MWH

October 19, 2004

Mr. John Feeney
Wisconsin Department of Natural Resources
1155 Pilgrim Road
Plymouth, Wisconsin 53073-0408

Re: RCRA Facility Investigation Report
Onyx Special Services, Inc.
1275 Mineral Springs Drive
Port Washington, Wisconsin
FID#: 246076050
EPA ID #: WID 988566543

Dear Mr. Feeney:

On behalf of Onyx Special Services, Inc. (Onyx), MWH has prepared this RCRA Facility Investigation Report for the Onyx facility located at 1275 Mineral Springs Drive in Port Washington, Wisconsin. The Report is being submitted in accordance with Condition #23 of the Department's September 25, 2003 Final Determination to Conditional Approval issued to Onyx.

If you have any questions or comments, please contact me at (262) 376-5082.

Sincerely,

MWH AMERICAS, INC.

Norman M. Cira

N. Michael Cira, CHMM
Supervising Environmental Scientist

Enclosure: RCRA Facility Investigation Report (1 copy)

cc: Kevin Shaver, Onyx Special Services, Inc. (1 copy)
Sandra Miller, WDNR (1 copy)

LBL/vlr/NMC
L:\JOBS\208\2678\WDNR letter.doc
2082678.01160101-MAD1

One Science Court
P.O. Box 5385
Madison, Wisconsin
53705-0385

Tel: 608 231 4747
Fax: 608 231 4777

RCRA FACILITY INVESTIGATION REPORT

ONYX SPECIAL SERVICES, INC.
1275 MINERAL SPRINGS DRIVE
PORT WASHINGTON, WISCONSIN

FID#: 246076050
EPA ID #: WID988566543

October 2004

Prepared For:
Onyx Special Services, Inc.
Port Washington, Wisconsin

• • •

Prepared By:
MWH
Madison, Wisconsin

Project No. 2082678.01160101

MWH
MONTGOMERY WATSON HARZA

RCRA FACILITY INVESTIGATION REPORT

ONYX SPECIAL SERVICES, INC.
1275 MINERAL SPRINGS DRIVE
PORT WASHINGTON, WISCONSIN

FID#: 246076050
EPA ID #: WID988566543

October 2004

"I, Leo B. Linnemanstons, hereby certify that I am a hydrogeologist as that term is defined in s. NR 600.03 (98), Wis. Adm. Code, and that, to the best of my knowledge, all of the information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 635 and 685, Wis. Adm. Code."

Leo B. Linnemanstons — October 19, 2004

Leo B. Linnemanstons, Hydrogeologist — Date

"I, N. Michael Cira, hereby certify that I am a scientist as that term is defined in s. NR 712.03 (3), Wis. Adm. Code, and that, to the best of my knowledge, all of the information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 635 and 685, Wis. Adm. Code."

Norman H. Cira — October 19, 2004

N. Michael Cira, Supervising Scientist — Date

L:\JOBS\208\2678\wp\rpt\99z_cover_RCRA.doc

TABLE OF CONTENTS

Section **Page**

1.0 INTRODUCTION 1
- 1.1 SITE INFORMATION 1
- 1.2 BACKGROUND INFORMATION 2
  - 1.2.1 Site Description 2
  - 1.2.2 Site History 2
  - 1.2.3 Previous Investigations 2

2.0 INVESTIGATION METHODS 5
- 2.1 HAND-AUGER SOIL SAMPLING 5
  - 2.1.1 General Discussion of Methods 5
  - 2.1.2 Initial Sampling 6
  - 2.1.3 Additional Sampling 6
- 2.2 SOIL BORING SOIL SAMPLING 6
  - 2.2.1 General Discussion of Methods 6
  - 2.2.2 Initial Sampling 7
  - 2.2.3 Additional Sampling 7
- 2.3 TEMPORARY WELL GROUNDWATER SAMPLING 7
  - 2.3.1 General Discussion of Methods 7
  - 2.3.2 Initial Sampling 8
  - 2.3.3 Additional Sampling 8
- 2.4 SEDIMENT SAMPLING 8
  - 2.4.1 General Discussion of Methods 8
  - 2.4.2 Initial Sampling 8
  - 2.4.3 Additional Sampling 9

3.0 RESULTS 10
- 3.1 SOIL 10
  - 3.1.1 Regional Geologic Information 10
  - 3.1.2 Investigation Results 10
- 3.2 GROUNDWATER 11
  - 3.2.1 Regional Hydrogeologic Information 11
  - 3.2.2 Investigation Results 11
- 3.3 SEDIMENT 12
  - 3.3.1 Regional Information 12
  - 3.3.2 Investigation Results 12

4.0 SUMMARY 13

LIST OF TABLES

Table No.	
1	Summary of Soil Analytical Results
2	Summary of Groundwater Analytical Results
3	Summary of Sediment Analytical Results
4	Summary of Sediment Analytical Results - August 25, 2004 Mercury Results Only
5	Summary of Sediment Analytical Results - All Mercury Results

LIST OF FIGURES

Figure No.	
1	Random Sediment Sampling Grid
2	Sediment Results on Sampling Grid

LIST OF DRAWINGS

Drawing No.	
2082678.01160101-A1	Site Location Map
2082678.01160101-B1	Site Features Map

