
Department of Environmental Conservation

Division of Hazardous Waste Remediation

# Record of Decision

## Former Miller Container Site
## Town of Volney, Oswego County
## Site Number 7-38-029

**March 1995**

New York State Department of Environmental Conservation
GEORGE PATAKI, *Governor* MICHAEL ZAGATA, *Commissioner*

# DECLARATION STATEMENT - RECORD OF DECISION

## Former Miller Container Inactive Hazardous Waste Site
## Town of Volney, Oswego County, New York
## Site No. 7-38-029

**Statement of Purpose and Basis**

The Record of Decision (ROD) presents the selected remedial action for the Former Miller Container inactive hazardous waste disposal site which was chosen in accordance with the New York State Environmental Conservation Law (ECL). The remedial program selected is not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan of March 8, 1990 (40CFR300).

This decision is based upon the Administrative Record of the New York State Department of Environmental Conservation (NYSDEC) for the Miller Container Division Inactive Hazardous Waste Site and upon public input to the Proposed Remedial Action Plan (PRAP) presented by the NYSDEC. A bibliography of the documents included as a part of the Administrative Record is included in Appendix B.

**Assessment of the Site**

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

**Description of Selected Remedy**

Based upon the results of the Remedial Investigation/Feasibility Study (RI/FS) for the Former Miller Container and the criteria identified for evaluation of alternatives the NYSDEC has selected a system of extraction wells to capture groundwater contamination, a vapor extraction system for treating contaminated soils (source control), a groundwater treatment system with discharge to surface water, and a monitoring plan sufficient to assess the effectiveness of the remedy. The major elements of the selected remedy include:

- A **remedial design** program to verify the components of the conceptual design and provide the details necessary for the construction, operation and maintenance, and monitoring of the remedial program. Uncertainties identified during the RI/FS will be resolved.

- o A **groundwater collection and treatment system** consisting of 13 recovery wells connected to a treatment area located adjacent to the existing main building.

- o **Soil vapor extraction** to remove contaminants in the southern source area to levels that are protective of groundwater.

- o **Monitoring** the different elements of the remedy to determine its effectiveness and identify changes necessary to achieve the remedial objectives for the site.

- o Continued operation of the **public water treatment system** as necessary to prevent the entry of site related contaminants into the public water system.

**New York State Department of Health Acceptance**

The New York State Department of Health concurs with the remedy selected for this site as being 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 statutory preference for remedies that reduce toxicity, mobility, or volume as a principal element.

3/20/95
Date

Michael J. O'Toole, Jr., P.E.
Director
Division of Hazardous Waste Remediation

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## Glossary of Acronyms

| | |
|---|---|
| CERCLA: | Comprehensive Environmental Response, Compensation and Liability Act |
| DCA: | Dichloroethane |
| DCE: | Dichloroethene |
| ECL: | Environmental Conservation Law |
| FWIA: | Fish and Wildlife Impact Analysis |
| NA: | Not Available |
| NCP: | National Contingency Plan |
| ND: | Not Detected |
| NYCRR: | N.Y. Codes, Rules, and Regulations |
| NYSDEC: | N.Y. State Department of Environmental Conservation |
| NYSDOH: | N.Y. State Department of Health |
| O&M: | Operation and Maintenance |
| PCE: | Tetrachloroethene |
| ppb: | parts per billion |
| ppm: | parts per million |
| PRAP: | Proposed Remedial Action Plan |
| RI/FS: | Remedial Investigation and Feasibility Study |
| ROD: | Record of Decision |
| SCG: | Standards, Criteria, and Guidance |
| SPDES: | State Pollution Discharge Elimination System |
| TCA: | Trichloroethane |
| TCE: | Trichloroethene |
| TWA | Time-Weighted Average |
| VC: | Vinyl Chloride |
| VOC: | Volatile Organic Compound |

## Notice

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**RECORD OF DECISION**
**FORMER MILLER CONTAINER SITE**
**SITE ID NO. 7-38-029**

## SECTION 1: INTRODUCTION

The New York State Department of Environmental Conservation (NYSDEC), in consultation with the New York State Department of Health (NYSDOH), has selected a combined groundwater pump and treat and vapor extraction system for the Former Miller Container Site Number 7-38-029. This remedy will address the threat to human health and the environment created by the presence of chlorinated solvents in soils and groundwater at the site. The site is located upgradient of several public water supply wells. Contaminants from the site have impacted the water quality of at least two of these wells. The contaminated wells were taken out of service until a water treatment plant capable of removing the contamination was constructed by Miller. The plant went into service in June 1992 and has operated satisfactorily since then.

## SECTION 2: SITE LOCATION AND DESCRIPTION

The Former Miller Container Site is located in the Town of Volney, Oswego County, on the east side of Route 57, approximately 1500 feet south of the intersection of Routes 57 and 481 (see Figure 1). The site is situated just outside the City of Fulton. The site is approximately 40 acres in size and is bordered on the north and east by Route 481, on the south by the Miller Brewery, and on the west by Route 57 and a property occupied by a two-story apartment building.

Area land usage is a combination of residential and light industrial. The site has a low, rolling topography with local relief (elevation) ranging from 362 feet above mean sea level (AMSL) to 386 feet AMSL. The property consists of a well manicured lawn with ornamental plantings of trees scattered around the site. The Container Plant, now owned and operated by Reynolds Metals, is located near the south property line approximately 1000 feet east of Route 57.

A shallow manmade pond is located 250 feet northwest of the Plant. The Oswego River is located on the opposite side of Route 57 from the site. A strip of land, between Route 57 and the river, ranging in width from 150 to 350 feet, is occupied by the City of Fulton municipal water facility including three production wells (see Figure 2).

The site is underlain by glacial and lake deposits consisting of a variety of sand, gravel, silt, and clay. These formations range in thickness from 20 feet east of the plant to near 90 feet in the center area of the site. These unconsolidated sediments are underlain by bedrock which consists of interbedded shale, sandstone, and mudstone. Two of the most distinct stratigraphic features of the site are the layers of coarse till which overlie the bedrock in most locations. The lower till is an extremely dense lodgement till overlaid by a loose and permeable ablation till. The lodgement till is a significant barrier to the vertical migration of groundwater.

Groundwater in the area of the site occurs in the overburden and in the underlying bedrock. Overburden groundwater flows in a generally westward direction toward the Oswego River. No site data is available on the flow direction in the bedrock aquifer, however, regional flow is north toward Lake Ontario.

Immediately north of the Fulton Municipal Well Field, a fuel spill (Spill Number 91-06796) being managed by the Region 7 Spill Response Program, occurred. The fuel spill is being treated and contained by several extraction wells and a water treatment unit (i.e., air stripper). Data from monitoring wells indicates no contaminant migration toward the public water supply beyond the extraction wells.

## SECTION 3: SITE HISTORY

### 3.1: Operational/Disposal History

**1976-86:** Container Plant construction was completed in 1976. Part of the plant design included a 500 gallon spill containment tank located outside the western corner of the plant. This tank was connected by three pipelines to trench drains in the drum storage room inside the plant. In April 1986, as part of a system-wide upgrading operation, Miller excavated and removed the tank and its associated pipes. Though there was no record of spills at the plant, visibly stained soil was noted below the tank and pipes during the removal. The tank's contents consisted of spent solvents including methylene chloride, trichloroethane, trichloroethene, tetrachloroethene, toluene, and xylene.

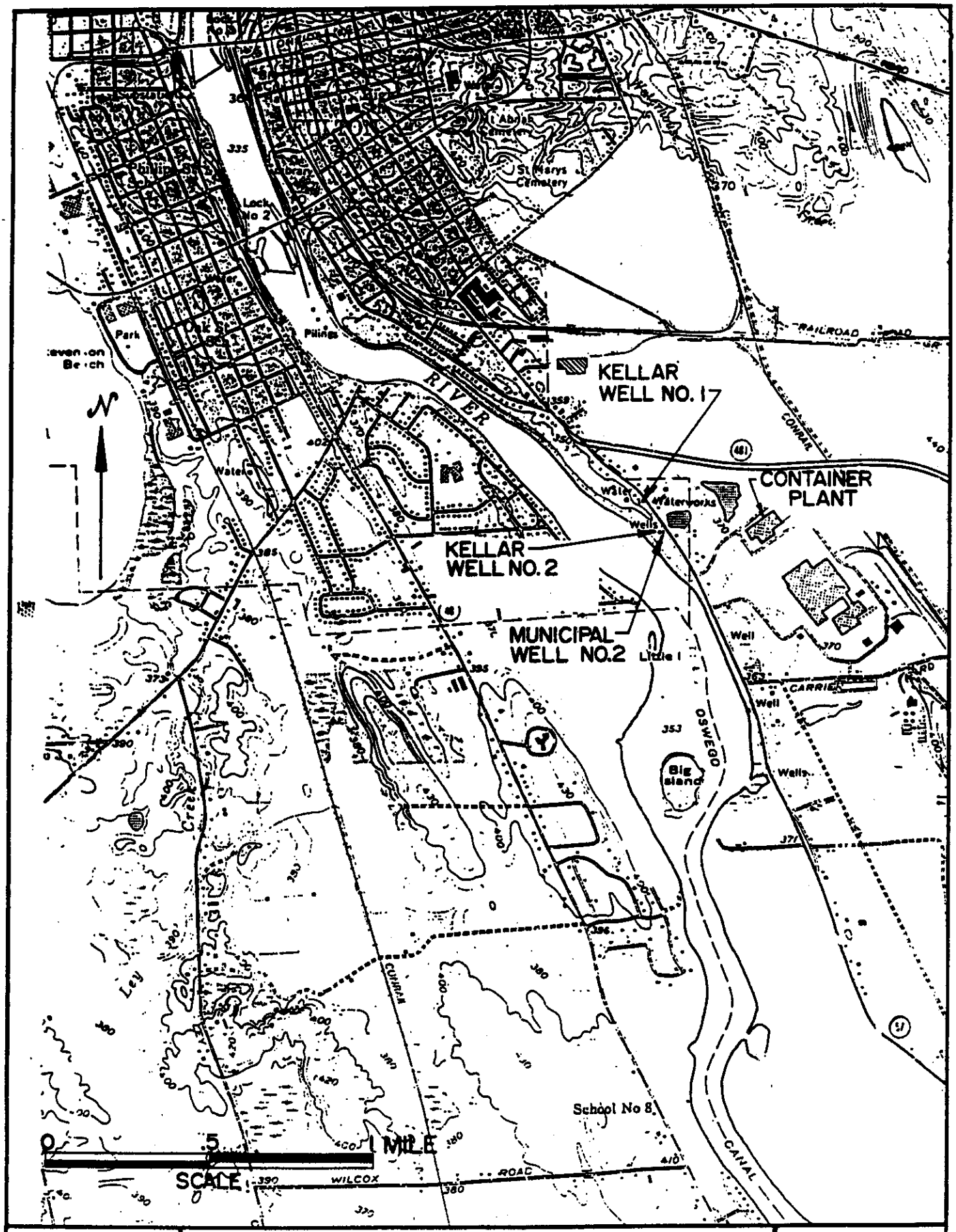
**1990:** As part of the ongoing investigation, Miller Brewing Company, the Potentially Responsible Party (PRP), conducted a soil gas survey in several areas of the site. Locations for the survey were chosen on the basis of historical/anecdotal information and groundwater sampling results which could not easily be explained by known spills or releases. The survey identified potential contamination outside the southern corner of the plant, near the sewer line along Route 57, at the corner of the north parking lot, and east of the Taylor property fence line located 775 feet west of the plant.

