site and the potential remedial alternatives. The following public participation activities were conducted for the site:

- Repositories for documents pertaining to the site were established,
- A public contact list, which included nearby property owners, elected officials, local media and other interested parties, was established,
- Fact Sheets were sent out in July 1999 and January 2003,
- A public meeting was held on January 22, 2003, to present and receive comment on the PRAP,
- A responsiveness summary (Appendix A) was prepared to address the comments received during the public comment period for the PRAP.

Table 1
Nature and Extent of Contamination
(exceedances shown only)

MEDIUM	CATEGORY	CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppb)	FREQUENCY of EXCEEDING SCGs/Background	SCG/ Bkgd. (ppb)
Overburden Groundwater	Volatile Organic Compounds (VOCs)	Trichloroethene	3.6 - 320,000	34/52	5
		1,2-Dichloroethene	1.4 - 1,900	27/52	5
		Vinyl Chloride	11 - 160	7/52	2

Table 2
TCE Concentrations (pre and post injections)

TCE Concentrations (ppb)			
Well #	Pre Injection Dec. 1999	Post Injection Sept. 2001	Post Injection Nov. 2001
ESI - 1	ND7.4	NA	NA
ESI - 2	1800	3800	530
ESI - 3	33J	150	54
ESI - 4	ND5	ND	ND
ESI - 6	NA	NA	NA
ESI - 7	79	3500	3500
ESI - 10	48	750	130
ESI - 11	ND7.1	59	11
ESI - 12	52	15	71
ESI - 13R	63	NA	NA
IBH - 1	NA	ND	83
IBH - 2	–	250	380
IBH - 3	–	ND	ND
IBH - 4	NA	ND	ND
IBH - 5	NA	ND	100
PW - 2	6850	1200	1100
PW - 3R	62500	ND	7500

Table 3
Remedial Alternative Costs

Remedial Alternative	Capital Cost	Annual O&M	Total Present Worth
#1 No Action	$0	$0	$0
#2 Institutional Controls and Monitoring	$ 15,000	$ 3,215	$131,000
#3 Extraction Well System/On-Site Treatment	$ 93,000	$ 33,215	$581,000
#4 In Situ Chemical Oxidation with $KMnO_4$	$ 32,000	$ 7,900	$160,000
#5 In Situ Air Sparging	$ 120,750	$ 48,620	$337,000
#6 In Situ Steam Sparging	$138,000	$ 54,700	$340,000

Table 4
Standards, Criteria, and Guidance

Regulation/Policy	Rationale for Use
NY Air Pollution Control Regulations (6 NYCRR Parts 200 - 257)	Remedial activities may impact air quality. Air stripping technologies need necessary engineering to meet regulations.
New York Water Classifications and Quality Standards. (6 NYCRR Parts 609, 700-704)	Standards impact selection of groundwater remediation goals, as well as treatment goals for re-injection of treated effluent to the aquifer.
New York State Air Guide (1991)	Provides guidance on calculating limits for off-gas emissions.
New York Waste Transport Permit Regulations. (6 NYCRR Part 364)	Off-site transport of treatment residuals will require compliance with these regulations.
Inactive Hazardous Waste Disposal Site Remedial Program (6 NYCRR Part 375)	Regulates permitting of activities at the site; defines uses; public participation; and provides guidance to the hazardous waste clean-up program.
Determination of Soil Cleanup Objectives and Cleanup Levels (TAGM HWR-94-4046)	Guidelines for developing soil cleanup goals.

