Report

February 1996

Environmental Site Investigation and Remedial Activities

for
Bennington County Industrial Corporation Property
Water Street, Route 67A
North Bennington, Vermont

Prepared for:

BENNINGTON COUNTY INDUSTRIAL CORPORATION
P.O. Box 257, Water Street
North Bennington, Vermont 05257

THE JOHNSON COMPANY, INC.
Environmental Sciences and Engineering

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Montpelier, Vermont 05602
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THE JOHNSON COMPANY, INC.
Environmental Sciences and Engineering

MAR 0 1 1996

February 29, 1996

Mr. Lance Matteson, Executive Director
Bennington County Industrial Corporation
P.O. Box 357, Water Street (VT Route 67A)
North Bennington, Vermont 05257

RE: Site Investigation Report for the BCIC Property, Water Street, North Bennington, Vermont
VT Site #95-1896
JCO # 1-0299-1

Dear Lance:

Attached is The Johnson Company's report for the site investigation and remedial activities at the Bennington County Industrial Corporation (BCIC) property on Water Street in North Bennington, Vermont. This report describes activities carried out between the dates of November 28, 1995 and January 12, 1996. The recovery of product is ongoing at the property, and will continue for an indefinite period of time.

Please call if you have any questions regarding any aspects of this project.

Sincerely,

THE JOHNSON COMPANY, INC.

By: Bradley A. Wheeler

Bradley A. Wheeler, CPSS
Senior Scientist

cc: Jason Feingold, VT SMS
Chris Kilburn, PIM

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EXECUTIVE SUMMARY

The Johnson Company, Inc. was retained by the Bennington County Industrial Corporation, Inc. to perform an Environmental Site Investigation of their property on Water Street in North Bennington, Vermont. This investigation was initiated as a result of a leaking 12,000-gallon #4 fuel oil underground storage tank (UST) that was detected on the property and removed prior to the investigation.

The investigation included completion of soil borings for the installation of four groundwater monitoring wells, collection of groundwater, product and soil samples for laboratory analysis, measurements of groundwater depths and product thickness in monitoring and recovery wells, determination of groundwater flow direction, and development of site plans. Soil samples from each boring were collected for PID screening for volatile organic compounds.

The results of this investigation indicate that the majority of the #4 fuel oil that was released from the 12,000-gallon UST is confined to a relatively small area on the site. It is being confined by a concrete retaining wall that is located adjacent to the Paran Creek, and possibly by an anomaly in the groundwater flow direction that may be a result of the extensive construction of buildings and retaining walls in this area.

Additionally, during the course of this investigation, two out-of-use, 7,500-gallon USTs that formerly were used to store #6 fuel oil were discovered on the site. These USTs were removed and the required reports were filed with the VT Waste Management Division.

Currently, Recovery Well-1 (RW-1) and Monitoring Well-4 (MW-4) are being used as product recovery points to provide immediate recovery of free product from the site. A Scavenger pump is collecting product from RW-1 and a ProBailer product only, in-well pump system is removing product from MW-4. The progress of the product recovery should be carefully monitored. Future evaluations of the effectiveness of this effort will allow us to determine if it will be necessary to recommend additional investigative and/or remedial actions on this site.

1.0 INTRODUCTION

Following the November 1995 discovery of oil seeping into the Paran Creek adjacent to the Bennington County Industrial Corporation North Bennington, Vermont property (the Site), a 12,000-gallon leaking underground storage tank (LUST) was removed from the Site. This LUST was formerly used to store #6 fuel oil, but had recently been switched over for storage of #4 fuel oil. A Site Location Map is included in this report as Figure 1. When the LUST was removed, three 30-inch diameter corrugated steel recovery wells (RW-1, RW-2, RW-3) were installed on the Site. Initially, approximately 10,500 gallons of oil and water were recovered from the excavation for the LUST removal and from the recovery wells using a vacuum truck. The LUST removal, recovery well installation, and product recovery activities were conducted by Precision Industrial Maintenance, Inc. (PIM). Estimates by PIM are that approximately 60 percent of the total of 10,500 gallons was oil, and 40 percent was contaminated water. An additional 1,500 to 2,000 gallons of oil were removed from the LUST prior to its removal. The locations of the recovery wells and other pertinent Site features are shown on Figure 2 - Site Sketch.

In December 1995, The Johnson Company, Inc. was retained by the Bennington County Industrial Corporation to investigate the nature and extent of the fuel oil release. The Site investigation conducted by The Johnson Company has included the following tasks: 1) the installation of four groundwater monitoring wells; 2) field screening of soils with a photoionization detector (PID); 3) collection of soil, product and groundwater samples for laboratory analysis; 4) measurements of the depth to groundwater on the Site to determine the groundwater flow direction; 5) coordination with the Vermont Sites Management Section (SMS) and subcontractors; 6) planning, coordination and tracking of product recovery; 7) developing site plans; 8) interpreting data; and 9) reporting the findings with pertinent conclusions and recommendations for the site.

During the preliminary stages of the investigation, two 7,500-gallon out-of-use #6 fuel oil storage tanks were found on site plans of the property. These USTs were found to be present at the south side of the boiler room, in the area referred to as the "courtyard". These USTs were removed on December 6, 1995, and the required reporting and documentation was submitted to the SMS shortly thereafter. This information is included as Appendix A.

At the time of the groundwater monitoring well installation, RW-1 had approximately 2 feet of product in it, while the other recovery wells had only a discontinuous skin of product on the surface of the water table. The product recovery Scavenger pump system has been operating successfully in RW-1 since December 4, 1995 and the ProBailer product-only pump system has been operating in MW-4 since January 25, 1996. As of February 24, 1996, a total of approximately 670 gallons of oil have been recovered from RW-1 and MW-4.

2.0 INVESTIGATION ACTIVITIES AND RESULTS

2.1 GROUNDWATER MONITORING WELLS

The installation of four groundwater monitoring wells was completed on the property on December 4 and 5, 1995. The locations of the monitoring wells are shown on Figure 2 - Site Sketch. Monitoring well MW-1 is a "background" well, located upgradient of the location of the oil release. MW-2 is located generally between the Paran Creek and the former location of the UST. It was placed specifically to investigate a "corner" of the concrete retaining wall and the foundation for an incinerator tower that was formerly on the Site. MW-3 is located in a downgradient direction from the former location of the LUST to assist in the determination of the lateral extent of the oil migration. MW-4 is located in a position that was expected to be most heavily impacted, based on the conditions seen in the recovery wells.

Adams Engineering of Underhill, Vermont, was the contractor who completed the soil borings and well construction. Monitoring wells MW-1, MW-2 and MW-3 are constructed of 2-inch diameter PVC, with 5-foot long screened sections with 0.01-inch factory slots. Monitoring well MW-4 is of the same construction except that it has a 10-foot long screened section. The soil borings were completed using a truck-mounted drill rig equipped with a vibratory corer. All equipment was steam cleaned between borings. Drilling and Well Construction Logs for these wells are included in Appendix B.

2.2 FIELD SCREENING OF SOILS

During the soil boring and monitoring well installation, The Johnson Company conducted field screening for the presence of volatile organic compounds (VOC) in soil samples collected from the corer during the soil boring process. Screening was done using a Thermo Environmental Model 580B OVM photoionization detector (PID). The PID was calibrated using zero air and 100 parts per million (ppm) isobutylene calibration gas on each morning of the Site investigation.

A total of twelve soil samples were analyzed using a PID headspace method. The soil samples were placed into resealable plastic bags, allowed to warm in the sun or in a vehicle for a short period of time, and then agitated. The tip of the PID was then inserted into the bag, using care to minimize the amount of mixing allowed with the outside air. The concentration of VOC detected in the air (headspace) within the bag was then recorded. Table 1 provides a summary of the PID headspace results for the soil samples collected during the monitoring well boring process.

Table 1
Summary of Soil Sample PID Headspace Analysis From Monitoring Well Borings

Monitoring Well ID	Sample Depth (feet)	Sample Description	PID Headspace Result (ppm)
MW-1	0-1.8	gravelly loamy sand	0.0
	1.8-3.1	gravelly loamy sand	0.4-0.7
	5-10	gravelly sand and silty sand	0.0-0.4
	10-13.6	gravelly loamy sand	0.0
MW-2	0-5	gravelly sandy loam	0.0
	5-10	gravelly sandy loam	0.0
	10-13.2	gravelly coarse sand	0.0
MW-3	0-5	gravelly loamy sand	0.0
	5-10	gravelly loamy sand	3.4
	10-15	tan fine sand	5.2
MW-4	0-5	gravelly loamy sand	0.0
	5-10	gravelly loamy sand	80.0

The most notable information generated by the headspace data is seen by comparing the positive results obtained from the samples from MW-3 and MW-4. Although both of the borings provided soil samples that were visibly contaminated with oil, the PID headspace results were very much lower for the samples from MW-3 than from MW-4. This data supports our belief that the contamination seen in the boring for MW-3 is from the two 7,500-gallon #6 fuel oil USTs that were located in this area, and not a result of the release of #4 fuel oil from the 12,000-gallon LUST. Due to the more volatile nature of #4 fuel oil vs. #6 fuel oil, the higher readings obtained from the soil sample from the boring for MW-4 indicate that the oil in that location is from the #4 fuel oil LUST. These readings are consistent with field observations that lead us to make the same conclusions relative to the

sources of contamination on the Site: the #4 fuel oil release likely caused the observed release of oil to the Paran Creek, comprises the product being recovered, and is the release that primarily affects the Site.

2.3 GROUNDWATER MEASUREMENT AND FLOW DIRECTION

The relative elevations of the tops of the groundwater monitoring well casings were measured using an Auto-level on December 5, 1995. The depth to groundwater in each well was also measured on the same date, using an ORS Interface Probe. The interface probe allowed us to also determine if free product was present in any of the wells, and to measure the thickness of any product that was present. This data was used to determine the direction of groundwater flow within the investigation area. Due to the configuration of the four wells (more or less a straight line parallel to the Paran Creek), this data is not adequate to provide a good characterization of the overall groundwater flow direction for this area, but it does provide evidence of a flow direction anomaly that may be significant with regard to the contaminant migration at the Site.

As shown on Figure 3 - Groundwater Elevation Map, the elevation of the groundwater at MW-4 is the low point of the data from the four wells. The elevation of the groundwater in MW-3 was approximately 0.42 feet higher on December 5, 1995 than in MW-4, suggesting a northerly flow direction, from MW-3 toward MW-4. The elevation data also shows that the elevation of the groundwater in MW-1 is the highest on the Site, with the groundwater in MW-2 being approximately 0.25 feet lower, and the groundwater elevation in MW-4 being approximately 0.49 feet below that in MW-2. This data suggests that groundwater flows north from MW-3 to MW-4, and that it flows south from MW-1 to MW-4. Given the degree of disturbance in this area from construction, such as the concrete retaining wall that is present along the entire eastern edge of the Site, it appears plausible that the direction of groundwater flow has been affected as the data suggests.

2.4 GROUNDWATER SAMPLING AND ANALYSES

Groundwater samples from MW-1, MW-2, MW-3 and RW-2 were collected and analyzed for benzene, toluene, ethylbenzene and xylenes using a modified EPA method 8020A. These samples, along with a trip blank, were analyzed at The Johnson Company. Groundwater samples were also collected from MW-1, MW-3 and RW-2 for analysis for volatile organic compounds by Scitest Laboratory using EPA Method 8260. The groundwater sampled from MW-3 was also analyzed for total petroleum hydrocarbons (TPH) by Scitest using modified EPA Method 8100. This method was included for this sample due to the visual presence of oil in the saturated soils and groundwater at this

sample location. Based on the location of MW-3 and the appearance of the product, it is our conclusion that the presence of oil in this location is due to the nearby location of the #6 fuel oil USTs, not the leaking of #4 fuel oil from the 12,000-gallon LUST. Tables 2 and 3 provide summaries of the groundwater laboratory analytical results. Table 2 includes the data generated at The Johnson Company and Table 3 includes the data generated at Scitest. The laboratory analytical reports for the groundwater, soil and product samples are included as Appendix C.

Table 2
Summary of Reported Laboratory Groundwater Analytical Results
EPA Method 8020 (all units parts per billion)

Analyte	MW-1	MW-2	MW-3	RW-2	Enforcement Standard[1]
Benzene	BPQL[2]	20	BPQL	14	5
Toluene	BPQL	4J[3]	BPQL	9	2,420
Ethylbenzene	BPQL	2J	BPQL	BPQL	680
Xylenes	BPQL	17	BPQL	20	400

Footnotes:
1) Vermont Groundwater Protection Rule and Strategy Enforcement Standard
2) BPQL = below the practical quantitation limit of 5 parts per billion
3) J = estimated result derived from a value less than the practical quantitation limit

Table 3 Summary of Reported Laboratory Groundwater Analytical Results EPA Method 8260 (all units parts per billion)					
Analyte	**MW-1**	**MW-2**	**MW-3**	**RW-2**	**Enforcement Standard[1]**
Benzene	--	--	--	23	5
Toluene	--	--	--	44	2,420
Ethylbenzene	--	--	--	17	680
Xylenes	--	--	--	76	400
Isopropylbenzene	--	--	--	4	1,500[2]
n-Propylbenzene	--	--	--	5	NA[3]
p-Isopropyltoluene	--	--	--	2	NA
1,3,5-Trimethylbenzene	--	--	--	11	NA
1,2,4-Trimethylbenzene	--	--	--	37	NA
Naphthalene	--	--	4	222	NA
sec-Butlybenzene	--	--	--	2	NA
Chloroform	--	--	1	--	0.2[2]
1,2-Dichloroethane	3	--	--	2	5
Acetone	--	--	60	3,040	3,700[2]

Footnotes:
1) The Enforcement Standard is from the Vermont Groundwater Protection Rule and Strategy, except where otherwise indicated.
2) These limits are from the EPA Region III Risk-Based Concentrations for Tap Water.
3) NA: not applicable

A review of the groundwater analytical data leads us to make the following observations:

1. The reported presence of 1,2-Dichloroethane (1,2-DCA) in groundwater samples from MW-1 and RW-2 suggests a separate release on the property may have occurred that is unrelated to the LUST for which this investigation was initiated, as 1,2-DCA is not an expected constituent of #4 fuel oil. The concentrations of 1,2-DCA reported are below the Vermont Groundwater Enforcement Standard (GES) of 5 ppb, but are above the Vermont Groundwater Preventative Action Limit (PAL) of 0.5 ppb. The source of the 1,2-DCA is not known. The uses of 1,2-DCA include as a solvent for a variety of materials, as a degreaser, and in photography and xerography.

2. Chloroform was reported in MW-3 at a concentration of 1 ppb. While there is no GES for chloroform, the EPA Region III Risk-Based Concentrations for Tap Water level is 0.2 ppb. Chloroform has been widely used as an industrial solvent. The presence of chloroform on the Site may be due to the past industrial uses of the property.

3. Acetone has also been reported in the groundwater samples from MW-3 and RW-2 at concentrations of 60 parts per billion (ppb) and 3,040 ppb respectively. Additionally, acetone was reported in the product sample at a concentration of 28,400 ppb. While there is no GES for acetone, the EPA Region III Risk-Based Concentrations for Tap Water level is 3,700 ppb. Horace Baker, a former maintenance employee of Polygraphics, the property owner previous to BCIC, has informed BCIC that prior to 1979, disposal of waste acetone was routinely accomplished by dumping it onto the ground at the loading dock area located near MW-1. The relative concentrations of acetone seen in the groundwater and the product suggest that acetone may also have been in the product itself. Employees of BCIC report that no acetone has been added to the fuel oil stored on the Site while they owned the property.