**April 1991:** Miller informed the NYSDEC of the discovery of oil and VOC contamination of soil beneath the floor of the plant near the southern corner. This release was discovered during the excavation of a sump. This work was being done as part of an effort to remove underground tanks at the plant.

None of the above contamination could be linked to a specific release. Most of the contamination appears to be the result of past practices at and around the plant.

### 3.2: Previous Investigations

In April 1986 Miller, the PRP, retained Day Engineering to collect samples of the containment tank contents and the soil surrounding the tank. The results of this sampling led the PRP to retain

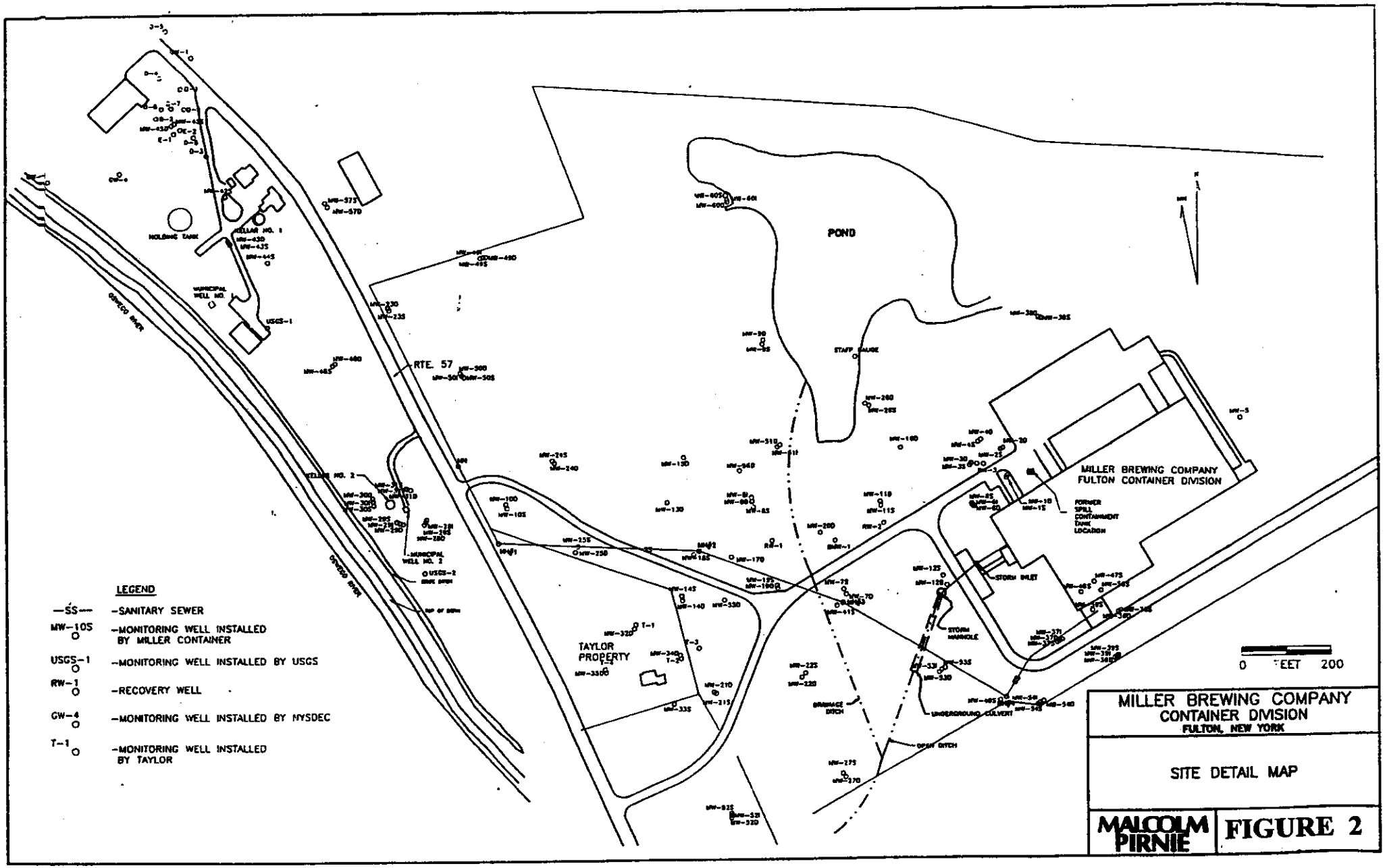



MALCOLM PIRNIE

MILLER CONTAINER DIVISION
SITE LOCATION MAP

MALCOLM PIRNIE, INC.

FIGURE 1




MILLER BREWING COMPANY
CONTAINER DIVISION
FULTON, NEW YORK

SITE DETAIL MAP

MALCOLM PIRNIE

**FIGURE 2**

Calocerinos and Spina (C&S) to perform the first phase of a hydrogeologic investigation later in 1986. Ten soil borings were completed and wells were installed in four of the borings. Data from these wells indicated significant groundwater contamination in the area of the spill containment tank. The direction of groundwater flow was also determined. In August 1985 tetrachloroethene (PCE) was detected at Municipal Well #2 (M2), one of three Fulton water supply wells then in operation to the west of the site. PCE was detected at a concentration of 2 parts per billion (ppb). At that time there was no readily identifiable source for this contamination and the level detected was far below guidance values then in effect (50 ppb). The NYSDEC requested that Miller begin regular sampling of M2. Miller instead proposed that a well pair (MW-10S & 10D) be installed along the property line between M2 and the spill tank. This was agreed to by the Department.

In September 1986 Miller retained Malcolm Pirnie, Inc. (MPI) to conduct the second phase of the investigation. A total of 27 monitoring wells were installed at this point in the investigation. Miller proposed a groundwater remediation protocol in February 1987. The NYSDEC and Miller negotiated a Consent Order for an Interim Remedial Measure (IRM) outlined in the groundwater remediation protocol. Three recovery wells (RW-1, 2,&3) were installed in April 1987 and the construction of the treatment system (air stripper) was begun in November 1987. The recovery system was put into operation 1987. The recovery system was put into operation in June 1988.

Due to continuing deterioration of the water quality across the site and at the municipal well field, the site investigation was expanded. Miller agreed to perform a full Remedial Investigation and Feasibility Study (RI/FS). The RI/FS Workplan was approved in February 1991. The RI Report was submitted in August 1993 and final approval was given by the Department in October 1993. Due to some differences in data interpretation, Miller conducted supplementary field work and submitted a report in July 1994.

A draft FS was received in July 1994 and changes to the FS were approved in September 1994.

### 3.3 : 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 NYSDEC and the Miller Brewing Company entered into a Consent Order in April 1990. The Order obligates the responsible parties to carry out an RI/FS only. Upon issuance of the Record of Decision, the NYSDEC will request that the PRPs implement the selected remedy under an Order on Consent.

The following is a chronological enforcement history of this site.

| Date | Index No. | Subject of Order |
|---|---|---|
| 1/22/88 | A701118704 | IRM Order to implement groundwater remediation protocol. |
| 3/90 | A701118704 | Amendment to Order providing for the discharge of water to the Oswego River from Municipal Well 2 and Kellar Well 2. |
| 4/90 | A702279004 | RI/FS Consent Order |
| 8/91 | A702659106 | IRM Consent Order to construct a municipal water treatment facility to treat impacted groundwater from the three municipal wells adjacent to the site. |

## SECTION 4: SUMMARY OF SITE CHARACTERISTICS

In response to a determination that the presence of hazardous waste at the Site presents a significant threat to human health and the environment, a Remedial Investigation/Feasibility Study (RI/FS) has recently been completed.

### 4.1: Summary of the Remedial Investigation

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

The RI was completed in two phases. The first phase was completed between May 1990 and October 1993. The second phase was carried out between November 1993 and July 1994. A report entitled "Miller Brewing Company, Container Division, Remedial Investigation Report" dated July 1993 has been prepared describing the field activities and findings of the RI in detail. The RI activities consisted of the following:

- Installation of 114 monitoring wells to assess the extent and levels of groundwater contamination and characterize the aquifers.

- Three rounds of soil vapor surveys to identify potential source areas and define plume boundaries.

- A pump-test involving the three operating Fulton water supply wells adjacent to the site (Municipal Well 2, Kellar Well 2, and Kellar Well 1) in order to assess the effects of pumpage on contaminant migration and assess the aquifer characteristics.

- Test pits were excavated to visually and chemically assess soil contamination.

- A vacuum extraction (VE) pilot test was conducted to assess the effectiveness of VE as a remedial action.

- An additional pump-test was conducted to assess the effectiveness of the IRM at Recovery Well 1.

- A magnetometer survey was conducted in several areas of the site to determine if buried metal objects might be present at these locations.

- Hydraulic conductivity testing was conducted on all of the monitoring wells installed on and off site. Groundwater velocity estimates were also made.

- An investigation of process tanks located beneath the south corner of the plant was conducted.

To determine which media (soil, groundwater, etc.) are contaminated at levels of concern, the analytical data obtained from the RI were compared to environmental Standards, Criteria, and Guidance (SCGs, defined in Section 8.2 below). Groundwater SCGs identified for this site were based on NYSDEC Ambient Water Quality Standards and Guidance Values. For the evaluation and interpretation of soil analytical results, NYSDEC soil cleanup guidelines for the protection of groundwater, background conditions, and risk-based remediation criteria were used to develop remediation goals.

Based upon the results of the remedial investigation in comparison to the SCGs and potential public health and environmental exposure rates, certain areas and media of the site require remediation. These are summarized below. Complete information can be found in the RI Report.

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

### 4.2: Nature of Contamination

Across the site, in the various media, a large number of the class of compounds known as volatile organic compounds (VOCs) have been detected. Most prevalent, and found at the highest levels, are trichloroethane (TCA), tetrachloroethene (PCE), trichloroethene (TCE), dichloroethene (DCE), and dichloroethane (DCA). The last two of these compounds, DCA and DCE, are believed to be breakdown products of the original contaminants as well as components of the original spill. These compounds may occur when TCA, TCE, and PCE are acted upon by chemical and bacteriological processes in soil and groundwater which act to break them down by partially de-chlorinating the parent compound. Additional contaminants found at the site include benzene, toluene, ethylbenzene, and xylene (BTEX), and several ketones including methyl isobutyl ketone, methyl amyl ketone, and acetone.