Figure 1

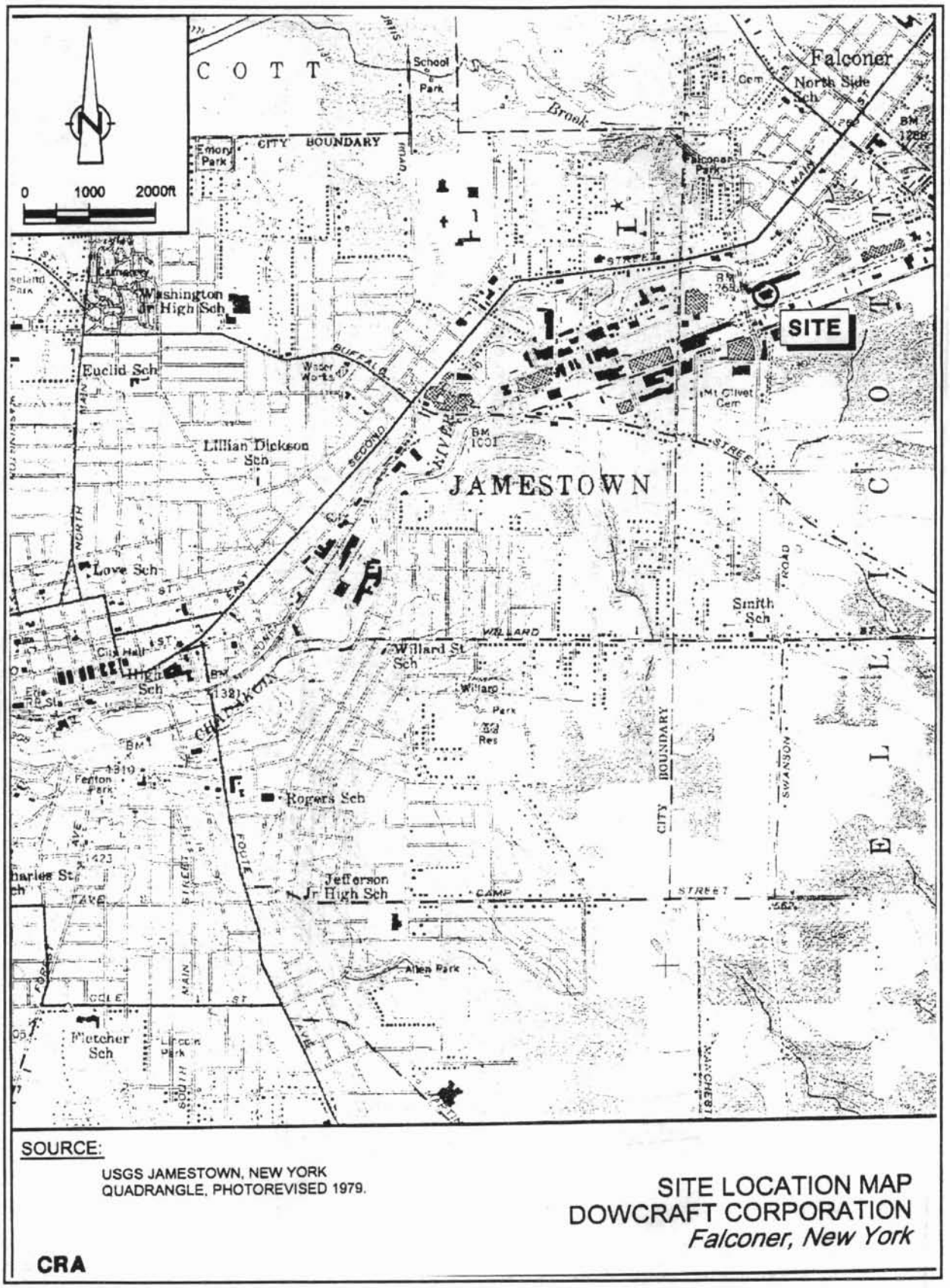

N
0 1000 2000ft
SITE
JAMESTOWN
Falconer
North Side Sch
Washington Jr High Sch
Euclid Sch
Lillian Dickson Sch
Love Sch
Willard St Sch
Smith Sch
Rogers Sch
Jefferson Jr High Sch
Fletcher Sch
Allen Park
Fenton Park
Lincoln Park
CITY BOUNDARY
SECOND
MAIN
CHAUTAUQUA
CAMP
STREET
SOURCE:
USGS JAMESTOWN, NEW YORK
QUADRANGLE, PHOTOREVISED 1979.
SITE LOCATION MAP
DOWCRAFT CORPORATION
Falconer, New York
CRA