LIST OF APPENDICES

Appendix

A - Soil Boring Log, Temporary Well Construction, Development, and Abandonment Forms

B - Laboratory Analytical Reports

\\Usmad1s03\Main\JOBS\208\2678\wp\rpt\99x_toc_RCRA.doc

1.0 INTRODUCTION

On behalf of Onyx Special Services, Inc. (Onyx), MWH has prepared this report for the RCRA Facility Investigation of the Onyx facility located at 1275 Mineral Springs Drive in Port Washington, Wisconsin. The report is being submitted in accordance with Condition #23 of the WDNR's September 25, 2003 Final Determination to Conditional Approval letter issued to Onyx.

This report has been prepared in accordance with Chapter NR 716, Wisconsin Administrative Code (WAC). The report describes the investigation activities performed as described in the Work Plan developed based on the results of the WDNR's *RCRA Facility Assessment* dated July 3, 2003. In addition, the report also includes additional sampling efforts described in the *Initial RFI Investigation Results* report sent to the WDNR on June 8, 2004, and subsequently approved by WDNR in a June 21, 2004 telephone conversation with MWH. Finally, several additional sediment samples were collected after the second series of samples to provide a more statistically representative characterization.

1.1 SITE INFORMATION

- Project Title: RCRA Facility Investigation
  Onyx Special Services, Inc.
  1275 Mineral Springs Drive
  Port Washington, Wisconsin

- Current Property Owner: Onyx Special Services, Inc.
  Address: 125 South 84th Street, Suite 200
  Milwaukee, Wisconsin 53214
  Phone: (414) 479-7800

- Client Contact: Mr. Kevin Shaver
  Onyx Special Services, Inc.
  1275 Mineral Springs Drive
  Port Washington, Wisconsin
  Phone: (262) 243-8909

- Consultant: MWH Americas, Inc.
  Address: 5021 Pine Road
  Cedarburg, Wisconsin 53012
  Contact: Mr. N. Michael Cira
  Phone: (262) 376-5082

- Site Name: Onyx Special Services, Inc.
  Mineral Springs Facility
  EPA ID # WID 988566543
  FID #246076050

- Location: NW ¼, of the SE ¼ of Section 32 , T11N, R22E
  1275 Mineral Springs Drive
  City of Port Washington
  Ozaukee County, Wisconsin

1.2 BACKGROUND INFORMATION

1.2.1 Site Description

The Onyx Special Services, Inc. (Onyx)-Mineral Springs facility is located in a City of Port Washington industrial park (see Drawing A1). The rectangular shaped parcel comprises approximately 11 acres (see Drawing B1) and includes two site buildings. The approximate northern half of the facility consists of vacant land and a large stormwater retention pond. The majority of facility run-off discharges to this pond. There are two intermittent creeks running north-south approximately 500 feet east and west of the facility. The creeks ultimately discharge to Lake Michigan near the WE Energies power plant, located to northeast. The southern half of the facility is comprised primarily of asphalt and concrete pavement, as well as the main facility buildings.

1.2.2 Site History

Historically, the Onyx property was used as agricultural land. For some period of time, the property was also used as a lawnmower test area by the neighboring Bolens/Garden Way lawn tractor factory. In 1989, the original hazardous waste facility was constructed by Aqua Tech. Subsequently, the facility was purchased by Superior Special Services, Inc., now named Onyx Special Services, Inc.

The facility is currently up for RCRA license renewal and expansion. As such, the WDNR conducted a RCRA Facility Assessment (RFA) inspection of the facility on April 25, 2002 as the first part of the RCRA Corrective Action Process. Based on the RFA inspection and a review of available Department files, the WDNR concluded that there was sufficient information to require completion of some limited sampling in order to determine whether hazardous constituents may have been released to the environment.

1.2.3 Previous Investigations

In 1990, an Environmental Assessment was completed at the facility. Results are contained in the facility's Feasibility and Plan of Operation. The results indicate that there were no impacts to endangered species: sensitive species, habitats or ecosystems; wetlands; outstanding or exceptional resource water; and historical or archaeological sites.

Furthermore, in a September 25, 2003 letter to Onyx, the WDNR indicated that no Environmental Impact Statement (EIS) was required for expansion of the facility. The letter also indicated that the water quality standards for wetlands in Chapter NR 103, Wis. Adm. Code, had been met and the needs requirements of s. 289.28, Stats. have also been met.

On April 25, 2003 the WDNR conducted a RCRA Facility Assessment (RFA) of the facility. The results of the inspection are included in the Department's RFA report dated July 3, 2003. The RFA report includes an examination of facility waste operations, a discussion of the facility's Solid Waste Management Units (SWMUs) and Areas of Concern (AOC), documentation of facility releases, and recommendations for further action.

The RFA report outlined the following waste operations at the facility:

- Indoor hazardous waste storage of various waste types and waste codes.
- Mercury reclamation via operation of a lamp crusher and retort furnace.
- Operation of a 10-day transfer facility to logistically accumulate and coordinate economic shipments of waste.
- Operation of a TSCA storage facility for materials such as fluorescent light ballasts.
- Solidification of non-hazardous solid wastes from 1993 to 2001.

