

FINAL DESIGN PACKAGE
AIR SPARGE/SOIL VAPOR
EXTRACTION SYSTEM

FOR RITE-OFF, INC.
BAY SHORE, NEW YORK
SUFFOLK COUNTY

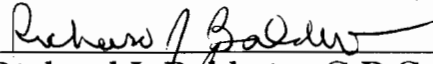
NYSDEC SITE #1-52-129

JANUARY 1997

Project Requested By:

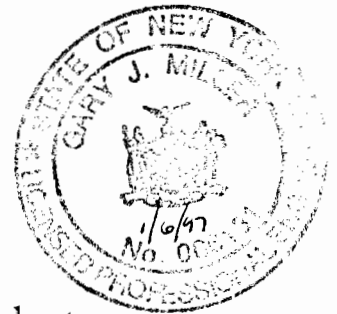
New York State Department of
Environmental Conservation

Project Manager:


Richard J. Baldwin, C.P.G.

*Officer-in-Charge
at H2M:*


Gary J. Miller, P.E., Vice President



H2MGROUP

HOLZMACHER, McLENDON & MURRELL, P.C.
575 Broad Hollow Road
Melville, New York 11747-5076

Engineers • Architects • Scientists • Planners



Holzmacher, McLendon & Murrell, P.C. • H2M Associates, Inc.
H2M Construction Management, Inc. • H2M Labs, Inc.



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575 Broad Hollow Road, Melville, NY 11747-5076
(516) 756-8000 • Fax: (516) 694-4122

January 6, 1997

Mr. John Helmeset
NYSDEC
50 Wolf Road
Albany, NY 12233-7010

Re: Rite-Off, Inc. Final Design Specifications
1545 Fifth Industrial Court
Bay Shore, New York
Order on Consent Index # W1-0743-95-12
Site Code # 1-52-129
H2M No. RITE 96-01

Dear Mr. Helmeset:

Enclosed, please find four copies of the Holzmacher, McLendon & Murrell, P.C. (H2M) final design documents for the Air Sparge/Soil Vapor Extraction (AS/SVE) system at the above-referenced facility. As we understand, the attached documentation is to provide the NYSDEC with the details of the proposed AS/SVE system which have not been included in the previously submitted design sheets.

In summary, the attached letters include the details on the following:

1. General design parameters of the AS/SVE system. These details are also included in the two design sheets previously forwarded to you.
2. The radius of influence for both the SVE and AS will be evaluated through field testing. Air will be injected into AS-3S while water levels and dissolved oxygen (DO) concentrations are measured in adjacent well MW-4S which is located approximately 18 feet away from the AS point. Approximately 100 cubic feet per minute of vacuum will be pulled against SVE-2 which is approximately 37 feet from MW-4S. Any design deficiencies will be determined during system start up testing and will be rectified to the NYSDEC's satisfaction prior to completing the installation.

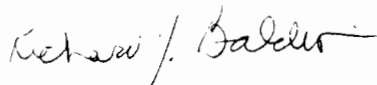
Mr. Helmeset
January 6, 1997
Page 2

3. The system has been designed to operate reliably in all weather conditions. Additionally, the maximal groundwater level variations of two to three feet for the south shore of Long Island will not impact the effectiveness of the system.
4. H2M will conduct maintenance inspections on a weekly basis to insure that the system is operating at optimum efficiencies. A system operating/maintenance manual will be prepared once the system design has been approved by the NYSDEC.
5. The AS/SVE system will be enclosed in a sound- and temperature-insulated shed which should effectively attenuate the noise generated by the blower and compressor. H2M will use a noise dosimeter during the start up test to ensure the noise levels are acceptable.
6. All subsurface piping will be buried at a minimum depth of 3 feet below ground surface.


We hope that this letter provide adequate details for the design of the AS/SVE system. Should you have any questions, please feel free to contact the undersigned at (516) 756-8000, Extension 611, or Gary Miller at Extension 620.

Very truly yours,

HOLZMACHER, McLENDON & MURRELL, P.C.



Richard J. Baldwin, C.P.G.
Project Manager



Gary J. Miller, P.E.
Vice President

Enclosures

cc: Robert Fardella, Esq.
Raymond E. Cowan, NYSDEC Region I
John F. Bryne, Esq., Sr. Attorney
Mr. Howard Rapps, President
Chittibabu Vasudevan, NYSDEC
Director, Bureau of Environmental Exposure Investigation, NYSDOH



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February 7, 1996

Mr. John Helmeset
NYSDEC
50 Wolf Road
Albany, NY 12233-7010

Re: Rite-Off, Inc.
1545 Fifth Industrial Court
Bay Shore, New York
Order on Consent Index # WI-0661-93-09
Site Code # 1-52-129
H2M No. RITE 96-01

Dear Mr. Helmeset:

Pursuant to our telephone conversation of January 30, 1996, Holzmatcher, McLendon & Murrell, P.C. (H2M) has prepared this letter to provide our conceptual approach to remediating on-site groundwater at the above-referenced site.

Based upon the data collected during the Remedial Investigation (Ri) and the recently completed Off-Site Groundwater Investigation (OSGI), groundwater in the shallow Upper Glacial aquifer is currently impacted by halogenated solvents and associated degradation products. However, the concentrations of the contaminants of concern (COC) attenuate rapidly in the downgradient direction. The site owner has opted to remediate the groundwater along the southern property line of the site through the installation and operation of a Air Sparge/Soil Vapor Extraction (AS/SVE) system.

This remedial technology has been selected for the following reasons:

1. The AS/SVE technology has proven very effective in remediating the COCs (halogenated solvents and associated degradation products).

Mr. Helmeset
February 7, 1996
Page 2

2. The AS/SVE system will address both the on-site groundwater contamination and potential unsaturated zone contamination along the southern property line of the property.
3. The AS/SVE system is expected to remediate the contamination in the shallow Upper Glacial aquifer within 12 to 18 months of start up.
4. The technology is performed in-situ, generates minimal waste products requiring off-site disposal, and involves minimal facility disruption during installation and operation.

