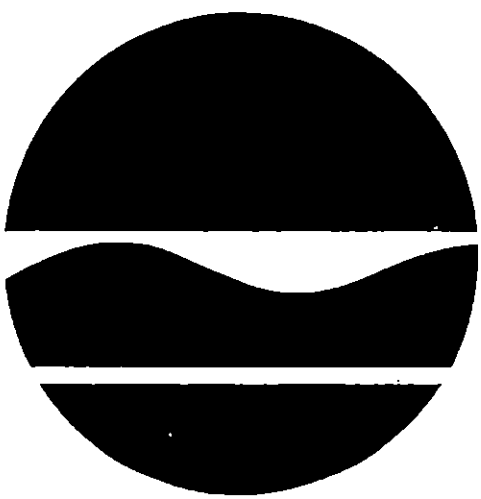
RITE OFF INC. SITE

Bayshore (T),Suffolk County, New York
Site No. 1-52-129

PROPOSED REMEDIAL ACTION PLAN

February 1996



Prepared by:

Division of Hazardous Waste Remediation
New York State Department of Environmental Conservation

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Bayshore, Suffolk County, New York
Site No. 1-52-129
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SECTION 1: PURPOSE OF THE PROPOSED PLAN

The New York State Department of Environmental Conservation (NYSDEC) in consultation with the New York State Department of Health (NYSDOH) is proposing an air sparging and soil vapor extraction system for the Rite Off Inc. site. This remedy is proposed to address the threat to human health and the environment created by the presence of volatile organic compounds in the groundwater and soil at the site.

This Proposed Remedial Action Plan (PRAP) identifies the preferred remedy, summarizes the other alternatives considered, and discusses the rationale for this preference. The NYSDEC will select a final remedy for the site only after careful consideration of all comments submitted during the public comment period.

The NYSDEC has issued this PRAP as a component of the citizen participation plan developed pursuant to the New York State Environmental Conservation Law (ECL) and 6 NYCRR Part 375. This document summarizes the information that can be found in greater detail in the Remedial Investigation (RI) report available at the document repositories.

The NYSDEC may modify the preferred alternative or select another alternative based on new information or public comments. Therefore, the public is encouraged to review and comment on all of the alternatives identified here.

To better understand the site, and the alternatives evaluated, the public is encouraged to review the project documents which are available at the following repositories:

Bay Shore Public Library
One South Country Road
Brightwaters, NY 11718
(516) 665-4350
M,T,Th 10 - 9 ; W 1 - 9
Sat 10 - 5 ; Sun 1 - 5

Region 1 - NYSDEC
SUNY Campus, Building 40
Stony Brook, NY 11790-2356
(516) 444-0259
M-F 8:30 - 4:45

Central Office - NYSDEC
50 Wolf Road
Albany, NY 12233-7010
(518) 457-1708
M-F 8:30 - 4:45

Written comments on the PRAP can be submitted to Mr. John A Helmeset at the central office address.

DATES TO REMEMBER:

February 24, to March 25, 1996 Public comment period on RI Report, PRAP, and preferred alternative.

March 11, 1996 Public meeting at 7:00 pm at the Bay Shore Public Library

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SECTION 2: SITE LOCATION AND DESCRIPTION

The site is approximately 2 acres in size and is dominated by a single story industrial building. Currently, the building is leased to a cycling supply company, Finish Line Technologies. The site is identified as 1545 Fifth Industrial Court, in the town of Bayshore, New York and is named Rite Off Inc. (1-52-129) after the former occupant of the building. Fifth Industrial Court is a cul de sac off of Fifth Avenue for several commercial facilities. This area of Bayshore is predominantly industrial intermingled with residential areas. To the north of the site are warehouses and a waste transfer facility at the Hubbard Wilson Landfill. There is another waste transfer station located to the southeast. An office building and a vacant lot are located on the east. A residential community is located to the west of the site. Please see attached Figures 1 and 2.

Two other inactive hazardous waste sites had been located in this area. The Hubbard Wilson Landfill (1-52-008) was delisted from the NYSDEC Inactive Hazardous Waste Disposal Site Registry in November, 1992. The Servall Laundry Inactive Hazardous Waste site (1-52-007) is located approximately a mile and a half to the north of the Rite Off site. The remedial program for the Servall site is currently under construction. This remedy involves a soil vapor extraction system and a limited pump and treatment system.

A public water supply well field, the Thomas Avenue Well Field, is located approximately 4,550 feet downgradient from the Rite Off site.

SECTION 3: SITE HISTORY

3.1: Operational/Disposal History

The building at 1545 was first leased to Rite-Off Inc. in 1978. Rite-Off Inc. purchased the property in 1984 and in 1986 built a second building, a warehouse, on the adjacent parcel. This warehouse is located at 1555 Fifth Industrial Court. When the site was listed on the registry, the warehouse property was also part of the site, but was removed from the registry by the NYSDEC in July, 1995. Activities conducted at the site by Rite-Off Inc. included the blending, packaging, and shipping of spray lubricants, spray solvents, spray insecticides, and other aerosol products. These activities utilized several on site storage tanks, drum storage areas, and a reclamation still.

Typically, the process line would consist of the blending of the raw materials in mixing vessels at the 1545 location. The resulting product was then transferred into aerosol cans which would then be pressurized. The finished cans were then "burst tested" at elevated temperatures. Once the cans had passed the required tests, they were stenciled or labeled for identification and then transferred to the warehouse for distribution. Cans which failed the burst test were emptied of their contents and stored for thirty days in trailers behind the warehouse (1555 location) prior to being placed in a dumpster as non-hazardous waste.

Historically, numerous material storage areas were utilized at the site. Outdoor drum storage areas included a fenced area behind the

manufacturing building, several overseas cargo containers, and an area between the manufacturing building and the warehouse. Additional outdoor storage for aerosol cans that had failed "burst testing" was provided by several trailers parked behind the warehouse. Indoor storage areas included a 5,000 gallon TCA tank and up to 8 upright storage and mixing tanks of various volumes. These tanks were located in the southwestern corner of the manufacturing building. Numerous drum storage areas were also located throughout the inside of the manufacturing building as well. Outside tanks were also utilized for freon and carbon dioxide storage.

In September of 1983, the manufacturing building was vandalized and the trespassers opened tanks containing tetrachloroethene (PCE), 1,1,1 trichloroethane (TCA) and mineral spirits. Although the mineral spirits spill was contained inside the building, approximately 120 gallons of PCE were reported to the Suffolk County Department of Health Services (SCDH) to have discharged to the storm drains located to the rear of the building. The site owner reported that the TCA storage tank was also opened, but the amount of TCA released was unknown. With SCHD oversight, a contractor was hired to clean up the spill, which included the pumping out of the storm drains and the excavation of the soils where the spill was diverted.

In October 1993, Rite Off Inc ceased their operations at the site.

3.2: Remedial History

In December of 1986, the NYSDEC performed an inspection of the Rite-Off facility in response to allegations of illegal disposal of solvents at the facility. During this inspection, three soil samples were collected. These samples found elevated concentrations of several volatile organic compounds in the soil at the facility. Specifically, 670 to 14,000 parts per billion (ppb) of TCA, 0 to 22,000 ppb of PCE and 51 to 1,100 ppb of Methylene Chloride. Based on this inspection and other information subsequently collected, the facility was inspected again in June, 1987. At this inspection, several additional samples were collected from the facility for chemical analysis. The results of these samples and the information gathered during these inspections led to a $50,000 fine and Rite Off Inc.'s agreement to conduct an investigation of the site, under the supervision of the NYSDEC, to determine the extent and nature of the pollution at the facility.

In May, 1989, the site was listed in the registry of inactive hazardous waste sites as a class 2a site. This is a temporary classification for a site where there is a confirmed disposal of a hazardous waste but for which there is inadequate data on hazardous waste impact to the environment and human health to assign the site to one of the five classifications required by the Environmental Conservation Law (ECL).