Based on these operations, the WDNR identified 9 SWMUs and 1 AOC as listed below.

SWMU/ AOC	NAME	LOCATION
SWMU #1	Hazardous waste storage rooms	Three separate rooms in Main Building
SWMU #2	South loading dock	South end of the Main Building
SWMU #3	North loading dock	North end of Main Building
SWMU #4	Fluorescent lamp crushing/processing machine	This was originally used in the Northwest corner of the original building. Now used in the Northwest corner of the building addition.
SWMU #5	Mercury retort area	Northwest corner of original building in retort room
SWMU #6	Waste glass lugger box area	Originally on the West side of original building. Now on the paved area inside the north end of the building addition.

SWMU/ AOC	NAME	LOCATION
SWMU #7	Former solid waste solidification area	Separation pit and frac tank formerly located in northernmost portion of the Main Building. Maxon mixer previously located directly to the south through the wall.
SWMU #8	Household hazardous waste storage area	Eastern portion of the Materials Storage Area.
SWMU #9	Trailer storage/Parking lot area	South side of facility
AOC #1	Roof drain	North side of the facility

The WDNR concluded that no investigation or remedial activities are required at SWMUs #1, #2, and #8. However, at the remaining areas, WDNR concluded there was a potential for environmental impacts and that limited sampling was required to investigate this possibility. As part of the investigation, the WDNR required that Onyx submit an investigative work plan prepared in accordance with applicable portions of Chapters NR 635, NR 680, and NR 716.09, Wis. Adm. Code, to include the following:

SWMU/ AOC	LOCATION	MEDIA	ANALYTE(S)
SWMU #9	Parking lot drainage outfall	Sediment	PAHs, VOCs, Mercury
AOC #1, SWMU #4 and #5	Base of roof drainage spout	Soil	Mercury
SWMU # 3, #6, and #7	Edge of paved area on north side of building	Soil	PAHs, Mercury, RCRA metals
SWMU # 3, #6, and #7	Edge of paved area on north side of building	Groundwater	VOCs, SVOCs, RCRA metals
SWMU #6	Former glass lugger box area, west side of building	Soil	Mercury

The WDNR established 0.21 mg/kg as the site investigation trigger level for mercury. This trigger level does not preclude use of a site-specific mercury residual contaminant level, should one be required. No other trigger levels have been established by WDNR.

\\Usmad1s03\Main\JOBS\208\2678\wp\rpt\99_text_RCRA.doc

2.0 INVESTIGATION METHODS

Soil, sediment, and groundwater samples were collected at various locations across the facility (Drawing B1), in order to evaluate the potential for environmental impacts from waste management activities. A Wisconsin Certified laboratory (CTI Laboratories in Baraboo, Wisconsin) was used to analyze the samples. The following initial sampling activities were included in the RFI Investigation Work Plan:

- 2 hand-auger soil borings (evaluate AOC #1, SWMU #4/#5 and SWMU #6)
- 1 soil boring for soil sampling (evaluate SWMU #3/#6/#7)
- 1 temporary well for a groundwater sample. (evaluate SWMU #3/#6/#7)
- 1 sediment sample (evaluate SWMU #9)

Based on the initial sample results the following second set of sampling activities was completed for the RFI Investigation:

- Three additional hand-auger soil borings and an extension in depth for one of the original hand auger soil borings (evaluate AOC #1).
- A second round of groundwater sampling (evaluate SWMU # 3/#6/#7).
- One additional sediment sample (evaluate SWMU #9).

Based on the second set of sample results, the following third set of sampling activities was completed for the RFI Investigation:

- Ten additional sediment samples to provide a better statistical characterization (evaluate SWMU #9).

2.1 HAND-AUGER SOIL SAMPLING

2.1.1 General Discussion of Methods

A decontaminated stainless steel bucket hand-auger was used to collect soil samples at each sampling location (see Drawing B1 for locations). Initially, separate samples were collected at half-foot intervals from ground surface to a depth of 1.0 feet. Additional sampling involved collecting samples at half-foot intervals from ground surface to a depth of 2.0 feet.

Each discrete half foot sample interval was individually placed in a decontaminated stainless steel bowl, and then transferred to appropriate laboratory-supplied containers,

labeled, and maintained in coolers at 4°C. Laboratory soil samples were shipped in a cooler on ice via overnight courier under chain-of-custody protocol to a WDNR certified laboratory for analyses.

The hand-auger soil samples were analyzed for mercury using Method 7471A. The next deeper sample from each location was only analyzed for mercury only if the concentration in the sample just above exceeded the site investigation trigger level of 0.21 mg/kg.

2.1.2 Initial Sampling

Initially, two hand-auger borings were conducted on April 22, 2004 as part of the RCRA Facility Investigation. One hand-auger boring (HA01) was located at the base of the fixed piping connected to the roof drainage spout, also located on the west side of the building (SWMU #4, #5, and AOC #1). One sample (HA02) was collected near the former glass lugger box area on the west side of the building (SWMU #6). The boring was placed just west of the pavement in this area at a point where relative elevations suggest surface run-off from the pavement would most likely occur.