Figure 2

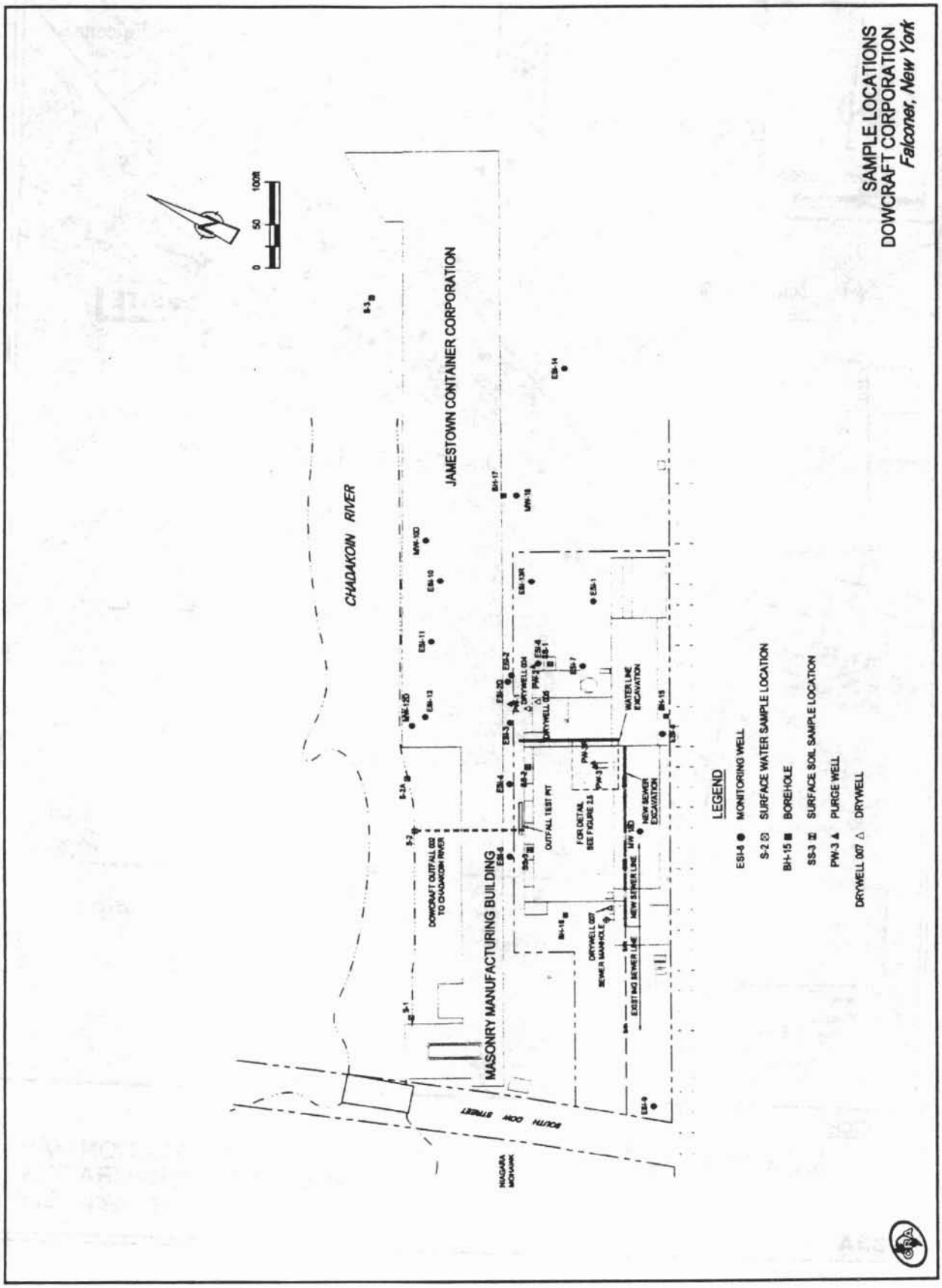

SAMPLE LOCATIONS
DOWCRAFT CORPORATION
Falconer, New York
0
50
100ft
CHADAKOIN RIVER
JAMESTOWN CONTAINER CORPORATION
MASONRY MANUFACTURING BUILDING
SOUTH DOW STREET
NIAGARA MOHAWK
DOWCRAFT OUTFALL 002 TO CHADAKOIN RIVER
OUTFALL TEST PIT
DRYWELL 007
DRYWELL 004
DRYWELL 005
EXISTING SEWER LINE
NEW SEWER LINE
NEW SEWER EXCAVATION
WATER LINE EXCAVATION
FOR DETAIL SEE FIGURE 2.3
LEGEND
ESI-6 MONITORING WELL
S-2 SURFACE WATER SAMPLE LOCATION
BH-15 BOREHOLE
SS-3 SURFACE SOIL SAMPLE LOCATION
PW-3 PURGE WELL
DRYWELL 007 DRYWELL