In July of 1989, a Phase II investigation report was submitted for the facility. A Phase II investigation is utilized by the NYSDEC to assess whether hazardous waste is present at a site, but does not provide enough detail to fully delineate the extent and nature of the contamination that would be necessary to select an appropriate remedy for the site. This investigation included a magnetometer survey, a soil gas survey, the sampling of several on site storm drains, the installation and sampling of five shallow groundwater wells, and the sampling of on site soils. This investigation found three of the on site storm drains, SD-5, SD-6, and SD-7, had significant volatile organic contamination. There was also significant volatile organic contamination in the soil at the outdoor drum storage area immediately behind the manufacturing building. This soil contamination appeared to be impacting the groundwater beneath the facility. Levels of volatile organics as high as 23,000 ppb of 1,1,1 TCA were

detected in the downgradient monitoring wells. The sampling results of the on site sediments, soils and groundwater is summarized in Tables 1, 2, and 3 respectively.

In March, 1990, the site was upgraded to a class 2 on the registry of inactive hazardous waste sites. This classification indicates that the site presents a significant threat to the public health or the environment and action is required.

In October of 1993, the owner of the site Mr. Howard Rapps entered into a consent order to perform a full Remedial Investigation and Feasibility Study (RI/FS) of the site.

SECTION 4: CURRENT STATUS

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

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 conducted in two stages. The first stage was conducted between October 1993 and June, 1995. The second stage between June 1995, and February 1996. A report entitled Draft Remedial Investigation Report, For Rite-Off Inc., Bayshore, New York, and dated June 1995 has been prepared describing the field activities and findings of the RI in detail. The second phase is summarized in a letter report on the Off Site Groundwater Investigation (OSGI) and is dated February 6, 1996.

The RI and OSGI included the following activities:

- A limited soil gas survey to compliment the soil gas survey performed during the Phase II investigation in 1989.
- Installation of 10 additional soil borings and five additional on site monitoring wells (including 3 deep wells) for analysis of on site soils and groundwater, as well as the physical properties of the soil and hydrogeologic conditions.
- The sampling of all of the on site storm drains and leaching pools for various parameters to provide data for the complete Target Compound and Target Analyte List (TCL/TAL).
- The completion of a single point aquifer pump test to better define the aquifer's physical qualities.
- The completion of groundwater modeling to evaluate groundwater contamination migration off of the site.
- The installation and sampling of 9 geoprobe points to sample the groundwater downgradient of the site.
- The installation of 2 monitoring wells off site to verify the results of the geoprobe samples and provide additional data on the groundwater flow direction.

To determine which media (soil, groundwater, etc.) contain contamination at levels of concern, the RI analytical data was compared to environmental Standards, Criteria, and Guidance (SCGs). Groundwater, drinking water and surface water SCGs identified for the Rite Off site were based on NYSDEC Ambient Water Quality Standards and Guidance Values and Part V of the NYS Sanitary Code. NYSDEC Technical and Guidance Memorandum (TAGM) 4030 soil cleanup guidelines for the protection of groundwater, background conditions, and risk-

based remediation criteria were used as SCGs for soil and the Division of Fish and Wildlife Technical Guidance for Screening Contaminated Sediments was used for surface water sediments.

Based upon the results of the remedial investigation in comparison to the SCGs and potential public health and environmental exposure routes, certain areas and media of the site require remediation. These are summarized under section 4.1.2. More complete information can be found in the RI Report and the OSGI letter report.

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

4.1.1 Nature of Contamination:

As described in the RI Report, soil and groundwater samples were collected at the Site to characterize the nature and extent of contamination. This sampling found that the on site soils, storm drain sediments and the groundwater were contaminated by volatile organic compounds. Specifically, tetrachloroethane (PCE), trichloroethane 1,1,1 (1,1,1 TCA) , and 1,2 dichloroethene (1,2-DCE). These compounds were used in the aerosol cans manufactured at the site as solvents for other chemicals. These compounds are commonly used as solvents and to degrease machine parts.

These compounds were initially released to the on site surface soils and the storm drain sediments. Although these compounds are considered to be non soluble in water, small amounts can dissolve into water. The chemical can then travel with precipitation through the soil and eventually through the groundwater. When large volumes of these chemicals are released, they can travel through the soil and groundwater as a separate liquid.

These compounds are not life threatening unless more than a few spoonfuls are ingested at one time or a large amount is spilled on yourself. Breathing highly concentrated fumes can cause fatigue, vomiting, dizziness and possibly unconsciousness.

The human health effects from long term exposure to rather small amounts are not known. For more information, please contact the New York State Department of Health.

4.1.2 Extent of Contamination

The investigation of the facility has found that some of the on site storm drains, some of the on site soils and the groundwater at the site are contaminated with volatile organic compounds. More complete information can be found in the RI Report and the OSGI letter report.

Storm Drains

There are fourteen storm drains on the site, please refer back to Figure 2. Historical information and sampling have indicated high levels of contamination with volatile organic compounds in the 4 storm drains located on the south side of the facility. These are storm drains SD-4, SD-5, SD-6, and SD-7.

The water in these storm drains were first sampled when the NYSDEC sampled SD-5 in December, 1986. The remaining three were subsequently sampled in March, 1987. All four samples indicated the water in the storm drains was contaminated with volatile organic compounds. Notably, 150 ppb of TCA, 14 ppb of PCE and 1100 J (estimated) ppb of 1,1,2, trichloro 1,2,2, triflouroethane in SD-4, 18 ppb of TCA, 15 ppb of PCE in SD-6, and 43 ppb of 1,1,1, TCA in SD-7.

During the phase II investigation, the sediments in storm drains 1 though 7 were sampled for VOCs, pesticides and PCBs. The results of these samples are summarized in Table 1. Storm drains 5, 6, and 7 showed contamination with 1,1,1 TCA and PCE. Specifically, 930 ppb of 1,1,1 TCA and 280 ppb of PCE in SD-5, 430 ppb of 1,1,1 TCA and 1,100 ppb of PCE in SD-6, and 710 ppb of 1,1,1 TCA and 170 ppb of DCE in SD-7. The NYSDEC recommended soil cleanup objective for 1,1,1 TCA is 800 ppb, 1,400 ppb for PCE, and 250 ppb for 1,2 dichloroethene.

No additional sediment samples were collected from these storm drains during the RI. However, all of the remaining storm drains on the site were sampled for the full Target Compound and Target Analyte List (TCL/TAL). None of these samples found any significant contaminant levels. Soils adjacent to the contaminated storm drains were also investigated and this work is summarized under on site soils.

On Site Soils

The on site soils at the facility were first sampled by the NYSDEC in December 1986. At this time only surface samples were collected. These samples indicated the soils at the site were contaminated with high levels of volatile organic compounds. Specifically 14,000 ppb of 1,1, 1 TCA and 22,000 ppb of PCE in the soil behind the warehouse and 3,400 ppb of 1,1, 1 TCA between the buildings. Again, the NYSDEC recommended clean up objective is 800 ppb for 1,1,1 TCA; 1,400 ppb for PCE and 250 ppb for 1,2 dichloroethene.

The Phase II investigation further delineated the on site soil contamination. A soil gas survey was performed across most of the site and six subsurface soil samples were collected 18 inches below the surface. This soil sampling found levels of 3,800 ppb of PCE, 1,000 B (detected in the blank) ppb of acetone, 650 ppb of TCE and 650 ppb of toluene in the soils immediately behind the manufacturing building. PCE was also found in the soil between the buildings, but at much lower levels. The soil gas survey found the area around the storm drains and drum storage area behind the building to have strongly elevated responses. The remainder of the site showed no significant responses.

During the RI investigation, 10 borings were advanced with a drill rig in these areas and the former trailer storage area behind the warehouse. Samples were collected from at least two split spoon intervals in each boring, based on head vapor levels and olfactory senses. These samples found VOCs and SVOCs present in all of the areas. However, they had all declined to levels below their recommended cleanup objectives. For example, only 11 ppb and 24 ppb of PCE were detected in the samples between the buildings.

A limited soil gas investigation was also performed in the former trailer storage area behind the warehouse and along the southern property line. This storage area was inaccessible during the Phase II soil gas work and concern was expressed at the work plan public meeting over a former dumpster along the property line. No elevated responses were detected in these areas during this survey.