2.1.3 Additional Sampling

Additional soil samples were collected on July 1, 2004 from three locations (HA01A, HA01B, and HA01C), as well as deeper samples from the 1.0 to 1.5 foot and 1.5 to 2.0 foot depth intervals at original location HA01. These deeper samples were necessitated by mercury concentrations above the prescribed trigger level. Samples were collected in the same manner as described above.

2.2 SOIL BORING SOIL SAMPLING

2.2.1 General Discussion of Methods

One soil boring (MW01) was installed on April 22, 2004 using a truck-mounted drill rig equipped with 4.25-in. inside diameter hollow stem augers (see Drawing B1 for location). Upon the completion of soil sampling, the borehole was implemented with a temporary monitoring well.

Soil samples were collected at 2.5-ft intervals to log soil stratigraphy. Each soil sample was visually classified using American Society for Testing and Materials (ASTM) D-2488 Standard Method for Classification of Soils in the Field. Information on the completed soil boring was recorded directly on a standard soil boring log form in the field. The boring log is provided in Appendix A.

The laboratory soil samples were immediately placed in appropriate laboratory-supplied containers, preserved (if necessary), labeled, and maintained in coolers at 4°C. The laboratory soil samples were shipped in a cooler on ice via overnight courier under chain-of-custody protocol to a WDNR certified laboratory (CTI Laboratories in Baraboo,

Wisconsin) for analyses. The samples were analyzed for PAHs (Method 8310), mercury by Method 7471A, and total concentrations of the remaining 7 RCRA metals (arsenic, barium, cadmium, chromium, lead, selenium, and silver) by Method 6010. Laboratory analytical reports are provided in Appendix B.

2.2.2 Initial Sampling

One soil boring (MW01) was conducted to approximately five feet below the watertable (estimated total depth of 16 feet). This boring was conducted at the edge of paved area, closest to the pond, on the north side of the building (SWMU #3, #6, #7). The surface soil sample was selected for laboratory analysis. In addition, because no impacts were identified, the depth interval just above the water table was selected as the second sample for analysis.

2.2.3 Additional Sampling

No additional soil boring sampling was required.

2.3 TEMPORARY WELL GROUNDWATER SAMPLING

2.3.1 General Discussion of Methods

One temporary monitoring well (MW01) was installed on April 22, 2004 north of the building at the edge of the pavement to investigate compounds of concern in groundwater (see Drawing B1 for location). The temporary well was constructed of 2-inch diameter Schedule 40 PVC pipe casing and well screen. The well screen was 10 feet long with a standard slot size of 0.010 inches, and was set to intersect the shallow water table. Filter pack sand was placed around the screened interval, and an annular seal of bentonite was placed to the surface. The temporary monitoring well was completed with a stick-up protector and locking cap.

The well was developed on April 23, 2004 using a decontaminated, stainless steel bailer. The well was gently surged and bailed to remove the sediments in the well and filter pack after installation. Development continued until the well was bailed dry three times. The well was then allowed approximately one week for sufficient water to accumulate for sampling purposes.

A peristaltic pump and new tubing was used to collect the water samples. The tubing was extended down to the approximate midpoint of the well screen to limit turbidity in the sample. Prior to sampling, the water level was measured in order to calculate the approximate volume of water present in the well. The well was then purged until 3 well volumes were removed, or until the well was purged dry.

After sampling was completed, the temporary well was abandoned on August 5, 2004 by backfilling with chipped bentonite in accordance with s. NR 141.25, WAC. Well information including the well construction form, well development form, and well abandonment form is provided in Appendix A.

2.3.2 Initial Sampling

The first groundwater sample collected on May 4, 2004 was immediately placed in appropriate laboratory-supplied containers, preserved (if necessary), labeled, and maintained in coolers at 4°C. The exception was the sample for metals analysis that was first field-filtered with a 45 micron filter. The initial sample was analyzed for VOCs (8260), SVOCs (8270), and dissolved metals by Method 6010 (except for mercury by Method 7471A). Laboratory analytical reports are provided in Appendix B.

2.3.3 Additional Sampling

The second groundwater sample collected on July 1, 2004 was managed in the same manner as the first. As approved by WDNR, the groundwater second sample was analyzed only for barium and selenium by Method 6010 in order to confirm their original concentrations above the respective Chapter NR 140, Wis. Adm. Code, Preventive Action Limits (PALs).

2.4 SEDIMENT SAMPLING

2.4.1 General Discussion of Methods

Sediment samples were collected in the area of the parking lot drainage outfall that discharges into the retention pond in the northern half of the facility (see Drawing B1 for location). The samples were collected using a decontaminated stainless steel spoon. Discreet sediment samples were placed in a decontaminated stainless steel bowl, mixed, and placed in to the appropriate sample containers. The outsides of the sample containers were rinsed off prior to being placed into the sample cooler.

The sediment samples were submitted for analysis in appropriate laboratory-supplied container, labeled, and maintained in coolers at 4°C.