Figure 3

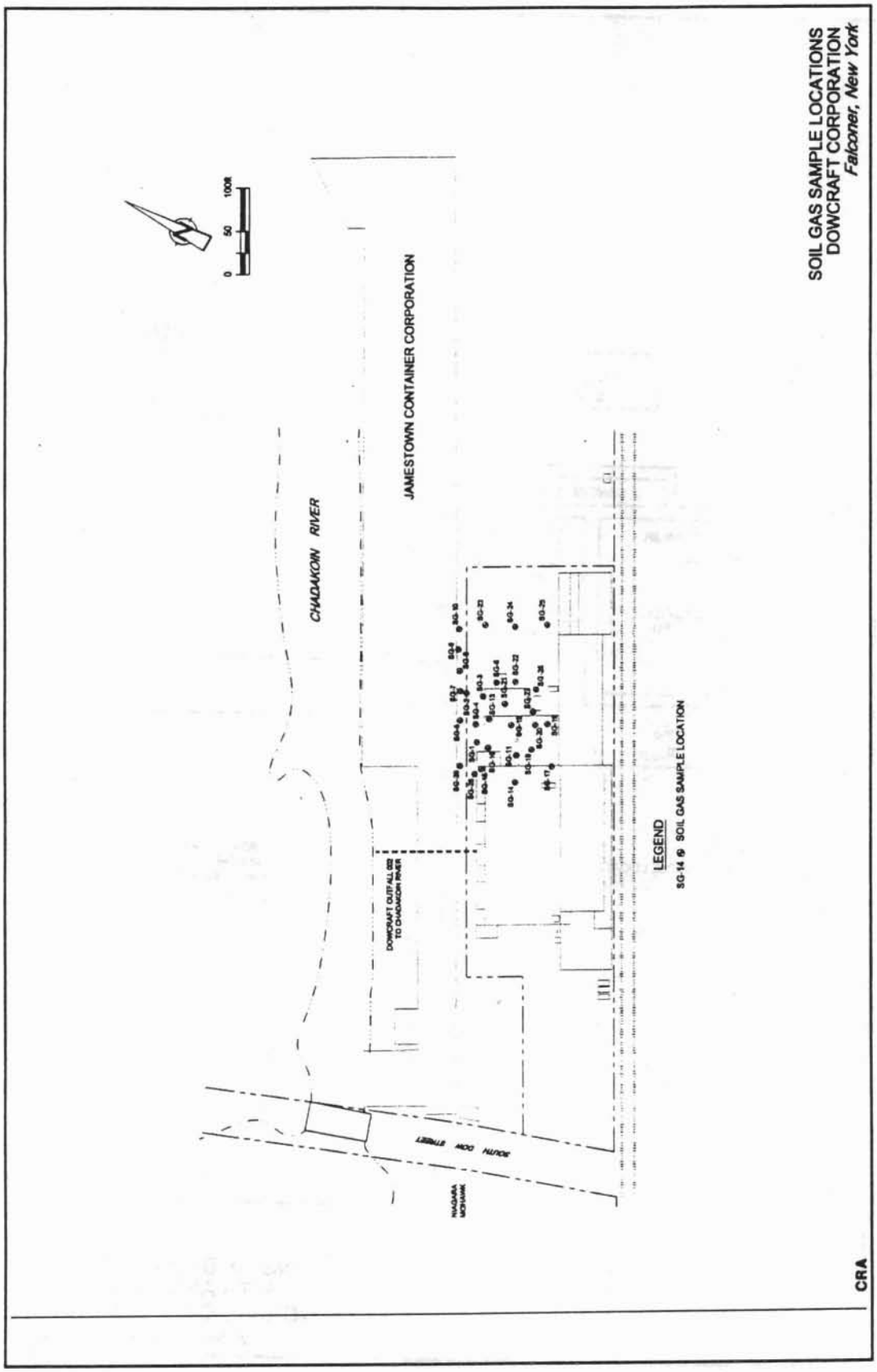

SOIL GAS SAMPLE LOCATIONS
DOWCRAFT CORPORATION
Falconer, New York
JAMESTOWN CONTAINER CORPORATION
CHADAKOIN RIVER
DOWCRAFT OUTFALL 002
TO CHADAKOIN RIVER
LEGEND
SG-14 SOIL GAS SAMPLE LOCATION
CRA