Groundwater

Five shallow monitoring wells were installed as part of the Phase II investigation of the site. These wells are approximately 30 feet deep and were used to determine the flow direction across the site and to allow for the sampling of the groundwater. Sampling in February, 1989, found the downgradient wells had a high level of volatile organic compounds. The highest levels were found in the monitoring well immediately downgradient from the contaminated storm drains, MW-4S. This well had 23,000 ppb of 1,1,1 TCA; 1,200 ppb of 1,1 DCA; 1,200 ppb of

1,1 DCE; 1,500 ppb of PCE; and 990 J ppb of 1,2 DCE. Please note that in the Phase II report this well is designated as MW-4. Please refer back to Table 3.

During the RI investigation and the off site groundwater investigation, six more wells (3 shallow and 3 deep) and 8 geoprobe points were installed to better delineate this groundwater contamination. The shallow wells are approximately 30 feet deep and the deep wells are approximately 110 feet deep. All of the geoprobe points and two of the shallow wells were installed off of the site. Please refer to Figures 2, 3, 4, 5, and 6.

The sampling of those points and the existing on site wells in 1994 and 1995 found that the groundwater contaminant levels have dropped dramatically at the site. Monitoring well 4S was found to now only have 120 ppb of PCE, 12 ppb of TCE, 51 ppb of 1,1,1 TCA, and 41 ppb of DCE. The off site sampling points found that these levels quickly dropped off as the groundwater left the site. MW-9 has only 3 ppb of DCA, 11 ppb of TCA and 12 ppb of PCE. The contamination also declined dramatically in the vertical direction. Monitoring well 4D only has 17 ppb of 1,1,1 TCA, 7 ppb of 1,1 DCE, 2 ppb of TCE and no PCE. These levels are comparable to those found in the upgradient deep well, MW-6D. This well has 30 ppb of PCE and 3 ppb of xylene. However, the levels on site and immediately downgradient of the site are still above the New York State Standard of 5 ppb each for PCE; 1,1,1 TCA; and DCE.

4.2 Interim Remedial Measures:

Interim Remedial Measures (IRMs) are conducted at sites when a source of contamination or exposure pathway can be effectively addressed before completion of the RI/FS. Based on the data collected during the Phase II investigation, such a measure was proposed to remove the contamination in four of the on site storm drains. The samples collected from these storm drains, (SD-4, SD-5, SD-6 and SD-7), are summarized in Table 1. Although, the levels detected in SD-4 are much lower than the other storm drains, these sediments were also targeted for removal as this storm drain has an overflow pipe from SD-5.

On July 12, 1995, the responsible party under the oversight of the NYSDEC removed the sediments from the referenced storm drains. Approximately 10, 000 gallons of storm water present in the storm drains were removed by a vacuum truck and disposed of at the Suffolk County Department of Public Work's (SCDPW) Bergen Point publicly-owned treatment works. The underlying sediments were then removed with a Vactor truck and placed into two 20 cubic yard rolloff bins. Each of the bins were equipped with a plastic liner and kiln dust to stabilize the sediments. The sediments were then transported to and disposed of at the Athens-Hocking Reclamation Center located in Logan, Ohio.

To document the effectiveness of the IRM, samples were collected from the sediments remaining in SD-4, SD-6 and SD-7. No sample was collected from SD-5 as it has a concrete bottom and no sediment was present after the removal.

The results of the samples collected after the IRM showed that the remaining sediments do not contain any volatile organic compounds above SCGs.

4.3 Summary of Human Exposure Pathways:

This section describes the types of human exposures that may present added health risks to persons at or around the site. A more detailed discussion of the health risks can be found in Section 8.3 of the RI Report.

An exposure pathway is how an individual may come into 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.

Presently, there are no completed pathways at the site. The area downgradient of the site is serviced by public water. Pathways which may exist at the site in the future if additional remedial action is not undertaken are limited to the consumption of the contaminated groundwater beneath the site and immediately downgradient of the site.

4.4 Summary of Environmental Exposure Pathways:

This section summarizes the types of environmental exposures which may be presented by the site. The Fish and Wildlife Impact Assessment included in the RI presents a more detailed discussion of the potential impacts from the site to fish and wildlife resources. Presently, there are no completed pathways associated with the site. Pathways which may exist at the site in the future if additional remedial action is not undertaken are limited to exposure with the contaminated groundwater underneath the site and immediately downgradient of the site.

The closest significant environmental resource to the site is the head waters of the Orowoc Creek, about two miles from the site. Orowoc Creek originates approximately one mile north of the intersection of the Southern State Parkway and Commack Road and flows in a southerly direction to Orowoc Lake and eventually into the Great South Bay. Orowoc Creek is designated as a Significant Fish and Wildlife Habitat by New York State as it is only one of six known locations on Long Island with a naturally reproducing brook trout population. However, no impact to this resource is expected as it is approximately 2 miles to the extreme east of the site and the groundwater flows in a south, south easterly direction.

SECTION 5: ENFORCEMENT STATUS

The following is the chronological enforcement history of this site.

The NYSDEC and the property owner, Mr. Howard Rapps, entered into a Consent Order on October 5, 1993. The Current Order obligates the responsible party to conduct a Remedial Investigation and Feasibility Study. Upon issuance of the Record of Decision the PRP will implement the selected remedy under an Order on Consent.

Orders on Consent

Date	Index	Subject
3/30/88	**W1-007487-06**	**Phase II**
10/05/93	**W1-0661-93-09**	**RI\FS**
3/96	**W1-0743-95-12**	**RD\RA**

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 Standards, Criteria, and Guidance (SCGs) and be protective of human health and the environment.

At a minimum, the remedy selected should eliminate or mitigate all significant threats to the public health and to 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 any further impacts to the groundwater and the public health.*
- *Attain SCGs for groundwater if technically feasible.*

SECTION 7: SUMMARY OF THE EVALUATION OF ALTERNATIVES

The selected remedy should be protective of human health and the environment, be cost effective, comply with statutory laws and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable.

A summary of the detailed analysis follows. As used in the following text, 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 Alternatives

Since there is no contamination remaining in the on site sediments or soils above SCGs, the potential remedies are intended to address the contaminated groundwater at the site.

Alternative 1: No Further Action

Present Worth:	$ 150,000
Capital Cost:	$ 0,000
Annual O&M:	$ 13,500
Time to Implement	15 years

This alternative recognizes remediation of the site completed under the previously detailed IRM. Only continued monitoring at the site would be necessary to evaluate the effectiveness of the remediation completed under the IRM. This monitoring would include the quarterly sampling of monitoring wells MW-1, MW-3S, MW-4S, MW-4D, MW-6S, MW-6D, and MW-9. This alternative would leave the site in its present condition and would not provide any additional protection to human health or the environment.

Alternative 2: Soil Vapor Extraction and Air Sparging

Present Worth:	$ 123,000
Capital Cost:	$ 74,500
Annual O&M:	$ 40,900
Time to Implement	12 - 18 months

As envisioned, the air sparging and soil vapor extraction (AS/SVE) system would consist of seven air sarge points installed in a staggered line parallel to the southern property line of the site. The exact number and locations would be determined during the remedial design. Please refer to Figure 7. Each point would inject air into the groundwater to volatile the contaminants of concern out of the groundwater. The contaminants would then be captured by the soil vapor extraction (SVE) system. This system would be installed in the same boreholes as the air sparging (AS) points. This system would also further reduce any remaining contamination in the surrounding unsaturated soils. The extracted air would then be passed through a granulated activated carbon filter to remove the volatile

organic compounds. This air would then be discharged to the atmosphere. This discharge will be monitored weekly by Rite Off's engineering consultant to assure the system is operating properly. Additionally, monitoring wells MW-1, MW-3S, MW-4S, MW-4D, MW-6S, MW-6D and MW-9 would be sampled on a quarterly basis for VOCs.

The remedy would be continued until the quarterly monitoring for two consecutive quarters shows the groundwater downgradient of the site meets SCGs or is equal to or better than the groundwater in the upgradient wells. Once the operation of the remedy is considered complete the site would continue to be monitored for at least four quarters to confirm the effectiveness of the remedy. If the groundwater quality deteriorates by more than 15 ppb during this time, the remedial program would be reinitiated. The above costs only include one year of post remediation monitoring.