4. The data suggests that the areas around MW-1 and MW-3 have not been effected by the release of #4 fuel oil from the 12,000-gallon LUST. The analysis of these samples for benzene, toluene, ethylbenzene and xylenes resulted in readings of less than 5 ppb (non-detect, as the detection limit was 5 ppb) for each compound. However, the groundwater around each well has apparently been effected by other sources; as discussed above. MW-1 is in an upgradient location relative to the former location of the LUST, and MW-3 is cross-gradient, approximately 60 feet from the former location of the LUST. MW-3 is approximately 8 feet from the former location of two 7,500-gallon #6 fuel oil USTs, which were removed on December 6, 1995.

The soils around MW-3 are visibly stained with what appears to be #6 fuel oil, but there was no free product in the well. As previously described, the groundwater elevation data generated on December 5, 1995 suggest that groundwater flow is toward the north from MW-3 to MW-4, and to the south from MW-1 and MW-2 toward MW-4. This anomalous groundwater flow pattern may help to explain why the #4 fuel oil has been as thick as 2 feet in RW-1, but has not migrated further south to MW-3.

2.5 PRODUCT SAMPLING AND ANALYSES

A sample of free product was collected from MW-4. At the time of sampling on December 6, 1995, there was approximately 2.5 feet of product floating on the groundwater in this well. The product was finger-printed using EPA Method 8100 and also analyzed for VOC using EPA Method 8260. The finger-printing of the product identified it as 98.8% #4 fuel oil. There were 15 constituents identified by the 8260 analysis, 14 of which are consistent with a petroleum product. The one constituent identified in the free product that was not consistent with petroleum was acetone at a concentration of 28,400 ppb.

Acetone was also reported in the groundwater samples from MW-3 (60 ppb) and RW-2 (3,040 ppb). MW-3 is near the former location of the two 7,500-gallon #6 fuel oil storage tanks, and based on the information available at this time, we do not believe that this location has been impacted by the #4 fuel oil released from the 12,000-gallon LUST. We suspect that if acetone was in the fuel oil itself, it had most likely been in the #6 oil that was formerly stored in the 12,000-gallon LUST and in the two 7,500-gallon USTs. Therefore, the acetone seen in MW-3 may have originated in the #6 fuel oil that was formerly stored in these USTs. If acetone was added to the fuel oil on Site, it most likely occurred prior to 1979 when Polygraphics owned the property. They apparently had a significant amount of waste acetone to discard, and some may have been added to the #6 fuel oil. As previously described, it has been reported that acetone was dumped onto the ground on the Site as a routine disposal practice by the previous property owner, so evidence of acetone in the groundwater could be due to this past disposal practice. An odor that was believed to be acetone was detected under the sewer manhole cover that is shown at the northern edge of Figure 2. When the cover to this manhole was lifted off to determine the depth and direction of sewer pipes in this area prior to the initiation of drilling or sampling, a small stream of water was seen to be entering the manhole from a pipe that appeared to come from the BCIC building. An odor of acetone was detected, and the PID was inserted into the open manhole. The PID reading obtained was 14 ppm. The cover was removed from the sewer manhole adjacent to RW-1 where no odor was detected and a PID reading of 2 ppm was obtained. This manhole was dry.

2.6 SOIL SAMPLING AND ANALYSES

A soil sample (SS-3) was collected from beneath the basement of the BCIC building adjacent to the former location of the LUST. The purpose of this sample was to determine if fuel oil from the LUST has accumulated beneath the building. To collect this sample, a hole was dug by hand in the dirt

floor of the small storage room at the north side of the boiler room. The hole was dug to 26 inches below the original grade of the floor in this room where refusal was encountered. The refusal appeared to be concrete in nature, not simply a rock or stone. Evidence of fuel oil was present in the soil sample collected from this location. The soils at 22-26 inches deep in this hole were wet and discolored with what appeared to be oil. The sample was analyzed at Scitest for VOC using EPA Method 8260. The reported results of the laboratory analysis are summarized below:

Analyte	Concentration
Benzene	777 ppb
Xylenes	132,900 ppb
Ethylbenzene	8,790 ppb
n-Butylbenzene	5,700 ppb
sec-Butylbenzene	7,650 ppb
Isopropylbenzene	4,680 ppb
p-Isopropyltoluene	4,650 ppb
Naphthalene	120,000 ppb
n-Propylbenzene	10,600 ppb
1,2,4-Trimethylbenzene	118,000 ppb
1,3,5-Trimethylbenzene	31,700 ppb
Toluene	15,200 ppb

Qualitatively, the results are strikingly similar to the reported results for the 8260 analysis of the free product collected from MW-4, except that there is no acetone reported in this soil sample. It is important to note that the practical quantitation limit for acetone for this analysis was 2,500 ppb.

Soil samples SS-1 and SS-2 were collected from under the 7,500-gallon #6 fuel oil USTs following their removal. Each sample was from approximately 12 feet below the ground surface (bgs), collected from a silty soil layer that is visibly less contaminated than the sandier soils above it. The purpose of collecting these samples was to determine the verticle extent of the contamination in this area. The samples were anlayzed for TPH using EPA Method 8100 and for VOC using EPA Method 8260.

The results obtained for both samples were below detection limits for both of the analyses. The detection limit for the TPH analysis was 25 ppm, and for the VOC analysis of SS-1, it was 160 ppb for most analytes, and ranged up to 1,600 ppb for some of the analytes. For the VOC analysis of SS-1, the detection limits were 190 ppb for most analytes and ranged up to 1,900 ppb for some analytes. The detection limits were relatively high due to the need to use methanol extraction for the analysis of the

samples. This was deemed necessary by the laboratory because of the visual appearance of the soil samples, especially SS-1, which had a readily visible oily appearance, indicating the potential to encounter high concentrations of contaminants in the sample.

3.0 CONCLUSIONS AND RECOMMENDATIONS

3.1 CONCLUSIONS

Based on the information developed during this investigation, we conclude the following:

1. The release of #4 fuel oil at this Site has resulted in an area of contaminated soils that appears to cover approximately 3,000 square feet of the Site, as shown on Figure 4. The majority of the soil contamination is found approximately 5 to 10 feet below grade. Based on measurements of free product thickness prior to the start-up of the product recovery pump in RW-1, we estimate that 1,000 to 1,500 gallons of #4 fuel oil may be resident in the Site soils. The free product appears to be confined to an area of approximately 450 to 500 square feet that includes MW-4 and RW-1.

2. Acetone has been reported in two groundwater samples on the Site (MW-3 and RW-2). The concentrations of acetone in these samples was below the EPA Region III Risk-Based limit of 3,700 ppb. Acetone was also reported at 28,400 ppb in the product sample collected from MW-4.

3. 1,2-Dichloroethane (1,2-DCA) is present in the groundwater on the Site. The reported concentration of 1,2-DCA is below the GES of 5 ppb, but above the PAL of 0.5 ppb.

4. The reported presence of chloroform in the groundwater sample from MW-3 at 1 ppb is not a significant issue on the Site. There is no GES for chloroform, and the site is not within close proximity to any drinking water supplies. This assumes that the chloroform is actually present, and was not reported due to laboratory error.

5. The contamination associated with the #6 fuel oil USTs that were removed on December 6 does not appear to have had a serious impact on the Site. The laboratory analytical data from MW-3, which is within approximately 8 feet of the former location of the USTs, showed that the groundwater quality in this area is not significantly impacted by VOC. In addition to the

chloroform at 1 ppb, only acetone at 60 ppb and naphthalene at 4 ppb were reported as present in the groundwater sample from MW-3. The result of the TPH analysis of this sample was less than the detection limit of 10 ppm.

6. Currently, product is being collected by automated pumping systems from RW-1 and MW-4. As of February 24, 1996, a total of approximately 670 gallons of oil have been collected from these locations.

3.2 RECOMMENDATIONS

We recommend that the primary focus for the Site be the continued collection of product from RW-1 and MW-4. Regular and scheduled observations of MW-2 and MW-3 should be made in order to monitor these wells for the presence of free product. This should be accomplished using an interface probe.

The presence of low concentrations of chlorinated solvents on the Site is not unexpected because the Site has a long history of use for industrial purposes. The low concentrations of 1,2-DCA and chloroform do not warrant additional remedial action.

The presence of acetone in two groundwater samples (MW-3 at 60 ppb and RW-2 at 3,040 ppb) and in the free product sample at a much higher concentration (28,400 ppb), suggests that acetone may have been present in the fuel oil used on the Site. Acetone is reported by a maintenance employee of the previous property owner to have been dumped onto the ground in the area of the Site investigation as a routine disposal practice prior to 1979. Since the concentrations of acetone in the groundwater are below the Vermont Groundwater Enforcement Standards, and since the previous disposal practices are no longer in use and the USTs on the site have been removed, we do not believe that any additional investigation or sampling is necessary in regard to this compound.

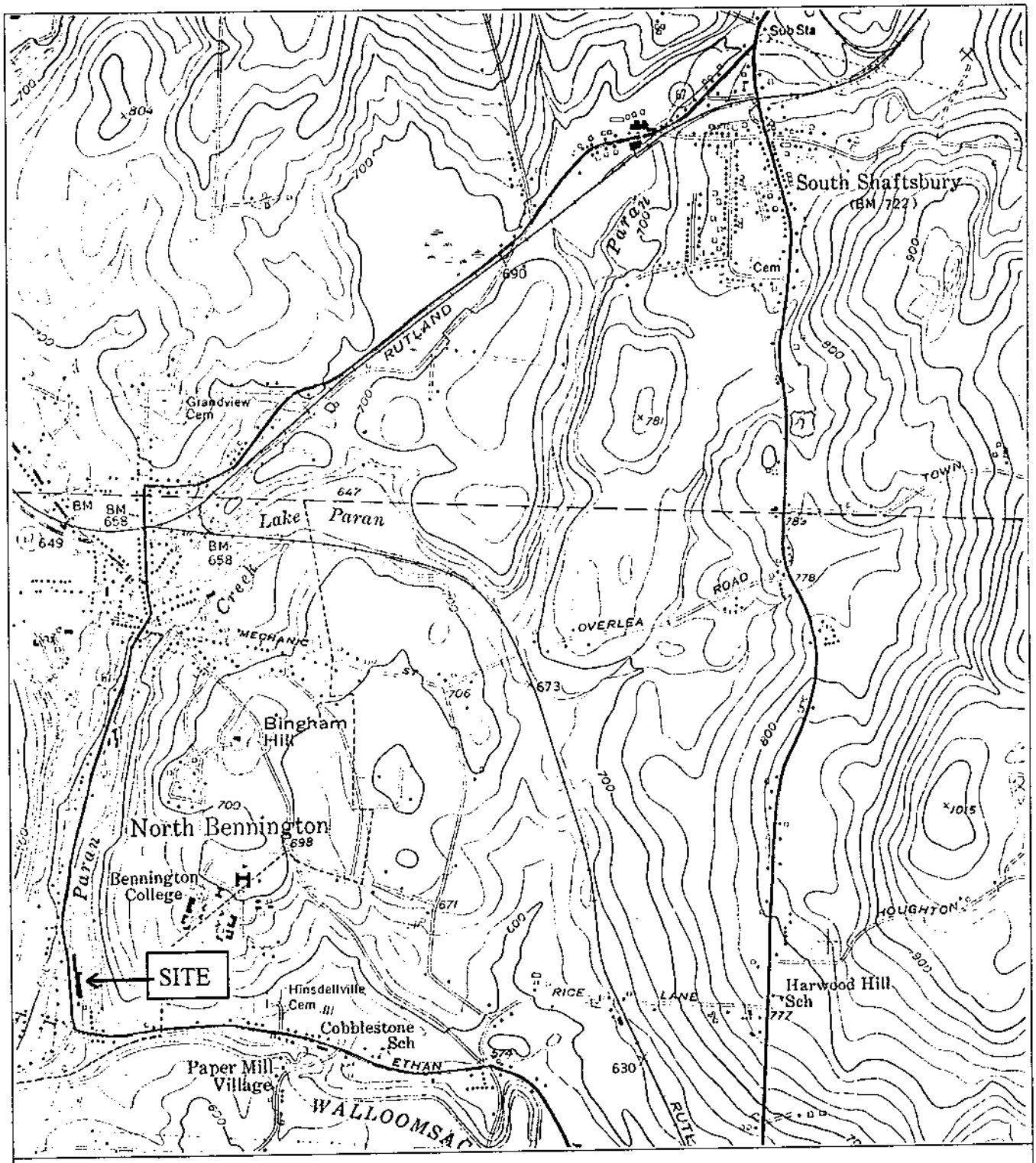
We recommend that the product recovery effort at the Site be continued and monitored closely to track the recovery rate. Periodic observations of MW-2 and MW-3 should be made to monitor these wells for the presence of free product.

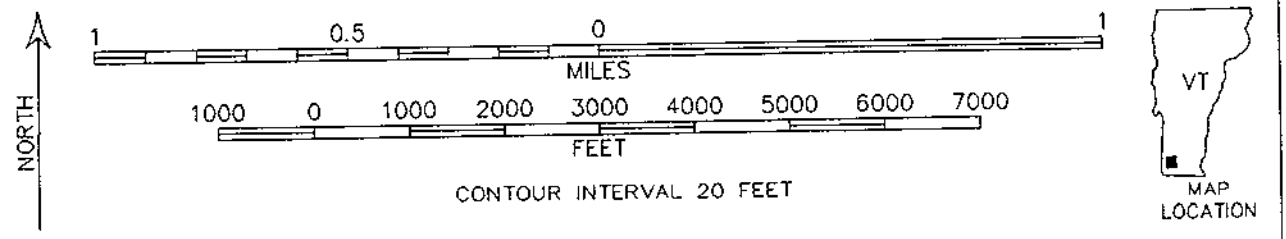
4.0 LIMITATIONS

The conclusions and recommendations presented in this report were arrived at through consideration of the findings of this investigation as presented herein. Consideration was given to the information gathered during the Site investigation, the field screening results of environmental samples, and laboratory analytical data. A diligent effort was made to identify areas of concern that may have been indicated from the conditions described above.

This Site investigation was based on sound scientific investigative techniques and experience with similar investigations. However, the conclusions and recommendations of this investigation are limited by the sources of data, as stated above, and the conclusions and recommendations must be considered within this context. The status of the Site may change, and additional information may become available in the future which will require modification or updating of the conclusions and recommendations presented here. If conditions are found to vary from those presented here, supplemental conclusions and recommendations may be warranted.

FIGURES





BASE MAP : USGS 7.5 Minute Topographic Quadrangle: Bennington, VT, 1954.