As envisioned, the AS system would consist of seven air-sparge points installed in a staggered line parallel to the southern property line of the site (see Figure 1). Each sparge point will be set at a depth of approximately 40 feet below ground surface (bgs) and air will be injected through each point to volatilize the COCs. The optimum air-injection rates will be determined through system pilot tests and start up tests. We have assumed a conservative 20-foot radius of influence for the AS system for this conceptual design.

Seven SVE points will be installed within the same boreholes of the AS injection points. The purpose of the SVE system is to capture and remove the volatile organic compounds (VOCs) stripped from the groundwater by the AS system and any remnant VOC contamination which may still be present in the unsaturated zone. The extracted vapors will be directed through a granulated activated carbon (GAC) system to remove the VOCs prior to discharge to the atmosphere. The costs for designing and operating the system for one year (including quarterly groundwater sampling and analysis) are estimated to be between \$110,000 and \$120,000.

H2M expects that the AS/SVE system will be operated for approximately 12 to 18 months. During this time, H2M will conduct weekly inspections to ensure that the AS/SVE system is operating properly. Additionally, the VOC concentration in the SVE outgas will be measured with a photoionization detector and/or flame ionization detector to assess system performance. Wells MW-1, MW-2, MW-3S, MW-4S, MW-6S, MW-7, and MW-9 will be sampled on a quarterly basis during the operational phase of the remediation. All groundwater samples will be analyzed for Target Compound List (TCL) VOCs.

Mr. Helmeset
February 7, 1996
Page 3

Groundwater samples will be collected on a quarterly basis from the above wells for one year to confirm the effectiveness of the remediation. It should be noted that halogenated solvents and associated breakdown products were detected in groundwater samples collected from upgradient monitoring wells on the site. Therefore, groundwater contamination may still be present in the shallow Upper Glacial aquifer once the Rite-Off site has been successfully remediated. The groundwater remediation will be considered complete once the groundwater quality in the on-site downgradient monitoring wells is equal to or better than the groundwater quality in the upgradient monitoring wells. For comparison purposes, analytical results within 5 micrograms per liter of one another will be considered equal.

Once the New York State Department of Environmental Conservation (NYSDEC) agrees that the remediation of the site is complete, H2M will disassemble the remediation system and abandon all monitoring and AS/SVE system wells. H2M will petition the NYSDEC to delist the Rite-Off site from the Registry of Inactive Hazardous Waste Disposal Sites.

Should you have any questions, please feel free to contact me at (516) 756-8000, Extension 611.

Very truly yours,

HOLZMACHER, McLENDON & MURRELL, P.C.



Richard J. Baldwin, C.P.G.
Project Manager

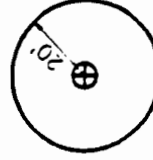
Enclosures

cc: Robert Fardella, Esq.
Raymond E. Cowan, NYSDEC
John F. Bryne, Esq., Sr. Attorney
Mr. Howard Rapps, President
Chittibabu Vasudevan, NYSDEC
Director, Bureau of Environmental Exposure Investigation, NYSDOH

5TH INDUSTRIAL COURT



LEGEND:

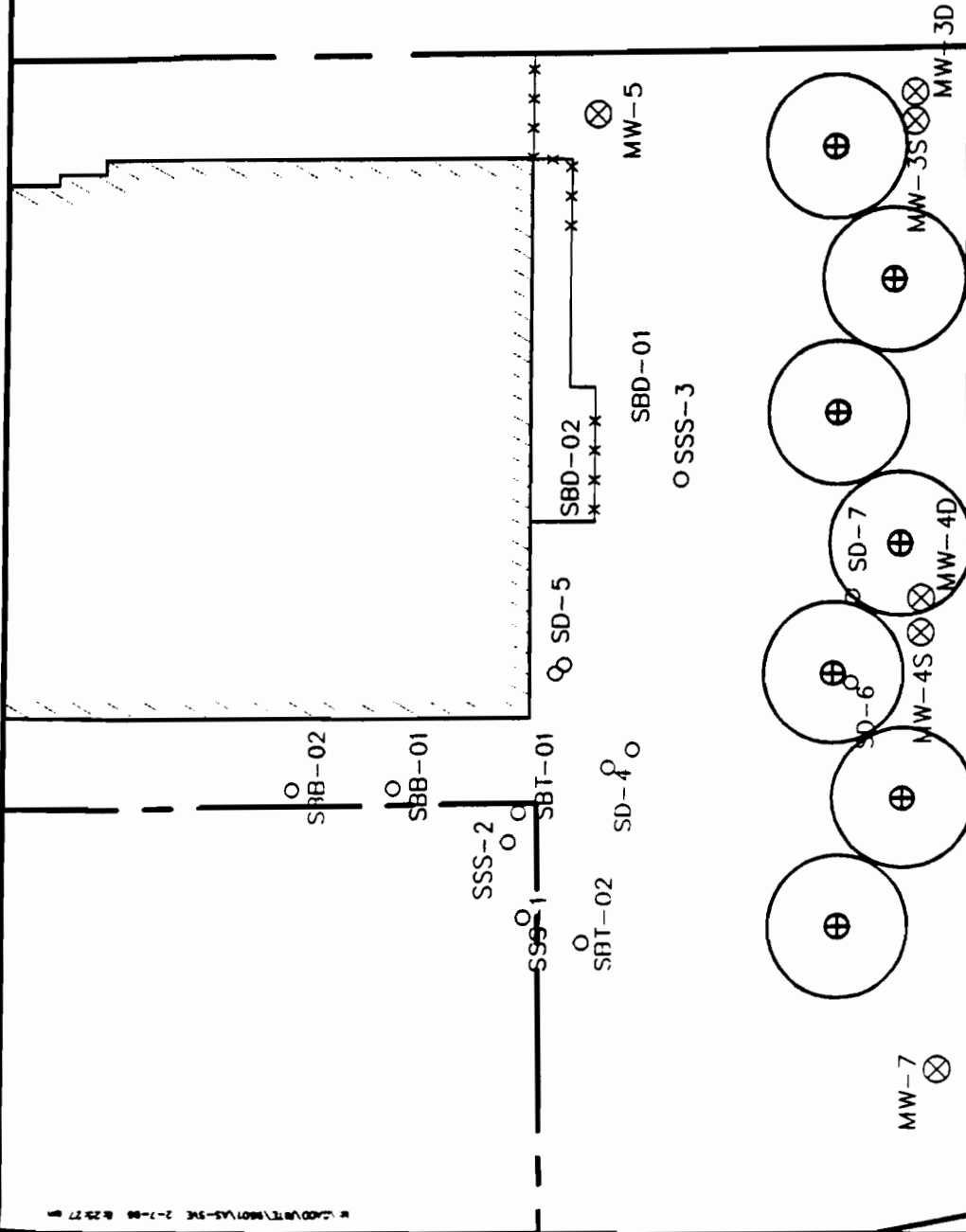


PROPOSED
AS/SVE POINT

FIGURE 1
RITE-OFF
AS/SVE SYSTEM
CONCEPTUAL DESIGN

SCALE: 1" = 50'-0"

SPUR DRIVE NORTH



H2M GROUP

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MELVILLE, N.Y.

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April 30, 1996

Mr. John Helmeset
NYSDEC
50 Wolf Road
Albany, NY 12233-7010

Re: Rite-Off, Inc.
1545 Fifth Industrial Court
Bay Shore, New York
Order on Consent Index # W1-0743-95-12
Site Code # 1-52-129
H2M No. RITE 96-01

Dear Mr. Helmeset:

Holzmacher, McLendon & Murrell, P.C. (H2M) has been conducting preliminary design activities for the proposed Air Sparge/Soil Vapor Extraction (AS/SVE) system at the above-referenced site. The purpose of this letter is to provide our initial design of the system to the New York State Department of Environmental Conservation (NYSDEC) for review and comment.

As shown in Figure 1, we have assumed a conservative radius of influence for the AS wells of 15 feet. A total of ten AS wells are planned to provide the required coverage. As shown on Figure 2, eight 32-foot deep AS wells will be installed along the southern property line of the site. These AS wells will have two-foot long screened intervals placed 10 feet beneath groundwater. At the two AS points located near Leaching Pools SD-6 and SD-7, we are proposing that two additional AS points, equipped with 2-foot long screens, be installed to approximately 42-feet below ground surface (bgs)

Based upon a conservative 30-foot radius of influence for the SVE wells, we propose to install four SVE wells to 20-feet bgs. The four SVE wells are expected to capture the VOCs transferred to the vadose zone by the AS wells.

Mr. Helmeset
April 30, 1996
Page 2


In the locations with two or more AS and/or SVE wells, the wells will be installed within the same boring (see Figure 3). To prevent air leakage, only the annular space around the screened zones of each well within a cluster will be filled with filter pack sand. The remaining annular spaces will be filled with a non-permeable material such as hydrated bentonite pellets.

Please provide H2M with your comments at your earliest convenience. We will proceed with the formal design once we receive your approval of the initial design. The formal design package will include supporting data such as air flow rates/pressures, vacuum flow rates/pressures, etc.

Should you have any questions, please feel free to contact me at (516) 756-8000, Extension 611.

Very truly yours,

HOLZMACHER, McLENDON & MURRELL, P.C.



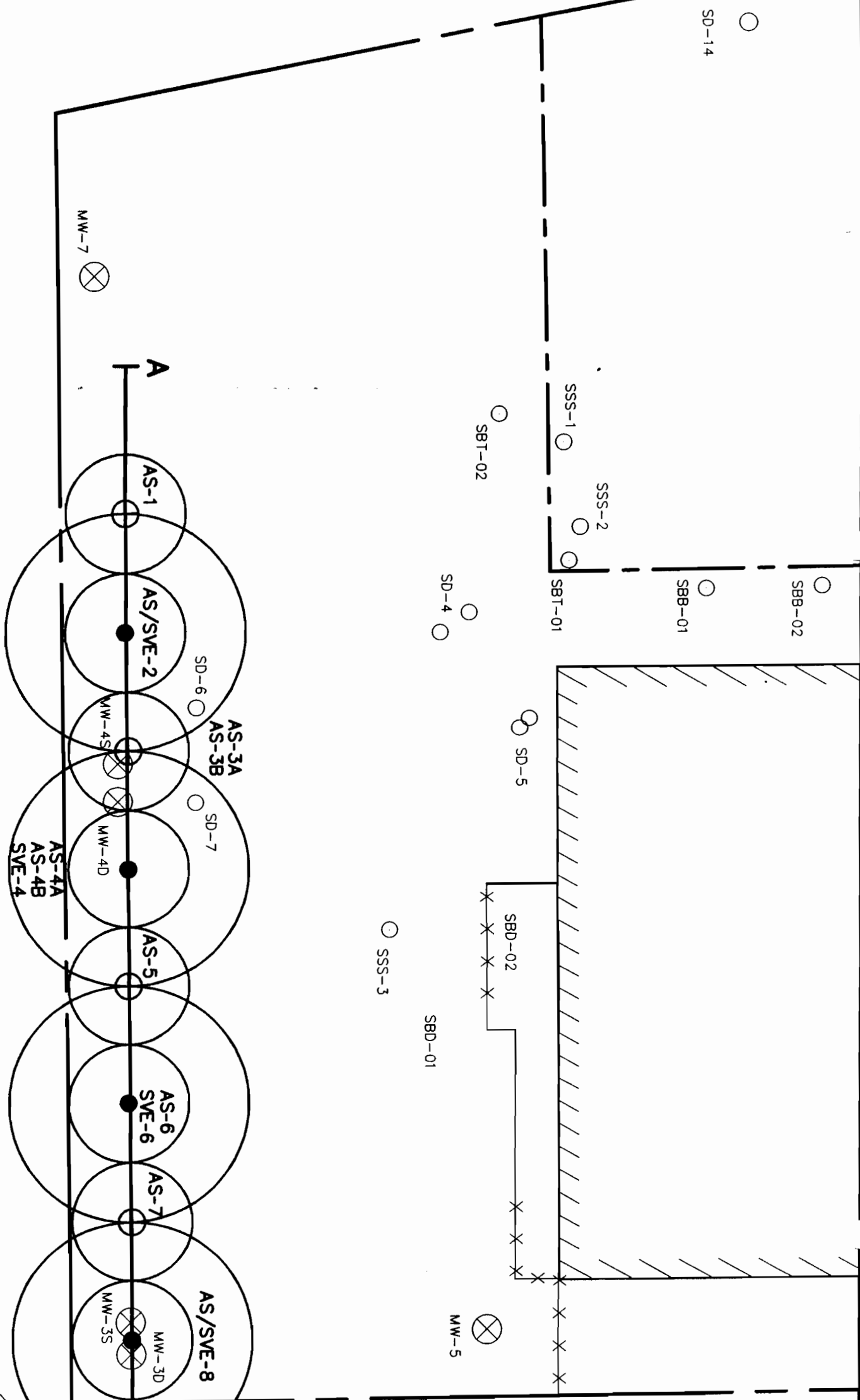
Richard J. Baldwin, C.P.G.
Project Manager