Alternative 3: Limited Pump and Treatment

Present Worth:	$ 308,000
Capital Cost:	$ 118,000
Annual O&M:	$ 52,300
Time to Implement	3 to 5 years

As envisioned, the limited pump and treat system would consist of 3 pumping wells installed in a line parallel to the southern property line of the site. The exact number and locations of these wells would be determined during the remedial design. These wells would be used to extract the contaminated groundwater, which would then be passed through an air stripper. The air stripper would volatize the contaminants out of the groundwater and the vapors would then be captured by a granulated activated carbon filter. The treated groundwater would then be returned to the ground by an injection well or an infiltration gallery. The system would be inspected weekly by Rite Off's engineering consultant to assure the system was operating properly. Additionally, monitoring wells MW-1, MW-3S, MW-4S, MW-4D, MW-6S, MW-6D and MW-9 would be sampled on a quarterly basis for VOCs.

The remedy would be continued until the quarterly monitoring for two consecutive quarters shows the groundwater downgradient of the site meets SCGs or is equal to or better than the groundwater in the upgradient wells. Once the operation of the remedy is considered complete the site would continue to be monitored for at least four quarters to confirm the effectiveness of the remedy. If the groundwater quality deteriorates by more than 15 ppb during this time, the remedial program would be reinitiated. The above costs only include one year of post remediation monitoring.

7.2 Evaluation of Remedial 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 (6NYCRR Part 375). For each of the criteria, a brief description is provided followed by an evaluation of the alternatives against that criterion.

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 no further action alternative is unacceptable as the groundwater would continue to exceed New York State Standards, Criteria and Guidance.

Alternative 2 and 3 may also not achieve compliance with all state standards, criteria, and guidance, due to contamination from upgradient sources. However, they would greatly improve the overall groundwater quality and eliminate any additional deterioration of the groundwater quality due to the site.

2. 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.

The no further action alternative would not be protective of the environment and human health as the potential to be exposed to groundwater with volatile organic contamination will continue to exist.

Alternatives 2 and 3 would be protective of human health and environment with respect to the site.

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.

The no further action alternative would not be effective in the short term as no action would be taken to address the contaminated groundwater. Even though the contamination at the site has decreased dramatically, the groundwater would still be in exceedance of SCGs.

Alternatives 2 and 3 would involve no activities that would have any adverse impacts upon the on site workers, the environment or the local community. Additionally, health and safety procedures would be implemented to mitigate any situations that may potentially arise. It is anticipated that the AS/SVE system would remediate the site in 12 to 18 months. The limited pump and treat system would take longer, 3 to 5 years, due to this system's lower contaminant removal efficiency.

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.

The no further action alternative would be effective in the long term. Historical data shows the contamination is naturally attenuating at the site. However, the groundwater contamination would be expected to remain above standards for several years, possibly decades.

Alternatives 2 and 3 would also be effective in the long term.

All of the alternatives represent permanent remedies.

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

The no further action alternative would not reduce the toxicity, mobility or volume of the wastes.

Alternatives 2 and 3 would permanently reduce the mobility, toxicity and volume of the wastes by removing the waste into activated carbon filters.

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..

All of the alternatives are implementable. The material and personnel necessary for each alternative should be readily available at reasonable costs in this region. The only technical difficulty would be in the siting of the reinjection wells or infiltration gallery that would be necessary for the limited pump and treatment alternative.

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 5.

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

8. Community Assessment - Concerns of the community regarding the RI/FS reports and the Proposed Remedial Action Plan are evaluated. A " Responsiveness Summary" will be prepared that describes public comments received and how the Department has or will address the concerns raised. If the final remedy selected differs significantly from the proposed remedy, notices to the public will be issued describing the differences and reasons for the changes.

SECTION 8: SUMMARY OF THE PREFERRED REMEDY

Based upon the results of the RI/FS, and the evaluation presented in Section 7, the NYSDEC is proposing Alternative 2, the AS/SVE system, as the remedy for this site.

This selection is based upon the faster and more effective remediation that alternative 2 would provide in comparison to alternative 3.

Alternative 1 was not selected as this alternative would not be protective and would not meet SCGs. Both alternatives 2 and 3 satisfied these threshold criteria. These alternatives would also be equally effective in the long term, have no significant short term impacts, and would equally reduce the toxicity, mobility, and volume of the waste at the site. However, alternative 2 would be more easily implemented than alterative 3 and would result in a faster and more complete remediation of the site at a lower cost. Since this alternative would also satisfy the other criteria, including the threshold criteria, it is the preferred alternative.

The estimated present worth cost to implement the remedy is $123,000. The cost to construct the remedy is estimated to be $74,500 and the estimated average annual operation and maintenance cost for 12 to 18 months is 40,900.

The elements of the selected remedy are as follows:

1. *A brief 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. Any uncertainties identified during the RI/FS would be resolved.*

2. *The installation and operation of an air sparging and soil vapor extraction system to remediate the volatile organic contamination in the groundwater at the site.*

3. *The operation of the air sparging/SVE will continue until the quarterly monitoring for two consecutive quarters shows the groundwater downgradient of the site meets SCGs, or its equal to or better than the groundwater in the upgradient wells. For comparison purposes, analytical results within 5 ppb of one another for each VOC will be considered equal.*

4. *Once the operation of the remedy is considered complete, the site would continue to be monitored for four quarters to confirm the effectiveness and permanence of the remedy. If the groundwater quality deteriorates by more than 15 ppb during this time, the remedial program would be reiterated, otherwise, the remedial program would be considered complete.*

   Since the remedy results in low levels of untreated hazardous waste remaining at the site, a long term monitoring program would be instituted. This program would allow the effectiveness of the selected remedy to be monitored and would be a component of the operation and maintenance for the site.

Table 1

SUMMARY OF COMPOUNDS QUANTIFIED IN STORM DRAINS/LEACHING POOLS

Volatiles	SD-1	SD-2	SD-3	SD-4	SD-5	SD-6	SD-7	L.P.	Field Blank	Trip Blank	Method Blank	Dilutions SD-5(DL)	Dilutions SD-6(DL)	Dilutions SD-7(DL)	Method Blank
Methylene Chloride	11B	8B	6B	11B	17B	17B	20B	6JB	5B	4J	5J	150	17JB	86	5U
1,1,1-Trichloroethane	10B	12B	6B	70B	900BD	160B	540BD	7JB	7B	10U	5J	930	430B	710	5U
Tetrachloroethene	5J	5J	--	11	280	850D	130	--	5U	10U	10U	900	1100	170	5U
Toluene	2J	--	2J	4J	6J	3J	46	7J	5U	5U	5U	32J	25J	75	5U
Acetone	--	55B	--	--	34B	13JB	90B	--	11B	10U	9J	120D	81D	91D	10U
1,1-Dichloroethane	--	2J	--	--	8J	13	44	--	5U	5U	5U	62D	19J	50	5U
2-Butanone	--	9J	--	--	--	--	12J	--	10U	10U	10U	--	--	91D	10U
Trichloroethene	--	--	--	--	8J	2J	19	--	5U	5U	5U	28J	17J	30J	5U
Carbon Disulfide	--	--	--	--	--	7J	6J	--	5U	5U	5U	--	16J	45D	5U
1,2-Dichloroethene	--	--	--	--	--	--	4J	--	5U	5U	5U	--	--	45D	5U
Ethylbenzene	--	--	--	--	--	--	7J	--	5U	5U	5U	--	--	14J	5U
Pesticides/PCBs															
Aldrin	--	3J	--	--	--	--	--	--	NA	NA	8U				
Endosulfan I	--	5J	2J	--	--	7J	--	--	NA	NA	8U				
4,4'-DDE	--	--	--	5J	23J	--	7J	--	NA	NA	16U				
Heptachlor	--	--	--	--	7J	4J	--	7J	NA	NA	8U				
Heptachlor Epoxide	--	--	--	--	7J	--	5J	--	NA	NA	8U				
4-4'-DDD	--	--	--	--	10J	--	--	--	NA	NA	16U				
Gamma-BHC (Lindane)	--	--	--	--	--	--	11J	--	NA	NA	8U				
Miscellaneous Analytical Tests															
Total Solids (%)	81.0	74.0	85.0	75.0	50.0	54.0	61.0	85.0	NA	NA	NA				
Cyanide (mg/kg)	--	--	--	--	--	--	--	--	NA	NA	NA				
Phenols	432	--	118	400	700	648	820	176	NA	NA	NA				
TOX (mg/kg)	--	--	--	--	--	--	--	--	NA	NA	NA				

LEGEND:

All results reported in ug/kg except as noted.