2.4.2 Initial Sampling

Initially, one sediment sample (location SD01) was collected on April 22, 2004 near the terminus of the parking lot storm water outfall at the shoreline of the pond (SWMU #9). The initial sample was analyzed for mercury by Method 7471A; PAHs by Method 8310, and VOCs by Method 8260. Laboratory analytical reports are provided in Appendix B.

2.4.3 Additional Sampling

Because the initial mercury sample result was slightly above its WDNR Midpoint Effect Concentration screening level for sediments, a second sample was collected on July 1, 2004 in the vicinity of the first sample location in order to confirm the original mercury result.

Because the second sample had a mercury concentration approximately 5 times the first sample, a statistical sampling method was used in an attempt to determine a representative concentration value for the location. Therefore, ten additional samples were collected on August 5, 2004 within a 5 by 20-foot grid around original sample location SD01. The grid was divided into 100 one by one-foot grid spaces (see Figure 1 for grid). Samples were collected from grid spaces randomly selected by the 'RANDBETWEEN' function in the Microsoft Excel spreadsheet program. This function returns a randomly generated number between upper and lower limits assigned by the user (in this case 1 to 100). This method of selecting locations for sampling eliminated potential bias in the sampling design.

The overall grid dimensions (5 by 20 ft) were chosen considering 1) being able to collecting samples spatially comparable to SD01, and 2) the practical accessibility into the pond by the sampler from the shoreline (i.e. being able to stand in shallow water). In the field, the grid was established using a tape measure to form the 20-foot side of the grid parallel to the pond shoreline and a wooden lathe with marked 1-foot intervals to form the perpendicular grid dimension.

\\Usmad1s03\Main\JOBS\208\2678\wp\rpt\99_text_RCRA.doc

3.0 RESULTS

3.1 SOIL

3.1.1 Regional Geologic Information

According to the WDNR's RCRA RFA report dated July 3, 2003, nearby private water supply well logs document the geological conditions to generally consist of approximately 160 feet of glacial clay soil over dolomite bedrock. Well logs at the adjacent Bolen's property to the north indicate stiff brown silty clay to the end of the boring at 20 feet. Other boring logs from the Bolen's site indicate a sand seam at 9 to 11 feet below ground surface. According to the September 1970 Soil Survey of Ozaukee County published by the US Department of Agriculture, soils in the vicinity of the facility consist of the Kewaunee-Manaua Association type. These soils are characterized as well drained to somewhat poorly drained soils that have a subsoil of clay to silty clay loam formed in thin loess and silty clay glacial till.

3.1.2 Investigation Results

The boring log for MW01 describes the soils encountered from the ground surface to a depth of approximately 15 feet. At the ground surface is approximately 1 ft of top soil that is underlain by approximately 0.5 feet of sand and gravel fill. Beneath the fill material, soils consist mostly of brown silt and clay with traces of fine to course sand. The brown silt and clay is likely a glacial deposit.

Soil results are presented in Table 1, and the sample locations are depicted on Drawing B1.

Mercury was not detected above the RFI trigger level of 0.21 mg/kg at hand-auger location HA02. This sample location was intended to evaluate potential soil impacts from run-off near the former glass lugger box on the west side of the building (SWMU #6).

Mercury was detected above the RFI trigger level of 0.21 mg/kg at hand-auger location HA01, HA01A, HA01B, and HA01C. These sample locations were intended to evaluate potential soil impacts from at the base of the roof drainage spout (AOC #1, SWMU #4 and #5). Mercury was detected above the RFI trigger level at all four hand-auger locations. The total depth of impact above the RFI trigger level decreases the further one goes downstream in the drainage swale. For example, at the base of the roof drainage spout (furthest upstream location in the drainage swale) the total depth of impact is approximately 2.0 feet. At approximately 20 and 40 feet downstream, the total depth of impact is approximately 1.0 foot. At approximately 60 feet downstream, the total depth of impact is approximately 0.5 feet. Based on this information, it is MWH's opinion that mercury impacts have been adequately characterized and the process for completing an appropriate remedial solution can begin.

There was one exceedance of an NR 720 WAC Residual Contaminant Level (RCL) at soil boring MW01. This sample location was intended to evaluate potential soil impacts near the edge of the paved area on the north side of the building (SWMU # 3, #6, and #7). Samples from the 0-1.0 ft and 4.0-5.0 ft intervals contained arsenic at concentrations (17.5 mg/kg and 11.8 mg/kg) above its RCL for direct contact and protection of groundwater. However, these arsenic concentrations are within the range of natural occurrence in Wisconsin and do not appear to be the result of site activities. In addition, a groundwater sample from this location did not contain arsenic above its PAL.

Thus, it is MWH's opinion that these arsenic concentrations do not warrant further investigation or remediation.

3.2 GROUNDWATER

3.2.1 Regional Hydrogeologic Information

According to the WDNR's RCRA RFA report dated July 3, 2003, there are three aquifers present in the vicinity of the site and include the saturated portion of the unconsolidated glacial deposits, the dolomite aquifer, and the deep sandstone aquifer. Groundwater flow in the dolomite and sandstone aquifers is predicted to trend towards the east. Groundwater flow in the saturated portion of the unconsolidated glacial deposits may be towards the pond on the northern half of the facility. Borings at the adjacent Bolen's property to the north indicate the depth to the shallow water table is between 9 and 11 feet.