FIGURE 1: Site Location Map
Bennington County Industrial Corp.
North Bennington, Vermont

THE JOHNSON COMPANY, INC.
Environmental Sciences and Engineering
100 STATE STREET MONTPELIER, VT 05602

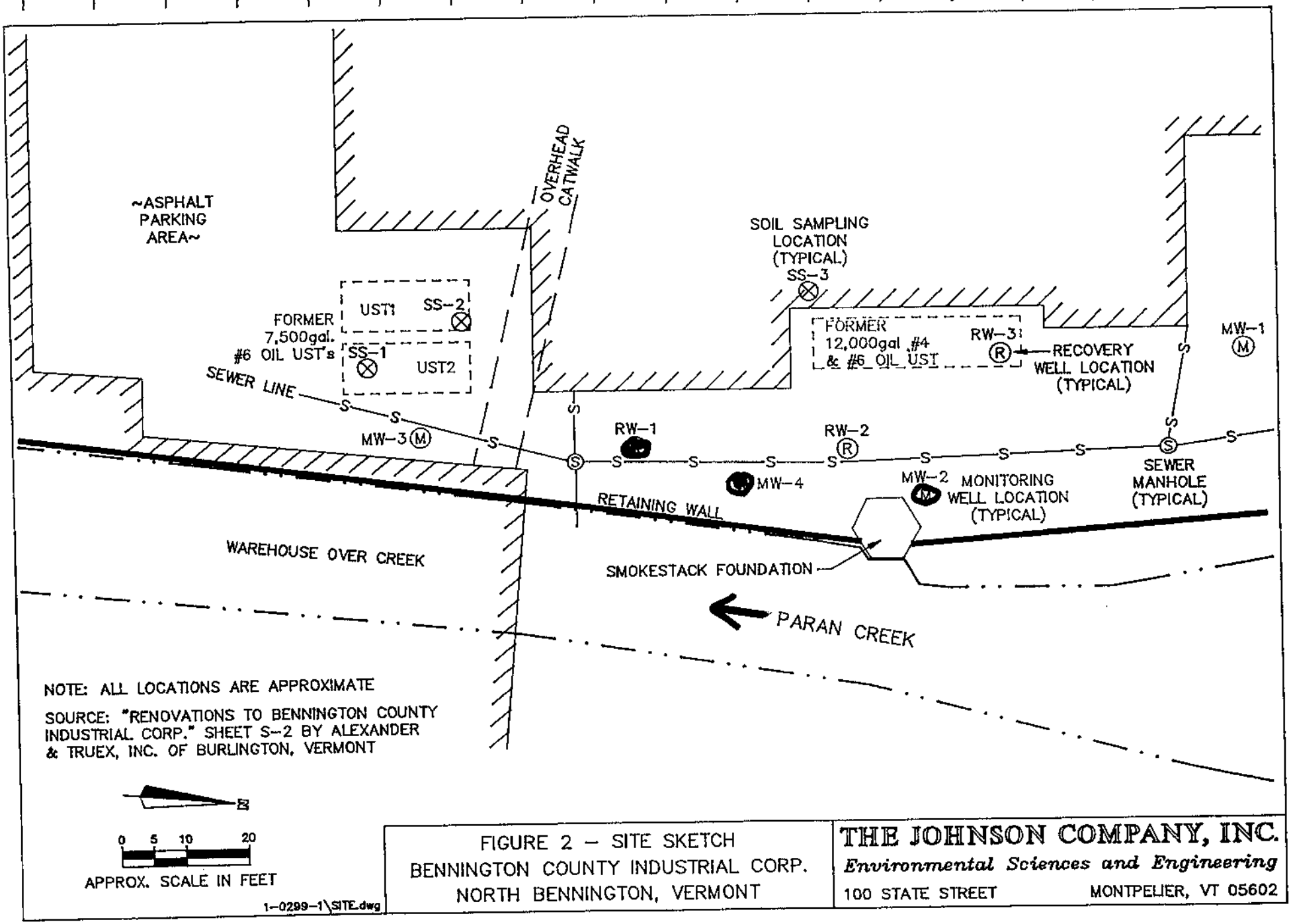
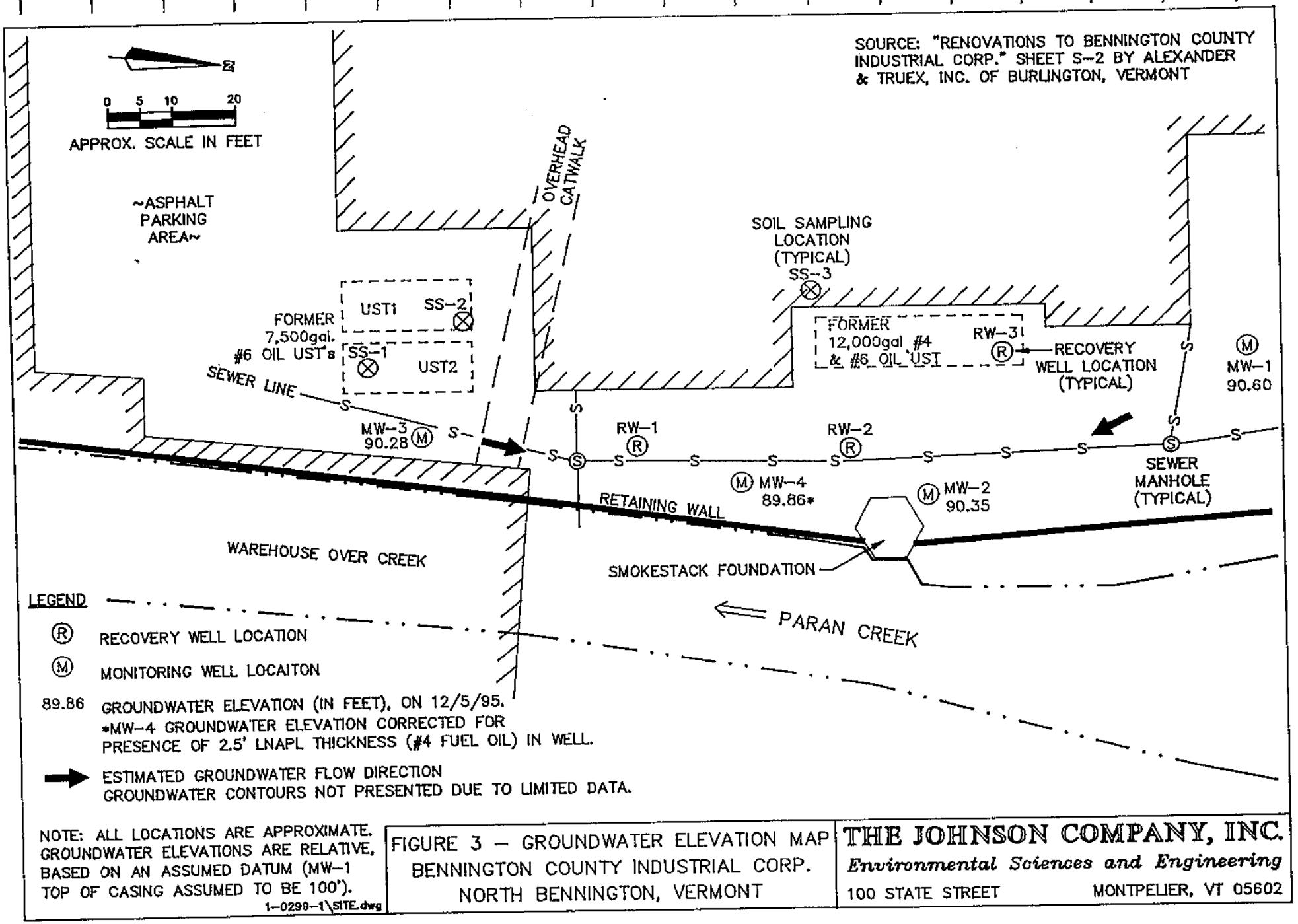


FIGURE 2 – SITE SKETCH
BENNINGTON COUNTY INDUSTRIAL CORP.
NORTH BENNINGTON, VERMONT

THE JOHNSON COMPANY, INC.
Environmental Sciences and Engineering
100 STATE STREET MONTPELIER, VT 05602

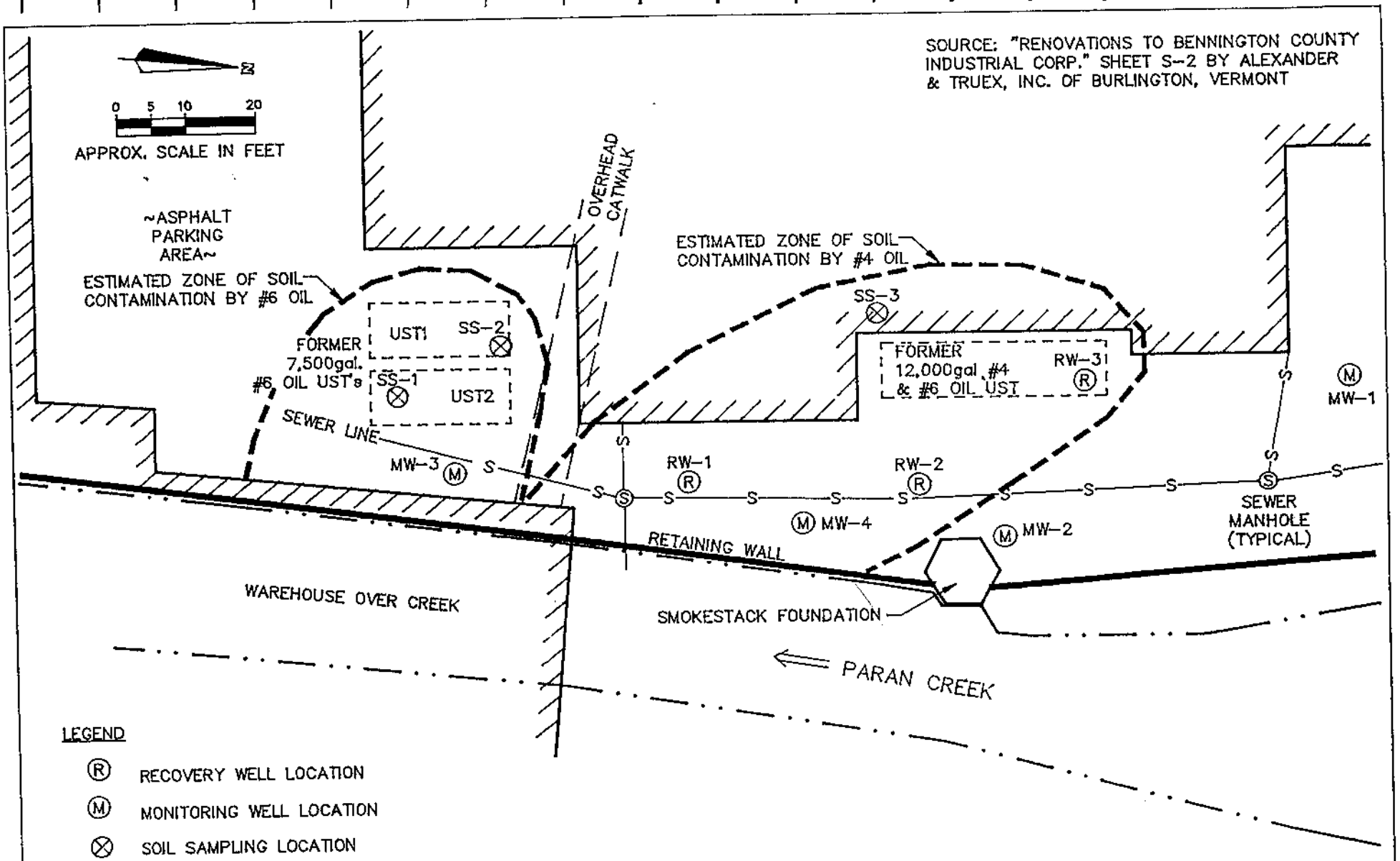


NOTE: ALL LOCATIONS ARE APPROXIMATE. GROUNDWATER ELEVATIONS ARE RELATIVE, BASED ON AN ASSUMED DATUM (MW-1 TOP OF CASING ASSUMED TO BE 100').

1-0299-1\SITE.dwg

FIGURE 3 – GROUNDWATER ELEVATION MAP
BENNINGTON COUNTY INDUSTRIAL CORP.
NORTH BENNINGTON, VERMONT

THE JOHNSON COMPANY, INC.
Environmental Sciences and Engineering
100 STATE STREET MONTPELIER, VT 05602



NOTE: ALL LOCATIONS ARE APPROXIMATE. GROUNDWATER ELEVATIONS ARE RELATIVE, BASED ON AN ASSUMED DATUM (MW-1 TOP OF CASING ASSUMED TO BE 100').

t-0299-1\ZONES.dwg

FIGURE 4 -- ESTIMATED ZONES OF CONTAMINATION
BENNINGTON COUNTY INDUSTRIAL CORP.
NORTH BENNINGTON, VERMONT

THE JOHNSON COMPANY, INC.
Environmental Sciences and Engineering
100 STATE STREET MONTPELIER, VT 05602

APPENDIX A

#6 FUEL OIL UST REMOVAL REPORTS

THE JOHNSON COMPANY, INC.
Environmental Sciences and Engineering

December 12, 1995

Mr. Tim McNamara
Vermont Department of Environmental Conservation
Underground Storage Tank Program
103 South Main Street
Waterbury, Vermont 05671-0404

Re: UST Removals at Bennington County Industrial Corporation
Water Street, North Bennington, Vermont
VT SMS Site # 95-1896
JCO #1-0299-1 (305)

Dear Tim:

On December 6, 1995, two 7,500-gallon underground storage tanks (USTs), formerly used for storing #6 heating oil, were removed from the referenced property. This property has recently been listed as an Active Hazardous Waste Site due to a release of #4 heating oil from a nearby UST that was removed in mid-November by Precision Industrial Maintenance and Burgess Brothers Construction. Jason Feingold is the WMD Site Manager for the site. He is aware of the removal of these USTs, and has been verbally appraised of the conditions encountered during their removal. The Vermont Department of Environmental Conservation Underground Storage Tank (DEC UST) Program UST Permanent Closure Form for these removals are attached. The age of these USTs was at least 42 years, based on their inclusion on a fire insurance map produced in 1953. They have been out of use for an unknown number of years, possibly since 1981, when a 12,000 gallon fuel oil UST was installed nearby at the site.

Burgess Brothers Construction of Bennington, VT was hired to excavate and remove the USTs. Precision Industrial Maintenance cleaned the USTs prior to the removal. Precision Industrial Maintenance pumped approximately 1,870 gallons of water and oil from the USTs. The condition of the USTs that were removed was "poor", with numerous visible holes. The Johnson Company was present on behalf of the Bennington County Industrial Corporation, property owner, to complete the site assessment for the UST removals. This report describes the conditions encountered during the removal of these USTs.

Excavation of the USTs began on December 4, 1995. The USTs were partially uncovered, the manway covers were removed, and the USTs were pumped and cleaned on December 5. The USTs were finally fully excavated and removed from the ground on December 6. As the USTs were being excavated, the soils that were removed from above and beside the USTs were continuously screened with a Model 580B Thermo Environmental Instruments OVM (PID). The PID was calibrated on each morning of the site work, using 100 ppm isobutylene gas. The observed soil materials consist primarily of gravelly sand backfill. Directly beneath the USTs the soil was coarse sand for approximately 2 to 3 feet, and beneath this layer the soils were silt loam. Throughout the excavation area, the coarse sand layer was visibly blackened with oil. The silt loam soil beneath this layer was not visibly contaminated. The highest concentrations of contaminants, based on visual evidence and PID readings, were observed in the soil beneath the USTs. These soils were blackened with oil for a thickness of approximately 2-3 feet (9 to 11-12 feet bgs). PID plastic bag headspace readings from the soils under these USTs were low (10-15 ppm) due to the heavy nature of the #6 oil in the soils. We were not able to conduct additional soil excavations around the area from which the USTs were removed due to their proximity to buildings on all sides.

Mr. Tim McNamara
Vermont Underground Storage Tank Program
Waterbury, Vermont

Two soil samples for laboratory analysis were collected from the area where the USTs were located. The locations of these samples are shown on the attached site sketch. Both samples were from a depth of approximately 12 feet bgs. The samples will be analyzed for Organic Hydrocarbons using EPA Method 8260 and for Total Petroleum Hydrocarbons using EPA Method 8100 (modified). Both of these samples were collected from soil that was beneath the visibly contaminated coarse sand directly under the USTs. A recommendation regarding future monitoring or other activities at the site will be made based on the results of the laboratory analysis.