Enclosures

cc: Robert Fardella, Esq.
Raymond E. Cowan, NYSDEC
John F. Bryne, Esq., Sr. Attorney
Mr. Howard Rapps, President
Chittibabu Vasudevan, NYSDEC
Director, Bureau of Environmental Exposure Investigation, NYSDOH



5TH INDUSTRIAL COURT



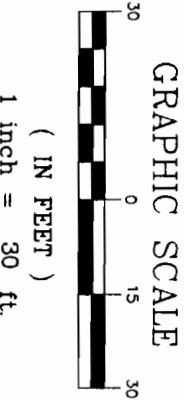
LEGEND:

- SOIL SAMPLING LOCATION
- ⊗ MONITORING WELL
- 15' PROPOSED AS POINT
- 30' PROPOSED AS/SVE POINT

SPUR DRIVE NORTH

FIGURE 1
RITE-OFF

AS/SVE SYSTEM DESIGN



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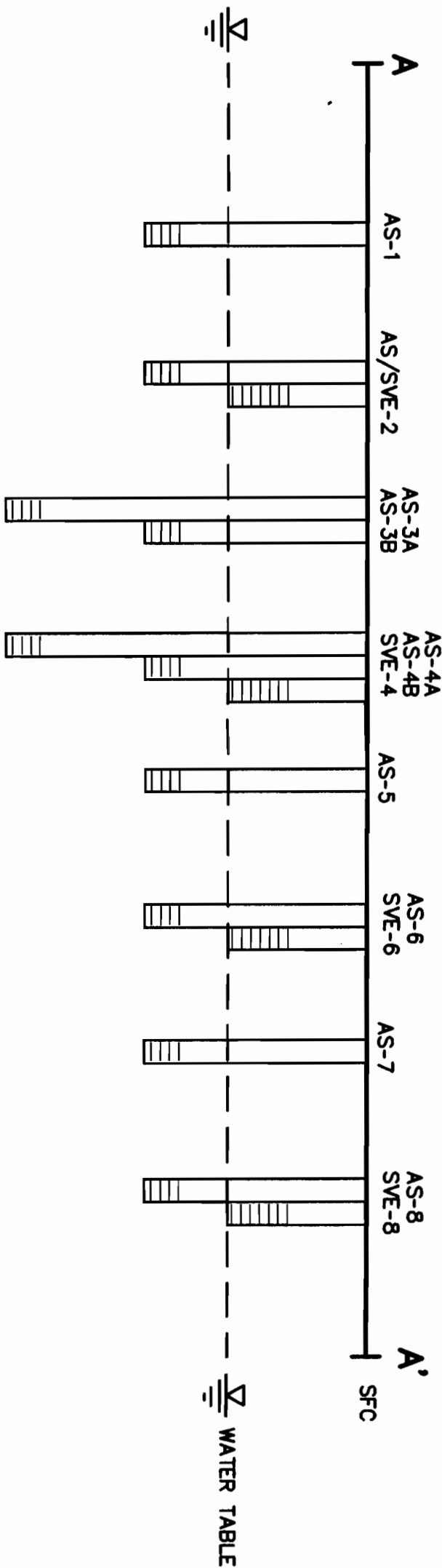


FIGURE 2
RITE-OFF
AS/SVE SYSTEM INITIAL DESIGN
SITE/SYSTEM CROSS SECTION

HORIZ. SCALE: 1" = 30'
VERTICAL SCALE: 1" = 20'