Figure 4

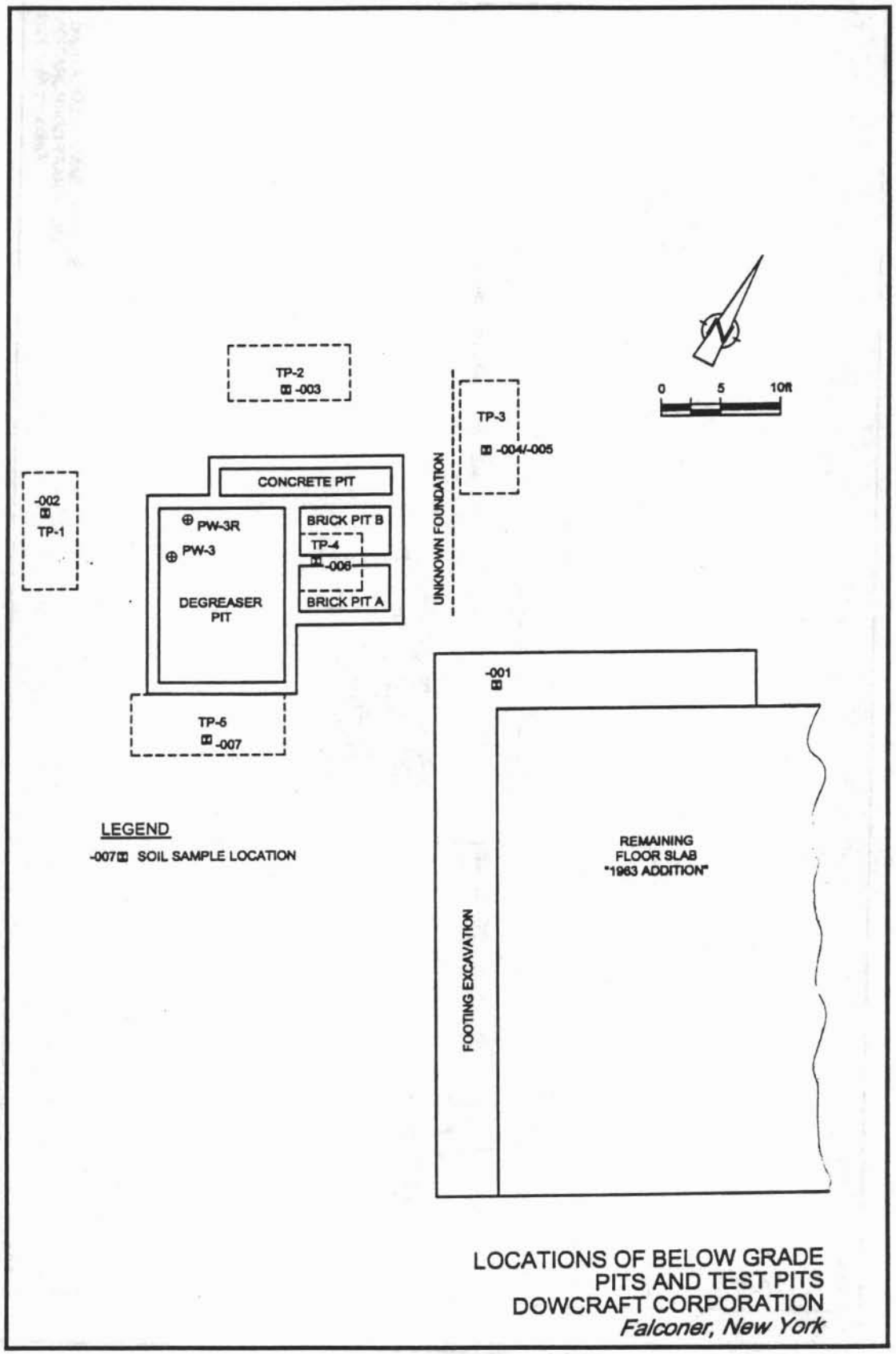

TP-2
-003
TP-3
-004/-005
0
5
10ft
-002
TP-1
CONCRETE PIT
PW-3R
PW-3
BRICK PIT B
TP-4
-006
DEGREASER PIT
BRICK PIT A
UNKNOWN FOUNDATION
TP-5
-007
-001
REMAINING FLOOR SLAB "1963 ADDITION"
FOOTING EXCAVATION
LEGEND
-007 SOIL SAMPLE LOCATION
LOCATIONS OF BELOW GRADE PITS AND TEST PITS
DOWCRAFT CORPORATION
Falconer, New York