Groundwater was encountered in the excavation at approximately 8 feet bgs. One groundwater monitoring well (MW-3) is present beside the former location of these USTs (as shown on the site sketch). This well was sampled on December 6, and the groundwater sample will be analyzed using the same methods as described above for the soil samples. Bedrock was not encountered in the excavation.

There is no basement in the building immediately east of the former location of these USTs. The building is supported by concrete piers and extends over Paran Creek. The building north and west of the former location of these USTs has a basement that is approximately 6 feet above the contaminated soils noted under the USTs. This area is served by the North Bennington municipal water supply system. The closest private water supply well is approximately 880 feet northeast of the site, on an elevated position on the landscape. The Paran Creek is approximately 10 feet east of the former location of these USTs. A release of #4 oil slightly north of these USTs from a different UST caused oil to enter the Paran Creek, but there has not been any visible release to the creek from the soil contamination associated with the two #6 fuel oil USTs removed on December 6. A concrete retaining wall along the east edge of the creek appears to be protecting the creek from the oil contaminated soils. Due to the extensive quantity and depth of contaminated soils under the USTs, and the proximity to the site buildings, it was determined that it would not be feasible to remove the contaminated soils from under the USTs.

Please call if you have any questions regarding these UST removals.

Sincerely,

THE JOHNSON COMPANY, INC.

By: Bradley A. Wheeler

Bradley A. Wheeler, CPSS
Senior Scientist

attachments

cc: Lance Matteson, BCIC
Jason Feingold, VT WMD

Reviewed By: KHJ
g:\users\baw\bciepull.rpt December 11, 1995 16:14 BAW

PID Calibration information: Date 12/6/95 Time 11:00 Type of Gas isobutylene
Contamination detected with PID (ppm): Peak 15 Depth of peak (ft) 11 Avg 10
Soil samples collected for laboratory analysis? Yes X # of samples 2 each for No ___ 8260 + TPH analysis
(show locations and depth of all readings and samples on diagram)

Have soils been polyencapsulated on site? Yes___ list amount (cu yds):_____ No X
Have any soils been transported off site? Yes___ list amount (cu yds):_____ No X
Location transported to:_____ Date: 1/1
Name of DEC official granting approval to transport soils:_____
Amount of soils backfilled. (cu yds): 100 Avg.PID <2 ppm - contaminated soils were primarily
Have limits of contamination been defined? Yes___ No X below USTs, were not excavated
Are you aware of any other contaminants which may be present? Yes ___ No X
Comments: another release of #4 oil on the site is under investigation/recovery.
Free phase product encountered? Yes___ thickness_____ No X - Soils were virtually saturated w/
Groundwater encountered? Yes X depth(ft) 8 No___ oil

Were there existing monitoring wells on site? Yes___ (# samples taken___) No X
Have new monitoring wells been installed? Yes X (# samples taken 2) No___
Samples collected from monitoring wells for lab analysis? Yes X No___
(include well location, headspace readings, and laboratory results if applicable in a separate report and on the site diagram)
Is there a water supply well or spring on site? Yes___ (check type: shallow___ rock___ spring___) No X
How many public water supply wells are located within a 0.5 mile radius? 0 min. distance (ft):_____
How many private water supply wells are located within a 0.5 mile radius? 1 or more min. distance (ft): 880' upgradient
What receptors have been impacted? X soil ___indoor air X groundwater X surface water ___water supply and across
probably by a different oil release Paran Creek

Section D. Statements of UST closure compliance: (must have both signatures or site assessment not complete)
As the party responsible for compliance with the Vermont UST Regulations and related statutes at this facility, I hereby certify that all of the information provided on this form is true and correct to the best of my knowledge.

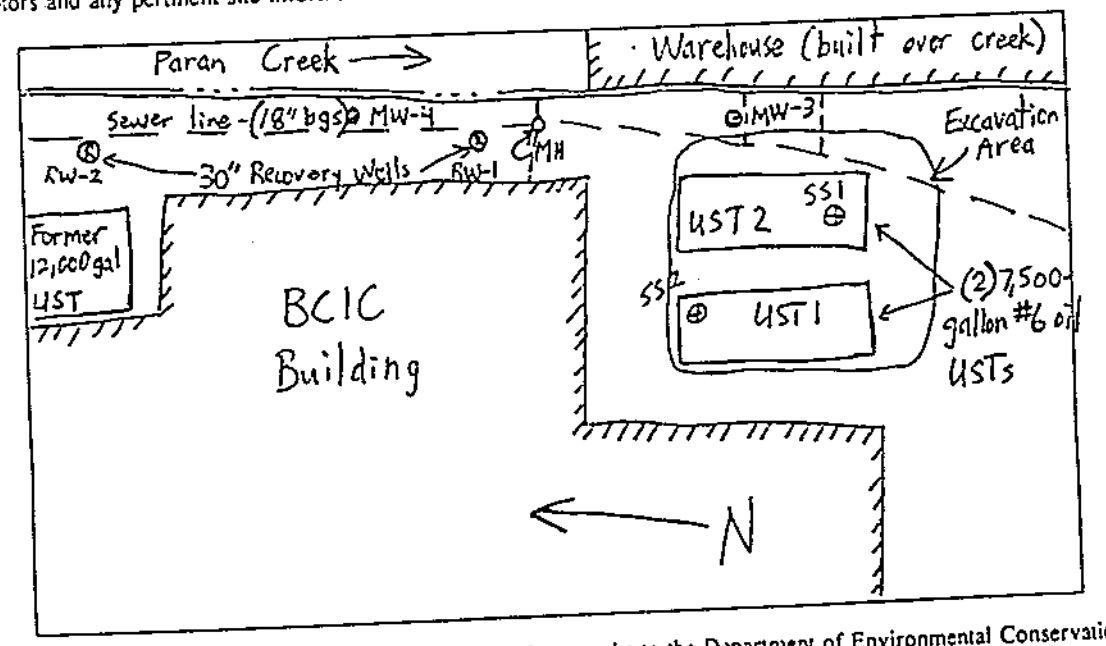
Bradley A. Wheller Date: 12/12/95
Signature of UST owner or owner's authorized representative

As the environmental consultant on site, I hereby certify that the site assessment requirements were performed in accordance with DEC policy and regulations, and that information which I have provided on this form is true and correct to the best of my knowledge.

Bradley A. Wheller Date: 12/8/95
Signature of Environmental Consultant

SITE DIAGRAM

Show location of all tanks and distance to permanent structures, sample points, areas of contamination, potential receptors and any pertinent site information. Indicate North arrow and major street names or route number.



Return form along with complete narrative report and photographs to the Department of Environmental Conservation, Underground Storage Tank Program within 72 hours of closure.

UNDERGROUND STORAGE TANK PERMANENT CLOSURE FORM

AGENCY USE ONLY
Sched. closure date: 12-4-95
Facility Town: BENNINGTON
Facility ID#: —
DEC Official: S. E. T
Evaluated by: —

VERMONT AGENCY OF NATURAL RESOURCES
DEPT. OF ENVIRONMENTAL CONSERVATION
HAZARDOUS MATERIALS MANAGEMENT DIV.
103 SOUTH MAIN STREET, WEST BUILDING
WATERBURY, VERMONT 05671-0404
TELEPHONE: (802) 241-3888

Company conducting site assessment: Johnson Co.
Person conducting site assessment: Brad Wheeler
Telephone number of company for person: 229-4600
Date of UST closure: 12/6/95
Date of site assessment: 12/6/95

This Closure Form may only be used for the facility and date indicated in the upper left hand corner. Changes in the scheduled closure date should be phoned in at least 48 hours in advance. Both the yellow and white copies must be returned to the above address; the pink copy should be retained by the UST owner. A written report from an environmental consultant covering all aspects of closure and site assessment, complete with photographs and any other relevant data, must accompany this form. All procedures must be conducted by qualified personnel - including training required by 29 CFR 1910.120. Documentation of all methods and materials used must be adequate. All work must be performed in compliance with DEC policy "UST Closure and Site Assessment Requirements" as well as all applicable statutes, regulations, and additional policies. The DEC may reject inadequate closure forms and reports.

Section A. Facility Information:
Name of Facility: BENNINGTON COUNTY IND. CORP. Number of Employees: _____
Street address of facility: PO Box 257, Water Street, No. Bennington, VT
Owner of UST(s) to be closed: BCIC
Name of Contact and telephone number if different from owner: Lance Mattison, 442-8975
Mailing address of owner: P.O. Box 257, Water Street, No. Bennington, VT 05257
Telephone number of owner: above

Section B. UST Closure Information: (please check one)
Reason for initiating UST Closure: ___Suspected Leak ___Liability ___Replacement X Abandoned
Which portion of UST is being closed: ___Tanks ___Piping ___Tanks & Piping
USTs undergoing permanent closure. Include condition and if leaks were found:

UST#	Product	Size (gallons)	Tank age	Tank condition	Piping age	Piping condition
1	#6 oil	7,500	>42yrs	poor	same	fair
2	#6 oil	7,500	>42yrs	poor	same	fair

Which tanks, if any, will be closed in-place (must have approval from DEC) neither
Disposal/destruction of removed UST(s): approx
Location Burgess Bros., Bennington, VT Date 12/8/95 Method scrap Date 1/1

Amount (gal.) and type of waste generated from USTs: 1,870 gallons oil + water
Tank cleaning company (must be trained in confined space entry): Precision Industrial Maintenance (PIM)
Certified hazardous waste hauler (tank contents are hazardous waste unless recovered and usable product): PIM
Hazardous waste generator ID number: VTP 000006522

USTs not closed. This portion must be filled in to include all USTs, regardless of size, and status, *whether "abandoned", "in use", "to be installed", or "not aware of any other tanks on-site". Remember: most new installations require permits and advance notice to this office.

UST#	Product	Size (gallons)	Tank age	*Tank Status	Piping Age	*Piping Status
*						

Section C. Initial site characterization:
Work in this section must be completed by a professional environmental consultant or hydrogeologist with experience in environmental sampling for the presence of hazardous materials. A full report from the consultant must accompany this form.
Excavation size (ft²): 1225 Excavation depth (ft): 10' Soil type: 0-10' sandy fill, 10-12' coarse sand, 12+ silt loam Bedrock depth (ft): >14'
PID Information: Make: ThermoEnvironmental OVM. Model: 580B

APPENDIX B

DRILLING AND WELL CONSTRUCTION LOGS

The Johnson Company, Inc.
Environmental Sciences and Engineering
100 State Street
Montpelier, Vermont 05602

DRILLING LOG
WELL # MW-1

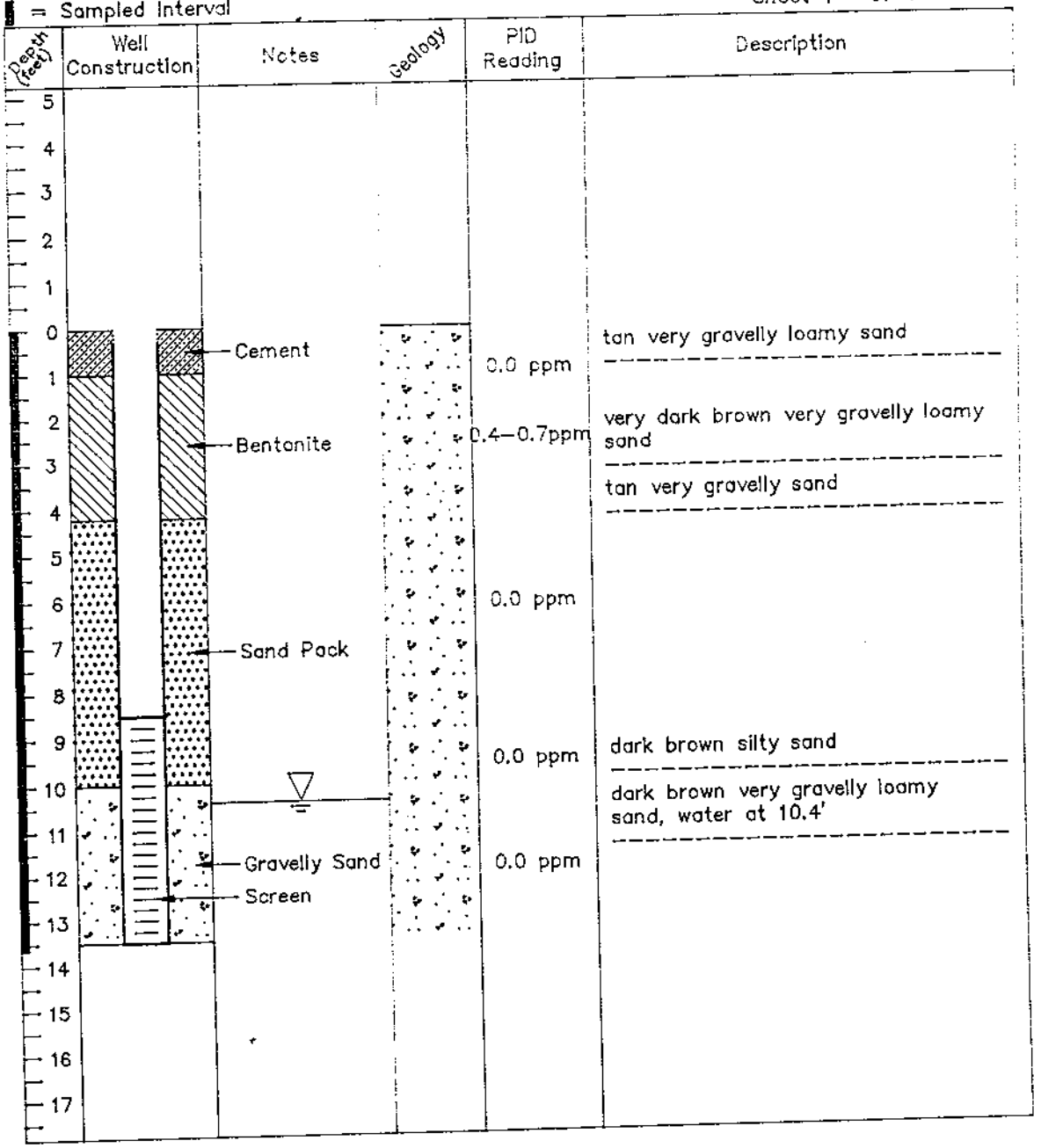
Project: BCIC Property
Location: North Bennington, VT
Job # 1-0299-1
Logged By: BAW
Date Drilled: 12/04/95
Driller: Adams Engineering
Drill Method: Vibratory Corer

Casing Type: PVC
Casing Diameter: 2.0 in.
Casing Length: 8.2 ft.
Screen Type: PVC
Screen Diameter: 2.0 in.
Screen Length: 5.0 ft.
Slot Size: .010"

Total Pipe: 13.2 ft.
Stick Up: -0.3 ft.
Total Hole Depth: 13.5 ft.
Well Guard Length: 0.0 ft.
Initial Water Level: 10.4 ft.
Surface Elevation: --
T.O.C. Elevation: --

Sheet 1 of 1

▮ = Sampled Interval



The Johnson Company, Inc.
Environmental Sciences and Engineering
100 State Street
Montpelier, Vermont 05602