### 4.3: Extent of Contamination

Contamination at the Miller site is found in wastes, soil, and groundwater. The wastes and soil contamination are found in the source areas which are located near the plant. The description of the source areas can be most effectively carried out by dividing the sources into two areas defined as follows. The northern unit includes the spill containment tank and north parking lot source area and the groundwater plume which extends from this source across the site to the municipal wells.

The southern unit encompasses the source beneath the south corner of the plant and the localized groundwater plume which extends from this source.

**Northern Unit**

**Soil**

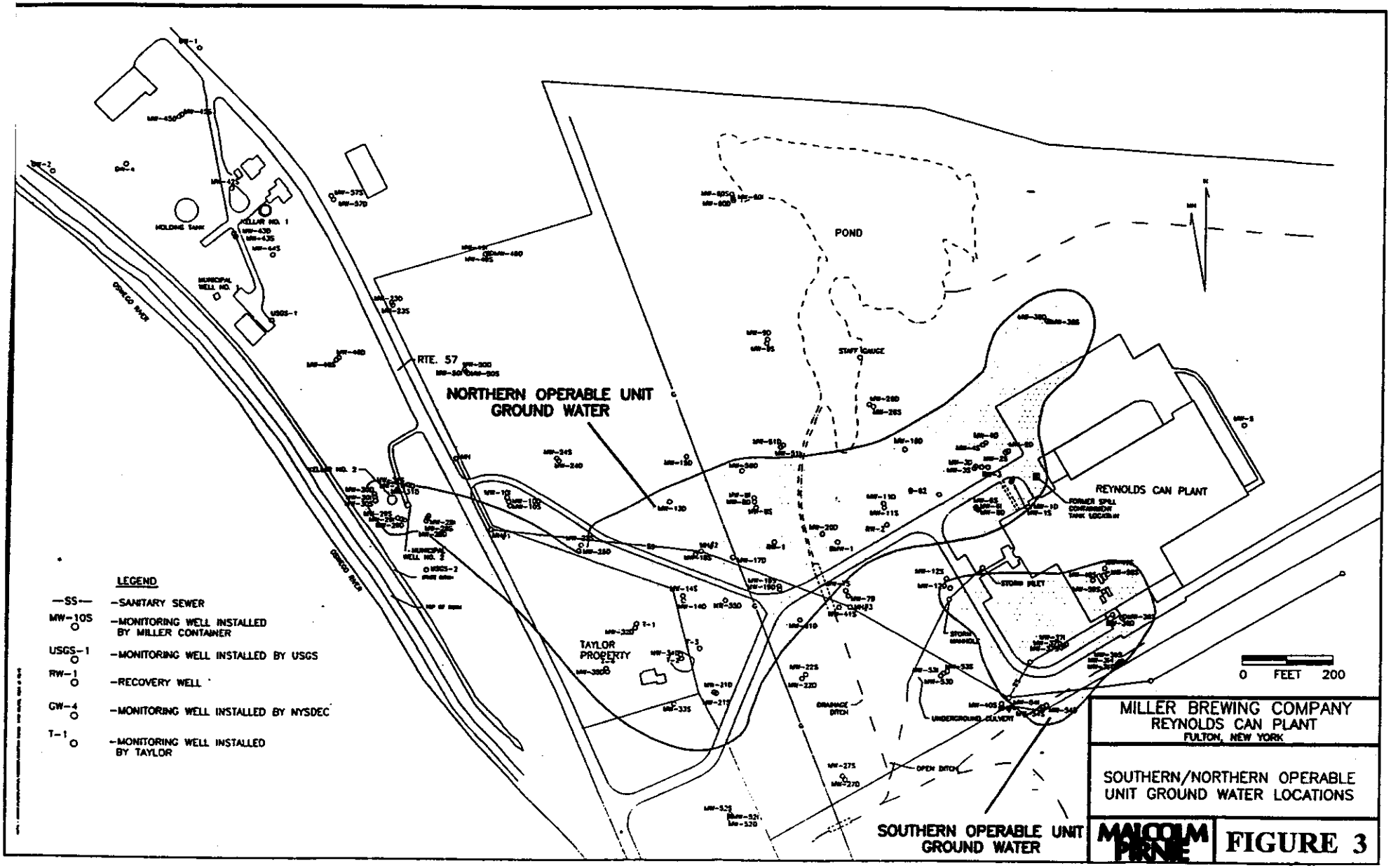
Soil contamination in this area is limited to the vicinity of the removed spill containment tank and the northwestern corner of the parking lot. The most commonly detected compounds and their respective range of concentrations (in ppb) are presented below. The soil clean-up values are based upon NYSDEC TAGM HWR-94-4046, "Determination of Soil Clean-up Objectives and Clean-up Levels".

| Compound | Concentration Range (ppb) | Soil Clean-up Level (ppb) |
|---|---|---|
| Acetone | 17-110 | 253 |
| 1,1-Dichloroethene | 16 | 400 |
| 1,2-Dichloroethene | 380 | 300 |
| 1,1,1-Trichloroethane | 7-64 | 800 |
| Tetrachloroethylene | 7-380 | 2366 |
| Methylene Chloride | 7-16 | 100 |
| Trichloroethylene | 55 | 700 |
| Toluene | 210 | 1500 |
| Xylenes | 65-350 | 1200 |
| Ethylbenzene | 65 | 5500 |

**Groundwater**

Groundwater contamination extends in a well defined plume across the site from the northern source area (Figure 3). The following list indicates the highest levels of groundwater contamination found for each of the most common site contaminants. The SCG in the last column indicates the groundwater or drinking water standard. All values are in ppb.

| Compound | Maximum Concentration | SCG |
|---|---|---|
| Methylene Chloride | 4200 | 5 |
| 1,1-Dichloroethene | 3200 | 5 |
| 1,1-Dichloroethane | 1000 | 5 |
| 1,1,1-Trichloroethane | 42000 | 5 |
| Tetrachloroethylene | 14000 | 5 |
| c-1,2-Dichloroethene | 690 | 5 |


POND
NORTHERN OPERABLE UNIT GROUND WATER
SOUTHERN OPERABLE UNIT GROUND WATER
REYNOLDS CAN PLANT
TAYLOR PROPERTY
RTE. 57
GENESEE RIVER
HOLDING TANK
MUNICIPAL WELL NO. 1
MUNICIPAL WELL NO. 2
STAFF GAUGE
STORM INLET
DRAINAGE DITCH
UNDERGROUND CULVERT
OPEN DITCH
LEGEND
—SS— -SANITARY SEWER
MW-10S -MONITORING WELL INSTALLED BY MILLER CONTAINER
USGS-1 -MONITORING WELL INSTALLED BY USGS
RW-1 -RECOVERY WELL
GW-4 -MONITORING WELL INSTALLED BY NYSDEC
T-1 -MONITORING WELL INSTALLED BY TAYLOR
0 FEET 200
MILLER BREWING COMPANY
REYNOLDS CAN PLANT
FULTON, NEW YORK
SOUTHERN/NORTHERN OPERABLE UNIT GROUND WATER LOCATIONS
MALCOLM PIRNIE
FIGURE 3

The high concentration of contaminants in groundwater, relative to the detected soil contamination, raises a question regarding the source of groundwater contamination. One possible explanation is that there are undetected, isolated pockets of non-aqueous phase liquids in the subsurface near the source areas. Another possibility is that heavily contaminated soils which were removed during the tank excavation and removal had created high levels of groundwater contamination.

### Surface Water

Surface water found at the site was sampled and found to contain no contaminants above the analytical detection limits. This surface water was collected from the on site pond.

### Waste Materials

No discrete waste materials were found in the northern area. This source area consisted of contaminated soils which were removed when the spill containment tank and pipelines were removed.

## Southern Unit

### Soil

Soil contamination in this area is primarily located beneath the southwest corner of the plant. The contamination appears to be the result of solvent and lubricant releases from two process tanks. The following is a summary of the most commonly detected compounds and their respective concentration ranges.

| Compound | Concentration Range (ppb) | Soil Clean-up Level (ppb) |
|---|---|---|
| 1,1-Dichloroethane | 3-180 | 358 |
| Acetone | 22-81 | 263 |
| 1,1-Dichloroethene | 5 | 777 |
| 1,2-Dichloroethene | 750 | 383 |
| 1,1,1-Trichloroethane | 17-7000 | 1816 |
| Tetrachloroethylene | 12-5700 | 4350 |
| Methylene Chloride | 8-700 | 251 |
| Trichloroethylene | 12-12000 | 1505 |
| Benzene | 800 | 139 |
| Toluene | 92-460 | 3585 |
| Methyl Isobutyl Ketone | 14-67 | 2270 |
| Methyl Butyl Ketone | 8-220 | 1673 |
| Methyl Amyl Ketone | 45-2900 | - |
| 4-Methyl-2-Pentanol | 11 | - |
| alpha-Pinene | 20 | - |
| Phenanthrene | 39 | 50000 |
| 2-Octanone | 810 | - |

## Groundwater

Groundwater contamination from the Southern source area is confined to a limited area extending to the south-southwest of the plant (Figure 3). Values given below are maximum concentrations of the most commonly detected contaminants in the southern plume. The SCG in the last column indicates the groundwater or drinking water standard. All values are in ppb.

| Compound | Maximum Concentration (ppb) | SCG (ppb) |
|---|---|---|
| Methylene Chloride | 2800 | 5 |
| 1,1-Dichloroethene | 1100 | 5 |
| 1,1-Dichloroethane | 3000 | 5 |
| 1,1,1-Trichloroethane | 11000 | 5 |
| Trichloroethene | 2000 | 5 |
| Tetrachloroethene | 1200 | 5 |
| c-1,2-Dichloroethene | 52000 | 5 |
| 1,2-Dichloroethane | 14 | 5 |
| Carbon Tetrachloride | 410 | 5 |
| Toluene | 110 | 5 |
| Ethylbenzene | 150 | 5 |
| Xylene | 200 | 5 |
| Acetone | 5600 | 50 |
| Methyl Isobutyl Ketone | 2400 | 50 |
| Methyl Ethyl Ketone | 25 | 50 |

## Surface Water

There was no surface water in the Southern area of the site.

## Waste Materials

Waste material found in the Southern source area consists of free oil found below the plant structure. The following table lists concentrations of the most commonly detected contaminants which were found in oil that flowed into excavations in the southern area. For comparison purposes, analytical results from oil contaminated soils from the excavation are also provided. Values are in ppb.

| Compound | Stained Soil (ppb) | Waste Oils (ppb) |
|---|---|---|
| 1,1-Dichloroethane | 3-180 | 1000-218000 |
| c-1,2-Dichloroethene | 750 | 5000-350000 |
| Tetrachloroethene | 12-5700 | 8500-1140000 |
| Trichloroethane | 17-7000 | 20000-2070000 |
| Trichloroethene | 12-12000 | 7500-130000 |
| Methylene Chloride | 8-700 | 1500-75000 |

| | | |
|---|---|---|
| Xylene | - | 790-120000 |
| Benzene | 800 | - |
| Toluene | 92-460 | 1200-98000 |
| Acetone | 22-81 | 525000 |
| Methyl Isobutyl Ketone | 14-67 | - |
| Methyl Butyl Ketone | 8-220 | - |
| Methyl Amyl Ketone | 45-2900 | - |

### 4.4: Interim Remedial Measures

Interim Remedial Measures (IRMs) are conducted at sites when a source of contamination or an exposure pathway can be effectively addressed before completion of the RI/FS.