Figure 5

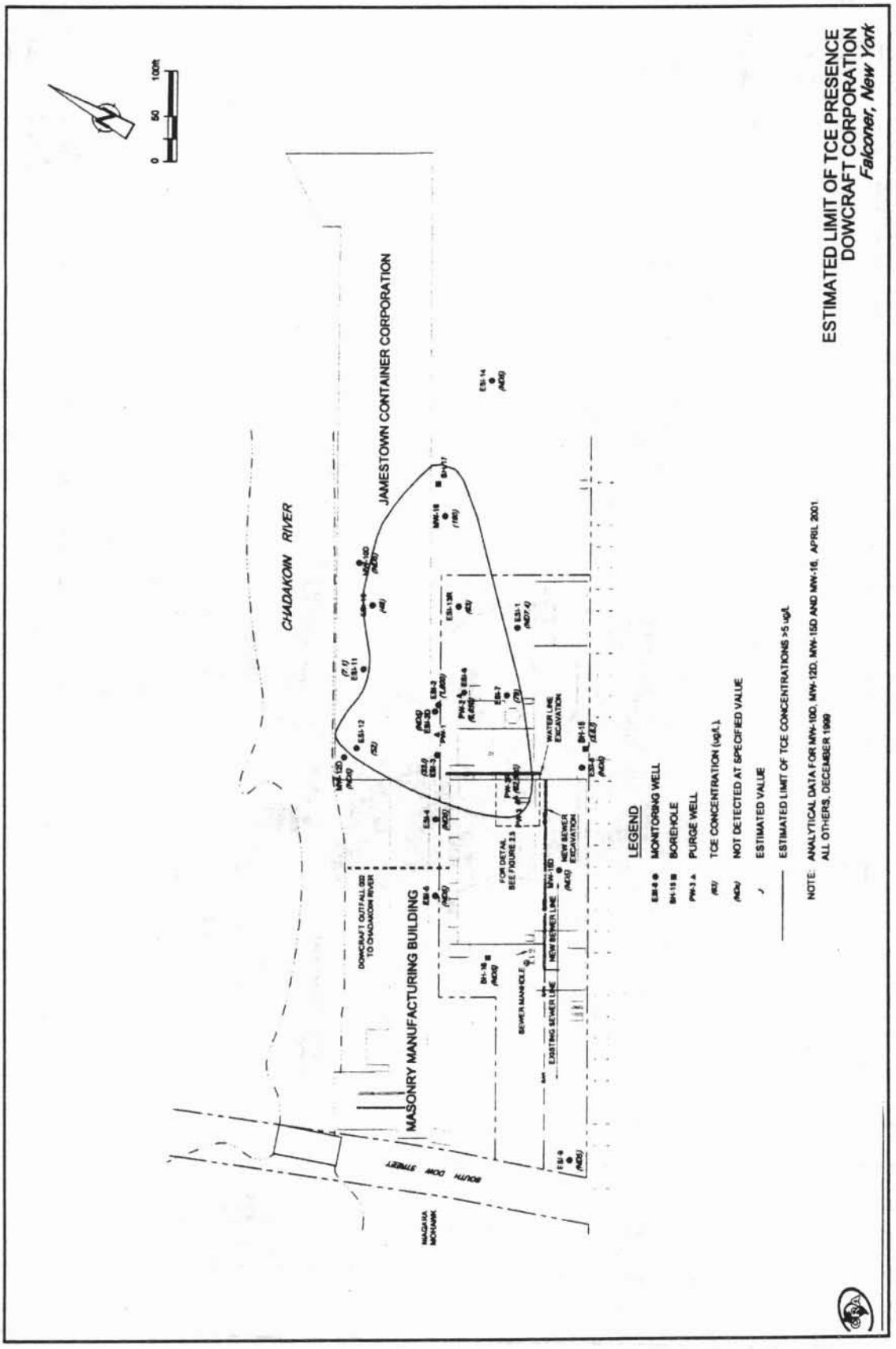
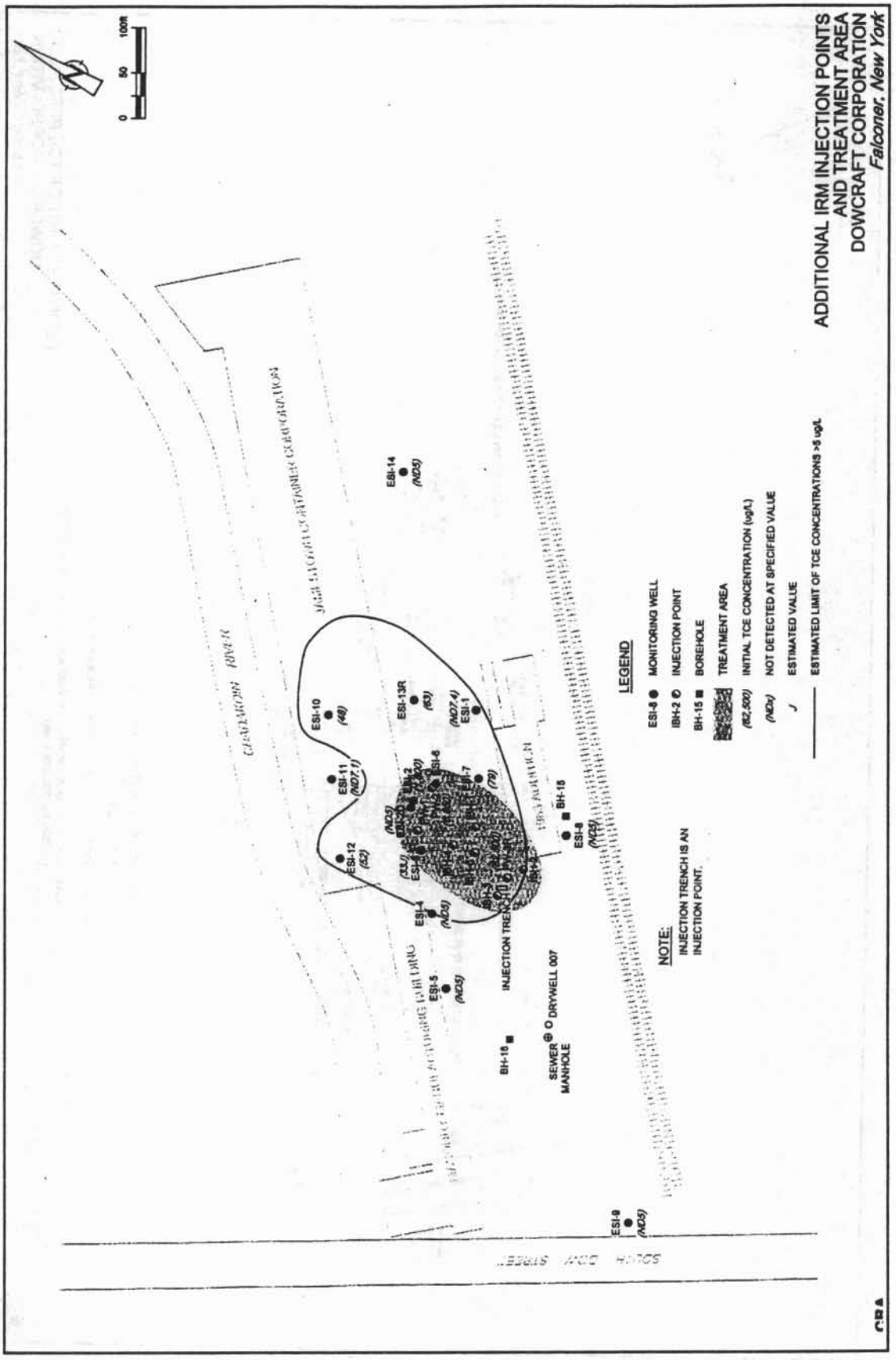