DRILLING LOG
WELL # MW-2

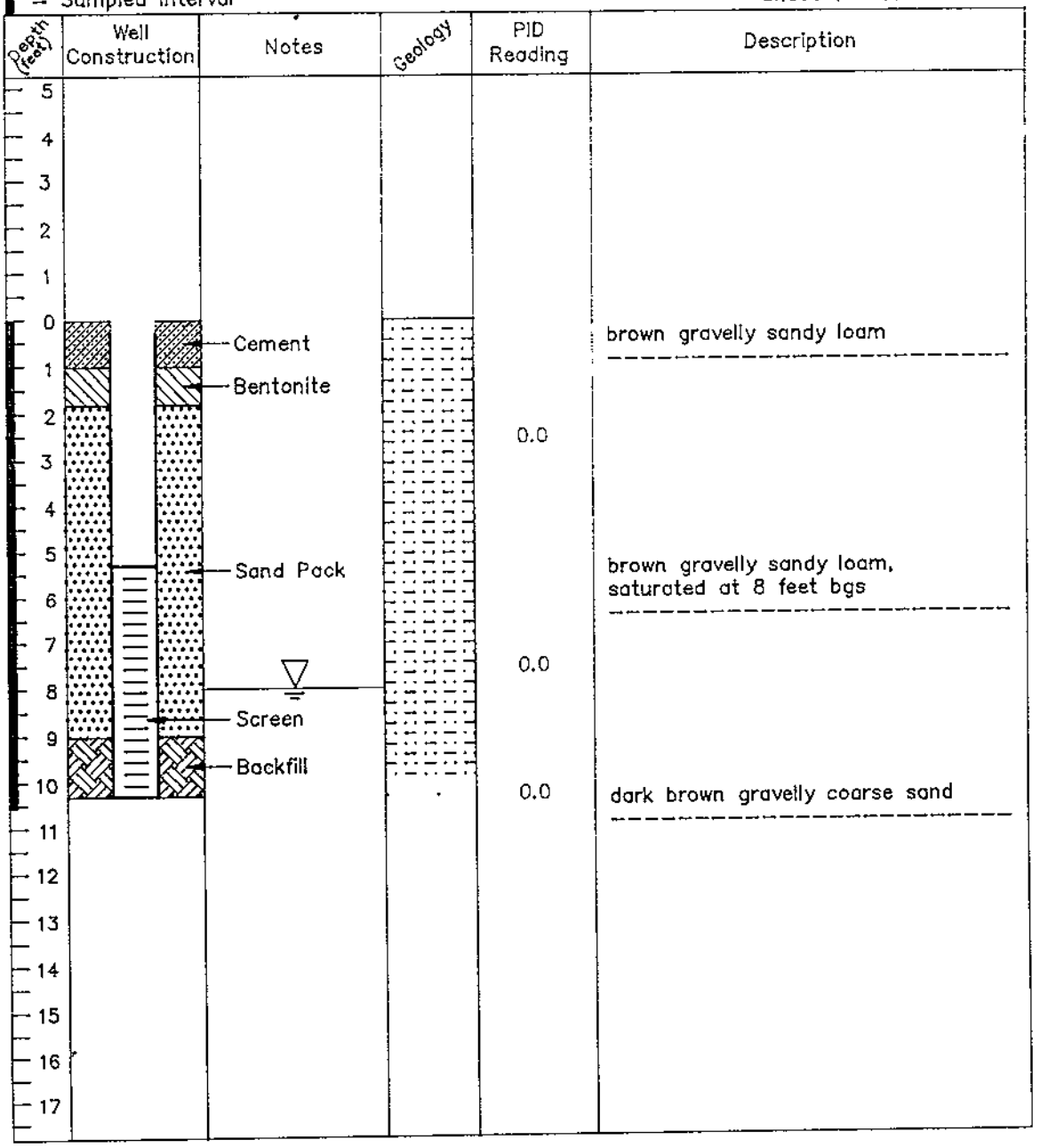
Project: BCIC Property
Location: North Bennington, VT
Job # 1-0299-1
Logged By: BAW
Date Drilled: 12/04/95
Driller: Adams Engineering
Drill Method: Vibratory Corer

Casing Type: PVC
Casing Diameter: 2.0 in.
Casing Length: 5.0 ft.
Screen Type: factory slotted
Screen Diameter: 2.0 in.
Screen Length: 5.0 ft.
Slot Size: 0.010"

Total Pipe: 10.0 ft.
Stick Up: -0.3 ft.
Total Hole Depth: 10.3 ft.
Well Guard Length: 0.0 ft.
Initial Water Level: 8.0 ft.
Surface Elevation: -
T.O.C. Elevation: -

■ = Sampled Interval

Sheet 1 of 1



The Johnson Company, Inc.
Environmental Sciences and Engineering
100 State Street
Montpelier, Vermont 05602

DRILLING LOG
WELL # MW-3

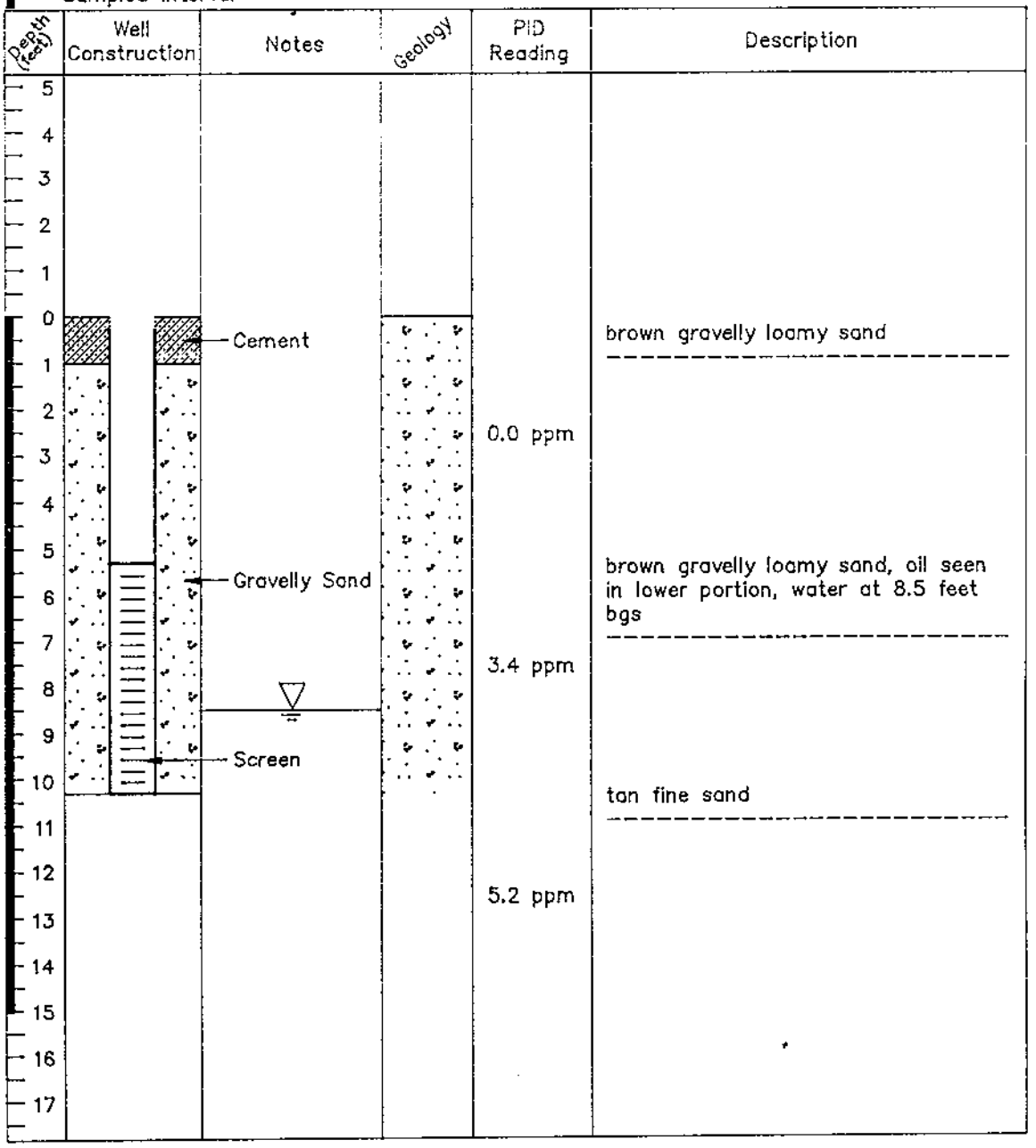
Project: BCIC Property
Location: North Bennington, VT
Job # 1-0299-1
Logged By: BAW
Date Drilled: 12/04/95
Driller: Adams Engineering
Drill Method: Vibratory Corer

Casing Type: PVC
Casing Diameter: 2.0 in.
Casing Length: 5.0 ft.
Screen Type: factory slotted
Screen Diameter: 2.0 in.
Screen Length: 5.0 ft.
Slot Size: 0.010"

Total Pipe: 10.0 ft.
Stick Up: -0.3 ft.
Total Hole Depth: 10.3 ft.
Well Guard Length: 0.0 ft.
Initial Water Level: 8.5 ft.
Surface Elevation: -
T.O.C. Elevation: -

▌ = Sampled Interval

Sheet 1 of 1



The Johnson Company, Inc.
Environmental Sciences and Engineering
100 State Street
Montpelier, Vermont 05602

DRILLING LOG
WELL # MW-4

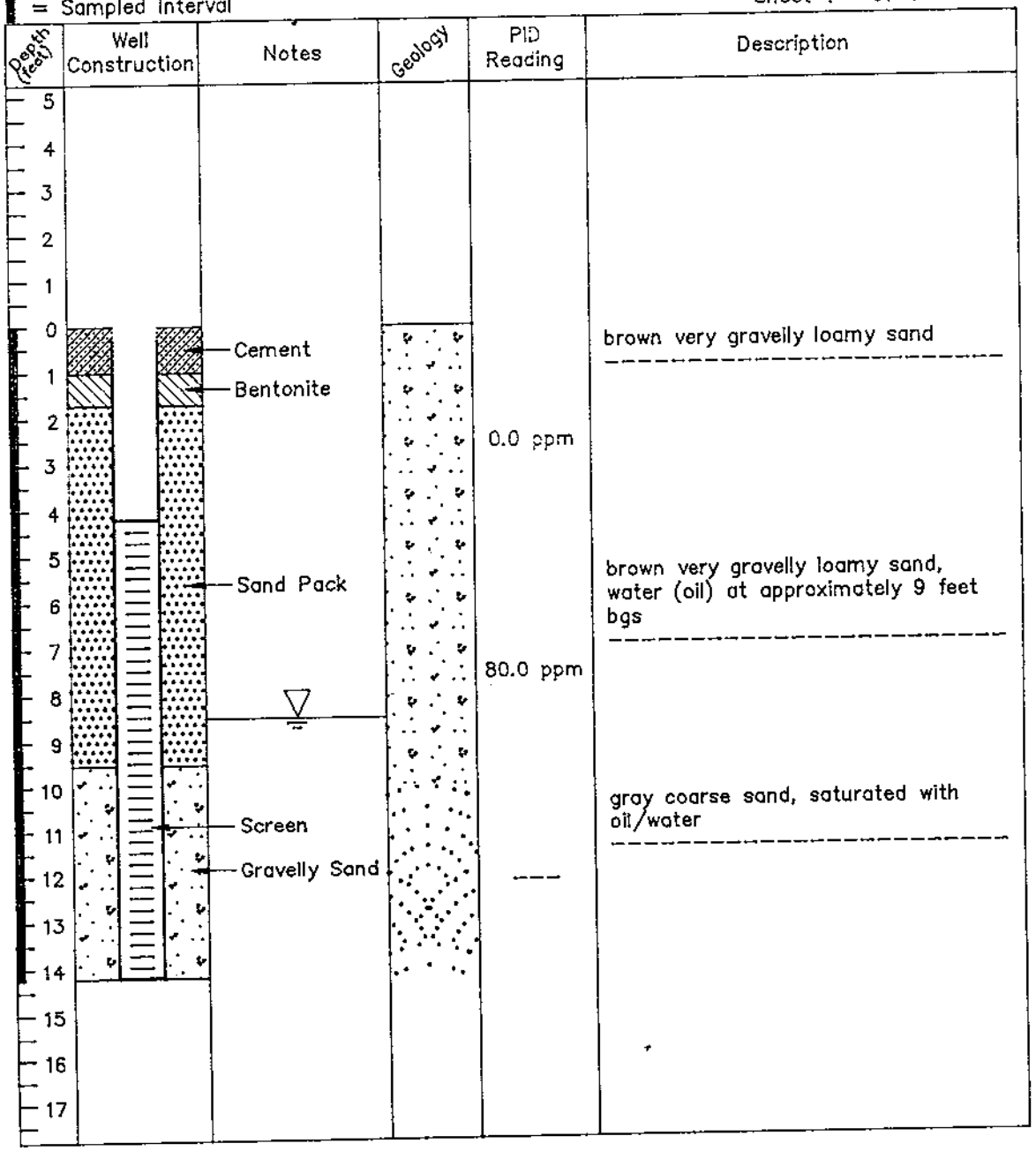
Project: BCIC Property
Location: North Bennington, VT
Job # 1-0299-1
Logged By: BAW
Date Drilled: 12/05/95
Driller: Adams Engineering
Drill Method: Vibratory Corer

Casing Type: PVC
Casing Diameter: 2.0 in.
Casing Length: 3.9 ft.
Screen Type: factory slotted
Screen Diameter: 2.0 in.
Screen Length: 10.0 ft.
Slot Size: 0.010"

Total Pipe: 13.9 ft.
Stick Up: -0.3 ft.
Total Hole Depth: 14.2 ft.
Well Guard Length: 0.0 ft.
Initial Water Level: 8.5 ft.
Surface Elevation: --
T.O.C. Elevation: --

Sheet 1 of 1

▌ = Sampled Interval



APPENDIX C

SOIL LABORATORY ANALYTICAL REPORTS

1.0299-1 BAW

SCITEST
LABORATORY SERVICES
P.O. Box 339
Randolph, Vermont 05060-0339
(802) 728-6313

ANALYTICAL REPORT

The Johnson Company
100 State Street
Montpelier, VT 05602

Work Order No.: 9512-01285

Project Name: BCIC
Customer Nos.: 078611

Date Received: 12/08/95
Date Reported: 1/03/96

Sample Desc.: JCO/BCIC-SS 1
Sample Date: 12/06/95
Collection Time: 12:15

Test Performed	Method	Results	Units	Analyst	Analysis Date
TPH by GCMS	EPA 8100 MODIFIED	< 25	mg/Kg	RJS	12/13/95
Carbon tetrachloride	EPA 8260	< 160	ug/kg	RJS	12/08/95
Bromomethane	EPA 8260	< 160	ug/kg	RJS	12/08/95
Benzene	EPA 8260	< 160	ug/kg	RJS	12/08/95
trans-1,3-Dichloropropene	EPA 8260	< 160	ug/kg	RJS	12/08/95
trans-1,2-Dichloroethene	EPA 8260	< 160	ug/kg	RJS	12/08/95
Xylene-o	EPA 8260	< 320	ug/kg	RJS	12/08/95
1,2-Dichloropropane	EPA 8260	< 160	ug/kg	RJS	12/08/95
1,2-Dichloroethane	EPA 8260	< 160	ug/kg	RJS	12/08/95
1,2-Dichlorobenzene	EPA 8260	< 160	ug/kg	RJS	12/08/95
1,1-Dichloroethene	EPA 8260	< 160	ug/kg	RJS	12/08/95
1,1-Dichloroethane	EPA 8260	< 160	ug/kg	RJS	12/08/95
Trichloroethene (TCE)	EPA 8260	< 160	ug/kg	RJS	12/08/95
1,1,2-Trichloroethane	EPA 8260	< 160	ug/kg	RJS	12/08/95
1,1,1-Trichloroethane	EPA 8260	< 160	ug/kg	RJS	12/08/95
Ethylbenzene	EPA 8260	< 160	ug/kg	RJS	12/08/95
Tetrachloroethene (PCE)	EPA 8260	< 160	ug/kg	RJS	12/08/95
1,1,2,2-Tetrachloroethane	EPA 8260	< 160	ug/kg	RJS	12/08/95
Chloromethane	EPA 8260	< 160	ug/kg	RJS	12/08/95
Dibromomethane	EPA 8260	< 160	ug/kg	RJS	12/08/95
Chloroform	EPA 8260	< 160	ug/kg	RJS	12/08/95
Bromoform	EPA 8260	< 160	ug/kg	RJS	12/08/95
Bromodichloromethane	EPA 8260	< 160	ug/kg	RJS	12/08/95
Chlorobenzene	EPA 8260	< 160	ug/kg	RJS	12/08/95
Chloroethane	EPA 8260	< 960	ug/kg	RJS	12/08/95
Methylene chloride	EPA 8260	< 160	ug/kg	RJS	12/08/95
Trichlorofluoromethane	EPA 8260	< 160	ug/kg	RJS	12/08/95
Vinyl Chloride	EPA 8260	< 160	ug/kg	RJS	12/08/95
Dibromochloromethane	EPA 8260	< 160	ug/kg	RJS	12/08/95
Dichlorodifluoromethane	EPA 8260	< 320	ug/kg	RJS	12/08/95
Xylenes-m,p	EPA 8260	< 1600	ug/kg	RJS	12/08/95
Acetone					