Miller initiated an IRM early in 1991 which consisted of the construction of a treatment system for the three municipal wells adjacent to the Miller site. The system was designed to take the production from Municipal Well 2, Kellar Well 2, and Kellar Well 1 and process the water through a packed column air stripper to remove the volatile organic compounds which had been detected in all three wells. Miller signed a Consent Order with the State which committed them to the construction of a system which would reduce the level of site specific contaminants to non-detectable levels (defined as less than 0.5 ppb). The water would then be routed into the Fulton municipal water supply system. The terms of the Order also required the installation of a vapor phase carbon unit to filter the air emissions from the stripper.

The facility was constructed on City of Fulton property adjacent to the three wells and the waterworks buildings. The system began operations on June 10, 1992 and after a 15 day demonstration period, the system was officially put into operation. Since that time (June 25, 1992), the system has been treating the production of the well field with only brief interruptions to make adjustments and improvements to the system.

Under the terms of Consent Order #A702659106, Miller is committed to pay for various incremental costs incurred by the operation of the treatment facility. Miller's commitment will continue, as specified in the Consent Order, until such time that the aquifer is remediated or it is determined that the contamination impacting all three water supply wells is not the responsibility of Miller. The Consent Order presents the specifics of Miller's obligations, this paragraph being a brief description of those obligations.

## SECTION 5.0: SUMMARY OF SITE RISKS

### 5.1: Summary of Human Exposure Pathways:

An exposure pathway is the process by which an individual is exposed to a contaminant. The five elements of an exposure pathway are 1) the source of contamination; 2) the environmental media (e.g., soil, groundwater) and transport mechanisms; 3) the point of exposure; 4) the route of

exposure (e.g., ingestion, inhalation); and 5) the receptor population. These elements of an exposure pathway may be based on past, present, or future events.

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

- Ingestion of contaminated groundwater from the impacted municipal wells was a potential pathway. As noted below, the contaminated wells were taken out of service before contamination could be detected in the distribution system. These wells were returned to service after the completion of the municipal water treatment system. Since this system began full operation all contaminants in the discharge have been below detection limits, as required in the consent order. The water treatment system, therefore, eliminates this pathway.

- ingestion of contaminated soil in the northern source area is a possible exposure pathway for workers at the plant; and,

- dermal contact with northern contaminated soils is a possible exposure pathway for workers at the plant.

Contact with contaminated soil would not impact the community since the contamination is limited to the plant site. Monitoring of the public water supply did not indicate the presence of contamination from the site in the water distribution system. The contaminated wells were taken out of service as soon as drinking water standards were exceeded. As discussed above, these wells were returned to service upon completion of the treatment system. A more detailed discussion of the health risks can be found in Section 6.0 of the RI Report.

### 5.2: Summary of Environmental Exposure Pathways:

There have been no completed pathways identified for wildlife exposure to site contaminants. The on site pond would have been a potential contact point for wildlife to come into contact with site contamination, but sampling conducted from the pond has indicated that no contaminant migration to surface water has occurred.

## SECTION 6.0: REMEDIATION GOALS

Goals for the remedial program have been established through the remedy selection process stated in 6 NYCRR 375-1.10. These goals are established under the overall goal of protecting human health and the environment and meeting all Standards, Criteria, and Guidance (SCGs).

At a minimum, the remedy selected should eliminate or mitigate all significant threats to public health and 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:

- Eliminate to the extent practicable the contamination present within the on-site soils/waste (reduce soil contaminant levels to levels protective of groundwater as indicated in soil tables in Section 4.3).
- Eliminate the potential for direct human or animal contact with the contaminated soils on-site.
- Mitigate the impacts of contaminated groundwater to the environment.
- Prevent, to the extent practicable, migration of contaminants in the source areas to groundwater.
- To the extent practicable, provide for attainment of SCGs for groundwater quality at the limits of the area of concern (AOC). The AOC for the site is the area from the spill source locations to the Fulton municipal well field.

## SECTION 7.0: DESCRIPTION OF THE REMEDIAL ALTERNATIVES

Potential remedial alternatives for the Miller Container Division site were identified, screened and evaluated in a Feasibility Study. This evaluation is presented in the report entitled "Feasibility Study Report, Reynolds Can Plant Site" (former Miller Container Plant), dated September 1994. A summary of the detailed analysis follows. The following alternatives address contamination associated with both the northern and southern units.

**Alternative 1: No Further Action**

| | |
|---|---|
| Present Worth (30 yrs @ 8%): | $ 1,129,522 |
| Capital Cost: | $ 15,000 |
| Annual O&M: | $ 99,000 |
| Time to Construct: | 2-3 months |

The above costs do not include the capital or O&M costs of the IRM incurred to date. The capital cost of $15,000 is for maintenance of existing recovery wells. The annual O&M of $99,000 does not include O&M of the municipal water treatment system.

The no further action alternative recognizes the remediation of the site completed under the previously completed IRM. It requires continued maintenance and monitoring only, to evaluate the effectiveness of the remediation completed under the IRM. The costs are for continued monitoring.

This is an unacceptable alternative as the site would remain in its present condition and the threat presented by contaminated soils and groundwater would remain.

**Alternative 2: Groundwater Extraction + Central Treatment + Direct Discharge + Vapor Extraction + Monitoring**

| | |
|---|---|
| Present Worth (30 yrs @ 8%): | $ 5,985,502 |
| Capital Cost: | $ 1,502,400 |
| Annual O&M: | $ 394,200 |
| Time to Construct: | 6 months - 1 year |

Alternative 2 (Alternative 1 of the Feasibility Study Report), consists of the installation of 10 groundwater extraction wells to supplement the three existing wells which were part of the 1988 IRM. These wells would be located in such a way that they would contain and collect contaminated groundwater from the northern and southern source areas (Figure 4). A vapor extraction system would be installed in the southern source area to remediate contaminated soils located beneath the south corner of the plant.

Water from the extraction wells would be piped to a central treatment system where it would pass through an air stripper which would remove the volatile contaminants from the water. Approximately 162,000 gallons per day would be collected and treated by the proposed remedy. The discharge water would then be directed through a carbon bed filter to remove any residual contamination. The water would then be discharged to surface water. The air discharge would pass through a vapor phase carbon filter to remove the volatile contaminants from the air stream. Water collected from the two wells inside the southern source area would be further treated by being passed through an oil/water separator prior to air stripping.

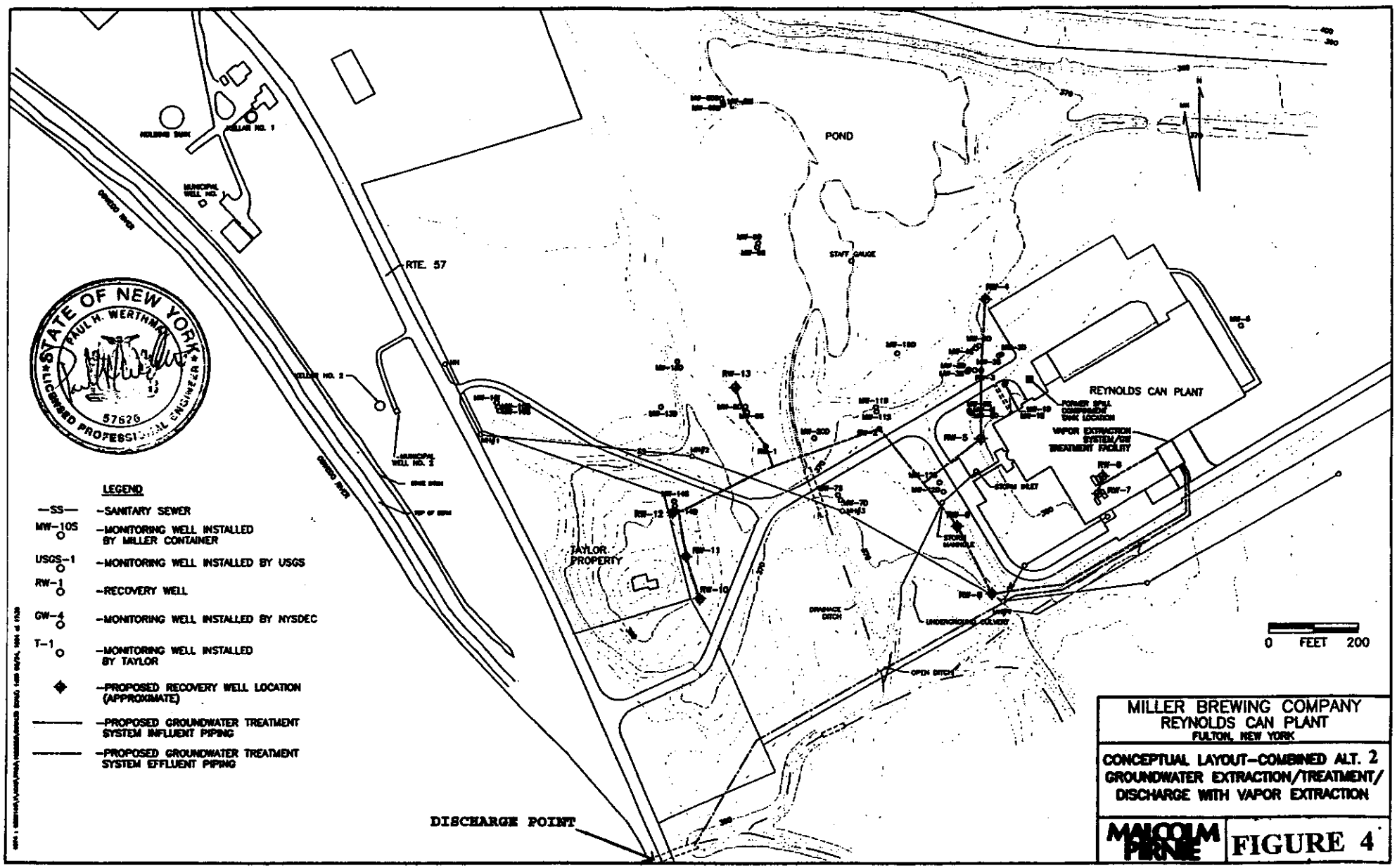
The vapor extraction system would consist of a minimum of two vapor extraction wells located in the southern source area. Vapor from these wells would be passed through a carbon adsorption system for volatile contaminant treatment prior to discharge.

Alternative 2 would also consist of continued water level and chemical monitoring to assess the effectiveness of the system.

**Alternative 3: Groundwater Extraction + Central Treatment + Direct Discharge + Reapplication + Soil Flushing + Monitoring**

| | |
|---|---|
| Present Worth (30 yrs @ 8%): | $ 5,942,864 |
| Capital Cost: | $ 1,471,900 |
| Annual O&M: | $ 402,500 |
| Time to Construct: | 6 months - 1 year |

Alternative 3 (FS Report Alternative 2), differs from Alternative 2 in that it does not include vapor extraction. Instead soils in the southern source area would be treated by the application of treated groundwater to flush contaminants from the soils.