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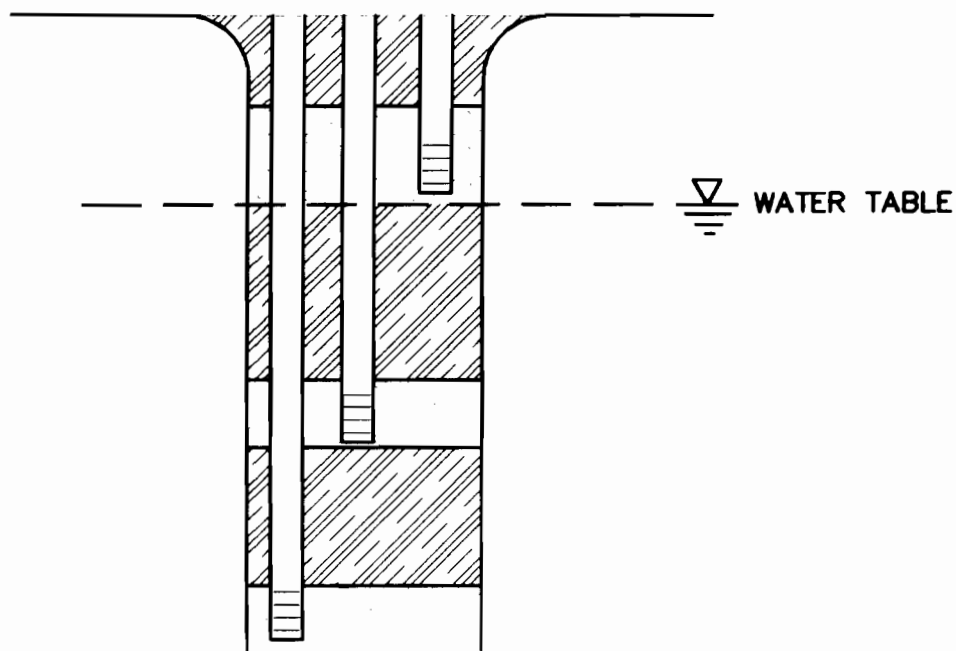


FIGURE 3
RITE-OFF
DETAILS OF CLUSTERED WELLS
AS/SVE SYSTEM DESIGN

NO SCALE



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July 26, 1996

Mr. John Helmeset
NYSDEC
50 Wolf Road
Albany, NY 12233-7010

Re: Rite-Off, Inc.
1545 Fifth Industrial Court
Bay Shore, New York
Order on Consent Index # W1-0743-95-12
Site Code # 1-52-129
H2M No. RITE 96-01

Dear Mr. Helmeset:

Enclosed, please find the enclosed Holzmacher, McLendon & Murrell, P.C. (H2M) design documentation for the proposed Air Sparge/Soil Vapor Extraction (AS/SVE) system at the above-referenced site for your review and comment.

As shown in Figure 1, we have assumed an conservative radius of influence for the AS wells of 15 feet. A total of ten AS wells are planned to provide the required coverage. As shown on Figure 2, eight 32-foot deep AS wells will be installed along the southern property line of the site. These AS wells will have two-foot long screened intervals placed 10 feet beneath groundwater. At the two AS points located near Leaching Pools SD-6 and SD-7, we are proposing that two additional AS points, equipped with 2-foot long screens, be installed to approximately 42-feet below ground surface (bgs).

Based upon a conservative 30-foot radius of influence for the SVE wells, we propose to install four SVE wells to 20-feet bgs. The four SVE wells are expected to capture the VOCs transferred to the vadose zone by the AS wells.

In the locations with two or more AS and/or SVE wells, the wells will be installed within the same boring (see Figure 3). To prevent air leakage, only the annular space around the screened zones of each well within a cluster will be filled with

H2M GROUP

Mr. Helmeset

July 26, 1996

Page 2

filter pack sand. The remaining annular spaces will be filled with a non-permeable material such as hydrated bentonite pellets.

The attached plate provides the contractor documentation for the AS/SVE system as designed. The AS wells will be installed such that the existing wells MW-3S and MW-4S can will as piezometers and used to monitor the effectiveness of the system. We expect to evaluating the effectiveness of the system by measuring the concentrations of dissolved oxygen in the piezometers and system wells during system pilot testing and start up. Additional AS well will be installed if required.

Please provide H2M with your comments at your earliest convenience. Should you have any questions, please feel free to contact me at (516) 756-8000, Extension 611.

Very truly yours,

HOLZMACHER, McLENDON & MURRELL, P.C.



Richard J. Baldwin, C.P.G.

Project Manager

Enclosures

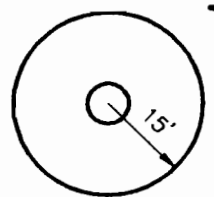
cc: Robert Fardella, Esq.
Raymond E. Cowan, NYSDEC
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Chittibabu Vasudevan, NYSDEC
Director, Bureau of Environmental Exposure Investigation, NYSDOH

5TH INDUSTRIAL COURT

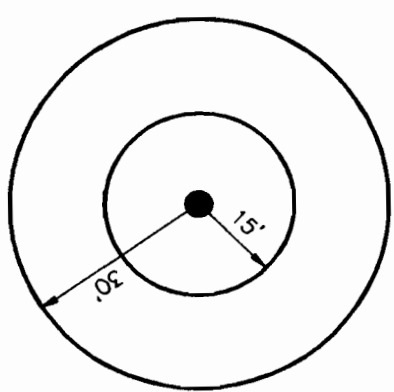


LEGEND:

- SOIL SAMPLING LOCATION
- ⊗ MONITORING WELL



PROPOSED AS POINT



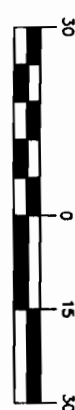
PROPOSED AS/SVE POINT

SPUR DRIVE NORTH

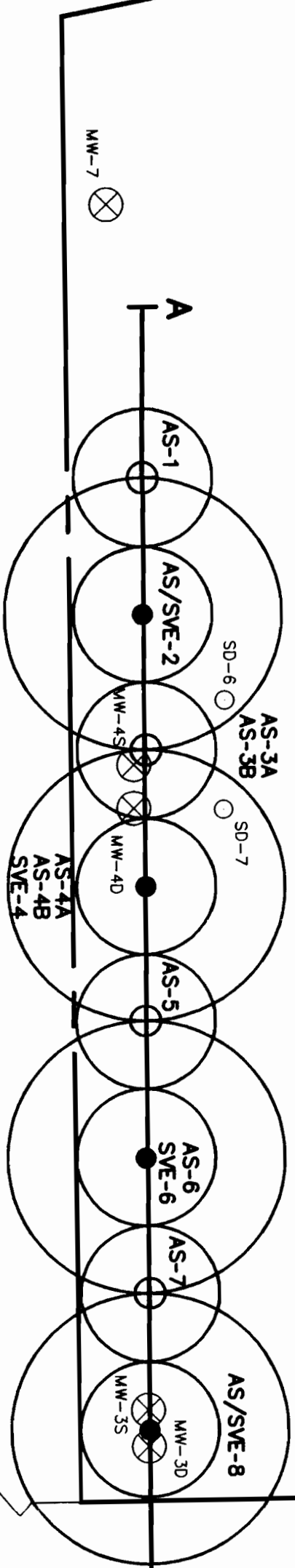
FIGURE 1
RITE-OFF

AS/SVE SYSTEM DESIGN

GRAPHIC SCALE



(IN FEET)
1 inch = 30 ft.