ANALYTICAL REPORT

Project Name: BCIC
Project No.: 078611

Work Order No.: 9512-01285

Sample Desc.: JCO/BCIC-SS 1
Sample Date: 12/06/95
Collection Time: 12:15

Test Performed	Method	Results	Units	Analyst	Analysis Date
2-Butanone (MEK)	EPA 8260	< 1600	ug/kg	RJS	12/08/95
Carbon disulfide	EPA 8260	< 1600	ug/kg	RJS	12/08/95
2-Hexanone	EPA 8260	< 1600	ug/kg	RJS	12/08/95
4-Methyl-2-Pentanone (MIBK)	EPA 8260	< 1600	ug/kg	RJS	12/08/95
Styrene	EPA 8260	< 320	ug/kg	RJS	12/08/95
1,2,3-Trichloropropane	EPA 8260	< 160	ug/kg	RJS	12/08/95
Bromobenzene	EPA 8260	< 160	ug/kg	RJS	12/08/95
Bromochloromethane	EPA 8260	< 160	ug/kg	RJS	12/08/95
n-Butylbenzene	EPA 8260	< 160	ug/kg	RJS	12/08/95
sec-Butylbenzene	EPA 8260	< 160	ug/kg	RJS	12/08/95
tert-Butylbenzene	EPA 8260	< 160	ug/kg	RJS	12/08/95
2-Chlorotoluene (ortho)	EPA 8260	< 160	ug/kg	RJS	12/08/95
4-Chlorotoluene (para)	EPA 8260	< 160	ug/kg	RJS	12/08/95
1,2-Dibromo-3-Chloropropane	EPA 8260	< 320	ug/kg	RJS	12/08/95
1,2-Dibromoethane (EDB)	EPA 8260	< 160	ug/kg	RJS	12/08/95
1,3-Dichlorobenzene (meta)	EPA 8260	< 160	ug/kg	RJS	12/08/95
1,4-Dichlorobenzene (para)	EPA 8260	< 160	ug/kg	RJS	12/08/95
cis 1,2-Dichloroethene	EPA 8260	< 160	ug/kg	RJS	12/08/95
1,3-Dichloropropane	EPA 8260	< 160	ug/kg	RJS	12/08/95
2,2-Dichloropropane	EPA 8260	< 160	ug/kg	RJS	12/08/95
1,1-Dichloropropene	EPA 8260	< 160	ug/kg	RJS	12/08/95
Hexachlorobutadiene	EPA 8260	< 160	ug/kg	RJS	12/08/95
Isopropylbenzene	EPA 8260	< 160	ug/kg	RJS	12/08/95
p-Isopropyltoluene	EPA 8260	< 160	ug/kg	RJS	12/08/95
Naphthalene	EPA 8260	< 480	ug/kg	RJS	12/08/95
n-Propylbenzene	EPA 8260	< 160	ug/kg	RJS	12/08/95
1,1,1,2-Tetrachloroethane	EPA 8260	< 160	ug/kg	RJS	12/08/95
1,2,3-Trichlorobenzene	EPA 8260	< 160	ug/kg	RJS	12/08/95
1,2,4-Trichlorobenzene	EPA 8260	< 160	ug/kg	RJS	12/08/95
1,2,4-Trimethylbenzene	EPA 8260	< 160	ug/kg	RJS	12/08/95
1,3,5-Trimethylbenzene	EPA 8260	< 160	ug/kg	RJS	12/08/95
Toluene	EPA 8260	< 160	ug/kg	RJS	12/08/95
Surrogate:				RJS	12/08/95
***Dibromofluoromethane		95.8	% Recovery	RJS	12/08/95
***Toluene-d8		101	% Recovery	RJS	12/08/95
***Bromofluorobenzene		98.1	% Recovery	RJS	12/08/95
Methyl tertiary Butyl Ether	EPA 8260	< 160	ug/kg	RJS	12/08/95
cis-1,3-Dichloropropene	EPA 8260	< 160	ug/kg	RJS	12/08/95

ANALYTICAL REPORT

Project Name: BCIC
Project No.: 078611

Work Order No.: 9512-01285

Sample Desc.: JCO/BCIC-SS 2
Sample Date: 12/06/95
Collection Time: 15:00

Test Performed	Method	Results	Units	Analyst	Analysis Date
TPH by GCMS	EPA 8100 MODIFIED	< 25	mg/Kg	RJS	12/13/95
Carbon tetrachloride	EPA 8260	< 190	ug/kg	RJS	12/08/95
Bromomethane	EPA 8260	< 190	ug/kg	RJS	12/08/95
Benzene	EPA 8260	< 190	ug/kg	RJS	12/08/95
trans-1,3-Dichloropropene	EPA 8260	< 190	ug/kg	RJS	12/08/95
trans-1,2-Dichloroethene	EPA 8260	< 190	ug/kg	RJS	12/08/95
Xylene-o	EPA 8260	< 380	ug/kg	RJS	12/08/95
1,2-Dichloropropane	EPA 8260	< 190	ug/kg	RJS	12/08/95
1,2-Dichloroethane	EPA 8260	< 190	ug/kg	RJS	12/08/95
1,2-Dichlorobenzene	EPA 8260	< 190	ug/kg	RJS	12/08/95
1,1-Dichloroethene	EPA 8260	< 190	ug/kg	RJS	12/08/95
1,1-Dichloroethane	EPA 8260	< 190	ug/kg	RJS	12/08/95
Trichloroethene (TCE)	EPA 8260	< 190	ug/kg	RJS	12/08/95
1,1,2-Trichloroethane	EPA 8260	< 190	ug/kg	RJS	12/08/95
1,1,1-Trichloroethane	EPA 8260	< 190	ug/kg	RJS	12/08/95
Ethylbenzene	EPA 8260	< 190	ug/kg	RJS	12/08/95
Tetrachloroethene (PCE)	EPA 8260	< 190	ug/kg	RJS	12/08/95
1,1,2,2-Tetrachloroethane	EPA 8260	< 190	ug/kg	RJS	12/08/95
Chloromethane	EPA 8260	< 190	ug/kg	RJS	12/08/95
Dibromomethane	EPA 8260	< 190	ug/kg	RJS	12/08/95
Chloroform	EPA 8260	< 190	ug/kg	RJS	12/08/95
Bromoform	EPA 8260	< 190	ug/kg	RJS	12/08/95
Bromodichloromethane	EPA 8260	< 190	ug/kg	RJS	12/08/95
Chlorobenzene	EPA 8260	< 190	ug/kg	RJS	12/08/95
Chloroethane	EPA 8260	< 190	ug/kg	RJS	12/08/95
Methylene chloride	EPA 8260	< 1100	ug/kg	RJS	12/08/95
Trichlorofluoromethane	EPA 8260	< 190	ug/kg	RJS	12/08/95
Vinyl Chloride	EPA 8260	< 190	ug/kg	RJS	12/08/95
Dibromochloromethane	EPA 8260	< 190	ug/kg	RJS	12/08/95
Dichlorodifluoromethane	EPA 8260	< 190	ug/kg	RJS	12/08/95
Xylenes-m,p	EPA 8260	< 380	ug/kg	RJS	12/08/95
Acetone	EPA 8260	< 1900	ug/kg	RJS	12/08/95
2-Butanone (MEK)	EPA 8260	< 1900	ug/kg	RJS	12/08/95
Carbon disulfide	EPA 8260	< 1900	ug/kg	RJS	12/08/95
2-Hexanone	EPA 8260	< 1900	ug/kg	RJS	12/08/95
4-Methyl-2-Pentanone (MIBK)	EPA 8260	< 1900	ug/kg	RJS	12/08/95
Styrene	EPA 8260	< 380	ug/kg	RJS	12/08/95
1,2,3-Trichloropropane	EPA 8260	< 190	ug/kg	RJS	12/08/95
Bromobenzene	EPA 8260	< 190	ug/kg	RJS	12/08/95

ANALYTICAL REPORT

Project Name: BCIC
Project No.: 078611

Work Order No.: 9512-01285

Sample Desc.: JCO/BCIC-SS 2
Sample Date: 12/06/95
Collection Time: 15:00

Test Performed	Method	Results	Units	Analyst	Analysis Date
Bromochloromethane	EPA 8260	< 190	ug/kg	RJS	12/08/95
n-Butylbenzene	EPA 8260	< 190	ug/kg	RJS	12/08/95
sec-Butylbenzene	EPA 8260	< 190	ug/kg	RJS	12/08/95
tert-Butylbenzene	EPA 8260	< 190	ug/kg	RJS	12/08/95
2-Chlorotoluene (ortho)	EPA 8260	< 190	ug/kg	RJS	12/08/95
4-Chlorotoluene (para)	EPA 8260	< 190	ug/kg	RJS	12/08/95
1,2-Dibromo-3-Chloropropane	EPA 8260	< 190	ug/kg	RJS	12/08/95
1,2-Dibromoethane (EDB)	EPA 8260	< 190	ug/kg	RJS	12/08/95
1,3-Dichlorobenzene (meta)	EPA 8260	< 190	ug/kg	RJS	12/08/95
1,4-Dichlorobenzene (para)	EPA 8260	< 190	ug/kg	RJS	12/08/95
cis 1,2-Dichloroethene	EPA 8260	< 190	ug/kg	RJS	12/08/95
1,3-Dichloropropane	EPA 8260	< 190	ug/kg	RJS	12/08/95
2,2-Dichloropropane	EPA 8260	< 190	ug/kg	RJS	12/08/95
1,1-Dichloropropene	EPA 8260	< 190	ug/kg	RJS	12/08/95
Hexachlorobutadiene	EPA 8260	< 190	ug/kg	RJS	12/08/95
Isopropylbenzene	EPA 8260	< 190	ug/kg	RJS	12/08/95
p-Isopropyltoluene	EPA 8260	< 190	ug/kg	RJS	12/08/95
Naphthalene	EPA 8260	< 570	ug/kg	RJS	12/08/95
n-Propylbenzene	EPA 8260	< 190	ug/kg	RJS	12/08/95
1,1,1,2-Tetrachloroethane	EPA 8260	< 190	ug/kg	RJS	12/08/95
1,2,3-Trichlorobenzene	EPA 8260	< 190	ug/kg	RJS	12/08/95
1,2,4-Trichlorobenzene	EPA 8260	< 190	ug/kg	RJS	12/08/95
1,2,4-Trimethylbenzene	EPA 8260	< 190	ug/kg	RJS	12/08/95
1,3,5-Trimethylbenzene	EPA 8260	< 190	ug/kg	RJS	12/08/95
Toluene	EPA 8260	< 190	ug/kg	RJS	12/08/95
Surrogate:		Complete		RJS	12/08/95
***Dibromofluoromethane		103	% Recovery	RJS	12/08/95
***Toluene-d8		99.3	% Recovery	RJS	12/08/95
***Bromofluorobenzene		97.1	% Recovery	RJS	12/08/95
Methyl tertiary Butyl Ether	EPA 8260	< 190	ug/kg	RJS	12/08/95
cis-1,3-Dichloropropene	EPA 8260	< 190	ug/kg	RJS	12/08/95

ANALYTICAL REPORT

Project Name: BCIC
Project No.: 078611

Work Order No.: 9512-01285

Authorized by: Patrick Lemaitre

SCITEST
LABORATORY SERVICES
P.O. Box 339
Randolph, Vermont 05060-0339
(802) 728-6313

ANALYTICAL REPORT

The Johnson Company
100 State Street
Montpelier, VT 05602

Work Order No.: 9512-01190

Project Name: BCIC
Customer Nos.: 078611

Date Received: 12/08/95
Date Reported: 1/03/96

Sample Desc.: JCO/BCIC-SS 3
Sample Date: 12/06/95
Collection Time: 16:10

Test Performed	Method	Results	Units	Analyst	Analysis Date
Carbon tetrachloride	EPA 8260	< 250	ug/kg	RJS	12/08/95
Bromomethane	EPA 8260	< 250	ug/kg	RJS	12/08/95
Benzene	EPA 8260	777	ug/kg	RJS	12/08/95
trans-1,3-Dichloropropene	EPA 8260	< 250	ug/kg	RJS	12/08/95
trans-1,2-Dichloroethene	EPA 8260	< 250	ug/kg	RJS	12/08/95
Xylene-o	EPA 8260	40,800	ug/kg	RJS	12/08/95
1,2-Dichloropropane	EPA 8260	< 250	ug/kg	RJS	12/08/95
1,2-Dichloroethane	EPA 8260	< 250	ug/kg	RJS	12/08/95
1,2-Dichlorobenzene	EPA 8260	< 250	ug/kg	RJS	12/08/95
1,1-Dichloroethene	EPA 8260	< 250	ug/kg	RJS	12/08/95
1,1-Dichloroethane	EPA 8260	< 250	ug/kg	RJS	12/08/95
Trichloroethene (TCE)	EPA 8260	< 250	ug/kg	RJS	12/08/95
1,1,2-Trichloroethane	EPA 8260	< 250	ug/kg	RJS	12/08/95
1,1,1-Trichloroethane	EPA 8260	< 250	ug/kg	RJS	12/08/95
Ethylbenzene	EPA 8260	8790	ug/kg	RJS	12/08/95
Tetrachloroethene (PCE)	EPA 8260	< 250	ug/kg	RJS	12/08/95
1,1,2,2-Tetrachloroethane	EPA 8260	< 250	ug/kg	RJS	12/08/95
Chloromethane	EPA 8260	< 250	ug/kg	RJS	12/08/95
Dibromomethane	EPA 8260	< 250	ug/kg	RJS	12/08/95
Chloroform	EPA 8260	< 250	ug/kg	RJS	12/08/95
Bromoform	EPA 8260	< 250	ug/kg	RJS	12/08/95
Bromodichloromethane	EPA 8260	< 250	ug/kg	RJS	12/08/95
Chlorobenzene	EPA 8260	< 250	ug/kg	RJS	12/08/95
Chloroethane	EPA 8260	< 250	ug/kg	RJS	12/08/95
Methylene chloride	EPA 8260	< 2100	ug/kg	RJS	12/08/95
Trichlorofluoromethane	EPA 8260	< 250	ug/kg	RJS	12/08/95
Vinyl Chloride	EPA 8260	< 250	ug/kg	RJS	12/08/95
Dibromochloromethane	EPA 8260	< 250	ug/kg	RJS	12/08/95
Dichlorodifluoromethane	EPA 8260	< 250	ug/kg	RJS	12/08/95
Xylenes-m,p	EPA 8260	92,100	ug/kg	RJS	12/08/95
Acetone	EPA 8260	< 2500	ug/kg	RJS	12/08/95
2-Butanone (MEK)	EPA 8260	< 2500	ug/kg	RJS	12/08/95