MILLER BREWING COMPANY
REYNOLDS CAN PLANT
FULTON, NEW YORK

CONCEPTUAL LAYOUT–COMBINED ALT. 2
GROUNDWATER EXTRACTION/TREATMENT/
DISCHARGE WITH VAPOR EXTRACTION

MALCOLM PIRNIE

FIGURE 4

Soil flushing would be conducted by introducing treated water to the area of the collection tanks under the south corner of the plant. This alternative would require pilot testing to determine its effectiveness.

**Alternative 4: Groundwater Extraction + Central Treatment + Direct Discharge + Reapplication + Bioremediation + Monitoring**

| | |
|---|---|
| Present Worth (30 yrs @ 8%): | $ 6,248,835 |
| Capital Cost: | $ 1,553,300 |
| Annual O&M: | $ 494,200 |
| Time to Construct: | 12 months - 18 months |

Alternative 4 (FS Report Alternative 3), is similar to Alternative 3 with the addition of bioremediation to the remedy for the southern source area.

As with Alternative 3, a portion of the water treated by air stripping would be reapplied to the southern source soils. In Alternative 4, the water would be further treated with nutrients and microorganisms, if needed, to enhance the biological activity in the contaminated soils. This remedy would require extensive pilot testing.

**Alternative 5: Groundwater Extraction + Central Treatment + Direct Discharge + Air Sparging + Vapor Extraction + Monitoring**

| | |
|---|---|
| Present Worth (30 yrs @ 8%): | $ 7,062,065 |
| Capital Cost: | $ 2,081,400 |
| Annual O&M: | $ 672,300 |
| Time to Construct: | 12 months - 18 months |

Alternative 5 (FS Report Alternative 4), is similar to Alternative 2, with the addition of two air sparging systems.

Air sparging is the process by which air or some other gas is introduced below the water table by means of vertical or horizontal wells. The air bubbling up through the contaminated groundwater strips a portion of the volatile contaminants from the groundwater.

This alternative would involve the installation of one sparging system in the southern source area and one in the northern source area. Each system would consist of a horizontal sparging well below the water table and a horizontal vapor recovery well above the water table. Pilot testing would be required to verify the effectiveness of this technology at the site.

## SECTION 8.0: SUMMARY OF THE COMPARATIVE ANALYSIS OF THE ALTERNATIVES

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 criterion, 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 contained 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. Protection of Human Health and the Environment. This criterion is an overall evaluation of the health and environmental impacts to assess whether each alternative is protective.

Alternative 1 would not be protective of human health and the environment because it would do nothing to control the contamination in the southern source area. It would also rely upon the existing, three well recovery system which has not been completely successful in containing the northern plume.

Alternatives 2-5 would be expected to be protective of human health and the environment. Each of these alternatives would reduce risk through the restriction of contaminant migration in groundwater. Each would protect groundwater and mitigate the direct contact threat by removing the southern source soil contamination through vapor extraction.

The groundwater collection and treatment aspects of Alternatives 2-5, would combine a control/isolation remedy with a permanent separation/treatment remedy. While it is anticipated that the groundwater RAOs would not be met for 20-30 years, there is a high degree of confidence that the groundwater collection system would contain the northern and southern plumes. Any residual contamination currently beyond the reach of the collection system would not pose a threat to human health because of the treatment system currently in place at the municipal well field. It is anticipated that the soil remedial alternatives would take between 1 and 5 years to achieve the RAOs for soil.

2. Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether a remedy will meet applicable environmental laws, regulations, standards, and guidance.

The main SCGs for this site are:

- Chemical-Specific
  a) NYS Groundwater standards
  b) NYS Soil Clean-up Levels (TAGM 4046, 1/24/94)
  c) NYSDOH Drinking water standards (10 NYCRR Part 5)

- Action-Specific
  a) SPDES discharge requirements
  b) Sewer use requirements
  c) Air discharge requirements
  d)Hazardous waste management requirements.

Alternative 1 would meet action-specific SCGs. The system currently operates in accordance with the listed SCGs. Chemical-specific SCGs would not be met because it is not reasonable to believe that the current recovery wells would significantly improve groundwater quality in the southern source area.

Alternatives 2-5 would meet the identified SCGs. The groundwater treatment system common to these four alternatives would eventually cause groundwater quality to approach or meet standards. Each of the soil treatment alternatives would result in the attainment of soil clean-up goals. Alternatives 2 and 5, which involve vapor extraction, provide a higher degree of confidence since a pilot study has already been conducted to assess the effectiveness of this technology. Each of these alternatives would be required to meet mandated action-specific SCGs by meeting requirements for surface water, sewer, and/or air discharges.

**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 implementation are evaluated. The length of time needed to achieve the remedial objectives is also estimated and compared with the other alternatives.

For Alternatives 2-5, short-term risk to on-site workers and the community would be due to fugitive dust emissions during the installation of the required wells and during remediation. These risks would be minimized through monitoring and the use of appropriate protective equipment by all on-site workers. In addition, any risk posed during operation of the treatment system would be easily controlled through proper system operation, maintenance, and monitoring. A health and safety plan would be developed prior to the implementation of any alternative.

Alternative 1 would not result in any increased risk to human health and the environment in the southern source area. Any risks posed to on-site workers during recovery well maintenance or replacement in the northern area would be minimal and easily controlled.

The period of time required for groundwater treatment under Alternatives 2, 3, and 4 would be similar; about 30 years, however, soil remedial goals would be expected to be met sooner with vapor extraction (Alt. 2), about one year, than with soil flushing or bioremediation (Alts. 3 or 4), 3-5 years. This is based upon the relative effectiveness of each technology on the contaminants present below the plant. Although pilot testing has not been conducted to determine the

effectiveness of air sparging (Alt. 5) at the site, the time required to achieve groundwater goals may be 10 years less than that of the other alternatives.

4. Long-term Effectiveness and Permanence. This criterion evaluates the long-term effectiveness of alternatives after implementation of the response actions. 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.

Alternatives 2-5 would involve on-site treatment. The groundwater pump and treat technology common to the four alternatives would be considered a permanent remedy because, in addition to the on site treatment of contaminated groundwater, it would also be effective in containing the plumes. The soil remedial technologies and air sparging are assumed to by effective; however, soil flushing, bioremediation, and air sparging have not been demonstrated for the site. Initial testing would be required to determine the applicability of these technologies. Initial testing would include the performance of bench and pilot tests. If proven effective, the soil treatment technologies would provide for permanent treatment of contamination present in the soil beneath the southern end of the plant.

Although remedial-action objectives for the southern area soil would be met within a relatively short time frame by implementing any of Alternatives 2-5 (1-5 years), groundwater pump and treat would most likely be required for a period of 20-30 years before groundwater objectives are met. For soil remediation, vapor extraction (Alt. 2), would require an estimated one year to achieve RAOs. Soil flushing (Alt. 3) and the bioremediation/flushing combination (Alt. 4), would achieve RAOs in 5 years and 3 years, respectively. Provided remedial objectives are eventually met for groundwater, little contamination would be left at the site and little to no long-term operation, maintenance, and monitoring would be required. Limited sampling of the soil beneath the plant as well as site groundwater would be required to confirm that remedial-action objectives were met.

Under Alternative 1 (No Further Action), little treatment of the contaminated media at the site would occur. Thus, contamination would remain on-site, and the continued existence of the contaminant source in the southern area would mean the risk of future contaminant releases to groundwater. This alternative would not be effective in reducing contamination at the site and would not be permanent. Off-site treatment at the municipal wells would continue indefinitely.

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.

Alternatives 2-5 incorporate elements of destruction (bioremediation), treatment, and control and isolation technologies. Implementation of these alternatives would provide for a reduction in contaminant toxicity, mobility, and volume at the site.

For addressing contaminated groundwater, Alternatives 2-5 are basically the same. All would provide for the irreversible treatment of contaminated groundwater at the site. Alternative 5, which includes air sparging, would be expected to achieve RAOs for groundwater in a shorter time frame. The goal of the groundwater remediation would be the treatment of site groundwater until groundwater standards were met. Only a small portion of the downgradient plume would escape treatment and the risk posed by this would be mitigated by the municipal treatment system. The treatment residuals would consist of spent (contaminated) carbon from the groundwater polishing system and vapor phase carbon unit. These residuals would be managed through off site carbon regeneration.

For source area soil treatment, Alternatives 2-5 would be expected to significantly reduce the toxicity, mobility, and volume of the soil contamination. The three technologies, vapor extraction (Alt. 2 and 5), soil flushing (Alt. 3), and bioremediation (Alt. 4), would provide for irreversible treatment of soil contamination. Vapor extraction would provide the highest level of confidence that all the contaminated soil would be treated and offers the highest reliability, since a pilot test of this technology has already been conducted. Bioremediation and soil flushing would provide a lower level of confidence regarding the volume of contaminated media treated. Levels of contamination would be reduced, but the area affected by the bioremediation and soil flushing treatment might not encompass the entire contaminated soil volume.

Alternative 1 would only slightly reduce the mobility and volume of contamination present in the northern area groundwater. Contaminant toxicity, mobility, or volume would not be reduced in the southern area.

6. Implementability. The technical and administrative feasibility of implementing each alternative is evaluated. Technically, this includes the difficulties associated with the construction, the reliability of the technology, and the ability to monitor the effectiveness of the remedy. Administratively, the availability of the necessary personnel and equipment is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, etc.

Alternative 1 would be the most easily implemented alternative but would not meet the remedial goals for the site.

For groundwater treatment, Alternatives 2-4 pose the same implementation difficulties. Requirements would have to be met for discharge of treated water. Requirements for the air discharge may also be involved. No serious difficulties in the acquisition of needed hardware would be anticipated. Installation of recovery wells, pipelines to convey the water to the treatment facility, construction of the building to house the treatment system, construction of the air stripper, and the pipelines to convey water to the discharge point, would all pose some construction difficulties. None of these are expected to be outside the realm of normal engineering and construction problems and should be easily managed. Alternative 5, which in addition to the steps in Alternatives 2-4, incorporates air sparging, would be the most difficult alternative to implement due to the additional construction required. Pilot testing would be required to design an appropriate system. Additional controls would be needed to collect the volatiles removed from

groundwater. Air sparging would necessitate the installation of sparging wells below the water table paired with vapor collection wells above the water table. The complexity of the subsurface stratigraphy at this site makes the implementation of this alternative problematic. This alternative would, if all the difficulties were overcome, be expected to achieve groundwater RAOs somewhat more quickly than the other alternatives and no future remedial actions would be anticipated.

Alternative 2, which includes vapor extraction treatment of the southern source area soils, would require the installation of vacuum piezometers in the vicinity of the plant waste water treatment facility to measure the effectiveness of the system. However, use of two of the existing monitoring wells/recovery wells as vacuum wells would limit the intrusive activities performed in the area. Vapor extraction has been shown to be a proven and reliable technology, and results of the pilot test conducted in the southern area indicated that it would be an effective technology at the site. Few administrative problems would be expected.