SD = Storm drain
LP = Leaching pool
NA = Not analyzed
-- = Not detected

B = Found in blank
J = Estimated value - lower than detection limit.
D = Outside calibration range; diluted and re-analyzed.
U = Not detected; detection limits in blanks.

Table 2

SUMMARY OF COMPOUNDS QUANTIFIED IN SURFACE SOILS

Compounds Quantified in Soil:										Dilutions	
Volatiles	B-1 (18")	B-22½ (18")	B-24 (18")	B-64 (18")	B-74 (18")	B-75 (18")	Field Blank	Trip Blank	Method Blank	B-24(DL)	Method Blank
Acetone	11B	28B	28B	26B	74B	21B	20B	6JB	7J	1000B	11
2-Butanone	--	7JB	4JB	4JB	13B	10JB	57B	8JB	5J	950JB	5J
Methylene Chloride	26	40	36	19	40	42	11	8	5U	810B	15
2-Hexanone	--	--	--	--	3J	--	10U	2J	10U	--	10U
Trichloroethene	--	--	4J	--	7	4J	5U	5U	5U	650D	5U
Tetrachloroethene	3J	11	1800D	5J	260	240	5U	5U	5U	3800	5U
Toluene	12	16	3J	7	10	5J	5U	5U	5U	650D	5U
1,1,1-Trichloroethane	--	--	--	--	10	--	5U	5U	5U	--	5U
Benzene	--	--	--	--	2J	--	5U	5U	5U	--	5U
Xylenes (Total)	--	--	--	--	2J	--	5U	5U	5U	--	5U
Pesticides/PCBs											
Endosulfan I	--	--	--	2JB	6JB	--	NA	NA	5J		
4-4'-DDT	4J	25	18	4J	10J	--	NA	NA	16U		
Heptachlor	--	--	2J	--	--	--	NA	NA	8U		
4,4'-DDE	--	--	2J	--	--	--	NA	NA	16U		
Aldrin	--	2J	--	--	--	--	NA	NA	8U		
Miscellaneous Inorganics											
Total Solids (%)	98	100	96	99	93	89	NA	NA	NA		
Cyanide (mg/kg)	--	--	--	--	--	--	--	NA	NA		
Phenols	--	250	--	--	269	--	--	NA	NA		
TOX (mg/kg)	--	--	--	--	--	--	NA	NA	NA		

LEGEND:

All concentrations reported in ug/kg except as noted.

< = Less than
DL = Diluted sample
NA = Not analyzed
-- = Not detected
B = Found in blank
J = Estimated value - lower than detection limit
D = Outside calibration range; diluted and re-analyzed
U = Not detected; detection limits in blanks

Table 3

SUMMARY OF COMPOUNDS QUANTIFIED IN GROUNDWATER

Volatiles	MW-1	MW-2	MW-3	MW-4	MW-5	Field Blank	Trip Blank	Method Blank	MW-3DL Dilution	MW-4DL Dilution	Method Blank
Methylene Chloride	--	--	2JB	--	13B	5U	2JB	2J	180JB	--	3J
1,1-Dichloroethene	--	--	12	120	--	5U	5U	5U	--	12000	5U
1,1-Dichloroethane	--	--	3J	320D	5	5U	5U	5U	5000	12000	5U
1,1,1-Trichloroethane	--	--	1100D	42000	40	2J	5U	5U	14000	23000	5U
Trichloroethene	--	--	15	590D	--	5U	5U	5U	170J	330J	5U
Tetrachloroethene	--	--	210D	19000	16	5U	5U	5U	2200	1500	5U
Chloroethane	--	--	--	8J	--	10U	10U	10U	--	25000	10U
1,2-Dichloroethene	--	--	--	21000	2J	5U	5U	5U	--	990J	5U
Pesticides/PCDs											
Dieldrin	0.02J	--	--	--	--	0.10U	NA	0.10U			
Endosulfan I	--	0.04J	0.03J	0.07	--	0.03J	NA	0.05U			
4-4'-DDT	--	0.12	0.14	0.18	--	0.12	NA	0.10U			
Aldrin	--	--	--	--	0.04J	0.05U	NA	0.05U			
Miscellaneous Analytical Tests											
Cyanide	--	--	--	--	--	--	NA	NA			
Phenols	--	--	--	--	--	--	NA	--			
TOX	109	308	333	297	156	<50	NA	NA			

LEGEND:

All results in ug/l

DL = Diluted sample
NA = Not analyzed
-- = Not detected

B = Found in blank
J = Estimated value - lower than detection limit.
D = Outside calibration range; diluted and re-analyzed.
U = Not detected; detection limits in blanks.

Table 4
Nature and Extent of Contamination

MEDIA	CLASS	CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppb) 1983-1988	CONCENTRATION RANGE (ppb) 1994-1995	SCG (ppb)
Groundwater	Volatile Organic Compounds (VOCs)	Tetrachloroethane	2,200 - ND	260 - ND	5
		1,1,1 Trichloroethane	23,000 - ND	13 - ND	5
		Trichloroethylene	330 - ND	12 - ND	5
		1,2 Dichloroethene	990 - ND	41 - ND	5
		1,1 Dichloroethene	1,200 - ND	8J - ND	5
Storm Drain Sediments	Volatile Organic Compounds (VOCs)	Tetrachloroethane	1,100 - ND	ND*	1,400
		1,1,1 Trichloroethane	930 - 6B	ND* - 2J	800
		Trichloroethylene	30 J- ND	ND*	700
Soils	Volatile Organic Compounds (VOCs)	Tetrachloroethane	22,000 - ND	ND - 410	1,400
		1,1,1 Trichloroethane	14,000 - ND	ND - 25	800
		Trichloroethylene	650 - ND	ND - 15	700