ESTIMATED LIMIT OF TCE PRESENCE
DOWCRAFT CORPORATION
Falconer, New York
0
50
100ft
CHADAKOIN RIVER
JAMESTOWN CONTAINER CORPORATION
MASONRY MANUFACTURING BUILDING
SOUTH DOW STREET
DOWCRAFT OUTFALL 002 TO CHADAKOIN RIVER
EXISTING SEWER LINE
NEW SEWER LINE
NEW SEWER EXCAVATION
WATER LINE EXCAVATION
SEWER MANHOLE
FOR DETAIL SEE FIGURE 2.3
LEGEND
MONITORING WELL
BOREHOLE
PURGE WELL
TCE CONCENTRATION (ug/L)
NOT DETECTED AT SPECIFIED VALUE
ESTIMATED VALUE
ESTIMATED LIMIT OF TCE CONCENTRATIONS >5 ug/L
NOTE: ANALYTICAL DATA FOR MW-10D, MW-12D, MW-15D AND MW-16, APRIL 2001
ALL OTHERS, DECEMBER 1999

Figure 6


ADDITIONAL IRM INJECTION POINTS
AND TREATMENT AREA
DOWCRAFT CORPORATION
Falconer, New York
LEGEND
ESI-8 MONITORING WELL
IBH-2 INJECTION POINT
BH-15 BOREHOLE
TREATMENT AREA
(82,500) INITIAL TCE CONCENTRATION (ug/L)
(NDx) NOT DETECTED AT SPECIFIED VALUE
ESTIMATED VALUE
ESTIMATED LIMIT OF TCE CONCENTRATIONS >5 ug/L
NOTE:
INJECTION TRENCH IS AN INJECTION POINT.
ESI-14 (ND5)
ESI-13R (63)
ESI-10 (48)
ESI-11 (ND7.1)
ESI-12 (52)
ESI-1 (ND7.4)
ESI-2 (ND5)
ESI-3 (ND5)
ESI-4 (ND5)
ESI-5 (ND5)
ESI-6 (79)
ESI-7 (ND5)
ESI-8 (ND5)
ESI-9 (ND5)
BH-15
BH-16
INJECTION TRENCH
DRYWELL 007
SEWER MANHOLE
SOUTH DOW STREET
CHADAKOIN RIVER
0
50
100ft