3.2.2 Investigation Results

Groundwater monitoring information from temporary well MW01 provides an insight into the hydrogeology at the site. Depth to groundwater ranged from 9.35 ft on May 4, 2004 to 9.26 ft on August 5, 2004. Because the temporary well bailed dry during development but could be sampled by low flow methods, the site soils where the well is screened are interpreted to have moderate (silt) to low (clay) permeability.

Groundwater results are presented in Table 2, and the well location is indicated on Drawing B1.

In the first round of sampling, no VOCs were detected, and only two PAHs were detected just above the detection limit and well below their PAL. The only groundwater standard exceedance was of the PAL for barium and selenium at monitoring well MW01. Barium was detected at a concentration of 455 μg/L just exceeding the PAL of 400 μg/L. Selenium was detected at a concentration of 24.3 μg/L just exceeding the PAL of 10 μg/L. This sample location was intended to evaluate potential groundwater impacts near the edge of the paved area on the north side of the building (SWMU # 3, #6, and #7).

During the second round of sampling, the barium concentration decreased from 455 μg/L to 422 μg/L. The selenium concentration decreased from 24.3 μg/L to less than the detection limit of 5.1 μg/L. The barium concentration is just above the PAL of 400 μg/L, and the selenium concentration is now less than the PAL of 10 μg/L.

Thus, it is MWH's opinion that there is no evidence of impacts to groundwater and no further investigation or remediation is necessary.

3.3 SEDIMENT

3.3.1 Regional Information

Facility topography as primarily influenced by the asphalt parking lot grading. The parking lot elevations slope to a storm water collection basin located in the south-central portion of the lot. The topography of the remaining areas trend downward, to the north and the surface pond. Drainage at the facility is primarily towards the north, towards the pond, with secondary flow to Mineral Spring Drive to the east and Maritime Drive to the south.

3.3.2 Investigation Results

Sediment results are presented in Table 3 (first two sets of samples), Table 4 (results and summary statistics from the third set of ten samples), and Table 5 (summary statistics for all twelve sediment samples associated with SD01) and the sample location are indicated on Drawing B1 and Figure 1.

The sediment results were compared to values presented in the Consensus-Based Sediment Quality Guidelines, WDNR Interim Guidance (December 2003). The midpoint effect concentration (MEC) was selected as the most appropriate screening level for comparisons to results at the site. These sample locations were intended to evaluate potential sediment impacts from the parking lot drainage outfall (SWMU #9).

At location SD01, several PAHs and one VOC were detected at concentrations well below their respective MECs. Thus, it is MWH's opinion that there is no evidence of impacts to sediment and no further investigation or remediation for these compounds is necessary.

Mercury results were varied, with concentrations ranging from 0.035 to 4.7 mg/kg, with a standard deviation of 1.63 mg/kg. In addition, the mean value for mercury was 1.48 mg/kg, and the median value was 0.69 mg/kg. This is compared to the MEC for mercury which is 0.64 mg/kg. Four sample results also exceeded the Probable Effect Concentration (PEC) for mercury. As shown in Figure 2, the distribution of mercury is random, with no obvious pattern.

Based on these results, it is MWH's recommendation that a surface water sample be collected at the retention basin discharge point to evaluate water quality as it leaves the site.

\\Usmad1s03\Main\JOBS\208\2678\wp\rpt\99_text_RCRA.doc

4.0 SUMMARY

The following table summarizes the results of the current investigation:

SWMU/ AOC	LOCATION	MEDIA	RECOMMENDATION
SWMU #9	Parking lot drainage outfall	Sediment	Investigate surface water quality at the discharge point for retention pond
AOC #1, SWMU #4 and #5	Base of roof drainage spout	Soil	Begin process for completing an appropriate remedial solution.
SWMU # 3, #6, and #7	Edge of paved area on north side of building	Soil	No further action
SWMU # 3, #6, and #7	Edge of paved area on north side of building	Groundwater	No further action
SWMU #6	Former glass lugger box area, west side of building	Soil	No further action

LBL/vlr/NMC
\\Usmad1s03\Main\JOBS\208\2678\wp\rpt\99_text_RCRA.doc
2082678.01160101-MAD1

Table 1
Summary of Soil Analytical Results
RCRA Facility Investigation
ONYX Special Services, Inc.
1275 Mineral Springs Drive
Port Washington, Wisconsin