* Post IRM Samples

Table 5
Remedial Alternative Costs

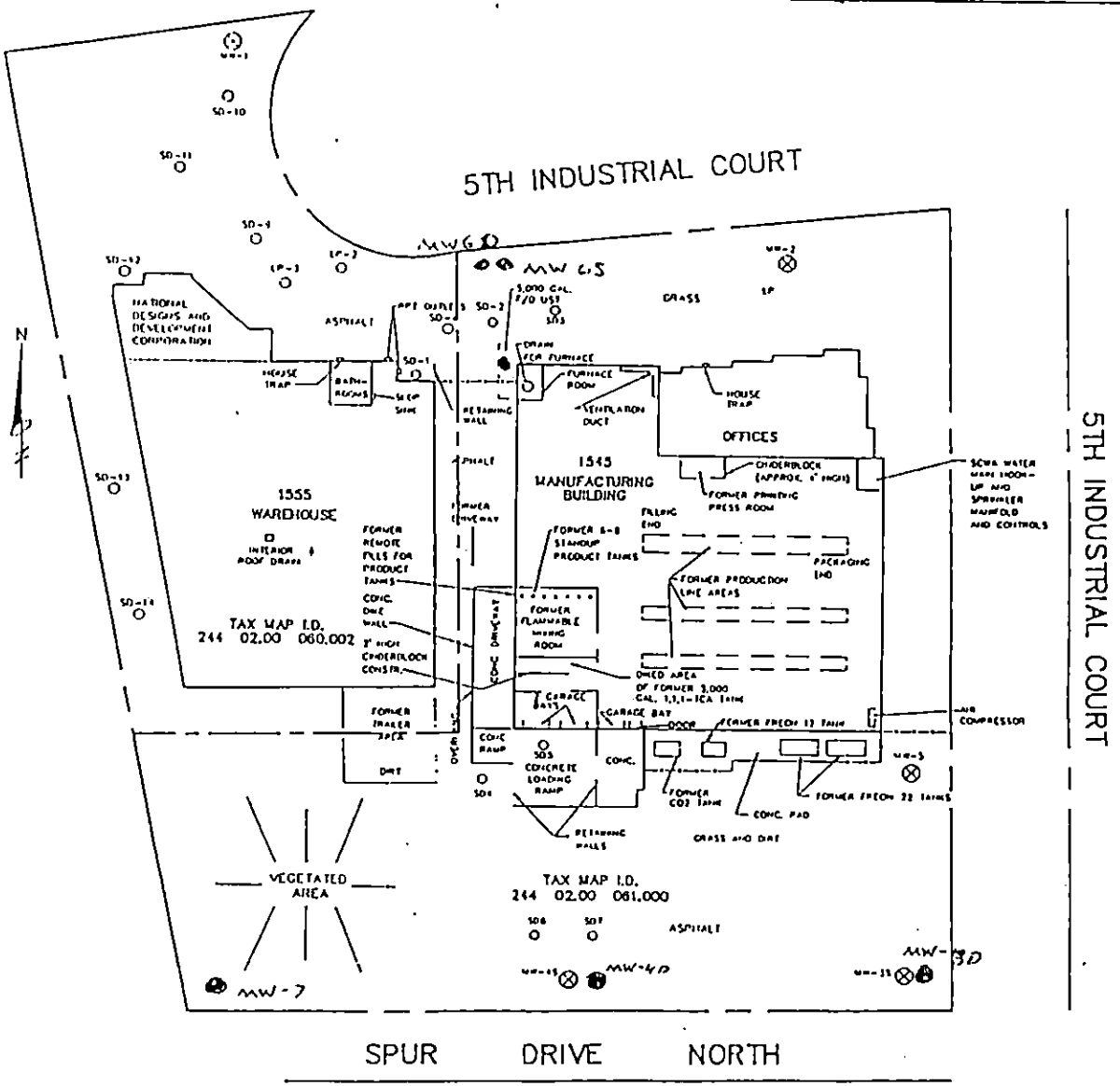
Remedial Alternative	Capital Cost	Annual O&M	Total Present Worth
No Action	$0	$13,500	$150,000
Air sparging/soil vapor extraction	$74,500	$40,900	$123,000
Limited pump and treatment	$118,000	$52,300	$308,000



LOCATION MAP
RITE-OFF, REMEDIAL INVESTIGATION
LOCATION MAP WITH SCWA FACILITIES
SCALE 1" = 2000'

Source: USGS Quadrangles - Bay Shore West, Greenlawn and Central Islip

H2MGROUP ENGINEERS · ARCHITECTS · PLANNERS · SCIENTISTS · SURVEYORS
MELVILLE, N.Y.



RITE-OFF, INC.
BAYSHORE, NEW YORK
SITE PLAN WITH INTERIOR DETAIL

LEGEND

- O SD-S = STORM DRAIN DRYWELLS
- O LP-1 = SEPTIC SYSTEM LEACHING POOL
- ⊗ = MW-S MONITORING WELL
- ● * MW-7 MONITORING WELL INSTALLED DURING THE RI

NOTES:

INTERIOR BLDG DESIGN NOT TO SCALE
ABOVE AND BELOW GRADE TANKS NOT TO SCALE

* LOCATION OF INTERIOR ROOF DRAIN IS APPROXIMATE

REVISED ON 6/21/95

0 50 100

SCALE: 1" = 50'

H2MGROUP ENGINEERS • ARCHITECTS • PLANNERS • SCIENTISTS • SURVEYC
-ELVILLE, N.Y. ROTONDA,

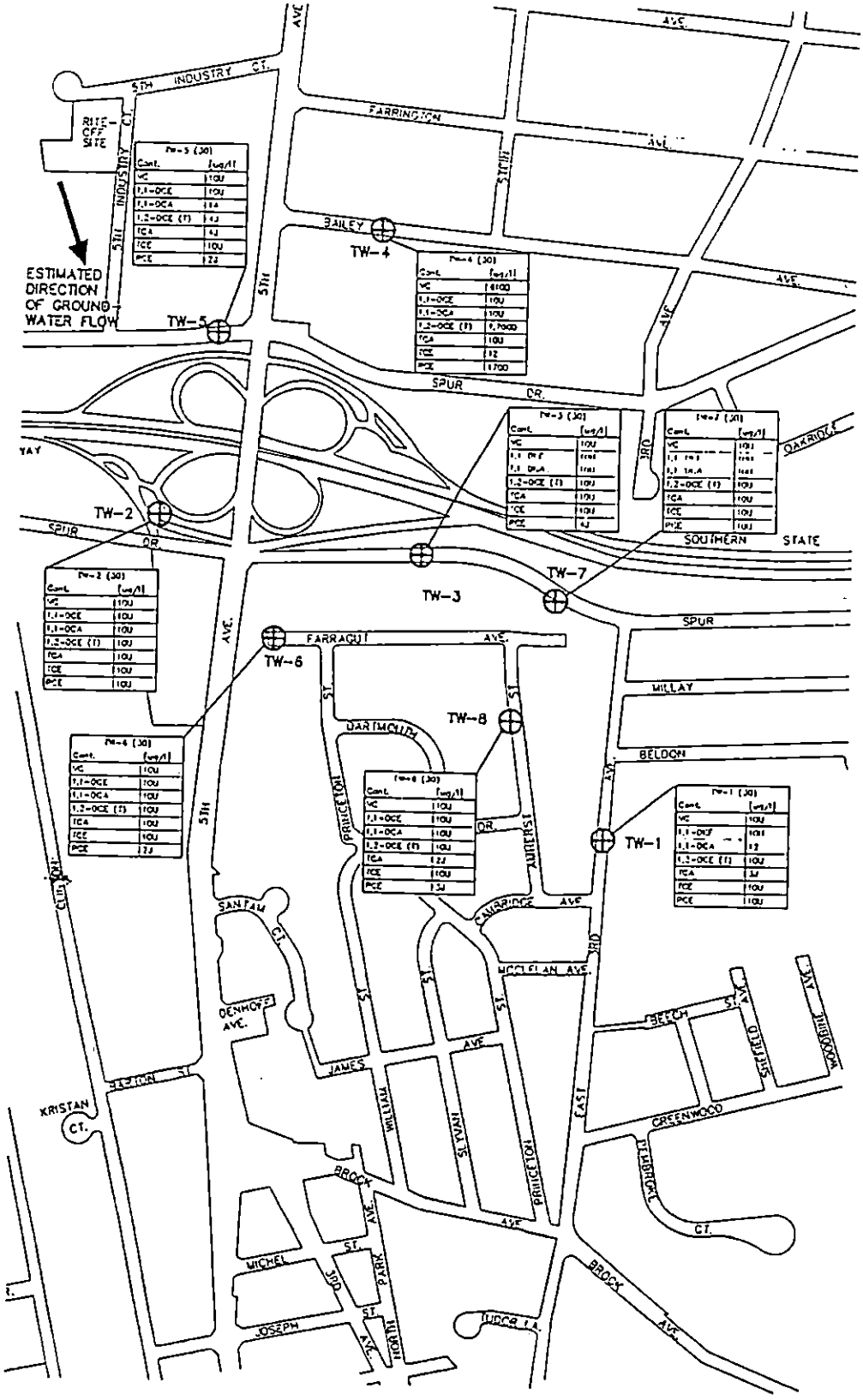


Figure 3

RITE-OFF OSGI
HALOGENATED VOC CONCENTRATIONS IN THE
30 FOOT GROUNDWATER SAMPLES

SCALE: 1" = 400'