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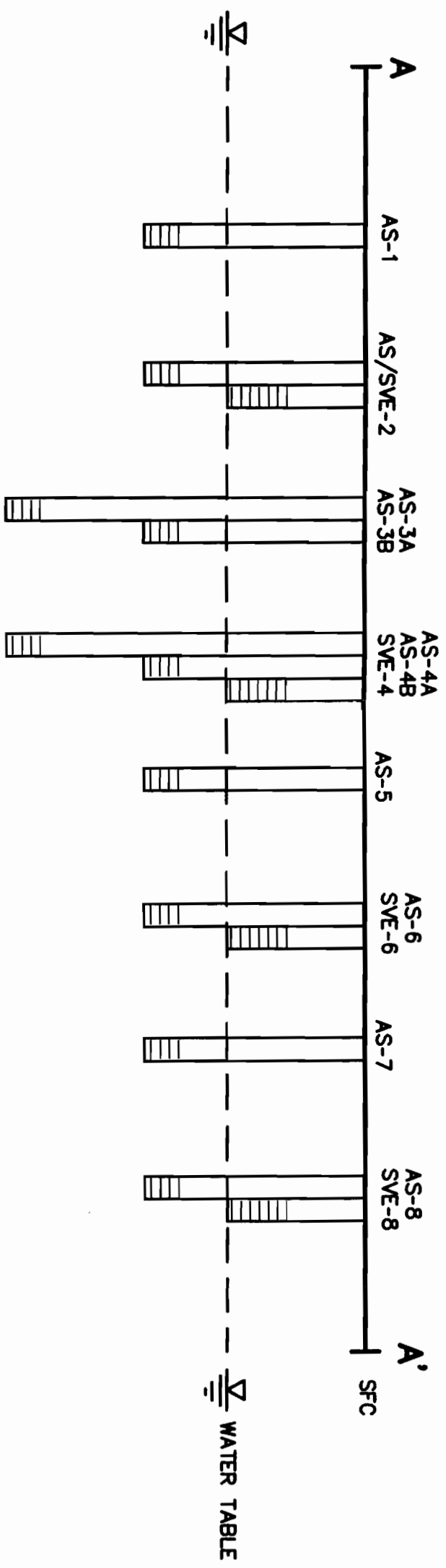


FIGURE 2
RITE-OFF
AS/SVE SYSTEM INITIAL DESIGN
SITE/SYSTEM CROSS SECTION

HORIZ. SCALE: 1" = 30'
VERTICAL SCALE: 1" = 20'

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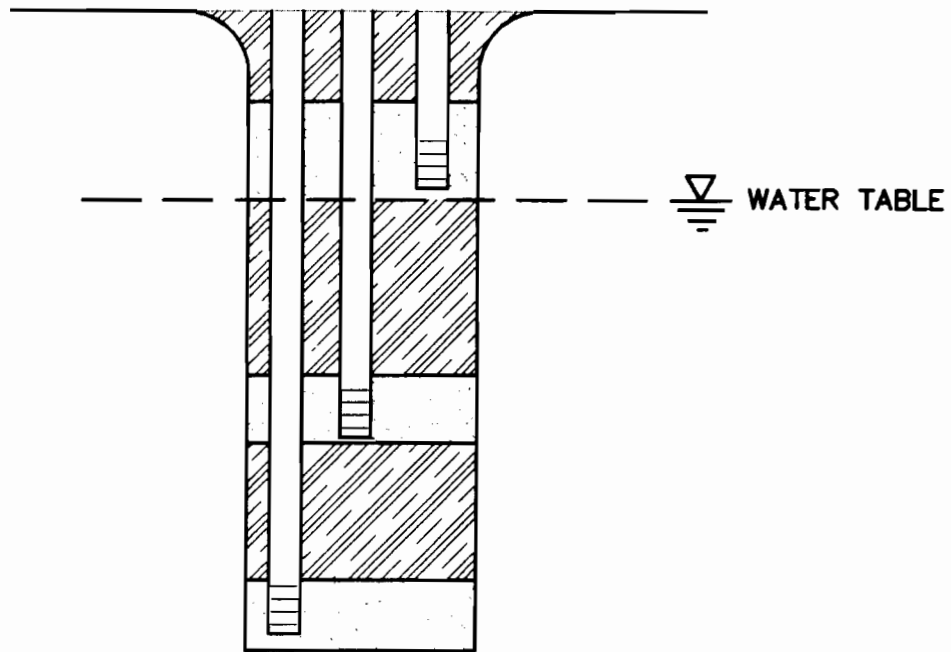


FIGURE 3
RITE-OFF
DETAILS OF CLUSTERED WELLS
AS/SVE SYSTEM DESIGN

NO SCALE



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October 4, 1996

Mr. John Helmeset
NYSDEC
50 Wolf Road
Albany, NY 12233-7010

Re: Rite-Off, Inc.
1545 Fifth Industrial Court
Bay Shore, New York
Order on Consent Index # W1-0743-95-12
Site Code # 1-52-129
H2M No. RITE 96-01

Dear Mr. Helmeset:

Enclosed, please find the Holzmacher, McLendon & Murrell, P.C. (H2M) responses to your September 18, 1996 comment letter regarding the proposed Air Sparge/Soil Vapor Extraction (AS/SVE) system at the above-referenced site. Additionally, four copies of the revised design plate are attached.