Alternatives 3 and 4, which include soil flushing and bioremediation, respectively, would be slightly more difficult to implement. Pilot testing would be required to prove their effectiveness. In addition, some future remedial actions may be necessary if access to all contaminated soils cannot be gained by water flushing through the area and the soil continues to be a source of groundwater contamination. Administratively, both of these remedies may pose some problems. Each requires the reintroduction of treated water to the areas of soil contamination. This is effectively a reinjection process and appropriate approvals may be required.

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:

| Alt. | Capital Cost | Annual O&M | Total |
|---|---|---|---|
| I. | $ 15,000 | $ 99,000 | $1,129,522 |
| II. | $ 1,502,400 | $ 394,200 | $5,985,502 |
| III. | $ 1,471,900 | $ 402,500 | $5,942,864 |
| IV. | $ 1,553,300 | $ 494,200 | $6,248,835 |
| V. | $ 2,081,400 | $ 672,300 | $7,062,065 |

**This final criterion is considered a modifying criterion and is considered after evaluating those above. It is focused upon after public comments on the Proposed Remedial Action Plan have been received.**

8. Community Acceptance - Concerns of the community regarding the RI/FS reports and the Proposed Remedial Action Plan have been evaluated. A "Responsiveness Summary" has been prepared that describes public comments received and how the Department will address the concerns raised. The Responsiveness Summary is included as Appendix A.

## SECTION 9.0: SELECTED REMEDY

Based upon the results of the RI/FS, and the evaluation presented in Section 8, the NYSDEC has selected Alternative 2 as the remedy for this site.

This selection is based upon the conclusion that this alternative will meet all of the remedial goals for the site and will best achieve the threshold and balancing criteria as described above. The alternative will be protective of human health and the environment by containing and collecting the groundwater plume in both the northern and southern areas of the site. The alternative will meet SCGs through groundwater treatment and soil treatment, and will meet appropriate discharge criteria. This alternative will have limited and manageable risks associated with construction and will in the long-term reduce contamination in the impacted media at the site. It will further be readily implemented and with regard to vapor extraction, pilot testing has verified technical feasibility. While this alternative will be slightly more costly than Alternative 3 it will be more readily implemented and effective.

The estimated present worth cost to carry out the remedy is $5,985,502. The cost to construct the remedy is estimated to be $1,502,400 and the estimated average annual operation and maintenance cost for 30 years is $394,200.

The elements of the selected remedy are as follows:

1. A remedial design program to verify the components of the conceptual design and provide the details necessary for the construction, operation and maintenance, and monitoring of the remedial program. Uncertainties identified during the RI/FS will be resolved.

2. a groundwater collection system consisting of approximately 13 recovery wells located such that they will intercept and contain the contaminant plumes;

3. a groundwater treatment system which will reduce contamination in the collected water to levels acceptable for surface discharge;

4. a vapor extraction system to reduce soil contamination in the southern source area to levels protective of groundwater;

5. monitoring of the vapor extraction area of influence sufficient to assess the effectiveness of the system;

6. monitoring of groundwater levels to assess the range of the influence of the recovery wells; and,

7. appropriate groundwater collection and analysis to assess the effectiveness of the groundwater collection and treatment systems, including a comprehensive round of groundwater sampling

and analysis to establish baseline conditions prior to the implementation of the preferred alternative.

8. the continued operation of the public water treatment facility as necessary is an integral part of the selected remedy.

## SECTION 10.0: HIGHLIGHTS OF CITIZEN PARTICIPATION

Citizen Participation (CP) Activities were implemented to provide concerned citizens and organizations with opportunities to learn about and comment upon the investigations and studies pertaining to the Former Miller Container Site. All major reports were placed in a document repository in the vicinity of the site and made available for public review. A public contact list was developed and used to distribute fact sheets and meeting announcements.

The following is a brief chronology of some of the citizen participation and informational activities conducted by the Department and the NYS DOH:

**1987** The NYSDEC held a public meeting to discuss the groundwater treatment system.

**1990** The State participated in a public meeting sponsored by the City of Fulton to update citizens on the site.

The State participated in a public meeting sponsored by FSDWAC to update citizens on the site.

As provided for in the Oswego County Municipal Health Services Plan, the State assisted the Mayor of Fulton in setting up the Fulton Water Supply Panel. The purpose of the Panel was to provide citizens with an opportunity to have input into the activities associated with the Miller Brewing Company - Container Division spills. The State participated in public meetings on August 10, September 5, September 19, October 10, October 24 and November 7, 1990.

The State set up a local document repository for this site. The repository is located at the Fulton Public Library. Project documents are placed in the repository for review by the public. Documents in the repository include the Remedial Investigation/Feasibility Study, analytical data, consent orders, and other project information.

Because of the volume of analytical data and information, efforts were made to update the repository. Since then the repository has been updated regularly. Additional copies of the analytical data were given to FSDWAC. The mayor and the water operator of Fulton, the NYS DOH and the Oswego County Health Department are routinely provided copies of the analytical data.

A Citizen Participation plan was prepared.

The NYSDOH and the City of Fulton put legal notices in the local newspapers on two separate occasions, the first time to notify residents when Municipal Well #2 was taken offline, and the second time to notify residents when Kellar Well #2 was taken offline.

**1991** The State participated in the Fulton Water Supply Panel meetings held on January 30, February 20, March 27, May 30 and December 19, 1991. In between meetings, the NYSDEC provided updates on the site activities to the Fulton Safe Water Panel.

The NYSDEC put out a press release discussing the discovery of another area of contamination on Miller's property

The NYSDEC put out a press release announcing that a consent order for the site had been signed.

**1992** The State participated in a Fulton Water Supply Panel meeting held on February 7, 1992.

The NYSDEC and the NYS DOH sent the public two fact sheets, one in July and one in August, discussing the status of site-related activities.

On October 20, the NYSDEC and the NYSDOH met with citizens to discuss concerns they had about inactive hazardous waste sites in the Fulton area. Miller Brewing was one of the sites discussed.

**1993** As follow-up to the 1992 citizen meeting, in April the State met with this group to continue discussions about some inactive hazardous waste sites in the Fulton area. Miller was again one of the sites discussed.

**1994** NYSDEC held a public meeting to discuss with the public the proposed remedial action plan for the site. Prior to the public meeting, a fact sheet/meeting announcement was sent to the mailing list.

**1995** A responsiveness summary was prepared in response to comments received on the proposed remedial action plan. This document will be mailed to the people who commented on the plan and it will be placed in the document repository with the Record of Decision.

On December 7, 1994, a public meeting was held at the Fulton City Hall, Fulton, New York to describe the Proposed Remedial Action Plan. Prior to the meeting, an invitation/fact sheet was mailed to those persons on the contact list. The public comment period extended from November 28, 1994 until February 1, 1995. Comments received regarding the Proposed Remedial Action Plan have been addressed and are documented in the Responsiveness Summary (Appendix A).

# APPENDIX A
# RESPONSIVENESS SUMMARY
## Former Miller Container Site
## Oswego County
## 7-38-029

This document summarizes the comments and questions received by the New York State Department of Environmental Conservation (NYSDEC) regarding the Proposed Remedial Action Plan (PRAP) for the subject site. A public comment period was held between November 28, 1994 and February 1, 1995 to receive comments on the proposal. A public meeting was held on December 7, 1994 at the City Hall in Fulton, New York to present the results of the investigations performed at the site and to describe the PRAP. The information below summarizes the comments and questions received and the Department's responses to those comments.

**DESCRIPTION OF THE SELECTED REMEDY**

The selected remedy is the same as was proposed in the PRAP. The major elements of the selected remedy include:

- A **remedial design** program to verify the components of the conceptual design and provide the details necessary for the construction, operation and maintenance, and monitoring of the remedial program. Uncertainties identified during the RI/FS will be resolved.

- A **groundwater collection and treatment system** consisting of 13 recovery wells connected to a treatment area located adjacent to the existing main building.

- **Soil vapor extraction** to remove contaminants in the southern source area to levels that are protective of groundwater.

- **Monitoring** the different elements of the remedy to determine its effectiveness and identify changes necessary to achieve the remedial objectives for the site.

- Continued operation of the **public water treatment system** as necessary to prevent the entry of site related contaminants into the public water system.

The information given below is summarized from the December 7, 1994 public meeting and letters received during the comment period. The issues raised have been grouped into the following categories:

I. Questions/Comments Raised During the Public Meeting
   - A. Issues Regarding the Remedy
   - B. Issues Regarding Communications and Responsiveness
   - C. Issues Regarding Other Alternatives

D. Issues Regarding Site Conditions/History/Investigations

II. Letters Received During the Comment Period
- E. Letter dated 1/25/95
- F. Letter dated 1/26/95
- G. Letter dated 1/23/95
- H. Letter dated 1/5/95
- I. Letter dated 12/21/94
- J. Letter dated 12/7/94

## I. QUESTIONS/COMMENTS RAISED DURING THE PUBLIC MEETING

### A. Issues Regarding the Remedy

A.1 **Issue:** The City of Fulton is very concerned about the possibility of negative impacts on the public water supply due to site contamination. This concern includes both quality and quantity issues. Although the proposed remedy seems to adequately address the *quality* issues by continuing the operation of the municipal water treatment system, the proposal does not adequately address the possible impacts of the remedy on the *quantity* of water available to the municipal well-field. Will operation of the remedy take water away from the system?

**Response:** An examination and analysis of aquifer characteristics was conducted in the area of the municipal wells, M2 and K2. Using conservative assumptions, it was estimated that the pumping of wells in the selected remedy would result in a decrease of less than two tenths of one percent (0.2%) of the water currently available to M2 and K2. This estimate was made assuming that there would be no increase in water flow from other directions which would tend to reduce the loss of production even further.

A.2 **Issue:** If operation of the remedy will reduce the amount of water available to the public water supply, the City of Fulton expects to be compensated for the loss of water.

**Response:** As indicated in the response in A.1, no measurable loss in production is expected. Also, the contingency exists to supplement the water supply of the city with water from the Onondaga County Water Authority (OCWA).

A.3 **Issue:** Will the treatment of groundwater be similar to the system used to treat municipal water?

**Response:** The system will be very similar to that being used to treat municipal water. The system will have several additional steps including an oil water separator and activated carbon to remove contaminants which are not readily removed through air stripping.

A.4 **Issue:** Will the potential loading of contaminants to the Oswego river be calculated?

**Response:** Before any discharge to the river is permitted, loading to the river will be calculated and any potential impacts assessed.

A.5 **Issue:** How long will it take to complete the cleanup?

**Response:** The duration of the clean-up is not easily determined. Many variables come into play which will alter the rate of remediation. The initial goal of the remedy, which is to cut off the migration of contaminated groundwater to the municipal wells, should be achieved in the first year of the system's operation.