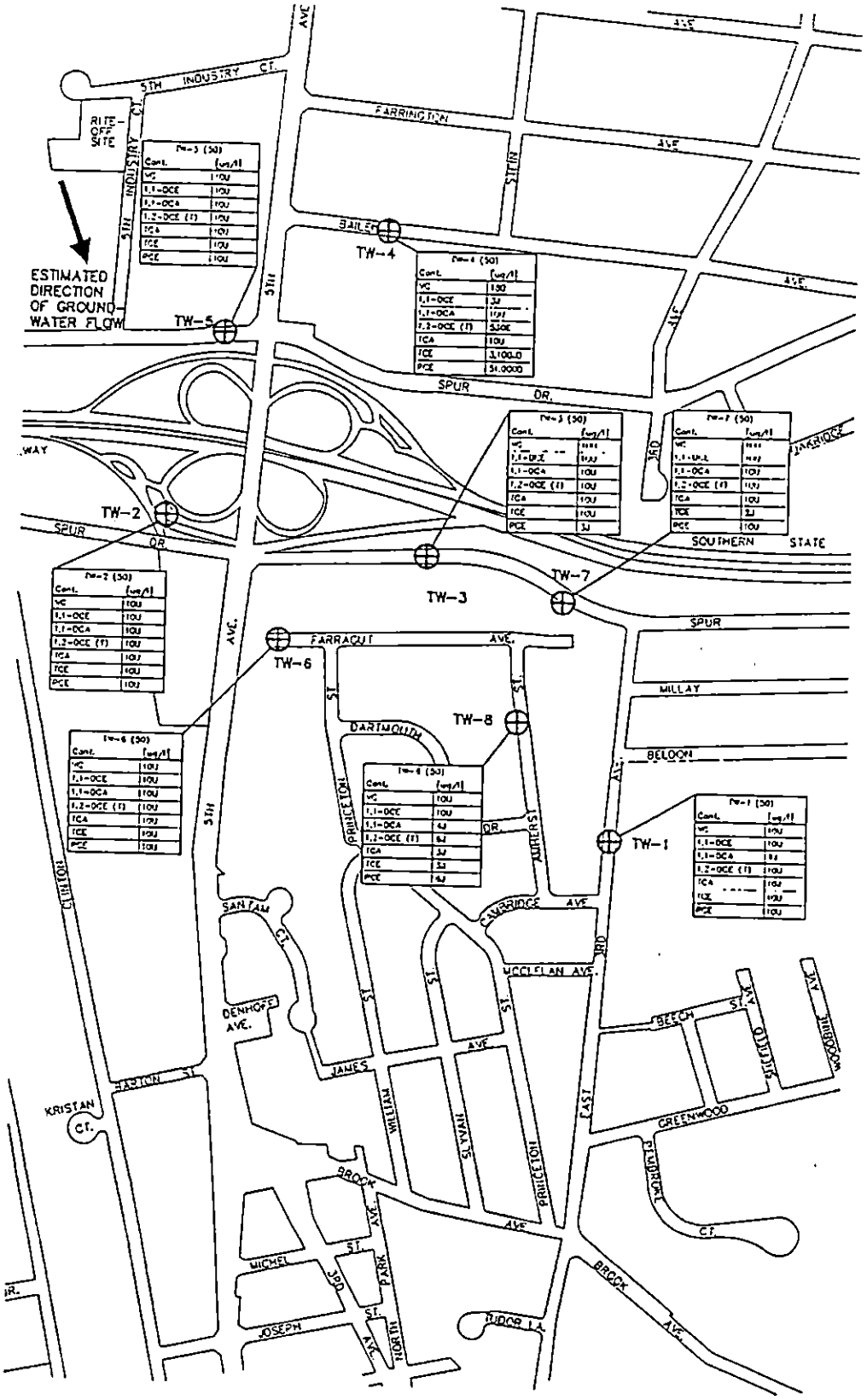


Figure 4

RITE–OFF OSGI
HALOGENATED VOC CONCENTRATIONS IN THE
50 FOOT GROUNDWATER SAMPLES

SCALE: 1" = 400'

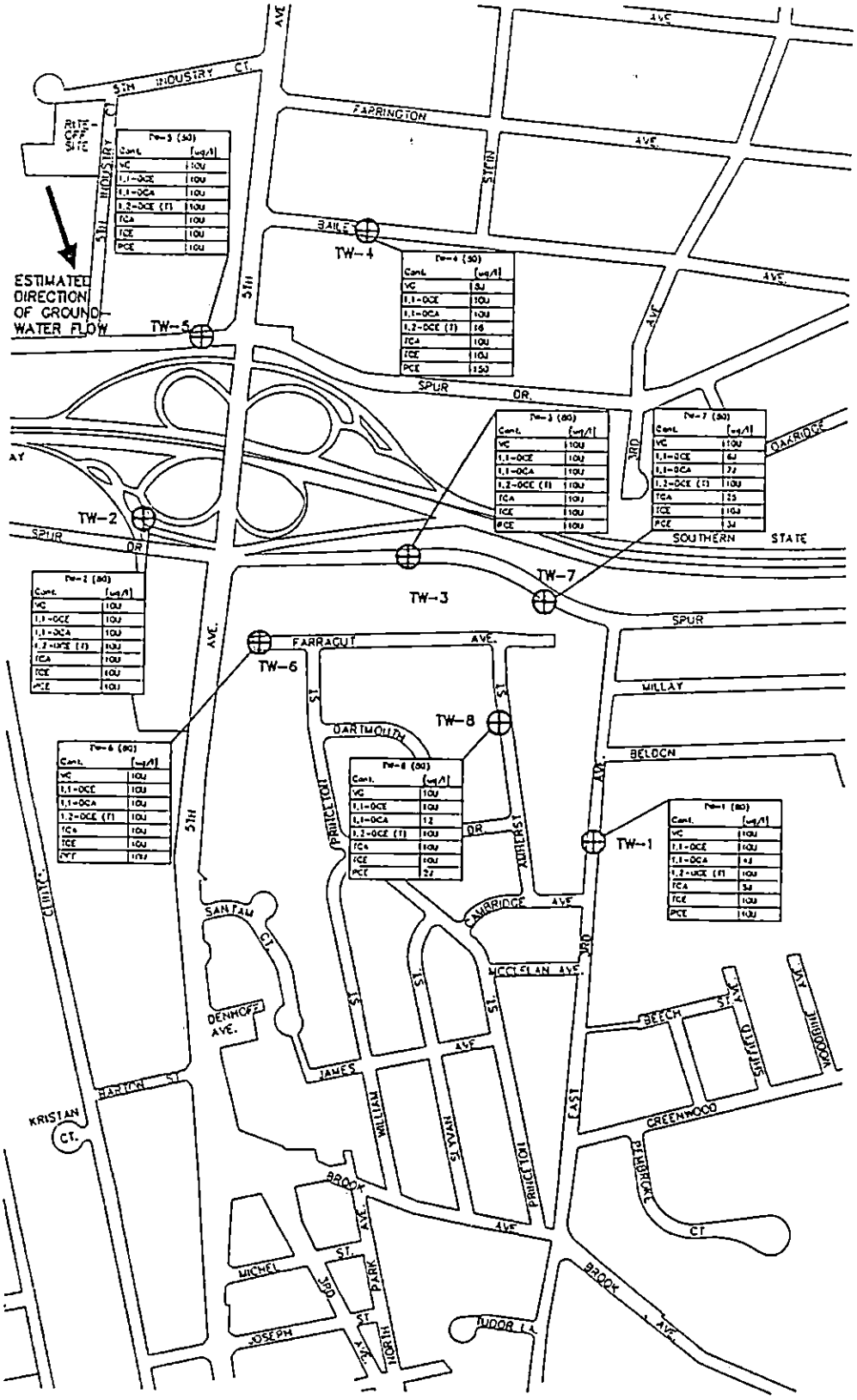
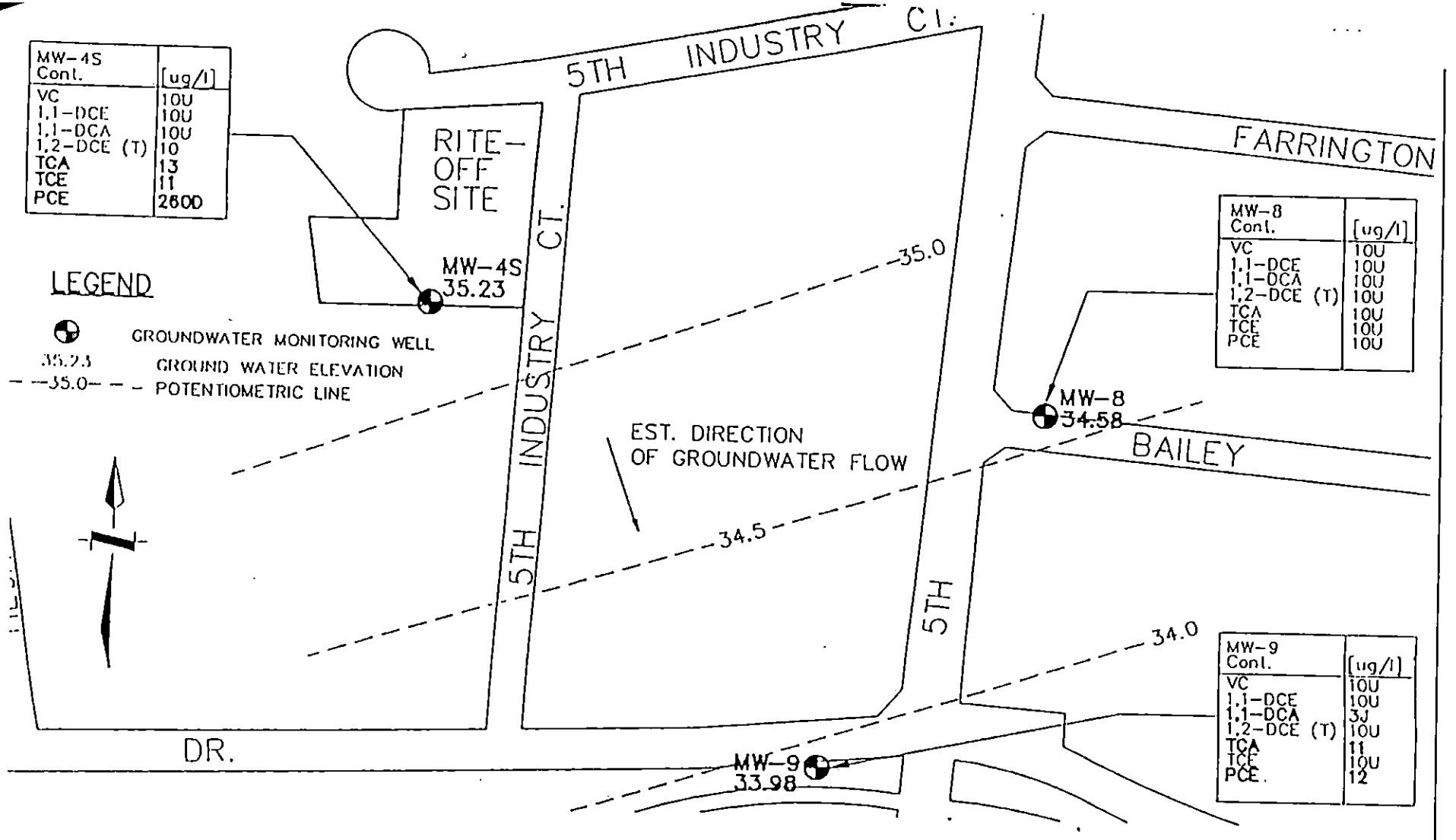