		Location ID:		HA01	HA01 Dup	HA01	HA01	HA01	HA01A	HA01A	HA01A	HA01B	HA01B	HA01B	HA01C	HA01C	HA02	MW01	MW01
		Depth:		0-0.5	0-0.5	0.5-1.0	1.0-1.5	1.5-2.0	0-0.5	0.5-1.0	1.0-1.5	0-0.5	0.5-1.0	1.0-1.5	0-0.5	0.5-1.0	0-0.5	0-1.0	4.0-5.0
		Sample Date:		4/22/2004	4/22/2004	4/22/2004	7/1/2004	7/1/2004	7/1/2004	7/1/2004	7/1/2004	7/1/2004	7/1/2004	7/1/2004	7/1/2004	7/1/2004	4/22/2004	4/22/2004	4/22/2004
Metals	Units	GW RCL	Ind DC RCL	Result	Duplicate	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Arsenic	mg/kg	0.58	1.91	--	--	--	--	--	--	--	--	--	--	--	--	--	--	17.5	11.8
Barium	mg/kg	160	71500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	68.6	84.6
Cadmium	mg/kg	0.75	1020	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.26	0.28
Chromium	mg/kg	200000000	1530000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	11.7	17.4
Lead	mg/kg	NE	500 (4)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5.6	5.9
Mercury	mg/kg	0.21	NE	2.1	3.8	0.25	0.19	0.23	1.5	0.24	0.073	2.4	0.49	0.017	1.9	0.066	0.026	0.017	0.015
Selenium	mg/kg	0.51	5110	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.70	<0.69
Silver	mg/kg	3.1	5110	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.23	<0.23
Poly-Aromatic Hydrocarbons																			
Anthracene	mg/kg	650	307000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.0037 (J,P)	<0.0024
Benzo(a)anthracene	mg/kg	NS	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.017	<0.00048
Benzo(a)pyrene	mg/kg	0.41	0.392	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.027	<0.0024
Benzo(b)fluoranthene	mg/kg	NS	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.054	0.0070
Benzo(g,h,i)perylene	mg/kg	NS	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.028	0.0090
Benzo(k)fluoranthene	mg/kg	NS	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.012	0.0070 (P)
Fluoranthene	mg/kg	310	40900	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.040	0.0059 (P)
Indeno(1,2,3-cd)pyrene	mg/kg	NS	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.025 (P)	<0.0024
Phenanthrene	mg/kg	NS	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.016 (B)	<0.0024
Dry Weight	%			79.7	82.2	74.4	77.1	74.3	59.2	70.7	75.4	54.6	75.3	82.5	75.1	78.5	83.5	89.3	84.8

Notes:

1. Only compounds detected on at least one occasion are summarized in this table.
2. RCL = Residual Contaminant Level
3. Industrial direct contact (Ind DC) RCL values are based on generic industrial scenario soil standards conservatively based on default site conditions and equations provided in Chapter NR 720, Wis. Adm. Code.
4. Lead Ind DC RCL taken from NR720, Table 2.
5. Groundwater (GW) RCL values are determined for protection of groundwater conservatively based on default site conditions and equations provided in Chapter NR 720, Wis. Adm. Code.
6. NE = RCL was not readily calculated based on available information.
7. NS = No RCL was readily calculated based on available information.
8. (B) = Analyte detected in associated Method Blank.
9. (P) = Concentration of analyte differs more than 40% between primary and confirmation analysis.
10. (J) = Indicates value is between limit of detection (LOD) and limit of quantitation (LOQ).
11. Bolded value indicates an exceedance of the RCL.
12. -- = Not analyzed for this compound.

LAS/tr/RRJ
L:\208\2678\wp\tb\analytical.xls (Soil)
2082678.01160101-MAD1

Table 2
Summary of Groundwater Analytical Results
RCRA Facility Investigation
ONYX Special Services, Inc.
1275 Mineral Springs Drive
Port Washington, Wisconsin

		Location ID:		MW01	
		Sample Date:		5/4/2004	7/1/2004
Dissolved Metals	**Units**	**ES**	**PAL**	Result	Result
Arsenic	ug/L	10	1	0.87 (J)	NA
Barium	ug/L	2000	400	*455*	*422*
Cadmium	ug/L	5	0.5	<0.88	NA
Chromium	ug/L	100	10	<4.1	NA
Lead	ug/L	15	1.5	<2.8	NA
Mercury	ug/L	2	0.2	<0.11	NA
Selenium	ug/L	50	10	*24.3*	<5.1
Silver	ug/L	50	10	<2.7	NA
Poly-Aromatic Hydrocarbons (PAHs)					
Bis(2-ethylhexyl)phthalate	ug/L	6	0.6	0.36 (J)	NA
Di-n-butylpthalate	ug/L	100	20	1.2 (J,B)	NA

why?

Volatile Organic Compounds (VOCs) were not detected.

Notes:

1. Only compounds detected on at least one occasion are summarized in this table.
2. ES = Enforcement Standard, Chapter NR 140, Wisconsin Administrative Code.
3. PAL = Preventive Action Limit, Chapter NR 140, Wisconsin Administrative Code.
4. (B) = Analyte detected in associated Method Blank.
5. (J) = Indicates value is between limit of detection (LOD) and limit of quantitation (LOQ).
6. Italicized value indicates an exceedance of the PAL.
7. NA = Not analyzed for this compound.