NYSDEC Comment No. 1: *The performance specifications/operating parameters for the treatment system should be established. These would include the anticipated loading from each extraction well, the anticipated vapor pressure in the extraction wells, and the anticipated contaminant concentration in the exhaust gas.*

H2M Response: Operating conditions cannot be determined until the system is installed and field tested. The design plate includes the maximum operating conditions for both the SVE blower (maximum vacuum of 70-inches H₂O, maximum flow of 215 cubic feet per minute) and the air-sparge compressor (maximum pressure of 15 pounds per inch). Please note that the SVE blower has been changed from 2 to 3 horsepower as shown on the revised design plate. It should be noted that the design was based upon H2M's and our contractor EnvrioTrac's experience in similar remediation systems operating on Long Island.

Mr. Helmeset
October 4, 1996
Page 2

Any design deficiencies will be determined during system start up testing and will be rectified to the NYSDEC's satisfaction prior to completing the installation.

Based upon the low concentrations of halogenated volatile organic compounds (VOCs) in the groundwater at the site, exhaust emission concentrations are anticipated to be well below the NYSDEC's 0.5 pounds per hour total VOC limit. The actual concentrations will be determined during the start up tests.

NYSDEC Comment No. 2: *The anticipated operating conditions should be compared to the systems capabilities. For example, over what range of water table fluctuations will the system be capable of operating through.*

H2M Response: The anticipated operating conditions are indicated in response No. 1. The system has been designed to operate reliably in all weather conditions. Additionally, the maximal groundwater level variations of two to three feet for the south shore of Long Island will not impact the effectiveness of the system.

NYSDEC Comment No. 3: *Is the EG&G Roton Air Filter a treatment unit? If so, please provide additional information on the unit's efficiency and operating specifications. Otherwise, the system may need some sort of treatment, if the levels of exhaust gas are high or will pose a concern to a nearby residential neighborhood. Regardless of this, the system should be designed so that carbon filters can be added if the exhaust gas contains volatile organics exceeding NYS Air Guidelines.*

H2M Response: The filter is not a treatment unit. Rather, it is a particulate filter designed to trap any particles prior to passing through the vacuum blower. The system design has been changed to allow for the use of granulated-activated carbon (GAC) filters for off-gas treatment if required.

H2M is not anticipating that the off gas will require treatment. The ServAll Laundry Inactive Hazardous Waste site, which is located nearby, has a SVE system in operation which is remediating much higher concentrations of halogenated VOCs that the Rite-Off system is expected to address. The ServAll system is operating at concentrations which do not require GAC treatment of the off gas.

Mr. Helmeset
October 4, 1996
Page 3

NYSDEC Comment No. 4: *What is the purpose of the air cooler in the air sparge system? Please provide any operating parameters for this unit, such as what temperature it will cool the air to.*

H2M Response: The air sparge compressor produces a significant amount of heat. The cooler is required to reduce the temperature in order to maintain piping integrity (i.e., prevent the melting of PVC piping). The specifications for the cooler, as shown on the design plate, can reduce the air temperature from 400 to 68 degrees Fahrenheit.

NYSDEC Comment No. 5: *The final shutdown criteria and the time anticipated to achieve this criteria should be specified. It should also be specified if the system will operate continuously, cyclically, or some combination of the two.*

H2M Response: In accordance with the Record of Decision (ROD) for the site, the system shutdown criteria will be based on the groundwater quality in wells MW-1, MW-3S, MW-4S, MW-4D, MW-6S, MW-6D, and MW-9. The wells will be sampled quarterly and the groundwater samples analyzed for volatile organic compounds (VOCs). The remediation will be considered complete and the system will be shut down once the two consecutive quarterly rounds of groundwater quality data in wells downgradient of the site (MW-3S, MW-4S, MW-4D, and MW-9) either meet the NYSDEC's Standards, Criteria, and Guidance values (SCGs); or is equal to or better than that of the upgradient wells (MW-1, MW-6S, and MW-6D); or the NYSDEC concludes that further operation of the system would result in no further improvement in groundwater quality (i.e., the contaminant concentration reach an asymptotic condition).

The system will remain on-site in a standby mode during the year-long post closure monitoring period. If the groundwater quality deteriorates in the downgradient monitoring wells by more than 15 micrograms per liter (ug/l) total VOCs, the need to restart the system will be evaluated. It should be noted that the groundwater water quality will be considered deteriorated if a similar trend is not observed in the groundwater samples collected from the upgradient wells.

As planned, the SVE system will be operated continuously while the AS system will be operated cyclically. A typical and effective operation scenario for Long Island AS systems is to allow each sparge point to be active for one hour so that each well will be active for approximately two hours per day. The most effective

Mr. Helmeset
October 4, 1996
Page 4

operating scenario will be determined through the system start up tests. The AS/SVE system is expected to be operational for 12 to 18 months.

NYSDEC Comment No. 6: *A maintenance/inspection schedule and sampling program should also be established. This program should be capable of assessing the systems operation efficiency and achievement of operating criteria and site cleanup goals. The maintenance/inspection schedule should also consider any replacement parts, training or special tools required for the system.*

H2M Response: H2M will conduct maintenance inspections on a weekly basis to insure that the system is operating at optimum efficiencies. A system operating/maintenance manual will be prepared once the system design has been approved by the NYSDEC.

The H2M personnel performing the inspections will be fully trained and versed in the operation of the system. Any system components (i.e., blowers, compressors, etc.) which fail will be replaced. During each visit, the operating conditions including flow, vacuum, and temperature of the entire system and for each SVE well will be recorded. The system off gas (prior to any treatment) will be analyzed with a photoionization detector (PID) equipped with an 11.7 ev bulb to access the concentration of Total VOCs in the air stream.