ANALYTICAL REPORT

Project Name: BCIC
Project No.: 078611

Work Order No.: 9512-01190

Sample Desc.: JCO/BCIC-SS 3
Sample Date: 12/06/95
Collection Time: 16:10

Test Performed	Method	Results	Units	Analyst	Analysis Date
Carbon disulfide	EPA 8260	< 2500	ug/kg	RJS	12/08/95
2-Hexanone	EPA 8260	< 2500	ug/kg	RJS	12/08/95
4-Methyl-2-Pentanone (MIBK)	EPA 8260	< 2500	ug/kg	RJS	12/08/95
Styrene	EPA 8260	< 500	ug/kg	RJS	12/08/95
1,2,3-Trichloropropane	EPA 8260	< 250	ug/kg	RJS	12/08/95
Bromobenzene	EPA 8260	< 250	ug/kg	RJS	12/08/95
Bromochloromethane	EPA 8260	< 250	ug/kg	RJS	12/08/95
n-Butylbenzene	EPA 8260	5700	ug/kg	RJS	12/08/95
sec-Butylbenzene	EPA 8260	7650	ug/kg	RJS	12/08/95
tert-Butylbenzene	EPA 8260	< 250	ug/kg	RJS	12/08/95
2-Chlorotoluene (ortho)	EPA 8260	< 250	ug/kg	RJS	12/08/95
4-Chlorotoluene (para)	EPA 8260	< 250	ug/kg	RJS	12/08/95
1,2-Dibromo-3-Chloropropane	EPA 8260	< 500	ug/kg	RJS	12/08/95
1,2-Dibromoethane (EDB)	EPA 8260	< 250	ug/kg	RJS	12/08/95
1,3-Dichlorobenzene (meta)	EPA 8260	< 250	ug/kg	RJS	12/08/95
1,4-Dichlorobenzene (para)	EPA 8260	< 250	ug/kg	RJS	12/08/95
cis 1,2-Dichloroethene	EPA 8260	< 250	ug/kg	RJS	12/08/95
1,3-Dichloropropane	EPA 8260	< 250	ug/kg	RJS	12/08/95
2,2-Dichloropropane	EPA 8260	< 250	ug/kg	RJS	12/08/95
1,1-Dichloropropene	EPA 8260	< 250	ug/kg	RJS	12/08/95
Hexachlorobutadiene	EPA 8260	< 250	ug/kg	RJS	12/08/95
Isopropylbenzene	EPA 8260	4680	ug/kg	RJS	12/08/95
p-Isopropyltoluene	EPA 8260	4650	ug/kg	RJS	12/08/95
Naphthalene	EPA 8260	120,000	ug/kg	RJS	12/08/95
n-Propylbenzene	EPA 8260	10,600	ug/kg	RJS	12/08/95
1,1,1,2-Tetrachloroethane	EPA 8260	< 250	ug/kg	RJS	12/08/95
1,2,3-Trichlorobenzene	EPA 8260	< 250	ug/kg	RJS	12/08/95
1,2,4-Trichlorobenzene	EPA 8260	< 250	ug/kg	RJS	12/08/95
1,2,4-Trimethylbenzene	EPA 8260	118,000	ug/kg	RJS	12/08/95
1,3,5-Trimethylbenzene	EPA 8260	31,700	ug/kg	RJS	12/08/95
Toluene	EPA 8260	15,200	ug/kg	RJS	12/08/95
Surrogate:				RJS	12/08/95
***Dibromofluoromethane		109	% Recovery	RJS	12/08/95
***Toluene-d8		104	% Recovery	RJS	12/08/95
***Bromofluorobenzene		99.1	% Recovery	RJS	12/08/95
Methyl tertiary Butyl Ether	EPA 8260	< 250	ug/kg	RJS	12/08/95
cis-1,3-Dichloropropene	EPA 8260	< 250	ug/kg	RJS	12/08/95

ANALYTICAL REPORT

Project Name: BCIC
Project No.: 078611

Work Order No.: 9512-01190

Sample Desc.: JCO/BCIC-MW 1
Sample Date: 12/06/95
Collection Time: 16:00

Test Performed	Method	Results	Units	Analyst	Analysis Date
Volatiles	EPA 8260			RJS	12/08/95
Carbon tetrachloride	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Bromomethane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Benzene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
trans-1,3-Dichloropropene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
trans-1,2-Dichloroethene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
1,2-Dichloropropane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
1,2-Dichloroethane	EPA 8260	3	ug/L	RJS	12/08/95
1,2-Dichlorobenzene (ortho)	EPA 8260	< 1.0	ug/L	RJS	12/08/95
1,1-Dichloroethene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
1,1-Dichloroethane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Trichloroethene (TCE)	EPA 8260	< 1.0	ug/L	RJS	12/08/95
1,1,2-Trichloroethane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
1,1,1-Trichloroethane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Ethylbenzene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Tetrachloroethene (PCE)	EPA 8260	< 1.0	ug/L	RJS	12/08/95
1,1,2,2-Tetrachloroethane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Chloromethane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Dibromomethane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Chloroform	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Bromoform	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Bromodichloromethane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Chlorobenzene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Chloroethane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Methylene chloride	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Trichlorofluoromethane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Vinyl Chloride	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Dibromochloromethane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
o-Xylene	EPA 8260	< 2.0	ug/L	RJS	12/08/95
Dichlorodifluoromethane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Xylenes-m,p	EPA 8260	< 2.0	ug/L	RJS	12/08/95
Acetone	EPA 8260	< 10	ug/L	RJS	12/08/95
2-Butanone (MEK)	EPA 8260	< 10	ug/L	RJS	12/08/95
Carbon disulfide	EPA 8260	< 10	ug/L	RJS	12/08/95
2-Hexanone	EPA 8260	< 10	ug/L	RJS	12/08/95
4-Methyl-2-Pentanone (MIBK)	EPA 8260	< 10	ug/L	RJS	12/08/95
Styrene	EPA 8260	< 2.0	ug/L	RJS	12/08/95
1,2,3-Trichloropropane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Bromobenzene	EPA 8260	< 1.0	ug/L	RJS	12/08/95

ANALYTICAL REPORT

Project Name: BCIC
Project No.: 078611

Work Order No.: 9512-01190

Sample Desc.: JCO/BCIC-MW 1
Sample Date: 12/06/95
Collection Time: 16:00

Test Performed	Method	Results	Units	Analyst	Analysis Date
Bromochloromethane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
n-Butylbenzene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
sec-Butylbenzene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
tert-Butylbenzene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
2-Chlorotoluene (ortho)	EPA 8260	< 1.0	ug/L	RJS	12/08/95
4-Chlorotoluene (para)	EPA 8260	< 1.0	ug/L	RJS	12/08/95
1,2-Dibromo-3-Chloropropane	EPA 8260	< 2.0	ug/L	RJS	12/08/95
1,2-Dibromoethane (EDB)	EPA 8260	< 1.0	ug/L	RJS	12/08/95
1,3-Dichlorobenzene (meta)	EPA 8260	< 1.0	ug/L	RJS	12/08/95
1,4-Dichlorobenzene (para)	EPA 8260	< 1.0	ug/L	RJS	12/08/95
cis 1,2-Dichloroethene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
1,3-Dichloropropane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
2,2-Dichloropropane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
1,1-Dichloropropene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Hexachlorobutadiene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Isopropylbenzene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
p-Isopropyltoluene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Naphthalene	EPA 8260	< 2.0	ug/L	RJS	12/08/95
n-Propylbenzene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
1,1,1,2-Tetrachloroethane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
1,2,3-Trichlorobenzene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
1,2,4-Trichlorobenzene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
1,2,4-Trimethylbenzene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
1,3,5-Trimethylbenzene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Toluene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
cis-1,3-Dichloropropene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Methyl Tertiary Butyl Ether	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Surrogate:					
***Dibromofluoromethane		97.2	% Recovery	RJS	12/08/95
***Toluene-d8		98.9	% Recovery	RJS	12/08/95
***Bromofluorobenzene		95.6	% Recovery	RJS	12/08/95

Sample Desc.: JCO/BCIC-MW 3
Sample Date: 12/06/95
Collection Time: 9:15

Test Performed	Method	Results	Units	Analyst	Analysis Date
TPH by GCMS	EPA 8100 MODIFIED	< 10	mg/L	RJS	12/13/95
Volatiles	EPA 8260			RJS	12/08/95

SCITEST
LABORATORY SERVICES

ANALYTICAL REPORT

Project Name: BCIC
Project No.: 078611

Work Order No.: 9512-01190

Sample Desc.: JCO/BCIC-MW 3
Sample Date: 12/06/95
Collection Time: 9:15

Test Performed	Method	Results	Units	Analyst	Analysis Date
Carbon tetrachloride	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Bromomethane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Benzene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
trans-1,3-Dichloropropene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
trans-1,2-Dichloroethene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
1,2-Dichloropropane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
1,2-Dichloroethane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
1,2-Dichlorobenzene (ortho)	EPA 8260	< 1.0	ug/L	RJS	12/08/95
1,1-Dichloroethene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
1,1-Dichloroethane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Trichloroethene (TCE)	EPA 8260	< 1.0	ug/L	RJS	12/08/95
1,1,2-Trichloroethane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
1,1,1-Trichloroethane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Ethylbenzene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Tetrachloroethene (PCE)	EPA 8260	< 1.0	ug/L	RJS	12/08/95
1,1,2,2-Tetrachloroethane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Chloromethane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Dibromomethane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Chloroform	EPA 8260	1	ug/L	RJS	12/08/95
Bromoform	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Bromodichloromethane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Chlorobenzene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Chloroethane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Methylene chloride	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Trichlorofluoromethane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Vinyl Chloride	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Dibromochloromethane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
o-Xylene	EPA 8260	< 2.0	ug/L	RJS	12/08/95
Dichlorodifluoromethane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Xylenes-m,p	EPA 8260	< 2.0	ug/L	RJS	12/08/95
Acetone	EPA 8260	60	ug/L	RJS	12/08/95
2-Butanone (MEK)	EPA 8260	< 10	ug/L	RJS	12/08/95
Carbon disulfide	EPA 8260	< 10	ug/L	RJS	12/08/95
2-Hexanone	EPA 8260	< 10	ug/L	RJS	12/08/95
4-Methyl-2-Pentanone (MIBK)	EPA 8260	< 10	ug/L	RJS	12/08/95
Styrene	EPA 8260	< 2.0	ug/L	RJS	12/08/95
1,2,3-Trichloropropane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Bromobenzene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Bromochloromethane	EPA 8260	< 1.0	ug/L	RJS	12/08/95

ANALYTICAL REPORT

Project Name: BCIC
Project No.: 078611

Work Order No.: 9512-01190

Sample Desc.: JCO/BCIC-MW 3
Sample Date: 12/06/95
Collection Time: 9:15

Test Performed	Method	Results	Units	Analyst	Analysis Date
n-Butylbenzene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
sec-Butylbenzene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
tert-Butylbenzene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
2-Chlorotoluene (ortho)	EPA 8260	< 1.0	ug/L	RJS	12/08/95
4-Chlorotoluene (para)	EPA 8260	< 1.0	ug/L	RJS	12/08/95
1,2-Dibromo-3-Chloropropane	EPA 8260	< 2.0	ug/L	RJS	12/08/95
1,2-Dibromoethane (EDB)	EPA 8260	< 1.0	ug/L	RJS	12/08/95
1,3-Dichlorobenzene (meta)	EPA 8260	< 1.0	ug/L	RJS	12/08/95
1,4-Dichlorobenzene (para)	EPA 8260	< 1.0	ug/L	RJS	12/08/95
cis 1,2-Dichloroethene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
1,3-Dichloropropane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
2,2-Dichloropropane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
1,1-Dichloropropene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Hexachlorobutadiene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Isopropylbenzene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
p-Isopropyltoluene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Naphthalene	EPA 8260	4	ug/L	RJS	12/08/95
n-Propylbenzene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
1,1,1,2-Tetrachloroethane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
1,2,3-Trichlorobenzene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
1,2,4-Trichlorobenzene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
1,2,4-Trimethylbenzene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
1,3,5-Trimethylbenzene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Toluene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
cis-1,3-Dichloropropene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Methyl Tertiary Butyl Ether	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Surrogate:					
***Dibromofluoromethane		93.9	% Recovery	RJS	12/08/95
***Toluene-d8		102	% Recovery	RJS	12/08/95
***Bromofluorobenzene		94.8	% Recovery	RJS	12/08/95

Sample Desc.: JCO/BCIC-RW 2
Sample Date: 12/06/95
Collection Time: 10:45

Test Performed	Method	Results	Units	Analyst	Analysis Date
Volatiles	EPA 8260			RJS	12/08/95
Carbon tetrachloride	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Bromomethane	EPA 8260	< 1.0	ug/L	RJS	12/08/95

ANALYTICAL REPORT

Project Name: BCIC
Project No.: 078611

Work Order No.: 9512-01190

Sample Desc.: JCO/BCIC-RW 2
Sample Date: 12/06/95 Collection Time: 10:45

Test Performed	Method	Results	Units	Analyst	Analysis Date
Benzene	EPA 8260	23	ug/L	RJS	12/08/95
trans-1,3-Dichloropropene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
trans-1,2-Dichloroethene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
1,2-Dichloropropane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
1,2-Dichloroethane	EPA 8260	2	ug/L	RJS	12/08/95
1,2-Dichlorobenzene (ortho)	EPA 8260	< 1.0	ug/L	RJS	12/08/95
1,1-Dichloroethene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
1,1-Dichloroethane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Trichloroethene (TCE)	EPA 8260	< 1.0	ug/L	RJS	12/08/95
1,1,2-Trichloroethane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
1,1,1-Trichloroethane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Ethylbenzene	EPA 8260	17	ug/L	RJS	12/08/95
Tetrachloroethene (PCE)	EPA 8260	< 1.0	ug/L	RJS	12/08/95
1,1,2,2-Tetrachloroethane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Chloromethane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Dibromomethane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Chloroform	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Bromoform	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Bromodichloromethane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Chlorobenzene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Chloroethane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Methylene chloride	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Trichlorofluoromethane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Vinyl Chloride	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Dibromochloromethane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
o-Xylene	EPA 8260	31	ug/L	RJS	12/08/95
Dichlorodifluoromethane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Xylenes-m,p	EPA 8260	45	ug/L	RJS	12/08/95
Acetone	EPA 8260	3040	ug/L	RJS	12/08/95
2-Butanone (MEK)	EPA 8260	< 10	ug/L	RJS	12/08/95
Carbon disulfide	EPA 8260	< 10	ug/L	RJS	12/08/95
2-Hexanone	EPA 8260	< 10	ug/L	RJS	12/08/95
4-Methyl-2-Pentanone (MIBK)	EPA 8260	< 10	ug/L	RJS	12/08/95
Styrene	EPA 8260	< 2.0	ug/L	RJS	12/08/95
1,2,3-Trichloropropane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Bromobenzene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Bromochloromethane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
n-Butylbenzene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
sec-Butylbenzene	EPA 8260	2	ug/L	RJS	12/08/95