APPENDIX A

RESPONSIVENESS SUMMARY

Dowcraft - South Dow Street

Falconer (T), Chautauqua (C), New York
Site No. 9-07-020

The Proposed Remedial Action Plan (PRAP) for the Dowcraft - South Dow Street site, was prepared by the New York State Department of Environmental Conservation (NYSDEC) in consultation with the New York State Department of Health (NYSDOH) and was issued to the document repositories on January 7, 2003. The PRAP outlined the remedial measure proposed for the contaminated overburden groundwater at the Dowcraft - South Dow Street site.

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

A public meeting was held on January 22, 2003, which included a presentation of the Remedial Investigation (RI) and the Feasibility Study (FS) as well as a discussion of the proposed remedy. The meeting provided an opportunity for citizens to discuss their concerns, ask questions and comment on the proposed remedy. These comments have become part of the Administrative Record for this site. The public comment period for the PRAP ended on February 7, 2003.

This responsiveness summary responds to all questions and comments raised during the public comment period. The following are the questions received at the public meeting. No other questions or comments were received.

COMMENT 1:
Who determines what remediation is used?

RESPONSE 1:
A list of alternatives is presented in a document called the Feasibility Study, which is developed during and as a result of the Remedial Investigation. The proposed remedy must meet 8 criteria described in Section 7.2 of the PRAP indicating that the remedy will be protective of both human health and the environment. The NYSDEC, in consultation with the NYSDOH, selects the final remedy and issues a Record of Decision after the public has had an opportunity to comment on it.

COMMENT 2:
How long will monitoring continue?

RESPONSE **2:**
Groundwater monitoring will need to be performed until it is shown that there will be no adverse affect to human health or the environment. At this site it is assumed that groundwater monitoring will be less than ten years depending on the effectiveness of the final injection of potassium permanganate.

COMMENT 3:
Will the site be able to be developed?

RESPONSE 3:
The site can be developed for commercial or industrial use. Annual certification to NYSDEC will be necessary to certify that institutional controls remain in place.

COMMENT 4:
Will Dowcraft be responsible for the site?

RESPONSE 4:
Dowcraft has retained environmental responsibility for this site.

COMMENT 5:
Is this like the bio-remediation that was done around some oil storage tanks?

RESPONSE 5:
No, bio-remediation involves the use of bacteria which essentially eats the petroleum product over a period of time. In this situation chlorinated compounds are involved and an oxidizer will be used which will actually destroy these compounds upon contact.

APPENDIX B

Administrative Record

Dowcraft - South Dow Street

Site No. 9-07-020

1. Proposed Remedial Action Plan for the Dowcraft - South Dow Street site, dated January 2003, prepared by the NYSDEC.

2. Order on Consent, Index No. B9-500-96-08, between NYSDEC and Dowcraft Corporation, executed on March 15, 2000.

3. "Phase I Investigation", October 1990, prepared by Empire Soils Investigations, Inc.

4. "Phase II Investigation", December 1990, prepared by Empire Soils Investigations, Inc.

5. "Environmental Investigation - Dowcraft Corporation", April 1991, prepared by Empire Soils Investigations, Inc.

6. "Remediation Plan for the Dowcraft Corporation Site", April 1993, prepared by Huntingdon Consulting Engineers

7. Site Listed as Class 2 on New York State, Department of Environmental Conservation, Registry of Inactive Hazardous Waste Sites, September 1994.

8. "Supplemental RI/FS Documentation Work Plan", May 1999, prepared by Conestoga-Rovers & Associates.

9. "Additional IRM Work Plan", April 2000, prepared by Conestoga-Rovers & Associates.

10. "Final Supplemental Remedial Investigation/Focused Feasibility Study", July 2002, prepared by Conestoga-Rovers & Associates.

11. Fact Sheet July 1999 and January 2003.

12. "Proposed Remedial Action Plan", January 2003 prepared by NYSDEC.

13. Public Meeting January 22, 2003.