Figure 5

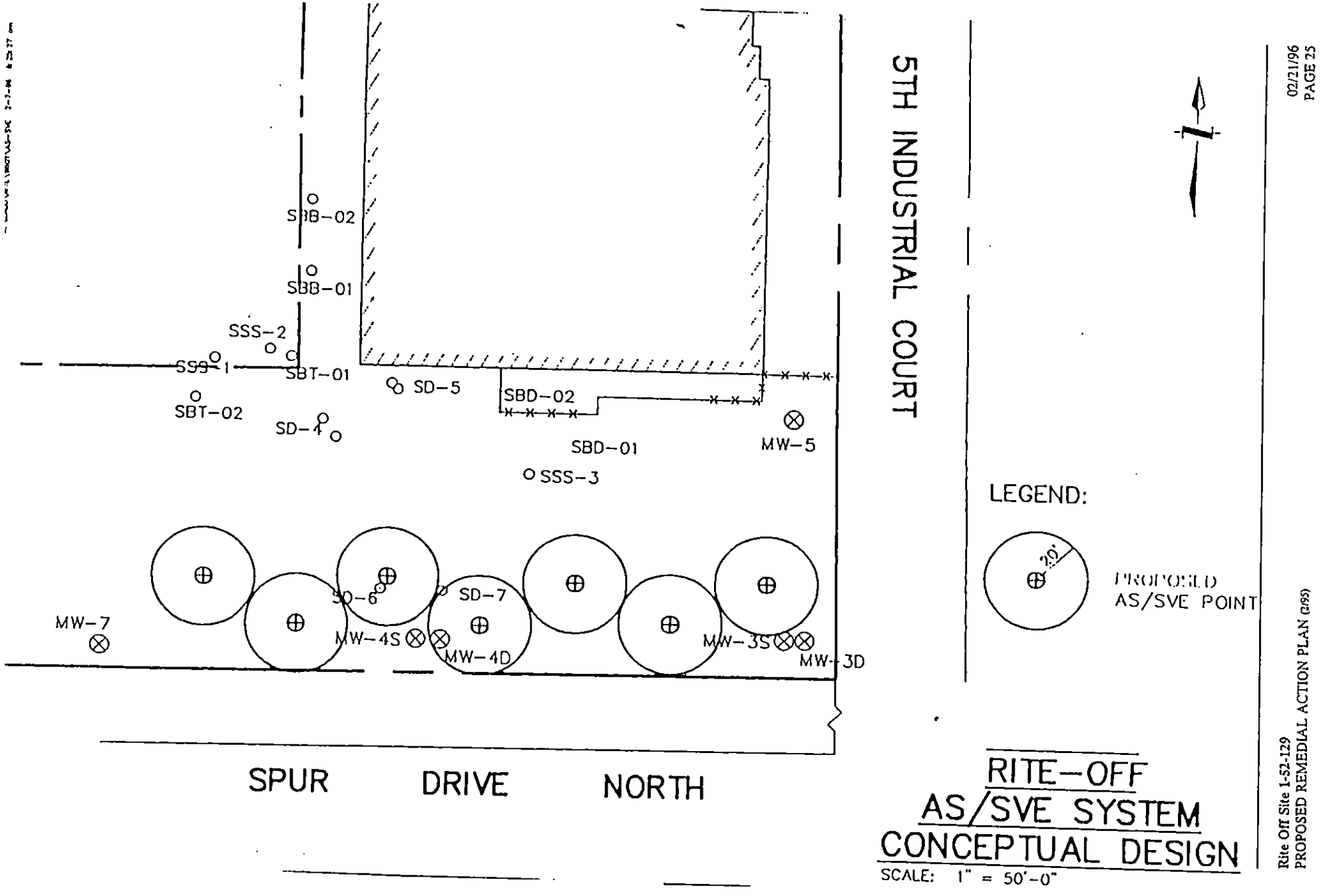
RITE–OFF OSGI
HALOGENATED VOC CONCENTRATIONS IN THE
80 FOOT GROUNDWATER SAMPLES

SCALE: 1" = 400'



RITE-OFF OSGI
POTENTIOMETRIC SURFACE MAP
OF THE SHALLOW-UPPER GLACIAL AQUIFER ON
JANUARY 4, 1996
SCALE: 1" = 200'

Figure 7


5TH INDUSTRIAL COURT
SBB-02
SBB-01
SSS-2
SSS-1
SBT-01
SBT-02
SD-4
SD-5
SBD-02
SBD-01
SSS-3
MW-5
MW-7
SD-6
SD-7
MW-4S
MW-4D
MW-3S
MW-3D
SPUR DRIVE NORTH
LEGEND:
PROPOSED AS/SVE POINT
RITE-OFF
AS/SVE SYSTEM
CONCEPTUAL DESIGN
SCALE: 1" = 50'-0"
02/21/96
PAGE 25
Rite Off Site 1-52-129
PROPOSED REMEDIAL ACTION PLAN (2/95)