ANALYTICAL REPORT

Project Name: BCIC
Project No.: 078611

Work Order No.: 9512-01190

Sample Desc.: JCO/BCIC-RW 2
Sample Date: 12/06/95
Collection Time: 10:45

Test Performed	Method	Results	Units	Analyst	Analysis Date
tert-Butylbenzene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
2-Chlorotoluene (ortho)	EPA 8260	< 1.0	ug/L	RJS	12/08/95
4-Chlorotoluene (para)	EPA 8260	< 1.0	ug/L	RJS	12/08/95
1,2-Dibromo-3-Chloropropane	EPA 8260	< 2.0	ug/L	RJS	12/08/95
1,2-Dibromoethane (EDB)	EPA 8260	< 1.0	ug/L	RJS	12/08/95
1,3-Dichlorobenzene (meta)	EPA 8260	< 1.0	ug/L	RJS	12/08/95
1,4-Dichlorobenzene (para)	EPA 8260	< 1.0	ug/L	RJS	12/08/95
cis 1,2-Dichloroethene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
1,3-Dichloropropane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
2,2-Dichloropropane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
1,1-Dichloropropene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Hexachlorobutadiene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Isopropylbenzene	EPA 8260	4	ug/L	RJS	12/08/95
p-Isopropyltoluene	EPA 8260	2	ug/L	RJS	12/08/95
Naphthalene	EPA 8260	222	ug/L	RJS	12/08/95
n-Propylbenzene	EPA 8260	5	ug/L	RJS	12/08/95
1,1,1,2-Tetrachloroethane	EPA 8260	< 1.0	ug/L	RJS	12/08/95
1,2,3-Trichlorobenzene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
1,2,4-Trichlorobenzene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
1,2,4-Trimethylbenzene	EPA 8260	37	ug/L	RJS	12/08/95
1,3,5-Trimethylbenzene	EPA 8260	11	ug/L	RJS	12/08/95
Toluene	EPA 8260	44	ug/L	RJS	12/08/95
cis-1,3-Dichloropropene	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Methyl Tertiary Butyl Ether	EPA 8260	< 1.0	ug/L	RJS	12/08/95
Surrogate:					
***Dibromofluoromethane		104	% Recovery	RJS	12/08/95
***Toluene-d8		102	% Recovery	RJS	12/08/95
***Bromofluorobenzene		100	% Recovery	RJS	12/08/95

Sample Desc.: JCO/BCIC-MW 4
Sample Date: 12/06/95
Collection Time: 10:00

Test Performed	Method	Results	Units	Analyst	Analysis Date
TPH by GCMS	EPA 8100 MODIFIED	98.8	% Fuel Oil #4	RJS	12/13/95
Carbon tetrachloride	EPA 8260	< 2800	ug/kg	RJS	12/08/95
Bromomethane	EPA 8260	< 2800	ug/kg	RJS	12/08/95
Benzene	EPA 8260	42,200	ug/kg	RJS	12/08/95
trans-1,3-Dichloropropene	EPA 8260	< 2800	ug/kg	RJS	12/08/95

ANALYTICAL REPORT

Project Name: BCIC
Project No.: 078611

Work Order No.: 9512-01190

Sample Desc.: JCO/BCIC-MW 4
Sample Date: 12/06/95
Collection Time: 10:00

Test Performed	Method	Results	Units	Analyst	Analysis Date
trans-1,2-Dichloroethene	EPA 8260	< 2800	ug/kg	RJS	12/08/95
Xylene-o	EPA 8260	465,000	ug/kg	RJS	12/08/95
1,2-Dichloropropane	EPA 8260	< 2800	ug/kg	RJS	12/08/95
1,2-Dichloroethane	EPA 8260	< 2800	ug/kg	RJS	12/08/95
1,2-Dichlorobenzene	EPA 8260	< 2800	ug/kg	RJS	12/08/95
1,1-Dichloroethene	EPA 8260	< 2800	ug/kg	RJS	12/08/95
1,1-Dichloroethane	EPA 8260	< 2800	ug/kg	RJS	12/08/95
Trichloroethene (TCE)	EPA 8260	< 2800	ug/kg	RJS	12/08/95
1,1,2-Trichloroethane	EPA 8260	< 2800	ug/kg	RJS	12/08/95
1,1,1-Trichloroethane	EPA 8260	< 2800	ug/kg	RJS	12/08/95
Ethylbenzene	EPA 8260	226,000	ug/kg	RJS	12/08/95
Tetrachloroethene (PCE)	EPA 8260	< 2800	ug/kg	RJS	12/08/95
1,1,2,2-Tetrachloroethane	EPA 8260	< 2800	ug/kg	RJS	12/08/95
Chloromethane	EPA 8260	< 2800	ug/kg	RJS	12/08/95
Dibromomethane	EPA 8260	< 2800	ug/kg	RJS	12/08/95
Chloroform	EPA 8260	< 2800	ug/kg	RJS	12/08/95
Bromoform	EPA 8260	< 2800	ug/kg	RJS	12/08/95
Bromodichloromethane	EPA 8260	< 2800	ug/kg	RJS	12/08/95
Chlorobenzene	EPA 8260	< 2800	ug/kg	RJS	12/08/95
Chloroethane	EPA 8260	< 2800	ug/kg	RJS	12/08/95
Methylene chloride	EPA 8260	< 28,000	ug/kg	RJS	12/08/95
Trichlorofluoromethane	EPA 8260	< 2800	ug/kg	RJS	12/08/95
Vinyl Chloride	EPA 8260	< 2800	ug/kg	RJS	12/08/95
Dibromochloromethane	EPA 8260	< 2800	ug/kg	RJS	12/08/95
Dichlorodifluoromethane	EPA 8260	< 2800	ug/kg	RJS	12/08/95
Xylenes-m,p	EPA 8260	943,000	ug/kg	RJS	12/08/95
Acetone	EPA 8260	28,400	ug/kg	RJS	12/08/95
2-Butanone (MEK)	EPA 8260	< 28,000	ug/kg	RJS	12/08/95
Carbon disulfide	EPA 8260	< 28,000	ug/kg	RJS	12/08/95
2-Hexanone	EPA 8260	< 28,000	ug/kg	RJS	12/08/95
4-Methyl-2-Pentanone (MIBK)	EPA 8260	< 28,000	ug/kg	RJS	12/08/95
Styrene	EPA 8260	< 5600	ug/kg	RJS	12/08/95
1,2,3-Trichloropropane	EPA 8260	< 2800	ug/kg	RJS	12/08/95
Bromobenzene	EPA 8260	< 2800	ug/kg	RJS	12/08/95
Bromochloromethane	EPA 8260	< 2800	ug/kg	RJS	12/08/95
n-Butylbenzene	EPA 8260	248,000	ug/kg	RJS	12/08/95
sec-Butylbenzene	EPA 8260	143,000	ug/kg	RJS	12/08/95
tert-Butylbenzene	EPA 8260	112,000	ug/kg	RJS	12/08/95
2-Chlorotoluene (ortho)	EPA 8260	< 2800	ug/kg	RJS	12/08/95

ANALYTICAL REPORT

Project Name: BCIC
Project No.: 078611

Work Order No.: 9512-01190

Sample Desc.: JCO/BCIC-MW 4
Sample Date: 12/06/95
Collection Time: 10:00

Test Performed	Method	Results	Units	Analyst	Analysis Date
4-Chlorotoluene (para)	EPA 8260	< 2800	ug/kg	RJS	12/08/95
1,2-Dibromo-3-Chloropropane	EPA 8260	< 5600	ug/kg	RJS	12/08/95
1,2-Dibromoethane (EDB)	EPA 8260	< 2800	ug/kg	RJS	12/08/95
1,3-Dichlorobenzene (meta)	EPA 8260	< 2800	ug/kg	RJS	12/08/95
1,4-Dichlorobenzene (para)	EPA 8260	< 2800	ug/kg	RJS	12/08/95
cis 1,2-Dichloroethene	EPA 8260	< 2800	ug/kg	RJS	12/08/95
1,3-Dichloropropane	EPA 8260	< 2800	ug/kg	RJS	12/08/95
2,2-Dichloropropane	EPA 8260	< 2800	ug/kg	RJS	12/08/95
1,1-Dichloropropene	EPA 8260	< 2800	ug/kg	RJS	12/08/95
Hexachlorobutadiene	EPA 8260	< 2800	ug/kg	RJS	12/08/95
Isopropylbenzene	EPA 8260	126,000	ug/kg	RJS	12/08/95
p-Isopropyltoluene	EPA 8260	75,600	ug/kg	RJS	12/08/95
Naphthalene	EPA 8260	1,250,000	ug/kg	RJS	12/08/95
n-Propylbenzene	EPA 8260	248,000	ug/kg	RJS	12/08/95
1,1,1,2-Tetrachloroethane	EPA 8260	< 2800	ug/kg	RJS	12/08/95
1,2,3-Trichlorobenzene	EPA 8260	< 2800	ug/kg	RJS	12/08/95
1,2,4-Trichlorobenzene	EPA 8260	< 2800	ug/kg	RJS	12/08/95
1,2,4-Trimethylbenzene	EPA 8260	1,470,000	ug/kg	RJS	12/08/95
1,3,5-Trimethylbenzene	EPA 8260	413,000	ug/kg	RJS	12/08/95
Toluene	EPA 8260	270,000	ug/kg	RJS	12/08/95
Surrogate:				RJS	12/08/95
***Dibromofluoromethane		103	% Recovery	RJS	12/08/95
***Toluene-d8		104	% Recovery	RJS	12/08/95
***Bromofluorobenzene		97.9	% Recovery	RJS	12/08/95
Methyl tertiary Butyl Ether	EPA 8260	< 2800	ug/kg	RJS	12/08/95
cis-1,3-Dichloropropene	EPA 8260	< 2800	ug/kg	RJS	12/08/95

Authorized by: Connie Lamothe

SCITEST
LABORATORY SERVICES

SCITEST
LABORATORY SERVICES
P.O. Box 339
Randolph, Vermont 05060-0339
(802) 728-6313

78611
December 28, 1995

Mr. Brad Wheeler
The Johnson Company
100 State Street
Montpelier, Vermont 05602

SUBJECT: **WO# 9512-1190 and 9512-1285, TPH Method 8100 Data**
REFERENCE: JCO 1-029901 BCIC North Bennington VT

Dear Brad:

Please find enclosed copies of the chromatograms that were generated during the analysis of samples from the BCIC site. Identification of the chromatograms C1 through C14 are provided in Table I below.

TABLE I

Chromatogram	Sample	Micro Ext #	Value
C1	Gasoline Std	------	500 ppm
C2	Kerosene Std	------	250 ppm
C3	Diesel/Fuel Oil #2 Std	------	250 ppm
C4	Fuel Oil #4 Std	------	250 ppm
C5	Fuel Oil #6 Std	------	500 ppm
C6	MW 3		
C7	Blank		
C8	SS-1	1	<25 mg/kg
C9	SS-2	2	<25 mg/kg
C10	Spike SS-2	3	80.7% recovery Fuel Oil #4
C11	Ext Blank	5	Below Detection
C12	MW-4	(dilution #50)	98.8% TPH - Fuel Oil #4
C13	Fuel Oil #4 Std	------	250 ppm
C14	Fuel Oil #6 Std	------	100 ppm

Chromatograms labelled C1-C7 are from analysis performed 12/13-15/95. When reviewing these chromatograms please note the extraction and matrix interference in C6

(MW3). The extraction interference is also found in C7 (Blank). The interfering materials coelute near the late eluting fuel oil patterns. Integration of these chromatographs used the HP INT integration program. Twenty major chromatographic peaks were used for the fuel oil quantification. The integration program found few matching peaks for C6 and C7 which yielded values below practical quantification levels.

MICROEXTRACTIONS

Subsequently on 12/22/95 samples were reanalyzed using a shortened GC run after performing a non concentrated micro-extraction technique. (Except for MW-3 which did not have adequate remaining sample volume). The microextraction was performed to minimize extraction and matrix interference. The target peaks for the fuels of interest were quantitated for all samples, a spike, and a blank. Chromatograms C8-C14 show the degree of contamination present.

Peak ratios of early-to-late peaks helped to determine if Fuel Oil #6 was present in MW-4. The major peaks in Fuel Oil #6 elute later than in Fuel Oil #4. The presence of Fuel Oil #6 would increase the late eluting peaks and lower the overall ratios. The chromatographic pattern alignment and peak ratios best matched Fuel Oil #4. The TPH value was quantified as Fuel Oil #4. The effect of migration of the fuels through soil is unknown. A copy of the calculations are included.

PEAK RATIOS

Minutes	Fuel Oil #4 250 ppm	Fuel Oil #6 100 ppm	MW-4
11.5/28.9	1.54	0	2.07
13.2/28.0	1.74	0.080	1.72
14.8/27.2	1.58	0.079	1.57
19.5/26.3	1.23	0.114	1.54

If you have questions or comments, please do not hesitate to give us a call.

Very truly yours,

SCITEST, INC.

Robert J. Shipman
Chemist

RJS/ih
Enclosure

SCITEST
LABORATORY SERVICES

P.O. Box 339
Randolph, Vermont 05060-0339
(802) 728-6313

LABORATORY REPORT

CLIENT: The Johnson Company
ADDRESS: 100 State Street
Montpelier, VT 05602

ATTENTION: Brad Wheeler
SITE: North Bennington

WORK ORDER #: 9512-01190
9512-01285
PROJECT NO: 78621

DATE OF REPORT: 12/18/95

PRELIMINARY RESULTS

COMPONENT	9512-01190-005 MW 3	9512-01190-007 MW 4	9512-01285-001 SS 1	9512-01285-002 SS 2
Kerosene	< 10 mg/L	< 10%	< 25 mg/kg	< 25 mg/kg
Fuel Oil #2 (Diesel Fuel)	< 10 mg/L	< 10%	< 25 mg/kg	< 25 mg/kg
Fuel Oil #4	< 10 mg/L	98.8%	< 25 mg/kg	< 25 mg/kg
Fuel Oil #6	< 10 mg/L	< 10%	< 25 mg/kg	< 25 mg/kg

Respectfully submitted,

SCITEST, INC.

Joann S Wood for/
Roderick J. Lamothe
Laboratory Director

g:\reports\lmssamp\12-1190.wb2

The Johnson Company
GC Laboratory Report

Project Name: Bennington County Industrial Corporation
Project Code: 1-0299-1 (042)

Matrix: Water
COC# 2189

Collection date: 12/5/95 - 12/6/95
Lab Receipt Date: 12/7/95
Analysis Date: 12/12/95

All results in micrograms per liter (ppb)

Target Compound	MDL ppb	Sample ID / Lab ID							
		MW-1 WA0249	MW-2 WA0250	MW-3 WA0251	RW2 WA0252	TRIP BLANK WA0253	MW-2 DP WA0250 DP	RPD	MW-3MS WA0251
Benzene	1	5 U	20	5 U	14	5 U	31	43	90%
Toluene	1	5 U	4J	5 U	9	5 U	6	40	93%
Ethylbenzene	1	5 U	2J	5 U	5 U	5 U	2J	0	97%
Total Xylenes	1	5 U	17	5 U	20	5 U	22	26	95%
Surrogate Recovery	%	101	91	94	86	106	97		94%
Dilution factor		1	1	1	1	1	1		1

U = Undetected, value reported is the practical quantitation limit (PQL).
J = Estimated result. Result derived from a value detected below the PQL.
MDL = Method detection limit. MS = matrix spike

Methodology Modified Method 8020A: Fast Analysis of Site-specific VOCs
Solid Phase Micro-extraction in 24 ml vial and Capillary GC analysis