A.6 **Issue:** If water in the municipal system is being treated until contaminants are not detected, why won't recovered groundwater also be treated to the non-detectable level?

**Response:** The water which is treated at the municipal treatment facility, while contaminated to levels exceeding groundwater standards, is relatively mildly contaminated. Much of the water to be handled by the selected remedy is contaminated to much higher levels. Contamination in the source areas is 100 to 1,000 times greater than that found in the area of the municipal wellfield. While the treatment system may preform at the same level of efficiency as the drinking water treatment system it may not result in non-detectable levels in the processed water. The system will be designed so that treatment capabilities will ensure that discharge criteria are met.

A.7 **Issue:** Why doesn't the remedy include the treatment of soils in the northern areas?

**Response:** Investigation of the soils at various depths in the northern area did not encounter soil contamination at levels exceeding NYSDEC Soil Cleanup Criteria. These criteria are, at the least, designed to be protective of groundwater.

A.8 **Issue:** Will additional air strippers be needed to implement the remedy?

**Response:** Yes, a separate air stripping facility will be designed to meet the requirements of the selected remedy.

A.9 **Issue:** Will the discharge of treated groundwater to the sanitary sewer stop?

**Response:** Yes, once the selected remedy is implemented the discharge to the sewer will stop. The output from the three existing recovery wells will be manifolded with the ten additional wells to be installed.

A.10 **Issue:** What will happen to the activated carbon used in the water treatment system?

**Response:** Activated carbon used in this system will be reprocessed. This will be done either on site or at an off site facility.

A.11 **Issue:** We are concerned about the proposal to discharge treated groundwater to the Oswego River. Since the river recharges the municipal wellfield, we are concerned that releasing potentially contaminated water to the river upstream of the wellfield could threaten the water quality in the wellfield.

**Response:** The permit levels calculated for discharge to the river will take into account the volumes discharged, contaminant types, and the ability of the river to dilute such discharges. The contaminant levels in the river would be compatible with current use. Also, the municipal water supply treatment system has more than adequate capability to treat minor fluctuations in influent water quality.

**B. Issues Regarding Communications and Responsiveness**

B.1 **Issue:** There has not been adequate communication with representatives from the Town of Volney. It should not be necessary to go the library to review the documents. Although the City of Fulton is receiving attention, the Town where the site is located is not being given adequate consideration.

**Response:** To address this concern, project documents (Remedial Investigation and Feasibility Study Reports) as well as future documents and information sheets have been, and will be provided to the Town of Volley administration and will be available to the public.

B.2 **Issue:** The City of Fulton requests an extension of the comment period so that they can more thoroughly review the proposal.

**Response:** The extension to January 17th and subsequently to February 1st was granted in an effort to accommodate the needs of the city and the general public.

B.3 **Issue:** Finding the documents in the repository was difficult and it appears that some documents are missing.

**Response:** An effort will be made to assess the completeness of the file at the document repository.

B.4 **Issue:** It was difficult to wade through the RI/FS reports to figure out what is happening at the site and what the proposed remedy is.

**Response:** In conjunction with the inventory of documents in the repository the Department will make sure that documents such as the PRAP, which is available, and any future documents which clearly summarize the selected remedy, are at the repository.

## C. Issues Regarding Other Alternatives

C.1 **Issue:** Was the reapplication of treated groundwater to the aquifer considered when evaluating remedial alternatives?

**Response:** Reapplication and reinjection of treated water were considered in the evaluation of alternatives. This approach was screened out for several reasons including the physical characteristics of the unsaturated and saturated soils at the site. An additional complicating factor was the proximity of the municipal well field which made the potential for mobilizing existing contamination more problematic than it otherwise would have been.

C.2 **Issue:** Did the feasibility study evaluate steps that could be taken to search for DNAPLs?

**Response:** The deep wells installed during the Remedial Investigation were designed to detect both dissolved contamination and DNAPLs in and around the source areas. Despite the number of wells installed, no DNAPLs were encountered.

C.3 **Issue:** Were alternatives to treating groundwater by air stripping considered?

**Response:** Yes. Among the alternatives considered were, biological treatment (aerobic and anaerobic), physical treatment (steam stripping, distillation, carbon adsorption, ion exchange, oil-water separation, coagulation/flocculation), and chemical treatment (precipitation, oxidation, membrane assisted solvent extraction). In the final analysis, the combination of air stripping, oil-water separation, and carbon adsorption were found to best address the contaminant types and concentrations, and the treatment rates required for this site.

## D. Issues Regarding Site Conditions/History/Investigations

D.1 **Issue:** How does the Taylor property fit into the problems at the site?

**Response:** The Taylor property is located on small rise along Route 59 slightly south of and across from, municipal wells M2 and K2. As part of the RI, the Taylor property and the surrounding area were investigated. Early in the process a septic tank was excavated from the Taylor property leading to some speculation that the well field contamination may have come from there. Later investigation and analysis led to the conclusion that since the most significant contamination levels were detected upgradient from the current Taylor property that it was not the source for this contamination.

D.2 **Issue:** Where did the contamination at the Taylor property come from?

**Response:** Most of the contamination detected in wells at Taylor is probably the result of contaminated groundwater from the larger plume extending across the site.

D.3 **Issue:** Was any contaminated soil removed from the Taylor property?

**Response:** In 1989 two underground storage tanks and the soil surrounding them were excavated and removed from the Taylor Property. One of these tanks contained fuel oil the other gasoline.

D.4 **Issue:** Was there a release of petroleum at the Taylor property?

**Response:** Some petroleum was found in the soil removed during the tank excavation. This soil was analyzed and disposed of off site. Petroleum related contaminants have not been found in the groundwater or in the nearby public water supply wells.

D.5 **Issue:** What caused the contamination of soils in the northern area?

**Response:** There are two sources of contamination in the northern area. One is the former spill containment tank which was removed along with the surrounding contaminated soil in 1986. The other northern source area was the result of the washing and storage of empty VOC drums in the area of the northern corner of the parking lot.

D.6 **Issue:** Since the process began, how much water has been discharged to the sewer?

**Response:** Using the maximum average flow rate from the recovery wells and allowing for only 10% down time, approximately 32,000,000 gallons of water have been discharged to the sewer. This is a very conservative estimate since over the nearly seven years of operation the wells have, at various times, been shut down for testing, repairs, and/or regular maintenance.

D.7 **Issue:** Since startup of the IRMs, how many pounds of contaminants have been released to the air?

**Response:** This information is not available. The Department is available to describe to the commentor what assumptions would be necessary to make such an estimate.

D.8 **Issue:** Does the air permit for the existing air strippers cover all contaminants in the groundwater?

**Response:** The air stripper permit takes into account all of the contaminants detected in the stripper influent. Permits for the air stripper to be used in the selected remedy will reflect conditions in the influent and will be reviewed periodically to account for any changes in the aquifer.

## II. LETTERS RECEIVED DURING THE COMMENT PERIOD

E.1 **Issue:** What is the relationship between the "northern" and "southern" operable units?

**Response:** The terms northern and southern operable units are used as a matter of convenience by the consultant to differentiate between the two plumes and their respective sources.

E.2 **Issue:** The western limits of the plume should be better defined and an estimate made of the amount of contaminants that are being discharged to the Oswego River on a daily basis.

**Response:** Due to the rate of groundwater extraction from Municipal Well 2 and Keller Well 2, the contamination which currently reaches that area is captured and treated by the air stripper. Another major factor limiting contamination migration to the river is the fact that the river is hydraulically a "loosing" stream. This acts to deflect and inhibit contaminant flow to the river. Furthermore, the selected remedy will create a hydraulic barrier to further contaminant migration. This barrier will be located approximately 200 feet east of Route 57. An effort to quantify the low levels of VOCs now reaching the river would be based on extremely speculative numbers and would no longer be valid once the site remedy is implemented.

E.3 **Issue:** Further define the sources of groundwater contamination for the "northern" plume as they are not understood and may be dense non-aqueous phase liquids (DNAPLs) or soils (sediments) that contain appreciable volatile organic compound (VOC) concentrations.

**Response:** The extensive sampling of the northern source area soils and the long-term groundwater sampling from numerous wells in the source area have not detected significant residual soil contamination or DNAPL. The selected remedy will address and control any residual contamination and groundwater contamination. (See Response to E.4)

E.4 **Issue:** The sources of groundwater contaminants should be identified and removed to accelerate the remediation of the site.

**Response:** In an effort to provide for active and aggressive source remediation and to address the concerns of the public and the State, and to further the desire of Miller to have a rapid and efficient remediation, Miller is exploring the efficacy of air sparging and vapor extraction to augment the selected remedy. This process, if found to be practical, would address the concerns over DNAPL, would shorten the duration of the remedy, and would satisfy the Department's preference for remedies with a strong source control component. The technical feasibility of this procedure is currently being assessed.

E.5 **Issue:** Assuming constant pumping, the discharge of 10 parts per billion of VOCs to the Oswego River per day upstream of the City of Fulton's Municipal Wellfield is totally unacceptable.

**Response:** Contaminant levels which will not adversely impact the receiving water body or wellfield will be established during the remedial design process.

E.6 **Issue:** A study funded by the Miller Brewing Company is needed to determine the capacity and overall quality of the impacted wellfield.

**Response:** Water quality has been routinely monitored at the public water supply and at 120 monitoring wells on the aquifer. This monitoring effort has provided a very large data base describing groundwater quality in the aquifer over a period of approximately nine years. An appropriate monitoring program will continue throughout the remedial effort. The data gathered is routinely, and will continue to be, supplied to the City of Fulton. We do not anticipate that the quantity of water available to the city will be diminished. The issue of an additional investigation by Miller should be addressed in discussions between the City of Fulton and Miller.

E.7 **Issue:** The expansion of the 1 million gallon treatment facility located on City of Fulton Water Work's property and the construction of a structure to store treated water for municipal use needs to be assessed.

**Response:** These issues need to be addressed in discussions between the City of Fulton and Miller.

E.8 **Issue:** The City of Fulton should be reimbursed by the Miller Brewing Company in the amount necessary for the purchase of equipment to manage the wealth of information currently available for the Miller Container Site and the additional data that will be developed during the remedial phase and monitoring period. The City should also be reimbursed for costs associated with training City employees to utilize this information on behalf of the City of Fulton.

**Response:** These issues need to be addressed in discussions between the City and Miller.

E.9 **Issue:** The City of Fulton wishes to be indemnified for any unforeseen consequences which might arise from the implementation of the remedy. This indemnification would have to cover any loss or costs incurred by the City as a consequence of the remedy or the underlying inactive hazardous waste site.

**Response:** This is a legal issue which may be best addressed directly between the City and Miller. That not withstanding, an emergency contingency plan has been developed under Consent Order to address the potential of further degradation of water quality at the well field. Should water quality deteriorate to the point where the existing treatment system could not adequately remove contaminants (which is very unlikely), an alternate water source such as OCWA would be used until the treatment system could be upgraded. The plan contains ample provisions to ensure that the residents of Fulton would not be exposed to contaminants in their drinking water.