Table 3
Summary of Sediment Analytical Results
RCRA Facility Investigation
ONYX Special Services, Inc.
1275 Mineral Springs Drive
Port Washington, Wisconsin

	Location ID:				SD01	SD01
	Sample Date:				4/22/2004	7/1/2004
	Units	TEC	MEC	PEC	Result	Result
Percent Solids	%				73.6	53.8
Metals						
Mercury	mg/kg	0.18	0.64	1.1	**0.67**	**3.2**
Poly-Aromatic Hydrocarbons						
Benzo(a)pyrene	mg/kg	0.15	0.80	1.45	0.15	NA
Benzo(b)fluoranthene	mg/kg	0.24	6.82	13.4	0.29	NA
Benzo(g,h,i)perylene	mg/kg	0.17	1.69	3.20	0.14 (P)	NA
Fluoranthene	mg/kg	0.42	1.33	2.23	0.14 (P)	NA
Indeno(1,2,3-cd)pyrene	mg/kg	0.20	1.70	3.20	0.13 (P)	NA
Volatile Organic Compounds						
2-Butanone (6)	mg/kg	NS	NS	NS	0.50 (J,B)	NA

Notes:

1. Only compounds detected on at least one occasion are summarized in this table.
2. TEC = Consensus-Based Sediment Quality Guidelines - Threshold Effect Concentration
3. MEC = Consensus-Based Sediment Quality Guidelines - Midpoint Effect Concentration
4. PEC = Consensus-Based Sediment Quality Guidelines - Probable Effect Concentration
5. Consensus-Based Sediment Quality Guidelines, WDNR Interim Guidance, December 2003
6. Compound was also detected in field blank at a concentration of 0.43 mg/kg.
7. NS = No sediment guidelines were available.
8. (P) = Concentration of analyte differs more than 40% between primary and confirmation analysis.
9. (J) = Indicates value is between limit of detection (LOD) and limit of quantitation (LOQ).
10. (B) = Analyte detected in associated Field Blank.
11. Bolded value indicates an exceedance of the MEC.
12. NA = Not analyzed for this compound.

Table 4
Summary of Sediment Analytical Results Addendum - 8/5/2004 Mercury Results Only
RCRA Facility Investigation
ONYX Special Services, Inc.
1275 Mineral Springs Drive
Port Washington, Wisconsin

		Location ID:			SD01a	SD01b	SD01c	SD01d	SD01e	SD01f	SD01g	SD01h	SD01i	SD01j
		Sample Date:			8/5/2004	8/5/2004	8/5/2004	8/5/2004	8/5/2004	8/5/2004	8/5/2004	8/5/2004	8/5/2004	8/5/2004
Compound	**Units**	**TEC**	**MEC**	**PEC**	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Mercury	mg/kg	0.18	0.64	1.1	0.45	**3.1**	0.12	0.040	**4.7**	**0.82**	0.035	**0.71**	**0.49**	**3.4**

Summary Statistics	
Mean	1.39
Standard Error	0.53
Median	0.60
Standard Deviation	1.69
Sample Variance	2.85
95% Confidence	1.05
Range	4.665
Minimum	0.035
Maximum	4.7
Count	10

Notes:
1. TEC = Consensus-Based Sediment Quality Guidelines - Threshold Effect Concentration
2. MEC = Consensus-Based Sediment Quality Guidelines - Midpoint Effect Concentration
3. PEC = Consensus-Based Sediment Quality Guidelines - Probable Effect Concentration
4. Consensus-Based Sediment Quality Guidelines, WDNR Interim Guidance, December 2003
5. Bolded value indicates an exceedance of the MEC.

Table 5
Summary of Sediment Analytical Results Addendum - All Mercury Results
RCRA Facility Investigation
ONYX Special Services, Inc.
1275 Mineral Springs Drive
Port Washington, Wisconsin

		Location ID:			**SD01**	**SD01**	**SD01a**	**SD01b**	**SD01c**	**SD01d**	**SD01e**	**SD01f**	**SD01g**	**SD01h**	**SD01i**	**SD01j**
		Sample Date:			4/22/2004	7/1/2004	8/5/2004	8/5/2004	8/5/2004	8/5/2004	8/5/2004	8/5/2004	8/5/2004	8/5/2004	8/5/2004	8/5/2004
Compound	**Units**	**TEC**	**MEC**	**PEC**	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Mercury	mg/kg	0.18	0.64	1.1	**0.67**	**3.2**	0.45	**3.1**	0.12	0.040	**4.7**	**0.82**	0.035	**0.71**	**0.49**	**3.4**

Summary Statistics	
Mean	1.48
Standard Error	0.47
Median	0.69
Standard Deviation	1.63
Sample Variance	2.67
95% Confidence	0.92
Range	4.665
Minimum	0.035
Maximum	4.7
Count	12

Notes:
1. TEC = Consensus-Based Sediment Quality Guidelines - Threshold Effect Concentration
2. MEC = Consensus-Based Sediment Quality Guidelines - Midpoint Effect Concentration
3. PEC = Consensus-Based Sediment Quality Guidelines - Probable Effect Concentration
4. Consensus-Based Sediment Quality Guidelines, WDNR Interim Guidance, December 2003
5. Bolded value indicates an exceedance of the MEC.

BJK/vlr
L:\208\2678\wp\tbl\Random Sample Grid.xls (Stats-all_12)
2082678.01160101-MAD1