NYSDEC Comment No. 7: *The noise level of the system should be in compliance with NYS Air Guidelines.*

H2M Response: The AS/SVE system will be enclosed in a sound- and temperature-insulated shed which should effectively attenuate the noise generated by the blower and compressor. H2M will use a noise dosimeter during the start up test to ensure the noise levels are acceptable. Due to Rite-Off's location in an industrial area and the proposed location of the treatment system at the southeast corner of the site (well away from any residences), we are not anticipating noise complaints. Additional noise-attenuation measures will be conducted if noise complaints are received.

NYSDEC Comment No. 8: *The design documents should include all of the details necessary to construct the remedy. The submitted documents do not include the electrical system or show how the wells will be connected to the*

Mr. Helmeset
October 4, 1996
Page 5

treatment system equipment. Please provide this information, as well as any other details that will be needed to construct the remedy.

H2M Response: The design plate has been revised to show details of the electrical systems as well as typical details for connecting wells to the treatment systems and other design details.

NYSDEC Comment No. 9: *The initial start up process for the system should be described. The process should include the measuring of dissolved oxygen (DO) and oxygen in the appropriate monitoring wells and the vapor extraction wells, before and after system start up. This process should also include the measuring of the radius of influence for the vapor extraction wells. Corrective measures to be taken if the system does not achieve the minimum design radii of influence (30 feet) or operating criteria should also be identified.*

H2M Response: H2M and EnviroTrac assumed a conservative estimated radii of influence for the AS and SVE systems of 15 and 30 feet, respectively. Our experience in the Upper Glacial aquifer of Long Island allows us to be confident that the system will perform as designed.

Once the system has been installed, the pipe trenches will be covered with plastic, if needed, but not repaved. During the system start up test, each SVE well head will be equipped with a pressure gauge. A vacuum will be pulled from one SVE well and the radius of influence will be measured by observing the pressure readings in the other SVE wells. Additional SVE wells will be installed and attached to the treatment system if required.

Prior to conducting the start up AS test, a baseline round of water levels and dissolved oxygen will be collected from the AS and shallow groundwater monitoring wells. The design flow of air will be injected into a single shallow AS well while water levels and DO concentrations are measured in adjacent AS and shallow monitoring wells. A well will be considered within the AS well's radius of influence if the concentrations of DO increase by at least 0.50 micrograms per liter (mg/l) and/or groundwater elevations increase by at least 0.05 feet. As with the SVE system, additional AS wells will be installed if required. Once the NYSDEC approves the system installation based upon the start up test data, all trenches will be paved with asphalt.

Mr. Helmeset
October 4, 1996
Page 6

NYSDEC Comment No. 10: *Although lightning/surge protection equipment is not required, the benefits of such equipment should be considered.*

H2M Response: Lightning/surge protection has been added to the design and is included on the revised design plate.

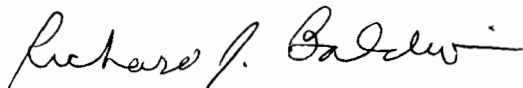
NYSDEC Comment No. 11 *The design should be modified to allow for the sampling of the soil gas at each extraction well. This will provide data that will allow the system to be adjusted to operate at the optimum configuration. This will allow for the sampling of the air injected to insure the system machinery is injecting clean air and to perform contaminant removal mass calculations.*

H2M Response: The requested sampling ports have been included in the revised design plate.

We hope that this letter and the changes made to the attached design plate adequately address your concerns. Should you have any questions, please feel free to contact me at (516) 756-8000, Extension 611.

Very truly yours,

HOLZMACHER, McLENDON & MURRELL, P.C.



Richard J. Baldwin, C.P.G.
Project Manager

Enclosures

cc: Robert Fardella, Esq.
Raymond E. Cowan, NYSDEC
John F. Bryne, Esq., Sr. Attorney
Mr. Howard Rapps, President
Chittibabu Vasudevan, NYSDEC
Director, Bureau of Environmental Exposure Investigation, NYSDOH



Holzmacher, McLendon & Murrell, P.C. • H2M Associates, Inc.
H2M Construction Management, Inc. • H2M Labs, Inc.



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December 16, 1996

Mr. John Helmeset
NYSDEC
50 Wolf Road
Albany, NY 12233-7010

Re: Rite-Off, Inc. Final Design Drawings
1545 Fifth Industrial Court
Bay Shore, New York
Order on Consent Index # W1-0743-95-12
Site Code # 1-52-129
H2M No. RITE 96-01

Dear Mr. Helmeset:

Enclosed, please find four copies of the Holzmacher, McLendon & Murrell, P.C. (H2M) final design documents for the Air Sparge/Soil Vapor Extraction (AS/SVE) system at the above-referenced facility.

To evaluate the radius of influence of the AS part of the system, approximately 40 cubic feet per minute (cfm) (the design flow) of air will be injected into AS-3S while water levels and dissolved oxygen (DO) concentrations are measured in adjacent well MW-4S which is located approximately 18 feet away from the AS point. The monitoring well will be considered within the AS-3S radius of influence if the concentrations of DO increase by at least 0.50 micrograms per liter (mg/l) and/or groundwater elevations increase by at least 0.05 feet.

To evaluate the radius of influence of the SVE part of the system, approximately 100 cubic feet per minute of vacuum will be pulled against SVE-2 which is approximately 37 feet from MW-4S. The monitoring well will be considered within the SVE-2 radius of influence if a pressure drop is noted.



Mr. Helmeset
December 16, 1996
Page 2

We hope that this letter and the changes made to the attached design plate adequately address your concerns. Should you have any questions, please feel free to contact me at (516) 756-8000, Extension 611.

Very truly yours,

HOLZMACHER, McLENDON & MURRELL, P.C.

A handwritten signature in cursive script, appearing to read 'Richard J. Baldwin'.

Richard J. Baldwin, C.P.G.
Project Manager

Enclosures

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