E.10 **Issue:** The remedial action plan must be binding on any successor in interest of the responsible party, and owners of the fee title to the real property affected by the contamination, and their successors in interest.

**Response:** The Consent Order covering Remedial Design and Remedial Action will be binding upon Miller and its successors, etc.

F.1 **Issue:** Fulton Safe Drinking Water Action Committee (FSDWAC) opposes the discharge of solvent-contaminated groundwater to the Oswego River at any level because of the impact it (made) may have on the quality of the municipal wellfield due to recharge and the effect it may have on the upgrade of the Oswego River to "Class A" in the future as recently supported by the Department's Division of Water.

**Response:** (See Response to E.5)

F.2 **Issue:** Rather than discharging solvent contaminated groundwater to the river, FSDWAC supports its treatment to non-detect and the construction of a facility for its storage and use by the City of Fulton.

**Response:** As stated in response A.6 above, discharge limits will be established that are protective of the river and wellfield. To be used as a source of water to a public supply system, the recovery wells would need to meet various additional requirements. The use of these wells as a drinking water source is not feasible.

F.3 **Issue:** The capacity of the municipal well field should be examined to determine the maximum production potential. If the capacity exceeds the one million gallon per day limit of the treatment facility then Miller should be required to construct an expanded facility or make up the difference with water purchased from the Onondaga County Water Authority.

**Response:** See Responses E.6 and E.7.

F.4 **Issue:** FSDWAC supports the removal of solvent-contaminated soils (sediments) and the investigation, mobilization, and removal of dense non-aqueous phase liquid as demonstrated at the national priorities list Fulton Terminals Site. It would be unconscionable for the Department to do less for the City of Fulton and the State of New York than the U.S. Environmental Protection Agency.

**Response:** See Responses E.3 and E.4.

F.5 **Issue:** The Department should review its citizen participation program with regard to this site. Public involvement relating to this site has been controlled, compromised and/or non-existent.

**Response:** The Department will review the program for this site. Please refer to Section 10 of this Record of Decision which provides a brief list of some of the public participation activities conducted at this site.

G.1 **Issue:** The Order on Consent which committed Miller to the construction and operation of the municipal air stripper (#A702659106) sets forth the conditions under which Miller's obligations would terminate. The PRAP states that the continued operation of the air stripper is an integral part of the remedy. This would seem to be a contradiction.

**Response:** The terms in the Consent Order under which Miller's obligation for the air stripper would end remain valid. The continued operation of the system in accordance with the order is an important component of the selected remedy. The statement in the PRAP acknowledges this and is not in any way intended to diminish the obligations under the order.

G.2 **Issue:** The EPA has, through its contractors, been conducting site inspections and record searches with regard to the Miller site. How will this impact the implementation of the remedy?

**Response:** We do not anticipate that the site investigation by the EPA will affect the implementation of the selected remedy.

G.3 **Issue:** Will the Record of Decision provide for sufficient flexibility to allow Miller to take additional, supplemental measures to expedite the remediation of the site? These measures might include established technologies such as air sparging.

**Response:** It is our belief that there is sufficient flexibility in this document to allow for an expansion of the remedy should air sparging technology prove effective. The use of air sparging would be responsive to many of the concerns raised by the public regarding source control and the remediation of possible DNAPL.

G.4 **Issue:** The site is currently referred to in the PRAP as the "Miller Container Division Site", however, Miller no longer owns the site. It would be appropriate to change the site reference.

**Response:** The site name is being changed to the "Former Miller Container Site".

H.1 **Issue:** We would like to propose a technology called the HYDROX process as a method of augmenting the remedy selected for the Miller site. This would be a supplement to the air stripper and carbon treatment proposed for water from the system's recovery wells.

**Response:** The selection of specific vendors for technology processes is done during the remedial design process. The Department will forward the information provided to the PRP's consultant for consideration.

I.1 **Issue:** Fulton should not be deprived of any of its water supply because of the implementation of the remedy.

**Response:** As indicated in Response A.1, estimates of the impact of the extraction system on the municipal well field production will be a reduction of less than two tenths of one percent.

I.2 **Issue:** All discharges from the project should achieve non-detectable concentrations of contaminants.

**Response:** The reasons that it is not feasible to achieve non-detect are provided in Response A.6. Specifically, the initial concentration of contaminants extracted from the source areas will be so much higher that even if the same removal efficiencies are achieved, some contaminants will be detectable.

J.1 **Issue:** The amount of advanced notice provided for the public meeting was not sufficient.

**Response:** An effort is made to get public notice regarding these meetings out about ten days to two weeks before the meetings. The meeting notice, as well as any information sheets, are sent to persons who have indicated an interest in the site. These mailing lists are taken from correspondence received, attendance sheets at previous public meetings, and local tax maps. Despite this, some individuals who have a sincere interest in a site are sometimes omitted from the mailing list. We regret this and will see that all persons who call or write about the site are included in future mailings.

J.2 **Issue:** The combination of the timing of the comment period around the holidays and the meeting being held in December with the bad weather indicates that you are not serious about informing the public and receiving comments.

**Response:** While we try to avoid scheduling public meetings at times which conflict with the holidays it is not always possible to eliminate a whole month from our schedule. We regret that we do encounter inclement weather on days of public meetings. In the event that the weather is of such severity that it would hinder interested persons from attending the meetings, we would attempt to reschedule.

J.3 **Issue:** You have "fiddled around" with the site for at least four years. What is the hurry to remediate the site now?

**Response:** Over the past four years the site was investigated. Additional areas of contamination were discovered and the volume of the current treatment system was expanded. A municipal water supply treatment system was designed and constructed to remove contamination from the city's wells. An extensive monitoring effort has been carried out which provides the community with a greater understanding of potential impacts to the city water supply. The large volume of data has been used to develop an effective

remedial action plan. While the site investigation has progressed, documents and data have been made available to the public so no one would have to read through all the background all at once. We have also endeavored to provide a concise description of the selected remedy in the Proposed Remedial Action Plan along with the data on which the selection was based. In an effort to accommodate concerned members of the community, the comment period was extended from the December 30th end date through January 17th, at the request of persons attending the public meeting. A subsequent request was made to extend the comment period to February 1st, and this too was honored.

# APPENDIX B

## ADMINISTRATIVE RECORD

## FORMER MILLER CONTAINER SITE
## SITE # 7-38-029

1) Record of Decision, Former Miller Container Division (3/95)

2) Proposed Remedial Action Plan, Miller Container Division (10/94)

3a) Consent Order A7-0111-87-04; IRM order (1/22/88)
3b) Consent Order A7-0111-87-04; amendment to 1/22/88 order (3/90)
3c) Consent Order A7-0227-90-04; RI/FS order (4/12/90)
3d) Consent Order A7-0265-91-06; IRM order to construct municipal water treatment system (8/91)

4) Miller Container Division-Phase II Hydrogeologic Investigation in the Vicinity of a Spill Containment Tank (12/86)

5) Miller Container Division RI/FS Workplan (10/90)

6) Citizen Participation Plan (10/90)

7) Miller Container Division Remedial Investigation Report (Vol. I,II,III) (7/93)

8) Reynolds Can Plant Site Feasibility Study Report (7/94)

9) Reynolds Can Plant Remedial Investigation Report Addendum (7/94)

10) Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA - Interim Final; EPA/540/G89/004 OSWER Directive 9355.3-01, October 1988

11) Relevant Correspondence

- G. A. Carlson to M. J. O'Toole, NYSDOH concurrence letter, 11/23/94.
- D. Barthold to M. DiPietro, FS comment letter response, 9/14/94.
- M. DiPietro to D. Barthold, FS comments, 8/30/94.
- M. DiPietro to D. Barthold, FS comments, 6/21/94.
- M. Wilder to M. DiPietro, Summary of meeting held 5/23/94, 6/2/94.
- M. DiPietro to M. Wilder, Preliminary FS comments, 3/24/94.

- M. DiPietro to D. Barthold, Preliminary FS comments, 11/23/93.
- D. Barthold to M. DiPietro, RI comment response, 10/29/93.
- M. DiPietro to J. Boehler, RI comments, 10/15/93.
- M. DiPietro to J. Boehler, Air emissions monitoring, 5/28/93
- " " , North migration route comments, 4/13/93
- " " , Pump test RW-1 comments, 4/12/93
- " " , Pump test Kellar 1, Kellar 2, Municipal 2 comments 4/8/93
- J. Boehler to M. DiPietro, RI correspondence, 3/19/93
- M. DiPietro to J. Boehler, Soil remediation units, 3/8/93

- M. Barone to M. DiPietro, Soil remediation units, 12/23/92
- M. DiPietro to M. Barone, RI meeting with Miller, 11/4/92
- M. Barone to Tuohy/Heerkens, Treatment plant, chlorinization issue, 11/3/92
- D. Klippel to R. Parsons, " " " " " , 10/30/92
- Tuohy/Heerkens to Kogut/Barone, " " " " " , 10/26/92
- G. Valette to M. Barone, " " " " " , 10/23/92
- R. Parson to D. Klippel, " " " " " , 10/23/92
- M. Barone to G. Valette, " " " " " , 10/21/92
- M. Barone to M. DiPietro, Draft RI comment response, 9/21/92
- M. DiPietro to M. Barone, Draft RI comments, 8/7/92
- R. Young to M. DiPietro, Air permit memo, 4/28/92
- M. DiPietro to M. Barone, Water treatment system, general, 3/6/92

- M. DiPietro to M. Barone, Interim RI comments, 9/24/91
- M. Barone to D. Tuohy, Response to information demand, 6/27/91
- M. DiPietro to M. Barone, RI/FS work plan approval, 2/13/91
- M. Barone to M. DiPietro, RI/FS work plan response to comments, 2/1/91
- M. DiPietro to M. Barone, RI/FS work plan comments, 1/17/91
- Malcolm Pirnie, Inc. to DEC, Well location proposal, 1/91

- M. Barone to D. Tuohy, Information demand response, 12/21/90
- L. Messina to D. Tuohy, RI/FS work plan response, 10/17/90
- R. Brazell to T. Swett/L. Messina, RI/FS work plan comments, 8/7/90
- L. Messina to D. Tuohy, Information demand response, 6/29/90
- D. Tuohy to B. Kogut/G. Reich, Information demand, 5/23/90

**Key to Affiliations**

| | |
|---|---|
| Barone, M. | Miller Brewing Company |
| Boehler, J. | Miller Brewing Company/Reynolds |
| Brazell, R. | NYSDEC, Region 7 |
| DiPietro, M. | NYSDEC, DHWR |
| Heerkens, R. | NYSDOH |
| Klippel, R. | Malcolm Pirnie, Inc. |
| Kogut, B. | Bond, Schoeneck, & King |
| Messina, L. | Miller Brewing Company |
| Parsons, R. | City of Fulton |
| Reich, G. | Miller Brewing Company |
| Swett, T. | Miller Brewing Company |
| Tuohy, D. | NYSDEC, DEE |
| Valette, G. | City of Fulton, Mayor |
| Young, R. | NYSDEC, DAR |